*Prairie South Schools*

# BOARD OF EDUCATION

DECEMBER 13, 2016
11:00 a.m. – 4:00 p.m.
Central Office, 1075 9th Avenue NW, Moose Jaw

## AGENDA

**1. Board Planning Session (10:00 – 11:00 a.m.)**
- **1.1 Larry Huber & Bert de Gooijer**
- **1.2 Holy Trinity Joint Board Meeting**
- **1.3 Ministry Budget Scenarios**
- **1.4 Incidents of Concern**

**2. Call to Order**

**3. Adoption of the Agenda**

**4. Adoption of Minutes**
- **4.1. Organizational Minutes from November 8, 2016**
- **4.2. Regular Minutes from November 8, 2016**
- **4.3. Special Minutes from November 29, 2016**

**5. Decision and Discussion Items**
- **5.1. Benefits for Trustees**
- **5.2. Facilities Accountability Report**
- **5.3. Monthly Reports**
  - 5.3.1. Teacher Absence and Substitute Usage Report
  - 5.3.2. CUPE Staff Absence and Substitute Usage Report
  - 5.3.3. Bus Driver Absence And Substitute Usage Report
  - 5.3.4. Out of Scope Absence and Substitute Usage Report
  - 5.3.5. Tender Report
- **5.4. Central Butte School Alternate School Year Proposal**
- **5.5. Riverview Collegiate Alternate School Year Proposal**
- **5.6. Human Resources Accountability Report**
- **5.7. Out of Province Excursion – Central Collegiate Grade 10-12 Students to Medicine Hat, Alberta**
- **5.8. Out of Province Excursion – Kincaid Grade 5-12 Students to Hidden Valley Ski Resort**
- **5.9. Out of Province Excursion – Lindale Grade 8 Students to Asessippi, Manitoba**
- **5.10. Out of Province Excursion – Palliser Heights Grade 8 Students to Asessippi, Manitoba**

**6. Delegations and Presentations – NONE**

**7. Committee Reports**

**7.1. Standing Committees**

7.1.1. Student Literacy and Achievement
7.1.2. Equitable Opportunities
7.1.3. Student Transitions
7.1.4. Business and Governance
7.1.5. Advocacy and Networking
7.1.6. Rural Strategies
7.1.7. Urban Strategies

**8. Information Items**

**8.1. Measuring Up: Canadian Results of the OECD PISA Study**

**9. Transformational Change Information Items**

**9.1. SSBA Public Relations Campaign**

**10. Celebration Items**

**11. Identification of Items for Next Meeting Agenda**

**11.1. Notice of Motions**
**11.2. Inquiries**

**12. Meeting Review**

**13. Adjournment**

**PRAIRIE SOUTH SCHOOL DIVISION NO. 210**

**ORGANIZATIONAL MEETING**
**Date: November 8, 2016**
**Location: Central Office, Moose Jaw**

# MINUTES

Attendance: Mr. R. Bachmann; Dr. S. Davidson; Ms. M. Jukes; Mr. A. Kessler; Mr. T. McLeod; Ms. D. Pryor; Mr. J. Radwanski; Mr. B. Swanson; Mrs. G. Wilson; Mr. L. Young; T. Baldwin, Director of Education; B. Girardin, Superintendent of Business and Operations; H. Boese, Executive Assistant; Kayleigh Olson, Student

1. Mr. Baldwin, Director of Education took the chair and called the meeting to order at 11:07 a.m.
2. The ***Declaration of Office*** was taken from each of the trustees and the ***Endorsement Certificate*** was completed by the Notary Public, Heather Boese.
3. Mr. Baldwin called for nominations for Board Chair.
4. Mr. Kessler nominated Dr. Davidson as Board Chair.
5. Mr. Swanson moved that nominations for Board Chair cease.
6. Mr. Baldwin declared Dr. Davidson acclaimed as Board Chair.
7. Dr. Davidson took the Chair and called for nominations for Vice-Chair.
8. Mr. Young nominated Mr. McLeod as Vice-Chair.
9. Mr. Swanson moved that nominations for Vice-Chair cease.
10. Dr. Davidson declared Mr. McLeod as elected Board Vice-Chair.

Motions:

| | | |
|---|---|---|
| 11/08/16 – 2633 | That for the 2016/17 fiscal year, the Board maintain the current rates for trustees' remuneration for attendance at Board Meetings and performance of all duties and activities within the School Division as follows, payable monthly:<br>• Member: $1,325 per month<br>• Vice Chair: $1,399 per month<br>• Chair: $1,472 per month<br>- Young | Carried |
| 11/08/16 – 2634 | That for the 2016/17 fiscal year, the Board remunerate trustees for attendance at out-of-division functions, meetings and other activities at the following rates:<br>• Member: $200.00 per day<br>• Vice Chair: $225.00 per day<br>• Chair: $250.00 per day<br>- Wilson | Carried |
| 11/08/16 – 2635 | That for the 2016/17 fiscal year, trustees' remuneration for travel time be set at $0.20 per kilometer.<br>- McLeod | Carried |

11/08/16 – 2636 That during the 2016/17 fiscal year, any Board Member may miss one Regular Board Meeting and one Board Planning Meeting without adjustment to remuneration and that only missed Board Meetings in excess of one would result in a reduction to remuneration at a rate of $300 per full day missed meeting or $150 per half day missed meeting. Carried
- Bachmann

11/08/16 – 2637 That the annual allowance for trustee professional development be set at $4000 per trustee. This includes all professional development activities including SSBA events and which is to cover remuneration for all expenses associated with the activities. Professional development mileage and travel costs for out of division travel will be calculated on the assumption that everyone leaves from Moose Jaw or nearer. Professional Development costs will be not be incurred for the Board Representatives for Public Section, SHSAA and Members' Council. AND THAT Trustees Jukes and Pryor be provided expenses and per diem to attend the SSBA New Trustee Academy for 2016-2017. Carried
- Young

11/08/16 – 2638 That we amend motion 11/08/16 – 2637 to include after Members' Council: "and SSBA Fall General Assembly." Amendment Defeated
- Kessler

11/08/16 – 2639 Whereas pursuant to Section 319 of the *Education Act, 1995*, Chapter E-0.2 of the *Statutes of Saskatchewan, 1995*, the Board of Education of a School Division may by resolution authorize its Chairman and Chief Financial Officer to borrow: Carried

a) any sum of money that may be required to meet current expenditures of the board and may be secured by the promissory note or notes of the Chairman and Chief Financial Officer given on behalf of the Board;

b) on the security of the operating grants and capital grants payable to the division pursuant to Section 310 and 311 of the Act any sum of money that the board considers necessary to provide for its current expenditures.

Now, therefore, be it resolved by the Board of Education of the Prairie South School Division No. 210 of Saskatchewan, (hereinafter referred to as "the Board") as follows:

1. That the Board or Chairman and Chief Financial Officer on behalf of the Board are hereby authorized to borrow from institutions approved under the laws of Canada, up to the sum of **$15,000,000.00** to meet the expenditures of the said School Division until the proceeds of operating grants or any capital grants payable to the said School Division are available and to pay or agree to pay interest on the monies borrowed either in

advance or at maturity, at such rates as may be agreed upon at the time of borrowing.

2. The said sum of **$15,000,000.00** and interest shall be repayable and shall be secured by operating grants and any capital grants which may be payable to the said School Division at any time.

3. That the said loan may be secured by the promissory note or an operating loan agreement of the said Board and the said Chairman and Chief Financial Officer are hereby authorized and empowered to execute and give such promissory note and/or operating loan agreement on behalf of the said Board as may be required by the said Bank.

4. That this resolution shall take effect on November 8, 2016.
- McLeod

11/08/16 – 2640 That the Organizational Meeting be adjourned at 11:36 a.m. Carried
- Kessler



Dr. S. Davidson
Chair

B. Girardin
Superintendent of Business and Operations

**MINUTES OF THE REGULAR BOARD MEETING OF THE PRAIRIE SOUTH SCHOOL DIVISION NO. 210 BOARD OF EDUCATION held at Central Office, 1075 9th Avenue North West, Moose Jaw, Saskatchewan on NOVEMBER 8, 2016 at 11:00 a.m.**

Attendance: Mr. R. Bachmann; Dr. S. Davidson; Ms. M. Jukes; Mr. A. Kessler; Mr. T. McLeod; Ms. D. Pryor; Mr. J. Radwanski; Mr. B. Swanson; Ms. G. Wilson; Mr. L. Young; T. Baldwin, Director of Education; B. Girardin, Superintendent of Business and Operations; L. Meyer, Superintendent of Learning; R. Boughen, Superintendent of Human Resources; D. Huschi, Superintendent of School Operations; K. Novak, Superintendent of School Operations; D. Teneycke, Superintendent of School Operations; H. Boese, Executive Assistant

Delegation: Spencer Kirby and Eric Lamontagne, Rockglen Bussing

Motions:

| | | |
|---|---|---|
| 11/08/16 – 2641 | That the meeting be called to order at 11:37 a.m.<br>- Davidson | Carried |
| 11/08/16 – 2642 | That the Board adopt the agenda as presented.<br>- Wilson | Carried |
| 11/08/16 – 2643 | That the Board adopt the Minutes of the Regular Meeting of October 4, 2016 as presented.<br>- Radwanski | Carried |
| 11/08/16 – 2644 | That the Board adopt the Minutes of the Special Meeting of October 12, 2016 as presented.<br>- Wilson | Carried |
| | That the Board break for lunch at 12:06 p.m. | |
| | That the Board reconvene at 1:00 p.m. | |
| 11/08/16 – 2645 | That the Board approve the amended schedule of regular and planning meeting dates for the 2016-2017 school year as presented.<br>- Bachmann | Carried |
| 11/08/16 – 2646 | That the Board accept the monthly reports as presented.<br>- Young | Carried |
| 11/08/16 – 2647 | That the Board approve the Bengough SCC Alternate School Year Proposal commencing in the 2017-18 school year and direct administration to complete a follow-up review in the spring of 2019.<br>- Wilson | Carried |

| | | |
|---|---|---|
| 11/08/16 – 2648 | That the Board receive and file the School and Division Improvement Accountability Report.<br>- Wilson | Carried |
| 11/08/16 – 2649 | That the Board approve Central Collegiate's grade 9-12 students to attend a band trip to Calgary and Okotoks, Alberta on February 9-11, 2017.<br>- McLeod | Carried |
| 11/08/16 – 2650 | That the Board approve Peacock Collegiate's grade 12 students to attend a Senior Boys Basketball Tournament in Medicine Hat, Alberta on February 2-4, 2017.<br>- Kessler | Carried |
| 11/08/16 – 2651 | That the Board appoint Trustee Lew Young to the Saskatchewan School Boards Association – Public Boards Section Executive AND THAT the Board appoint Al Kessler to the Saskatchewan High Schools Athletic Association.<br>- McLeod | Carried |

**Committee Reports**

Standing Committees:

*Student Literacy & Achievement*

- No report given.

*Equitable Opportunities*

- Trustees Bachmann, Young and Gleim sat in on an IT Committee meeting and found it very informative. The mandate for the Committee is IT and Innovation so this was a great opportunity to get together to look at software and hardware the division is using and to interact with others within our division and in our schools.

*Student Transitions*

- No report given.

*Business and Governance*

- No report given.

*Advocacy and Networking*

- No report given.

*Rural Strategies*

- No report given.

*Urban Strategies*

- No report given.

**Inquiry**

What are the different ways schools (especially rural schools) are making up for the lost funding for reffing for school sports? *(For January Meeting)*
- Wilson

| | | |
|---|---|---|
| 11/08/16 – 2652 | That the meeting be adjourned at 1:48 p.m.<br>- Wilson | Carried |

S. Davidson
Chair

B. Girardin
Superintendent of Business & Operations

Next Special Board Meeting:

Date: November 29, 2016
Location: Central Office, 1075 9th Avenue, Moose Jaw

Next Regular Board Meeting:

Date: December 13, 2016
Location: Central Office, 1075 9th Avenue, Moose Jaw

**MINUTES OF THE SPECIAL BOARD MEETING OF THE PRAIRIE SOUTH SCHOOL DIVISION NO. 210 BOARD OF EDUCATION held at Central Office, 1075 9th Avenue NW, Moose Jaw, Saskatchewan on November 29, 2016.**

Attendance: Mr. R. Bachmann; Dr. S. Davidson (via teleconference); Ms. M. Jukes; Mr. A. Kessler; Mr. T. McLeod; Ms. D. Pryor; Mr. J. Radwanski; Mr. B. Swanson; Ms. G. Wilson (via teleconference); Mr. L. Young; T. Baldwin, Director of Education; G. Girardin; Superintendent of Business & Operations; H. Boese, Executive Assistant

Presentations: Terri Olfert, Stark & Marsh

Motions:

Trustee McLeod chaired the meeting as Trustee Davidson attended via teleconference.

| | | |
|---|---|---|
| 11/29/16 – 2653 | That the meeting be called to order at 10:01 a.m.<br>- McLeod | Carried |

Trustee Davidson attended in-person at 10:33 a.m.

Giselle Wilson left the meeting at 10:50 a.m.

| | | |
|---|---|---|
| 11/29/16 – 2654 | That the Board go into closed session at 10:50 a.m.<br>- Bachmann | Carried |

*Note: As part of the Board's oversight responsibilities, they met with the auditor without management present.*

| | | |
|---|---|---|
| 11/29/16 – 2655 | That the Board reconvene in open session at 11:20 a.m.<br>- Swanson | |

Trustee Davidson took over as Chair.

| | | |
|---|---|---|
| 11/29/16 – 2656 | That the Board approve the Auditor's Report and Audited Financial Statements for the 2015-16 fiscal year pending minor changes made after the Provincial Controller's Office format review and approval.<br>- McLeod | Carried |
| 11/29/16 – 2657 | That the Board accept the 2015-16 Annual Report in principle, and direct administration to complete final editing as necessary and to submit the report in accordance with Ministry guidelines.<br>- Young | Carried |
| 11/29/16 – 2658 | That the meeting be adjourned at 11:46 a.m.<br>- Kessler | Carried |

Shawn Davidson
Chair

Bernie Girardin
Superintendent of Business & Operations

Next Regular Board Meeting:

Date: December 13, 2016
Location: Board Office, Moose Jaw

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.1 |
| **Topic:** | **Benefits for Trustees** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** The Saskatchewan School Boards Association offers a wide range of employee benefits to employees of the school division. The SSBA is offering benefits for trustees. The preferred method for SSBA is for the board to join as a group; however, if the board opts not to join as a group then benefits can be purchased by individual trustees.

**Current Status:** Currently we do not have this option available to trustees.

**Pros and Cons:** If the board opts in to the plan as a group then the benefits could be cost-shared between the board and the trustees. If the board does not want to join as a group then trustees could join the plan individually at their own cost. See attached documents for further explanation.

**Financial Implications:**

**Governance Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Bernie Girardin | December 5, 2016 | Letter from SSBA - November 18, 2016<br>Benefit Costs for Prairie South |

***Recommendation:***
Board Decision to join as a group or for trustees to join as individuals.

SASKATCHEWAN
School Boards
ASSOCIATION

November 18, 2016

## Important news about group benefits for Trustees

The Saskatchewan School Boards Association acts as the third-party administrator and policyholder administering employee benefits on behalf of School Divisions since 1986. We offer a wide range of employee benefits to school division staff and Trustees. We are pleased to share the following information with you in regards to benefits available to Trustees.

Some school divisions participating in our Employee Benefits Plan already offer Trustee benefits at the group level, whereas other school divisions currently do not. For those school divisions currently offering Trustee benefits at the group level, the benefit plan is mandatory participation and all new Trustees must join.

If your school division does not offer Trustee benefits at the group level, effective January 1, 2017 you may be included in your respective division's existing employees' group plan. This benefit offering is on an opt-in basis and is the result of the following Resolution which was passed at our Association's AGM in 2015:

**RESOLUTION 15-12 BE IT RESOLVED, that the Saskatchewan School Boards Association's Employee Benefits Plan be revised so that;**

**i) All members of a Board of Education may join the SSBA Employee Benefits Plan as a group;**

**and**

**ii) Any individual Board Trustee whose member Board chooses not to participate as a group may be included in their respective division's existing employees' group plan**

## What does this mean to you as a Trustee?

**First, let's first review what benefits are applicable to Trustees:**

Core Trustee Plan Design consists of:

| | |
|---|---|
| Life Coverage of $15,000 | $3.44/month/trustee (Sept – June) |
| AD&D Coverage of $15,000 | $0.33/month/trustee (Sept – June) |

Total Life and Accidental Death & Dismemberment (AD&D) premiums for the 2016-2017 school year is $3.77/month/trustee.

In addition to the above Core benefits, if your school divisions existing employee groups, except the LEADS and SASBO plans, participate in any of the following coverages, they may be included as part of your Trustee benefits:

Extended Health Plan-B
Vision Plan-A or Plan-B
Dental Plan-A, Plan-B or Plan-C
Employee Family Assistance Plan
Health Care Spending Account
Optional Life Insurance (Trustee and Spouse)
Voluntary AD&D (Trustee and Family coverage)
Optional Critical Illness (Trustee, Spouse and dependant child(ren))
Trustees are not eligible to participate in the Disability Plans

## Here's what you need to know if you are interested in "opting-in" to an <u>individual</u> Trustee benefit plan effective January 1, 2017 ...

- Your school division may be interested in creating a new Trustee group for all Trustees, or;
- As a result of the above Resolution, you have the option as an individual Trustee to opt-in to a plan design that already exists in your school division
    - You will need to discuss these options with the Benefit Plan Administrator at your school division
    - They can inform you about the types of benefits available and the premium costs
- The Preferred Method is for the Board to join as a Group
    - Most efficient administrative model
    - Requires a Board Motion to create a Trustee group
    - Requires plan design development
    - Allows cost-sharing of premiums between Board and Trustee
    - Can be formulated at any time throughout the year
- As a result of the Resolution 15-12, existing and new Trustees may join as Individuals
    - Any individual Board Trustee whose member Board chooses not to participate as a group may be included in their respective division's existing employees' group plan (except the LEADS and SASBO plans)
    - The new individual trustee benefits offering will become effective January 1, 2017
    - An Eligibility Period from November 15 – December 31, 2016 has been established to allow Trustees to select which existing school division plan they will participate in
    - Once the Eligibility Period from November 15 – December 31, 2016 has been reached, the window of opportunity to opt-in is closed. Participation as a Trustee thereafter must be via a Group Trustee plan, or following the next election.
    - Trustees not electing to opt-in individually prior to December 31, 2016 will NOT be given the option to apply at a later date as a Late Applicant. You can only opt-in individually at the onset of this offering, or following the next election.
        - School Divisions may formulate a <u>Group</u> Trustee plan anytime throughout the year.
        - It is only the <u>Individual</u> opt-in offer that has the eligibility period from November 15 – December 31, 2016.
    - Individual trustee participation does not allow cost-sharing of premiums between Board and Trustee. All premiums are paid 100% by the Trustee.

- All Trustees must participate in the Core Life and Accidental Death & Dismemberment coverages.
- Participation in each of the other benefit offerings (i.e. Health, Vision, Dental, etc.) is dependent upon the benefits offered to your school division's employee group plans.
  - Check with your school division benefit plan administrator for available options and premium costs
- Opting out of extended health, vision and/or dental is permissible as long as you have coverage through another group employment plan. Opting out with a private plan is not permissible.
- Once enrolled in a plan, you must remain in the plan for the duration of your term

Please contact the Benefit Plan Administrator at your school division office for all inquiries related to this benefit offering.

Thank you

**Trustee Benefit Costs**

| | Couple | Family |
|---|---|---|
| Life Insurance | 3.44 | 3.44 |
| ADD Insurance | 0.33 | 0.33 |
| EHC B | 63.55 | 94.04 |
| Vision B | 18.38 | 22.84 |
| Dental C | 54.42 | 84.81 |
| EFAP | 3.00 | 3 |
| Cost per month per Trustee | 143.12 | 208.46 |
| Cost for 4 Trustees | 572.46 | |
| Cost for 6 Trustees | | 1,250.73 |
| Cost per month for all Trustees | | 1,823.19 |
| **Annual Cost** | | **21,878** |

The Life and ADD insurances are capped at $15,000 coverage
EFAP covers the whole family

The Board can enter into any sort of cost sharing arrangement with the Trustee that they wish, including the Board covering 100% of the costs.

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.2 |
| **Topic:** | **Facilities Accountability Report** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** The Board's annual work plan requires the Facilities Accountability Report to be presented in December to the Board of Education

**Current Status:** Please see attached report.

**Pros and Cons:**

**Financial Implications:**

**Governance Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Darren Baiton | December 1, 2016 | Facilities Accountability Report |

***Recommendation:***
That the Board receive and file the Facilities Accountability Report.

Prairie South Schools 210 Learning together.
1075 9th Avenue North West, Moose Jaw, SK S6H 1V7 P 306.694.1200 1.877.434.1200 F 306.694.4955 prairiesouth.ca

# 2015-2016 Facility Accountability Report

## Source Documents

### Performance Assessment Guide

**Policy 12**

**Appendix B**

**Role Expectations *1.1*** *Ensures that each student is provided with a safe and caring environment that fosters and maintains respectful and responsible behaviors.*

**Role Expectations *1.2*** *Ensures that Division facilities adequately accommodate students.*

***Role Expectations 3.1*** Ensures the fiscal management of the Division is in accordance with the terms or conditions of any funding received by the Board.

## Evidence

The efficient and effective management of school division facilities continues to be a factor in student achievement, as these facilities are the infrastructure of a positive learning environment. Additionally, careful maintenance and repair of division facilities is a significant fiscal management strategy that will allow for continued focus on student learning in future years. During the 2015-2016 year, Facilities strived to maintain excellent levels of service in the following areas:

1. Operations and Facility Organization
2. Custodial and Maintenance Operations
3. Health & Safety/Security
4. Infrastructure Projects
5. Energy Management

The Facilities department utilizes processes derived from LEAN to create and maintain efficiencies throughout all operational areas.

## 1. *Operations and Facility Organization*

**Staffing**

Facility Manager is responsible for the following: coordination of staffing; planning and monitoring of facility budget; prioritizes projects; monitors building conditions; oversees rental agreements; training; Asset Planner management; LEAN planning and implementation; safety code compliance and building security; Preventative Maintenance Renewal (PMR) management; and department administration. Administrative Assistant supports in the following areas: invoice coding; AESOP and time sheets; Connect records; key distribution; alarm code distribution; community rentals; training records; PMR filing; and coordination of shipping and receiving.


Facilities Supervisors are assigned to 3 geographical zones of Prairie South in order to provide continuity of service at individual schools while maintaining flexibility related to Supervisor qualifications (Journeyman Power Engineer/Journeyman Carpenter) throughout the school division. Facilities Supervisors are responsible for: maintenance and operation of schools, grounds and additional buildings; LEAN; Asset Planner; boiler automation; playground inspections; fleet; and moves.

The facilities department does minimal staff substitutions when staff is on leave in order to reduce expenditures and ensure continuity in project work.

Facilities zones include school buildings as listed below as well as a variety of additional smaller buildings, one teacherage, building grounds, playgrounds, parking lots, and sports facilities. Our two oldest schools are each 107 years old, and the newest is 25 years old; the average age of our schools is 63 years. Average space utilization in Prairie South Schools is 65%; nine schools in the division are operating at less than 50% capacity and six schools are operating at over 100% capacity.

| Facility Zones | Number of Outbuildings | Zone | Gross Utilization Rate (%) |
|---|---|---|---|
| 9th Avenue Facilities Office | 1 | Central | |
| 9th Avenue Office | 1 | Central | |
| Albert E. Peacock Collegiate | 3 | Central | 52% |
| Central Collegiate | 1 | Central | 81% |
| Empire School | 1 | Central | 56% |
| Guthridge Field | 5 | Central | |
| John Chisholm Alternate School | 1 | Central | 59% |
| King George School | 2 | Central | 111% |
| Lindale School | 3 | Central | 114% |

| Facility Zones | Number of Outbuildings | Zone | Gross Utilization Rate (%) |
|---|---|---|---|
| Moose Jaw Transportation Facility | | Central | |
| Palliser Heights School | 1 | Central | 107% |
| Prince Arthur Community School | 1 | Central | 68% |
| Riverview Collegiate Institute | 1 | Central | 29% |
| Sunningdale School | 1 | Central | 133% |
| Thatcher Drive Office | | Central | |
| Westmount School | 1 | Central | 98% |
| William Grayson School | 1 | Central | 79% |
| Avonlea School | 1 | North | 93% |
| Caronport Elementary School | 1 | North | 78% |
| Central Butte School | 2 | North | 34% |
| Chaplin School | 1 | North | 39% |
| Craik School | 1 | North | 42% |
| Eyebrow School | 1 | North | 56% |
| Mortlach School | 1 | North | 34% |
| Rouleau School | 1 | North | 92% |
| Assiniboia Composite High | 5 | South | 62% |
| Assiniboia Elementary School | 1 | South | 88% |
| Assiniboia Office and Transportation Facility | | South | |
| Assiniboia Seventh Avenue School | 1 | South | 122% |
| Bengough School | 1 | South | 36% |
| Coronach School | 1 | South | 61% |
| Glentworth Central School | 1 | South | 60% |
| Gravelbourg School (Elem & High) | | South | 39% |
| Kincaid Central School | 1 | South | 80% |
| Lafleche Central School | 1 | South | 124% |
| Mankota School | 1 | South | 40% |
| Mossbank School | 1 | South | 61% |
| Rockglen School | 1 | South | 40% |

**Fleet/Equipment**

- For efficiency purposes, some equipment is shared among the facility zones. Examples include lifts, Bobcat tractor, grounds equipment and trailers.
- Continued emphasis on LEAN strategies has resulted in efficient use of fleet cube trucks which have the ability to safely maximize the workload. Examples include having stock on board, workspace on site outside the school, and delivery capacity. Additional LEAN

initiatives include the Bobcat mower attachment which greatly reduces cut times in all weather conditions and the pole saw, which eliminates most external contract tree cutting services division-wide.

| Asset | Primary Location | Unit Year |
|---|---|---|
| 0108- Van | 9th Avenue Maintenance Shop | 2001 |
| 0109- Van | South Zone | 2001 |
| 0402- Cube Truck | 9th Avenue Maintenance Shop | 2004 |
| 9206- Dump Truck | 9th Avenue Maintenance Shop | 1992 |
| 0501- Dump Truck | 9th Avenue Maintenance Shop | 2005 |
| 0502- 1/2 Ton Truck | 9th Avenue Maintenance Shop | 2005 |
| 0511- 1 Ton Sanding Truck | 9th Avenue Maintenance Shop | 2005 |
| 0603- 3/4 Ton Truck | 9th Avenue Maintenance Shop | 2006 |
| 0710- 3/4 Ton Truck | 9th Avenue Maintenance Shop | 2007 |
| 0820- 3/4 Ton Truck | 9th Avenue Maintenance Shop | 2008 |
| 0821- Cube Truck | 9th Avenue Maintenance Shop | 2008 |
| 0946- Cube Truck | 9th Avenue Maintenance Shop | 2009 |
| 1110- Cube Van (Mini) | 9th Avenue Maintenance Shop | 2011 |
| 1120- 3/4 Ton Truck | 9th Avenue Maintenance Shop | 2011 |
| 1201- Cube Truck | South Zone | 2012 |
| 1202- Cube truck | 9th Avenue Maintenance Shop | 2012 |
| 1203- 1/2 Ton Truck | South Zone | 2012 |
| 1311- Cube Truck | South Zone | 2013 |
| 9815- Cube Truck | 9th Avenue Maintenance Shop | 2015 |
| Bobcat Tractor | 9th Avenue Maintenance Shop | 2016 |
| Boom Lift | 9th Avenue Maintenance Shop | 2014 |
| Scissor Lift | 9th Avenue Maintenance Shop | 2006 |
| Mowers/Tractors | All Zones | |

**Information items:**

- Asset Planner, our facility management software, continues to be a very useful tool for the division, with different modules currently being used to support PMR funding and management and LEAN efficiencies. Asset Planner provides accurate data related to service requests for operational decision making.
- Strategic facilities planning by facilities staff allows projects to be in the queue in a logical sequence that provides effective service to schools, efficient allocation of resources, and high-quality workmanship through a variety of methods including bundling of service requests and work blitz strategies.

***2. Custodial and Maintenance Operations***

The Facilities department is responsible for effectively monitoring and maintaining a level of cleanliness across the system for staff and students with accordance to Public Health guidelines and Prairie South administrative procedures.

AESOP absence management system has been an asset in allowing for facility manpower to be efficiently utilized in the department.

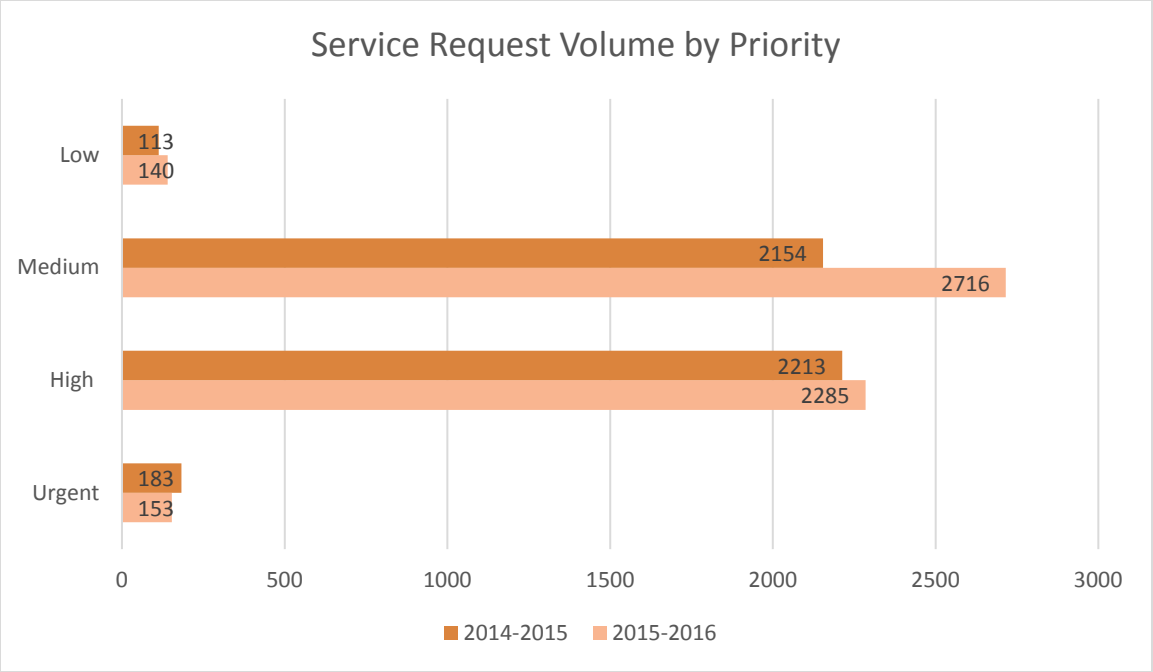
Cell phones and mobile devices for maintenance staff allow real-time communication for Facetime, email, text, GPS, and other communication reducing travel time and offering a faster and effective response to facilities issues. Examples include: boiler maintenance and safety inspections, RTU and mechanical preventative maintenance logs; filter replacement tracking; mechanical and HVAC trouble-shooting; safety and security response and prevention; and playground inspections

LEAN processes have helped the Facilities department find efficiencies in the following areas:

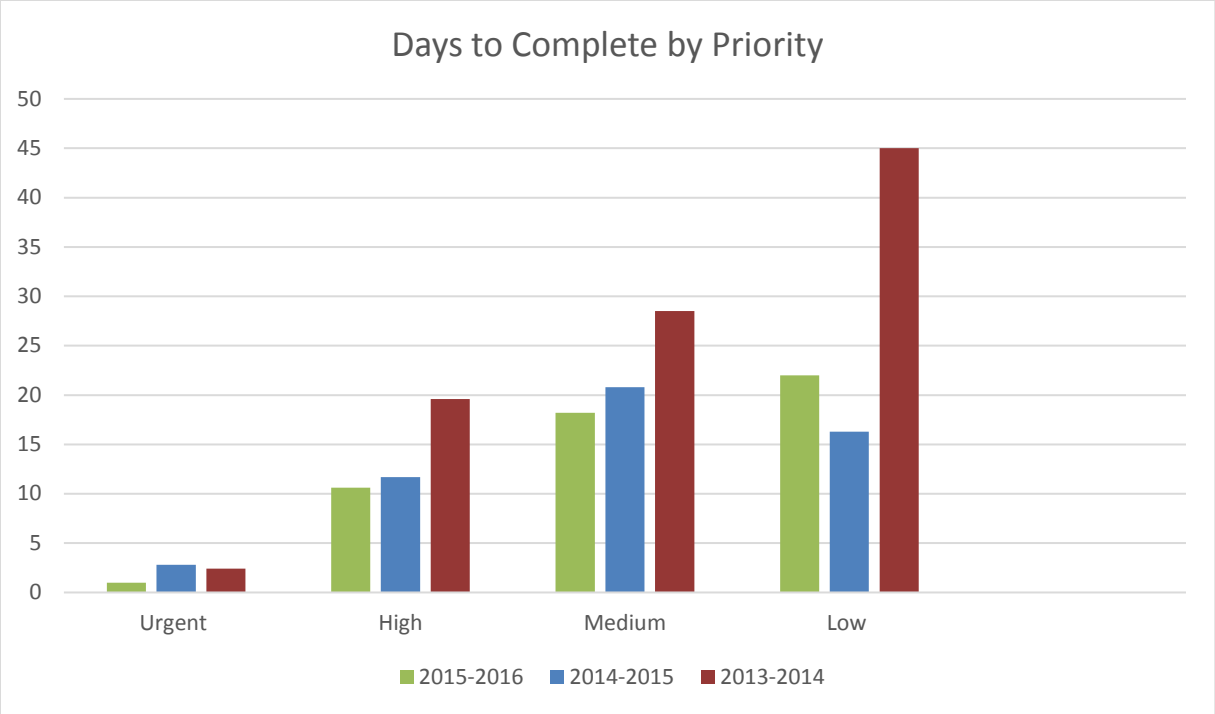
- ✓ Technical Safety Authority electronic format documentation
- ✓ daily service request operations
- ✓ checklists for a variety of tasks
- ✓ live Facetime communication to reduce travel time and costs
- ✓ utilization of live photos and videos for troubleshooting and ordering processes
- ✓ staff training in mobile device use, LEAN processes, safety guidelines
- ✓ data retrieval
- ✓ weekly playground checks
- ✓ updated flooring surfaces to reduce installation and maintenance costs
- ✓ standardization of cleaning products throughout the division
- ✓ pilot projects in electric hand dryers and waterless urinals to test for cost reduction and enhanced quality
- ✓ electronic fleet safety logs
- ✓ grounds equipment logs and scheduled preventative maintenance processes
- ✓ targeted distribution of new and aging equipment
- ✓ Annually 1/3 of preventative roof inspections are done and repairs are completed to reduce future damage.

**Annual Roof Assessments**

- Avonlea
- Caronport Elementary
- Central Butte
- Craik
- Eyebrow
- Gravelbourg High
- Kincaid Central
- Moose Jaw 9th Avenue Office
- Riverview Collegiate
- Rouleau
- Sunningdale School
- William Grayson

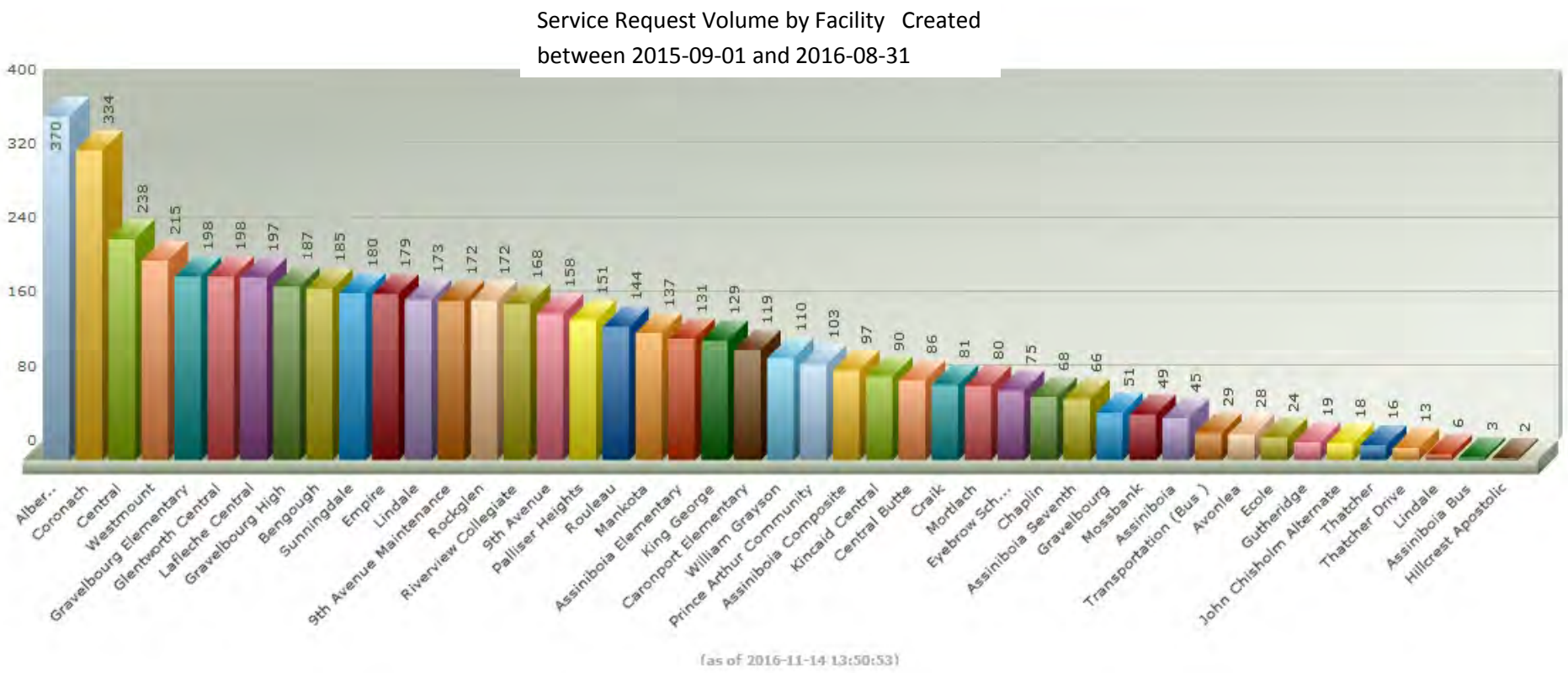



| Year | Urgent<br>*Call first, submit service request* | High<br>*Affects daily routine* | Meduim<br>*Standard Maintenance* | Low<br>*Cosmetic* |
|---|---|---|---|---|
| 2015-2016 | 153 | 2285 | 2716 | 140 |
| 2015-2014 | 183 | 2313 | 2154 | 113 |




| Days to Complete by Priority | | | | |
|---|---|---|---|---|
| Year | Urgent<br>*Call first, submit service request* | High<br>*Affects daily routine* | Medium<br>*Standard Maintenance* | Low<br>*Cosmetic* |
| 2015-2016 | 1 | 10.6 | 18.2 | 22 |
| 2014-2015 | 2.8 | 11.7 | 20.8 | 16.3 |
| 2013-2014 | 2.4 | 19.6 | 28.5 | 45 |

| School | Enrollment | Number of Service Requests | Ratio Students to Service Requests | Sq.ft | Ratio Sq.ft to Students |
|---|---|---|---|---|---|
| Albert E. Peacock Collegiate | 667 | 370 | 0.55 | 172,737 | 0.0021 |
| Assiniboia Composite High | 156 | 97 | 0.62 | 43,450 | 0.0022 |
| Assiniboia Elementary School | 160 | 131 | 0.82 | 32,248 | 0.0041 |
| Assiniboia Seventh Avenue School | 230 | 66 | 0.29 | 23,952 | 0.0028 |
| Avonlea School | 161 | 28 | 0.17 | 26,957 | 0.0010 |
| Bengough School | 71 | 185 | 2.61 | 34,733 | 0.0053 |
| Caronport Elementary School | 129 | 119 | 0.92 | 23,976 | 0.0050 |
| Central Butte School | 108 | 86 | 0.80 | 45,825 | 0.0019 |
| Central Collegiate | 446 | 238 | 0.53 | 80,760 | 0.0029 |
| Chaplin School | 64 | 68 | 1.06 | 26,462 | 0.0026 |
| Coronach School | 148 | 334 | 2.26 | 48,843 | 0.0068 |
| Craik School | 68 | 81 | 1.19 | 35,325 | 0.0023 |
| Empire School | 187 | 179 | 0.96 | 45,048 | 0.0040 |
| Eyebrow School | 46 | 75 | 1.63 | 18,132 | 0.0041 |
| Glentworth Central School | 79 | 198 | 2.51 | 22,883 | 0.0087 |
| Gravelbourg Elementary School | 165 | 51 | 0.31 | 36,572 | 0.0014 |
| Gravelbourg High School | 83 | 187 | 2.25 | 27,875 | 0.0067 |
| John Chisholm Alternate School | 11 | 18 | 1.64 | 7,919 | 0.0023 |
| Kincaid Central School | 110 | 90 | 0.82 | 25,157 | 0.0036 |
| King George School | 343 | 129 | 0.38 | 40,011 | 0.0032 |
| Lafleche Central School | 131 | 197 | 1.50 | 18,700 | 0.0105 |
| Lindale School | 370 | 173 | 0.47 | 36,767 | 0.0047 |
| Mankota School | 49 | 137 | 2.80 | 23,974 | 0.0057 |
| Mortlach School | 57 | 80 | 1.40 | 26,814 | 0.0030 |
| Mossbank School | 106 | 49 | 0.46 | 33,465 | 0.0015 |
| Palliser Heights School | 600 | 151 | 0.25 | 66,271 | 0.0023 |
| Prince Arthur Community School | 266 | 103 | 0.39 | 46,570 | 0.0022 |
| Riverview Collegiate Institute | 123 | 168 | 1.37 | 75,623 | 0.0022 |
| Rockglen School | 99 | 172 | 1.74 | 46,084 | 0.0037 |
| Rouleau School | 141 | 144 | 1.02 | 25,443 | 0.0057 |
| Sunningdale School | 466 | 180 | 0.39 | 39,526 | 0.0046 |
| Westmount School | 321 | 215 | 0.67 | 47,096 | 0.0046 |
| William Grayson School | 150 | 110 | 0.73 | 29,584 | 0.0037 |




**Maintenance Tickets Submitted and Closed**

| Year | Submitted | Closed |
|---|---|---|
| 2015-2016 | 5288 | 4981 |
| 2014-2015 | 4675 | 4246 |
| 2013-2014 | 4377 | 4212 |

**Maintenance Ticket History**

| Year | Pending | Closed | Work in Progress | Denied |
|---|---|---|---|---|
| 2015-2016 | 219 | 4981 | 3 | 88 |
| 2015-2014 | 28 | 4528 | | 100 |
| 2014-2013 | | 4350 | | 132 |

*Annual data tabulated from Sept 1 2015-Aug 31 2016*

### *3. Health & Safety/Security*

The Facilities Department strives to send all staff home safe every day. For the third year in a row, we have had no contraventions of the Occupational Health and Safety Act noted. Public Works software modules are used to inform and train staff about job and worksite safety.

| **2015-2016 Facility Workers Compensation Board** | | |
|---|---|---|
| Location | Employees Claims | Lost days |
| Central Zone | 9 | 835.2 |
| Maintenance | 5 | 125 |
| South Zone | 1 | 2 |
| South Maintenance | 1 | 1 |
| North Zone | 0 | 0 |
| *Total :2015-2016* | | 963.2 |
| | | |
| *Total :2014-2015* | | 1196 |
| *Total :2013-2014* | | 178 |
| Total :2012-2013 | | 343.65 |

| Public Works Facility Training Modules | | |
|---|---|---|
| Scaffolds | Confined Space | Power Mobile Equipment |
| Bobcat | Respirator | Mould Training |
| WHMIS | Fall Protection | Playground Inspection |
| Boom lift | Scissor lift | Public Works |

- ✓ Fire extinguishers and sprinklers are inspected by an external vendor and inspected annually in bulk with security systems to reduce costs of travel in rural areas. All annual rural facilities fire inspections were completed in 2015/2016. Moose Jaw fire hoses are capped to reduce hose replacement and inspection costs.
- ✓ Monthly safety/tool box meetings are held and documentation is filed.
- ✓ Safety stations are located in the shop and maintenance fleet is supplied with first aid kits and fire extinguishers
- ✓ GPS locator app monitors staff location for safety and efficiency.
- ✓ Air, chlorine, and water quality inspections are performed as required. Some locations receive regular inspections due to unique circumstances.
- ✓ Electronic or manual entries and site boiler inspections at all facilities are completed as required (daily Asset Planner entries for Technical Safety Authority log).
- ✓ School defibrillators are in place at some schools through community donation: ACHS, AEP, CCI, Eyebrow, John Chisholm, RVCI, Lindale, Chaplin, Central Butte.

***4. Infrastructure Projects***

- Capital assets and budgets are closely monitored to ensure the budget is being used effectively and efficiently to minimize costs within the department.
- Develop and update 3-year PMR plan.
- Develop and submit Ministry capital plan document.
- Coordinate in-house work with skilled labour to reduce dependency on external contractors and complete projects in an efficient manner.
- Assist with completion of École Gravelbourg School project; maintained close working relationship with administrators, community, architects, engineers, contractors and suppliers as well as a project management team; coordinated project budgeting and reporting.
- Completed emergent infrastructure projects: Riverview flood; Division Office Move.
- Completed planned infrastructure projects

| **2015/16 Facility Infrastructure Projects** | | **Expenditures as of Aug. 31/16** | **Projects in Progress Estimated Cost** | **Projects Completed Total Cost** |
|---|---|---|---|---|
| **School** | **Project Name** | | | |
| Division Office Moose Jaw | Boiler Replacement/Valve replacement /Automation | 62,396 | 195,000 | |
| Assiniboia 7th | Boiler Replacement | 97,581 | 275,000 | |
| Assiniboia 7th | Partial Roof Replacement | | | 77,527 |
| Assiniboia 7th | Data Upgrade | | | 23,100 |
| Assiniboia Composite High | Boiler Replacement | 157,151 | | |
| Assiniboia Elementary | Data Upgrade | | | 31,500 |
| Avonlea | Gym Lighting Upgrade | | | 15,000 |
| Caronport | Gym Lighting Upgrade | | | 15,000 |
| Chaplin | Boiler Replacement | | 70,000 | |
| Gravelbourg High | Garage | | | 35,000 |
| École Gravelbourg School | Addition Renovation | | | 7,612,282 |
| Empire | Partial Roof Replacement | | | 239,474 |
| King George -Moose Jaw | Partial Roof Replacement | | | 63,475 |
| Lindale –Moose Jaw | Intercom | | | 23,343 |
| Lindale –Moose Jaw | Asphalt | | | 16,360 |
| Mankota | Partial Roof Replacement | | | 15,343 |
| Mortlach | Intercom | | | 22,101 |
| Mossbank | Data Upgrade | | | 28,875 |
| Palliser Heights –Moose Jaw | Gym Lighting Upgrade | | | 12,243 |
| Palliser Heights –Moose Jaw | Partial Roof Replacement | | | 89,821 |
| Peacock –Moose Jaw | Gym Lighting Upgrade | | | 67,669 |
| Prince Arthur- Moose Jaw | Partial Roof Replacement | | | 169,461 |
| Riverview Collegiate –Moose Jaw | Univent replacement /Controls | 96,558 | 200,000 | |
| Rockglen | Partial Roof Replacement | | | 217,030 |
| Sunningdale –Moose Jaw | Low Voltage Lighting Repairs | | | 13,991 |
| Westmount -Moose Jaw | Partial Roof Replacement | | | 248,383 |
| William Grayson-Moose Jaw | Intercom | | | 20,132 |
| Totals | | 413,686 | | 9,057,110 |
| | | | | |

| **Playground Upgrades/AP110 School Development Fund:** | | | |
|---|---|---|---|
| Coronach - Playground<br>Assiniboia High – Learning Commons<br>Bengough - Mural<br>Central – Water Fill Station | Empire - Library<br>Lafleche – Scoreboard<br>Mortlach – Track<br>Peacock – Lounge | | |

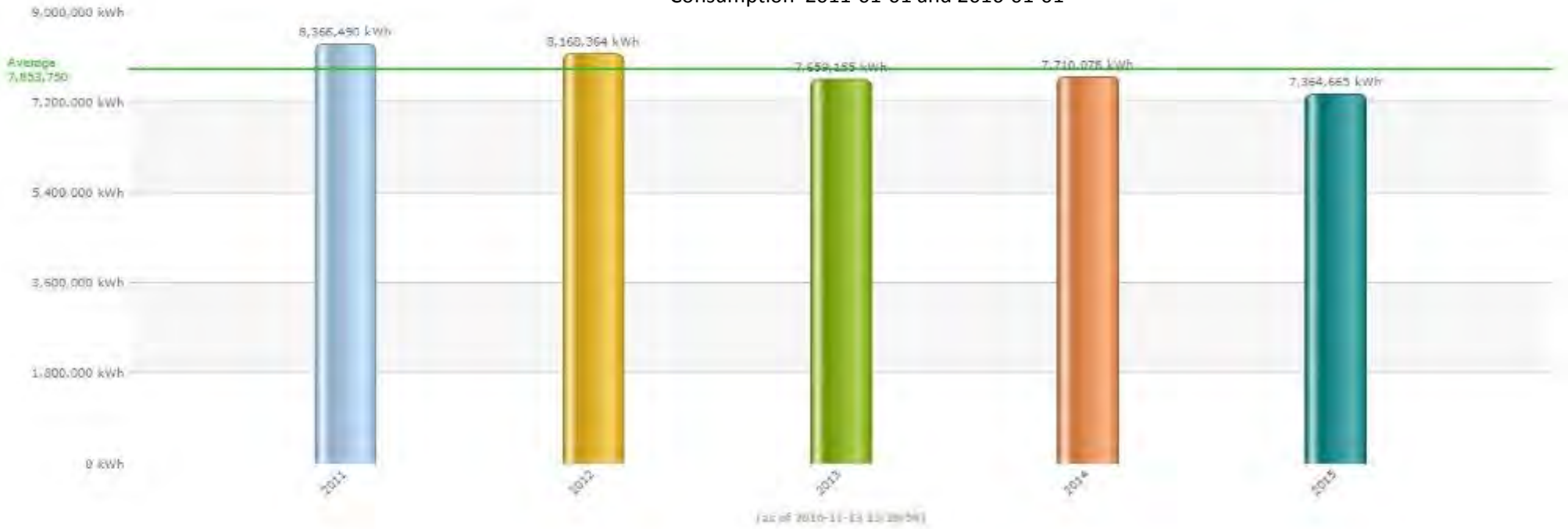
**5. Energy Management**

- Automated building management systems (BMS) provide reduction in consumption as well as enhanced occupant comfort.
- Energy utility data in Asset Planner Energy Module used to manage projects with the ultimate goal of reduced consumption within the division.
    - Facility footprint comparisons
    - usage reports
    - comparison reports
- 2015-2016 Gym and exterior lighting projects (LED) were done in–house to provide ongoing efficiencies.
- Upgraded HVAC equipment (soft start motors, heat recovery wheels) reduce energy costs.
- HVAC automation provides daily savings to the division with temperature setbacks when building zones are unoccupied
- Additional roof insulation will reduce energy costs.
- Negotiated five-year natural Gas bulk purchase contract to begin 2016/2017
- Shared utility reduction information with users and collaborated to implement additional energy savings strategies.

| Facility | Zone | BMS | Gym Lighting Retrofits | Exterior Lighting Retrofits |
|---|---|---|---|---|
| 9th Avenue Maintenance Shop | Central | | N/A | ✓ |
| 9th Avenue Office | Central | ✓ | N/A | ✓ |
| Albert E. Peacock Collegiate | Central | ✳ | ✓ | |
| Assiniboia Bus Shop | South | | N/A | ✓ |
| Assiniboia Composite High | South | ✓ | ✓ | |
| Assiniboia Elementary School | South | ✓ | ✓ | |
| Assiniboia Office | South | | N/A | ✓ |
| Assiniboia Seventh Avenue School | South | ✓ | | |
| Assiniboia Transportation Shop | South | | N/A | ✓ |
| Avonlea School | North | ✓ | ✓ | |
| Bengough School | South | ✳ | ✓ | |
| Caronport Elementary School | North | ✓ | ✓ | |
| Central Butte School | North | ✓ | ✓ | |
| Central Collegiate | Central | ✳ | ✓ | ✓ |
| Chaplin School | North | ✳ | ✓ | |
| Coronach School | South | ✓ | ✓ | |
| Craik School | North | ✓ | ✓ | |
| Empire School | Central | ✳ | ✓ | ✓ |
| Eyebrow School | Central | ✳ | | |
| Glentworth Central School | South | ✓ | ✓ | |
| Gravelbourg Elementary School | South | ✳ | | |
| Gravelbourg High School | South | ✓ | ✓ | |
| Guthridge Field | Central | | N/A | |
| John Chisholm Alternate School | Central | ✳ | N/A | ✓ |
| Kincaid Central School | South | ✓ | | |
| King George School | Central | ✓ | ✓ | ✓ |
| Lafleche Central School | South | ✳ | ✓ | ✓ |
| Lindale School | Central | ✓ | ✓ | ✓ |
| Mankota teacherage | South | | N/A | N/A |
| Mankota School | South | ✳ | ✓ | |
| Mortlach School | North | ✓ | ✓ | |
| Mossbank School | South | ✳ | ✓ | ✓ |
| Palliser Heights School | Central | ✳ | ✓ | ✓ |
| Prince Arthur Community School | Central | ✓ | ✓ | ✓ |
| Riverview Collegiate Institute | Central | ✳ | ✓ | ✓ |
| Rockglen School | South | ✳ | ✓ | ✓ |
| Rouleau School | North | ✓ | ✓ | |
| Sunningdale School | Central | ✳ | ✓ | ✓ |
| Thatcher Drive Office | Central | | N/A | |
| Thatcher Drive Transportation Shop | Central | | N/A | |
| Transportation (Bus ) Shop Moose Jaw | Central | ✓ | N/A | ✓ |
| Westmount School | Central | ✳ | ✓ | ✓ |
| William Grayson School | Central | ✳ | ✓ | ✓ |

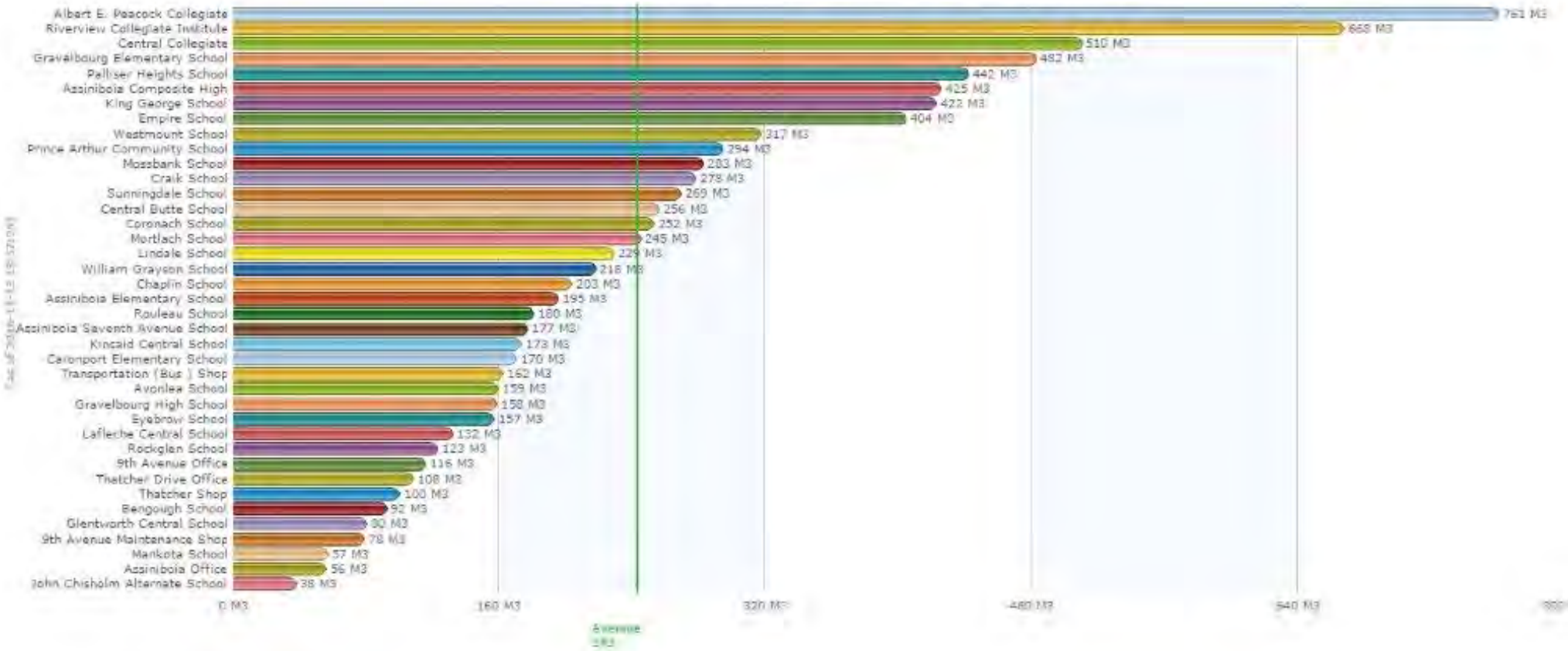
✳Basic Limited Automation
✓Complete
✓Complete In House

Utility- Five Year Total Consumption Electrical Consumption 2011-01-01 and 2016-01-01

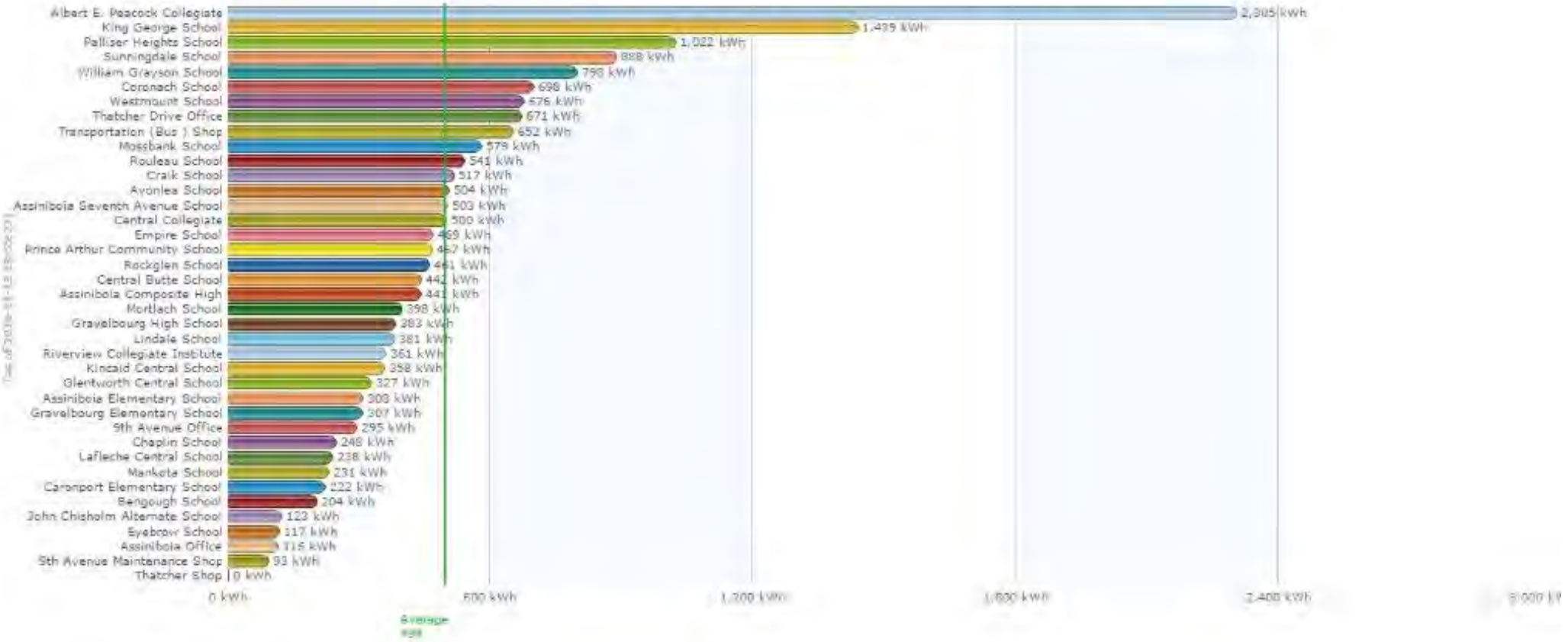


Utility- Total Consumption Natural Gas Consumption
between 2011-01-01 and 2016-01-01

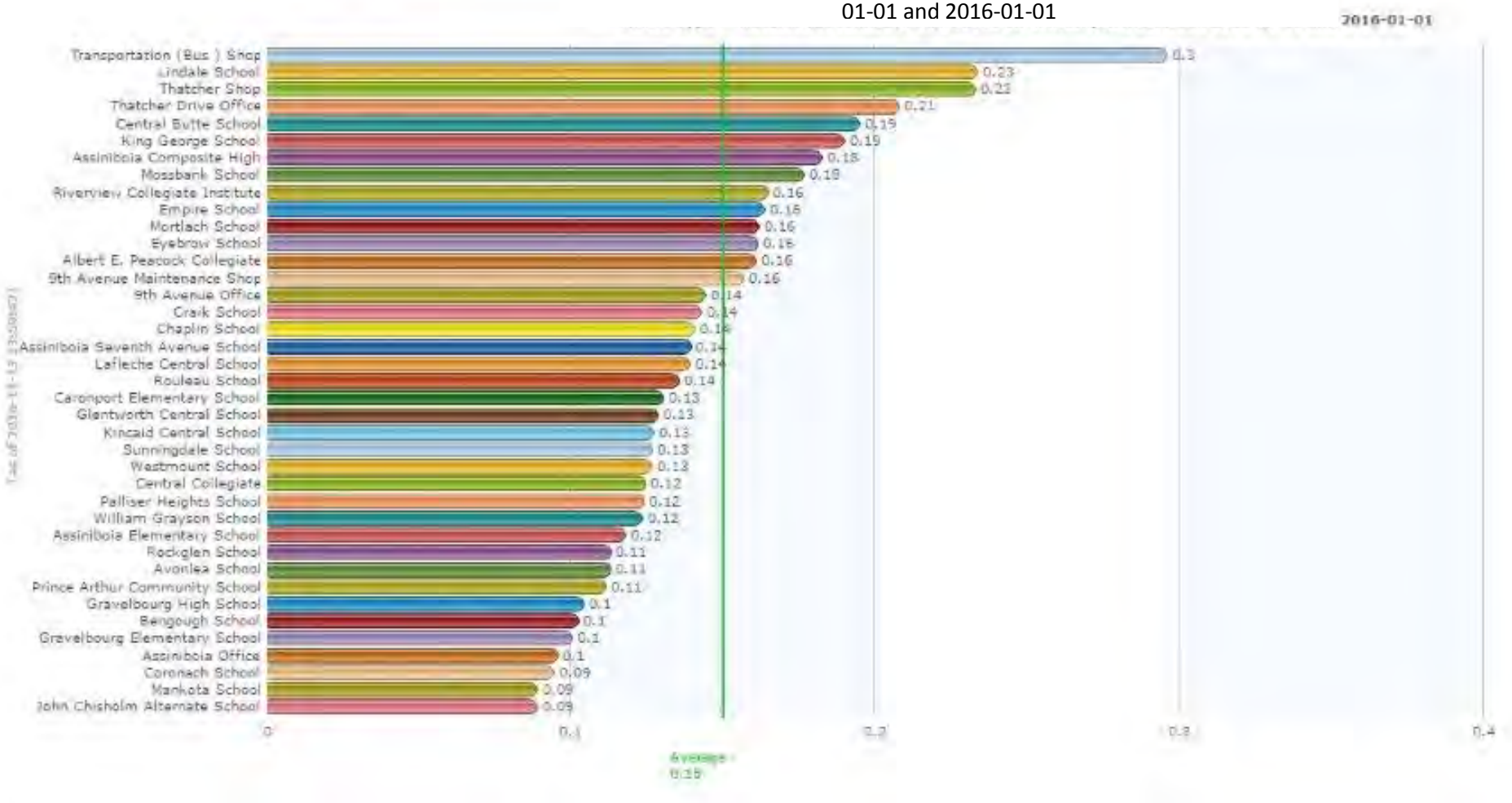
Utility Average Total Consumption Per Day Natural Gas Consumption
between 2013-01-01 and 2016-01-01



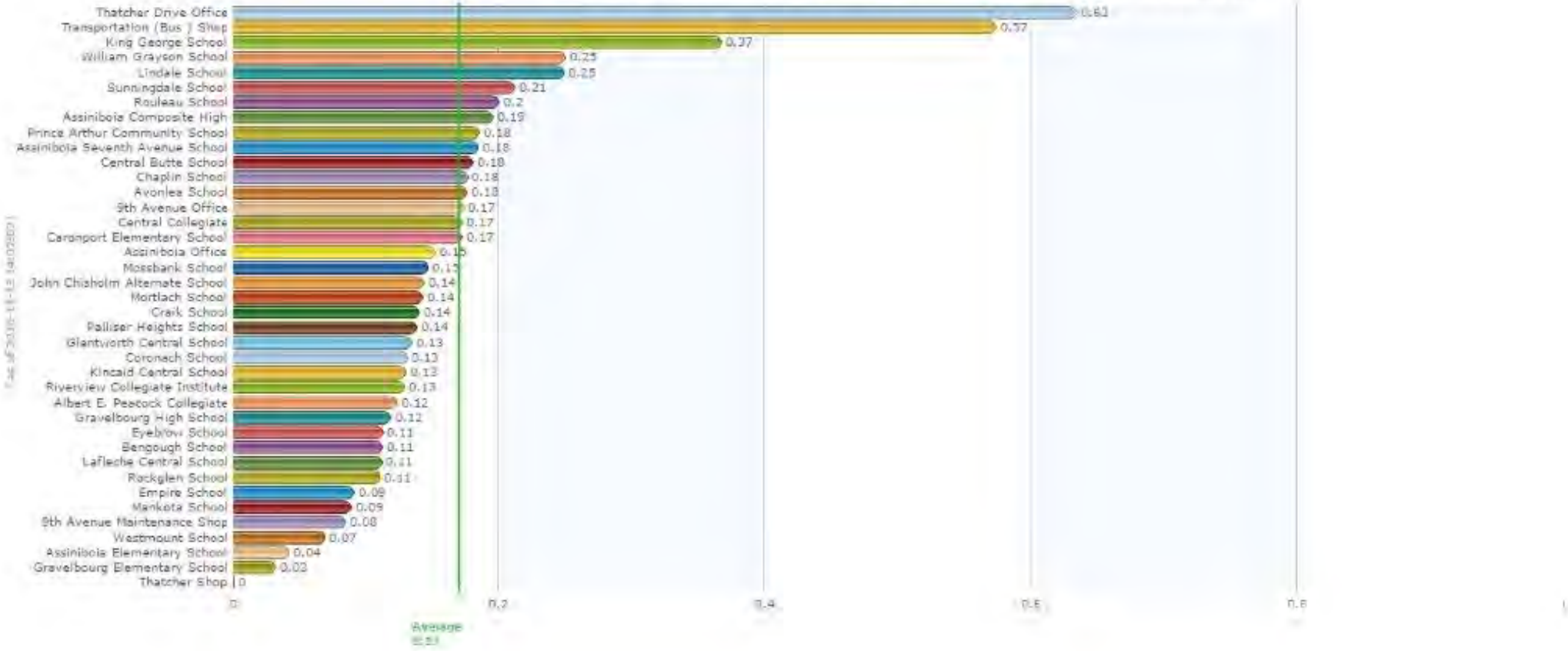
Utility Average Total Electricity Consumption Per Day between
2013-01-01 and 2016-01-01



Utility Natural Gas Tonnes of CO2 Carbon Footprint (Sq.M.) between 2013-01-01 and 2016-01-01



Electricity Tonnes of CO2 Carbon Footprint Per Area Consumption between 2013-01-01 and 2016-01-01



**Administrative Issues:**

- Ongoing HVAC upgrading should be completed to reduce energy costs and carbon footprint.
- Prioritization of additional PMR projects resulting from enhanced budget for 2016-2017
- Scheduling of continued preventative maintenance processes related to HVAC and equipment.
    - Mobile Asset Planner App will reduce data entry duration and on site transition in 2016/2017 PMR data
- Ongoing management of emergent issues and regular work for in-house staff.

Prepared by: Darren Baiton, Facilities Manager

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.3 |
| **Topic:** | **Monthly Reports** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:**

Attached are the following reports for Board approval:

1. Teacher Absences and Substitute Usage for the period Oct 31–Nov 24, 2016
2. CUPE Absences and Casual Usage for the period Oct 29–Nov 24, 2016
3. Bus Driver Absences and Casual Usage for the period Oct 29-Nov 24, 2016
4. Out of Scope Absences and Casual Usage for the period Oct 29-Nov 24, 2016
5. Tender Report for the period Nov 7-Dec 5, 2016.

**Current Status:**

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Ryan Boughen,<br>Ron Purdy | December 5, 2016 | 1. Teacher Absences and Substitute Usage<br>2. CUPE Absences and Casual Usage<br>3. Bus Driver Absences and Casual Usage<br>4. Out of Scope Absences and Casual Usage<br>5. Tender Report |

***Recommendation:***

That the Board accept the monthly reports as presented.

| Teacher Absences & Substitute Usage | | | | | |
|---|---|---|---|---|---|
| **Date Range:** | **October 31 - 2016 to November 24, 2016** | | | | |
| **Absence Reason** | **Days** | **% of Total Absences** | **Sub Days** | **% Needed Sub** | **% of possible days** |
| **LINC Agreement** | | | | | |
| Compassionate Leave | 10.63 | 1.47% | 7.13 | 67.07% | 0.14% |
| Competition Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Convocation Leave | 2 | 0.28% | 2 | 100.00% | 0.03% |
| Education Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Emergency Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Executive Leave | 1 | 0.14% | 0.5 | 50.00% | 0.01% |
| Prep Time | 147.6 | 20.47% | 146.6 | 99.32% | 1.89% |
| Pressing Leave Teacher | 31.5 | 4.37% | 27 | 85.71% | 0.40% |
| PSTA | 0.4 | 0.06% | 0.4 | 100.00% | 0.01% |
| Rec. Of Service | 31.7 | 4.40% | 22.68 | 71.55% | 0.41% |
| Leave Without Pay | 12 | 1.66% | 5 | 41.67% | 0.15% |
| **SUB TOTAL** | **236.83** | **32.84%** | **211.31** | **89.22%** | **3.03%** |
| | | | | | |
| **Provincial Agreement/ Education Act/ Employment Act** | | | | | |
| Court/Jury | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Illness - Teacher | 230.4 | 31.95% | 128.62 | 55.82% | 2.95% |
| Illness - Long Term | 23.63 | 3.28% | 0 | 0.00% | 0.30% |
| Medical/Dental Appt | 73.6 | 10.21% | 62.35 | 84.71% | 0.94% |
| Internship Seminar | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Paternity/Adoption Leave | 2 | 0.28% | 1.5 | 75.00% | 0.03% |
| Secondment | 1.5 | 0.21% | 1.5 | 100.00% | 0.02% |
| Unpaid Sick Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **SUB TOTAL** | **331.13** | **45.92%** | **193.97** | **58.58%** | **4.24%** |
| | | | | | |
| **Prairie South** | | | | | |
| Extra/Co-curr Teach | 11.71 | 1.62% | 8.21 | 70.11% | 0.15% |
| FACI Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| HUMA Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| LRNG Meet/PD | 17.8 | 2.47% | 15.6 | 87.64% | 0.23% |
| Noon Supervision Day | 20.5 | 2.84% | 14.6 | 71.22% | 0.26% |
| PD DEC Teachers | 95.49 | 13.24% | 79.01 | 82.74% | 1.22% |
| SOEH Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SONO Meet/PD | 1.1 | 0.15% | 1.1 | 100.00% | 0.01% |
| SOSO Meet/PD | 6.5 | 0.90% | 3 | 46.15% | 0.08% |
| STF Business - Invoice | 0 | 0.00% | 0 | 0.00% | 0.00% |
| TRAN Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **SUB TOTAL** | **153.1** | **21.23%** | **121.52** | **79.37%** | **1.96%** |
| **Total Absences** | **721.06** | **100.00%** | **526.8** | **73.06%** | **9.23%** |

| Teachers (FTE) | # of teaching Days | Possible Days |
|---|---|---|
| 433.92 | 18 | 7810.56 |

# CUPE Staff Absences & Casual Usage 2016-2017

## Date: October 29 - November 24 , 2016

| Absence Reason | Days | % of Total Absences | Sub Days | % Received Sub | % of possible days |
|---|---|---|---|---|---|
| **CUPE Agreement** | | | | | |
| Act of God | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Bereavement Leave | 5.03 | 1.15% | 5.03 | 100.00% | 0.11% |
| Community Service | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Compassionate Care | 4 | 0.92% | 0 | 0.00% | 0.08% |
| Competition Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Convocation Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| CUPE Business - Invo | 8 | 1.83% | 6 | 75.00% | 0.17% |
| Earned Day Off | 3 | 0.69% | 2 | 66.67% | 0.06% |
| Executive Position | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Family Responsibilities | 2 | 0.46% | 1 | 50.00% | 0.04% |
| Illness - Support | 210.19 | 48.21% | 138.57 | 65.93% | 4.42% |
| Med/Den Appt Support | 40.97 | 9.40% | 29.75 | 72.61% | 0.86% |
| Noon Supervision | 3 | 0.69% | 3 | 100.00% | 0.06% |
| Parenting/Caregiver | 30.74 | 7.05% | 21.99 | 71.54% | 0.65% |
| Pressing Leave | 15.23 | 3.49% | 10.79 | 70.85% | 0.32% |
| Rec. of Service | 1.5 | 0.34% | 1.5 | 100.00% | 0.03% |
| TIL Support | 3.82 | 0.88% | 1.33 | 34.82% | 0.08% |
| Without Pay Support | 30.14 | 6.91% | 19.17 | 63.60% | 0.63% |
| **SUB TOTAL** | **357.62** | **82.02%** | **240.13** | **67.15%** | **7.52%** |
| | | | | | |
| **Employment Act** | | | | | |
| Court/Jury Duty | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Paternity Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Vacation Support | 58 | 13.30% | 37.03 | 63.84% | 1.22% |
| Workers Compensation | 19.39 | 4.45% | 1 | 5.16% | 0.41% |
| **SUB TOTAL** | **77.39** | **17.75%** | **38.03** | **49.14%** | **1.63%** |
| | | | | | |
| **Prairie South** | | | | | |
| ACCT Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| BUSI Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Extra/Co-curr Sup | 0 | 0.00% | 0 | 0.00% | 0.00% |
| FACI Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| HUMA Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| LRNG Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| PD DEC Support Staff | 1 | 0.23% | 0 | 0.00% | 0.02% |
| SOEH Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SONO Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SOSO Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| TRAN Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **SUB TOTAL** | **1** | 0.23% | 0 | 0.00% | 0.02% |
| **Total Absences** | **436.01** | **100.00%** | **278.16** | **63.80%** | **9.17%** |

| **Possible Days** | **Days** | **FTE** | **Total Days** |
|---|---|---|---|
| October 29 - November 24, 2016 | 18.00 | 264.0406 | 4752.73 |

*Does not include data from three CUPE bus drivers

** WCB absences are adjusted after they occur as they are not entered as such until WCB accepts and pays the claim.

# Bus Driver Staff Absences & Casual Usage 2016-2017

## Date: October 29 - November 24 , 2016

| Absence Reason | Days | % of Total Absences | Sub Days | % Received Sub | % of possible days |
|---|---|---|---|---|---|
| **Conditions of Employment** | | | | | |
| Act of God | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Bereavement Leave | 4 | 3.04% | 4 | 100.00% | 0.19% |
| Community Service | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Compassionate Care | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Competition Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Convocation Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Family Responsibilities | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Illness - Support | 32 | 24.33% | 32 | 100.00% | 1.55% |
| Med/Den Appt Support | 31.5 | 23.95% | 29.5 | 93.65% | 1.52% |
| Parenting/Caregiver | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Pressing Leave | 7.5 | 5.70% | 7.5 | 100.00% | 0.36% |
| Without Pay Support | 56.5 | 42.97% | 56.5 | 100.00% | 2.73% |
| **SUB TOTAL** | **131.5** | **100.00%** | **129.5** | **98.48%** | **6.35%** |
| | | | | | |
| **Employment Act** | | | | | |
| Court/Jury Duty | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Paternity Leave | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Vacation Support | 0 | 0.00% | 0 | 0.00% | 0.00% |
| Workers Compensation | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **SUB TOTAL** | **0** | **0.00%** | **0** | **0.00%** | **0.00%** |
| | | | | | |
| **Prairie South** | | | | | |
| ACCT Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| BUSI Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| FACI Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| HUMA Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| LRNG Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SOEH Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SONO Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| SOSO Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| TRAN Meet/PD | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **SUB TOTAL** | 0 | 0.00% | 0 | 0.00% | 0.00% |
| **Total Absences** | **131.5** | **100.00%** | **129.5** | **98.48%** | **6.35%** |

| **Possible Days** | **Days** | **Staff** | **Total Days** |
|---|---|---|---|
| October 29 - November 24, 2016 | 18.00 | 115 | 2070.00 |

*** Bus Drivers are now counted by actual staff, not FTE**

** Data includes data from 3 CUPE bus drivers

*** WCB absences are adjusted after they occur as they are not entered as such until WCB accepts and pays the claim.

# Out of Scope Staff Absences & Casual Usage 2016-2017

## Date: October 29 - November 24, 2016

| Absence Reason | Days | % of Total Absences | Sub Days | % Received Sub | % of possible days |
|---|---|---|---|---|---|
| **Conditions of Employment** | | | | | |
| Act of God | 0 | 0.00% | 0 | 0 | 0.00% |
| Bereavement Leave | 1 | 1.41% | 0 | 0 | 0.10% |
| Community Service | 0 | 0.00% | 0 | 0 | 0.00% |
| Compassionate Care | 0.69 | 0.97% | 0 | 0 | 0.07% |
| Competition Leave | 0 | 0.00% | 0 | 0 | 0.00% |
| Convocation Leave | 0 | 0.00% | 0 | 0 | 0.00% |
| Family Responsibilities | 0 | 0.00% | 0 | 0 | 0.00% |
| Illness - Support | 22.12 | 31.14% | 0 | 0 | 2.27% |
| Med/Den Appt Support | 6.91 | 9.73% | 0 | 0 | 0.71% |
| Parenting/Caregiver | 1.07 | 1.51% | 0 | 0 | 0.11% |
| Pressing Leave | 0.55 | 0.77% | 0 | 0 | 0.06% |
| Without Pay Support | 0.38 | 0.53% | 0 | 0 | 0.04% |
| **SUB TOTAL** | **32.72** | **46.06%** | **0** | **0.00%** | **3.36%** |
| | | | | | |
| **Employment Act** | | | | | |
| Court/Jury Duty | 0 | 0.00% | 0 | 0 | 0.00% |
| Paternity Leave | 0 | 0.00% | 0 | 0 | 0.00% |
| Vacation Support | 38.32 | 53.94% | 0 | 0 | 3.93% |
| Workers Compensation | 0 | 0.00% | 0 | 0 | 0.00% |
| **SUB TOTAL** | **38.32** | **53.94%** | **0** | **0.00%** | **3.93%** |
| | | | | | |
| **Prairie South** | | | | | |
| ACCT Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| BUSI Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| FACI Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| HUMA Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| LRNG Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| SOEH Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| SONO Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| SOSO Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| TRAN Meet/PD | 0 | 0.00% | 0 | 0 | 0.00% |
| **SUB TOTAL** | **0** | 0.00% | 0 | 0 | 0.00% |
| **Total Absences** | **71.04** | **100.00%** | **0** | **0.00%** | **7.28%** |

| **Possible Days** | **Days** | **FTE** | **Total Days** |
|---|---|---|---|
| October 29 - November 24, 2016 | 18.00 | 54.18 | 975.24 |

** WCB absences are adjusted after they occur as they are not entered as such until WCB accepts and pays the claim.

# Tender Report for the period November 7, 2016 to December 5, 2016

Background:

- Board has requested a monthly report of tenders awarded which exceed the limits of Administrative procedure 513, which details limits where formal competitive bids are required. The procedure is as follows:
  - The Board of Education has delegated responsibility for the award of tenders to administration except where bids received for capital projects exceed budget. In this case the Board reserves the authority to accept/reject those tenders. A report of tenders awarded since the previous Board Meeting will be prepared for each regularly planned Board meeting as an information item.
  - Competitive bids will be required for the purchase, lease or other acquisition of an interest in real or personal property, for the purchase of building materials, for the provision of transportation services and for other services exceeding $75,000 and for the construction, renovation or alteration of a facility and other capital works authorized under the Education Act 1995 exceeding $200,000.

Current Status:

- A tender was issued for the replacement of the gym floor at Riverview Collegiate. The tender was awarded to Titan Sports Systems of Calgary for a cost of $120,225 plus tax.

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.4 |
| **Topic:** | **Central Butte Alternate Calendar Proposal** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** The Central Butte School SCC is requesting permission to move to an alternate calendar beginning in the fall of 2017.

**Current Status:** Currently, Central Butte School follows the traditional school year calendar.

**Pros and Cons:** The Central Butte SCC has outlined a series of benefits that they believe will be achieved in their community if they move to an alternate calendar. Research does not show a significant difference in educational attainment with either calendar format.

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Tony Baldwin | December 5, 2016 | Central Butte ASY Proposal |

***Recommendation:***

That the Board approve the Central Butte SCC Alternate School Year Proposal effective with the 2017-2018 school year and direct administration to complete a follow-up review in the spring of 2019.

That the Board review the Central Butte SCC Alternate School Year Proposal and request additional information as follows:

a.
b.
c.

# Central Butte School - Alternate School Year Proposal

Central Butte School Community Council has been considering an application for a few years. The initial consultation took place in 2009 when the Central Butte SCC invited Jody Lehmann, Principal of Gravelbourg High School, to come and deliver a presentation on the alternate school year. At that time, the alternative calendar was not pursued because of some uncertainty as to how the new Division would respond.

At the Prairie South Schools meeting of electors in June 2016, we became aware that Coronach and Rockglen were moving to the alternate school year. Our SCC decided to inquire as it seemed more rural schools were identifying advantages for their school communities. We contacted Coronach and Rockglen to clarify the process. Our SCC decided to pursue this option with the intent of taking it to our community for feedback, and we followed the developed parameters and guidelines for the approval process.

## Rationale and Benefits for Central Butte Students

The rationale of moving to an alternate school year calendar is to increase student attendance and student/family satisfaction. It is also thought that this model would also allow for an increase in the amount of instructional time spent on curriculum. Some of the benefits for students/families are believed to be:

- Less time on the bus
- More opportunity for family commitments
- Increased time for students in high school to complete CWEX, Cow Calf and Power Engineering placements and special project credits
- Increased energy level
- Students with jobs have an extra day to work
- Students would be available to help more on the family farm
- Students would be free to attend events like Agribition, go hunting or fishing etc. reducing the need to miss instructional time
- Earlier start times for extra-curricular sports and tournaments on Fridays and less instructional time missed
- Students playing community sports like rodeo, hockey, soccer, dance in other communities would reduce their absences when they attend weekend competitions and tournaments.
- More breaks for deescalating relationship conflicts

**Administration Benefits**

- Help increase teacher recruitment especially for term and replacement contracts
- Increased preparation time for teachers leading to more engaging lessons
- Increased family time for teachers
- More opportunities for extra-curricular involvement
- Increased energy in the classroom
- More bus driver availability for extra-curricular trips
- Reduced number of days when we are short subs
- Reduced noon hour supervision demands and cost
- Reduced recess supervision hours relative to instructional time
- Increased availability for community rentals
- Reduced teacher absences for PD, illness and medical appointments

**Consultation Process**

The consultation process began with SCC members dividing up the family list in the school and calling every household to explain the importance of their attendance and feedback at a public meeting surrounding the initiative. These families were then invited by an SCC delegate to attend a meeting and presentation that was held on Monday Oct. 24, 2016. Parents with pre-school aged children, other community members and bus drivers were also informed of the meeting and invited to attend.

Invited as presenters were the Director of Education - Tony Baldwin, Board Chair – Shawn Davidson, Principal of Gravelbourg School – Jody Lehmann, and parent from Gravelbourg – Jennifer Jacobs. Other delegates present were Superintendent of Operations – Derrick Huschi, Trustee – Robert Bachmann, Candidate and now elected Trustee – Darcy Pryor.

Tony Baldwin spoke in regards to parameters around setting the school year calendar. He compared both the traditional and alternate school year calendars and how they differ. He then referred to the SELU report that compared traditional and non-traditional school learning results and explained that there is no evidence to support or refute that either model is better in terms of quality of education. He discussed that the alternate school year model is grounded in its practicality and preference for communities. Shawn Davidson spoke with regards to the Board supporting either calendar with no significant cost savings and effect on budgets. Jody Lehmann and Jennifer Jacobs shared their perspective from a school and community that has had the alternative school year since its inception. The evening ended with a question and answer session followed by a vote to all parents and community members present.

## Voting Results

The SCC had decided to allow one ballot per household so as not to skew results for families that have only one parent or only one parent in attendance. Our target was to have over 40 votes (61 families) and 70% in favour. Members of the SCC sat at a tables and had people sign in by household to qualify for a vote. The voting ballet consisted of a vote on the issue and included an indication for parent or community member or staff. We had several people present that were staff, community and parents and some circled more than one descriptor while others didn't circle any, making it difficult to analyze.

There were 46 votes cast. 31 voted in favour and 15 voted against the idea of the alternate school year proposal. This calculates out to 67.4% (1 vote short of 70%) in favour of moving to the alternate school year. The parent vote fell between 72% and 75% in favour.

During our reflection, we considered several factors that may have played a role in our results. People are resistant to change and we are somewhat removed geographically from schools currently running on the Alternate School Year Calendar. We have several staff members on temporary or replacement contracts that did not participate in the vote. We felt that in spite of these circumstances, if twice as many people voted in favour as voted against, the community was sending a pretty clear message that they would like to pursue the Alternate School Year. It is our understanding that in communities where the ASY has been implemented it grows in popularity over time. After deliberating for some time, our SCC decided to submit our results and proposal to the Board of Education for approval to move the Alternate School Year with a review scheduled after two years.

We have heard mostly positive comments from parents regarding taking the initiative to pursue the ASY. We have had two people ask if we could change their votes from no to yes, after they have had a chance to think more about it, which is not reflected in the numbers. We had one set of parents express concern over the change with regards to their special needs child. They consulted their expert contact from the Autism Spectrum Disorder Program, and were told that it may be a benefit or it may not.

We would like to see the Division consider the Alternate School Year Calendar for all rural schools to increase efficiencies and benefits throughout the division. Prairie South could also take advantage of the increase savings in transportation that we understand is now being passed on to school divisions. Extra-curricular activities could be strategically scheduled on Fridays to further reduce lost instruction time.

## Proposed Calendar

This will be created in conjunction with the Prairie South School calendar committee meeting to ensure that all provincial parameters are met.

Central Butte SCC Chairperson

Michelle Tucker

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.5 |
| **Topic:** | **Riverview Collegiate Alternate Calendar Proposal** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** The Riverview Collegiate SCC is requesting permission to move to an alternate calendar beginning in the fall of 2017.

**Current Status:** Currently, Riverview Collegiate follows the traditional school year calendar.

**Pros and Cons:** The Riverview Collegiate SCC has outlined a series of benefits that they believe will be achieved in their community if they move to an alternate calendar. Research does not show a significant difference in educational attainment with either calendar format.

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Tony Baldwin | December 5, 2016 | Riverview Collegiate ASY Proposal |

***Recommendation:***

That the Board refer the Riverview Collegiate SCC Alternate School Year Proposal to the Urban Strategies Committee for further review with the understanding that the proposal will return to the Board for decision by March, 2017.

# Riverview Collegiate – Alternate School Year Proposal

Riverview Collegiate School Community Council (SCC) is applying to participate in the Alternate School Year (ASY) Program. The concept was introduced as something that might help set Riverview Collegiate apart and thus attract more students. Upon witnessing the success that many schools in our surrounding communities have had with the program, our council determined it would be beneficial for both our school and community to pursue the option as well.

## Rationale and Benefit for Riverview Students

Our goal in moving to an Alternate School Year Calendar is to increase student attendance and student/family satisfaction and to attract more students to Riverview. We believe this model will also allow for an increase in the amount of instructional time spent on Curriculum.

The following list includes some of the benefits we have identified for our students and families in our community:

- Decreases amount of time students spend on the bus (we have several rural students who attend Riverview as well as our Lifeskills students who are bussed)
- Decreases family stress by allowing more free time together
- Allows additional time to fulfill family obligations
- Increases time for high school students to complete CWEX placements and Youth Apprenticeship hours
- Provides an extra day for students with jobs to work
- Allows earlier start times for extra-curricular sports/tournaments on Fridays

## Community Consultation Process

The SCC began the consultation process by sending written notice home in the school newsletter, two synervoice messages home regarding the meeting, and by calling each family with students currently enrolled in Riverview Collegiate to invite them to the informational meeting. We informed our families that supper and childcare would be provided at the meeting. Other community members were invited via posters and word of-mouth. Don Hand also met with the SCC

from Empire and Westmount to inform them that the Riverview SCC was beginning the consultation process and to invite them to the informational meeting.

Delegates present at the community meeting were the Director of Education – Tony Baldwin, Division Trustee – Jan Radwanski, Superintendent Lori Myer.

Tony Baldwin began the presentations by discussing the parameters set for the Alternate School Year. He compared both the Traditional and Alternate School Year calendars and explained how they differ. He then referred to the SELU report that compared traditional and non-traditional school learning results and noted that there was no evidence identified supporting or refuting either model in terms of quality of education. He discussed that the ASY model is grounded in its practicality and preference for communities.

Jan Radwanski discussed the effects of moving to the Alternate School Year from the perspective of Prairie South School Board, and indicated that the school board doesn't specifically endorse either calendar. Instead, the board feels that whichever calendar is best suited to the needs of the community should be used.

The evening ended with a question and answer session, followed by a vote open to all parents and staff members present.

## Voting Procedures

Parents of current Riverview Collegiate students were allowed to vote as well as Riverview staff.

## Voting Results

There were 32 families represented out of a possible 102 Riverview families. 26 families voted in favour, and 6 voted against the idea of the Alternate School Year Calendar proposal. 81% of the families that voted were in favour of trying the ASY calendar.

There were 18 staff votes in total. All 18 staff members present voted in favour of the idea of the Alternate School Year Calendar proposal.

## Proposed Calendar

The calendar will be created in conjunction with the Prairie South School calendar committee meeting. We are requesting a two year trial period with a vote by parents and staff in the Fall of 2018 to determine if the change has been a benefit to the students and the school.

## Provincial Guidelines

Currently the Alternate School Year Calendar adheres to 171 instructional days consisting of 334 minutes of instruction per day. There are also 12 non-instructional days, which complete the 183 teacher days.

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.6 |
| **Topic:** | **Human Resources Accountability Report** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** According to the Board's yearly work plan, a Human Resources Accountability Report is to be presented to the Board of Education in December of each year.

**Current Status:** Please see the attached Human Resources Accountability Report.

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Ryan Boughen | December 5, 2016 | Human Resources Accountability Report |

***Recommendation:***
That the Board receive and file the Human Resources Accountability Report.

Prairie South Schools 210 Learning together.
1075 9th Avenue North West, Moose Jaw, SK S6H 1V7 P 306.694.1200 1.877.434.1200 F 306.694.4955 prairiesouth.ca

# 2015-2016 Human Resources Accountability Report

December 2016 Prepared by: Human Resources Department

## Source Documents

**Policy 12: Section 4: Personnel Management**

RE 4.1 Has overall authority and responsibility for all personnel-related issues except the development of mandates for collective bargaining and those personnel matters precluded by legislation, collective agreements or Board policy.

RE 4.2 Ensures sound personnel management practices are in place to recruit, retain, advance and manage personnel in accordance with legislation or Board policy.

RE 4.3 Monitors and improves the performance of all staff.

QI 4.1 Develops and effectively implements high-quality and aligned recruitment, orientation, staff development, disciplinary, supervisory and evaluation processes.

QI 4.2 Follows Board recruitment policy.

QI 4.4 Fosters high standards of instruction and professional improvement.

QI 4.5 Provides for training of administrators and the development of leadership capacity within the Division.

**Policy 15: Section 5**

The Director of Education is delegated full authority to recruit and select staff for all school-based positions; however, for the position of principal the area trustee or trustee designated by the Chair in instance of area trustee conflict of interest, will be included in the selection committee but do not have decision making authority. For schools in Moose Jaw the Chair shall determine the trustee. Although Principal transfers without competition are rare, the Director of Education shall make such transfers in consultation with the Chair.

**Comprehensive Learning Framework - Supports**

## Evidence

**Background:**
Prairie South School Division covers 32,747 square kilometers of southern Saskatchewan and as of June 30, 2016 employed 1347 people (928.85 FTE).

- For Prairie South's Organizational Chart see *Appendix A*

- Total body count and break down (teacher, administrators, support staff, central office staff):

| Employee Type | Employee Count | FTE |
|---|---|---|
| Teachers (detail below) | 538 | 499.02 |
| Central Office Staff | 76 | 74.93 |
| Support Staff in Schools | 305 | 271.15 |
| Bus Drivers | 119 | 83.75 |
| Substitute Teachers | 171 | |
| Casual Support Staff | 138 | |
| TOTAL | 1347 | 928.85 |

| Teachers - Breakdown | Employee Count | FTE |
|---|---|---|
| Teachers | 476 | 453.58 |
| LEADS | 6 | 6 |
| School Administrators | 54 | 37.44 |
| Consultants | 22* | 19.5* |
| Coordinators | 2 | 2 |
| Online Teachers | 11* | 3.8* |
| Opportunity to Learn | 4* | 1* |
| PAA Initiative | 1* | 1* |
| * indicates also teaching (not counted twice) | **538** | **499.02** |

- Comparatively, Five Hills Health Region has over 1800 employees (as per their annual report), Saskatchewan PolyTechnic – Moose Jaw has approximately 300 employees, and Canadian Pacific Railway has 605 employees.

- Human Resources are responsible for administering the following five contracts that govern Prairie South employees.
    1. Teachers – Provincial Collective Agreement – effective September 1, 2013 to August 31, 2017.
    2. Teachers – LINC (Local Initiative Negotiating Committee) – expired August 18, 2013. Bargained in 2015 – 16, but not ratified by PSTA.
    3. Support (in-scope) – CUPE Local 5512 Collective Agreement – Effective September 1, 2013 – August 31, 2017.
    4. Support (out-of-scope) – Conditions of Employment – subject to annual review.
    5. Superintendents/Managers – Personal Service Contracts and Conditions of Employment.

- The Human Resources Department consists of the following:
    1. Ryan Boughen - Superintendent of Human Resources
    2. Diana Welter - Manager of Human Resources
    3. Bonnie Bistretzan - Human Resource Officer
    4. Leigh Patterson – Human Resource Assistant

**Elizabeth Cartman is our receptionist who falls under the supervision of Human Resources; however, her job description does not include human resource functions.

- The percentage of Prairie South's resources that are dedicated to human capital is represented as follows:

| **Prairie South School Division** | | | |
|---|---|---|---|
| Administration | $ | 2,474,326 | 2.8% |
| Instruction | $ | 50,633,836 | 58.6% |
| Facilities | $ | 4,300,185 | 5.0% |
| Transportation | $ | 3,943,003 | 4.5% |
| Complimentary | $ | 1,522,725 | 1.8% |
| External | $ | 3,083,100 | 3.6% |
| *LEADS (included in Admin costs)* | *$* | *993,844* | |
| | **$** | **65,957,175** | **76.3%** |

** These are actual costs incurred to administer the following Agreements (excluding salaries).
** As in the past, LINC costs include Associate Schools' costs.

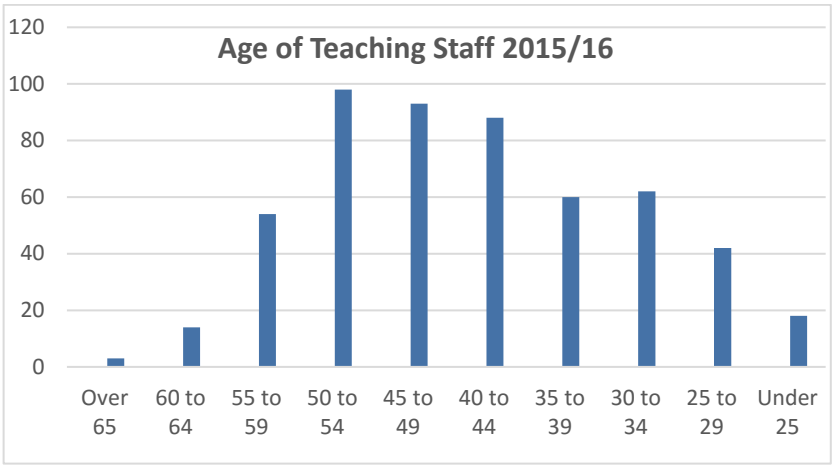
| **Agreement Costs** | |
|---|---|
| LINC | **$5,677,979** |
| CUPE | **$1,118,932** |
| Out of Scope | **$ 265,410** |

** In calculating the 2015-16 LINC costs a reporting error was discovered. The 2014-15 LINC costs were $5,489,783, not $5,005,607 as reported in the 2014-15 Accountability Report.

80% of Prairie South employees (742/929 – excluding Central Office Staff, Bus Drivers, Substitute Teachers, Casual Support Staff, LEADS members, Consultants, Coordinators and PAA Initiative Teacher) work in one of our forty-one schools. The school composition breakdown is as follows:

- 12 Elementary Schools
- 6 High Schools (including John Chisholm)
- 5 Hutterian Schools
- 2 Associate Schools
- 15 K-12 Schools
- 1 Virtual School

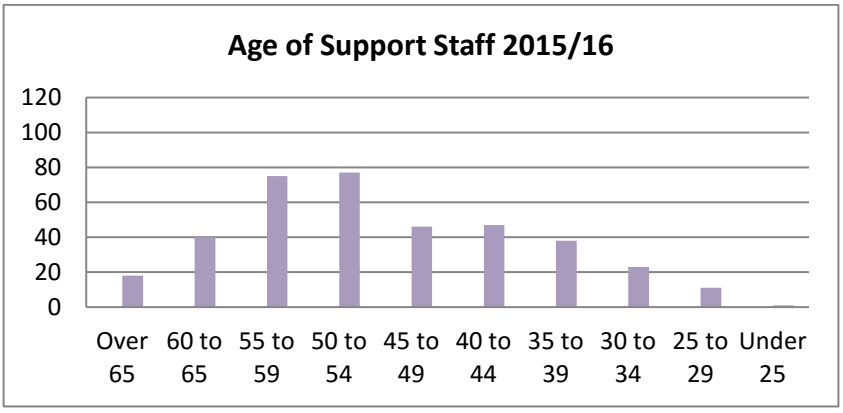
**Demographic Information:**




Estimated teachers eligible to retire based on criteria this year:
**(Assumption full years teaching/no leaves)**

| | |
|---|---|
| Age + Service = 85 (minimum age 55) | 34 |
| 30 years' eligibility service regardless of age | 0 |
| 20 years' eligibility service at 60 or over | 4 |
| One year or more of eligibility service at age 65 | n/a |
| | **38** |

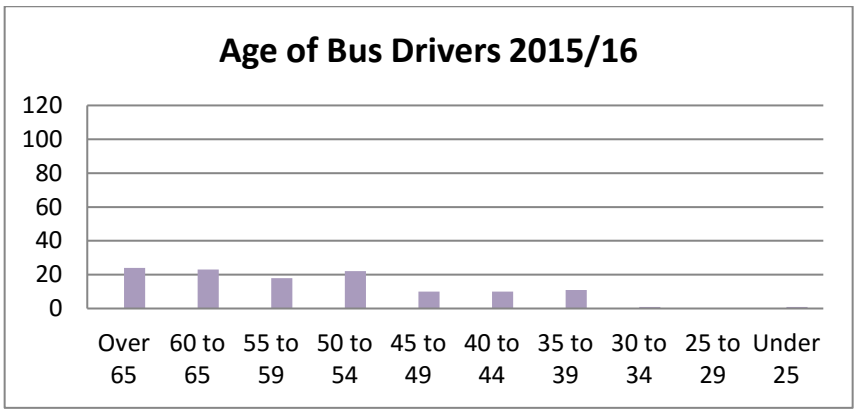
**These 38 teachers represent 7.1% of the teaching staff and includes 5 School Administrators.**




Estimated support staff eligible to retire based on criteria this year:
**(Assumption full years worked/no leaves)**

| | |
|---|---|
| Age + Service = 80 (minimum age 50) | 46 |
| 65 years' of age | 6 |
| 55 years' of age and 15 years' eligibility | 25 |

**These 77 staff represents 20% of the support staff, excluding bus drivers.**




Estimated bus drivers eligible to retire based on criteria this year:
**(Assumption full years worked/no leaves)**

| | |
|---|---|
| Age + Service = 80 (minimum age 50) | 23 |
| 65 years' of age | 12 |
| 55 years' of age and 15 years' eligibility | 1 |
| | **36** |

**These 36 staff represents 30% of the bus drivers.**

**Staffing:**

- **Recruitment, Selection & Placement**
  Teacher:
  - 131 teacher positions posted
  - 10 school administrator positions posted
  - 101 (69.03 FTE) teachers on temporary contracts
  - 8 (5.7 FTE) teachers on replacement contracts
  - 1 superintendent position posted
  - 68 substitute teachers hired

  CUPE:
  - 41 permanent CUPE positions posted
  - 57 temporary CUPE positions posted
  - 14 casual CUPE positions posted
  - 11 job share CUPE positions posted

  Out of Scope (excluding bus drivers):
  - 1 permanent out of scope positions posted
  - 5 temporary out of scope positions posted
  - 3 casual out of scope positions posted
- **Leaves**
  Teacher:
  - 26 (23.3 FTE) - maternity/parenting
  - 25 (20.6 FTE) - medical leave
  - 6 (5.5 FTE) - other leave
  - 1 (0.5 FTE) – secondment

Support Staff:

- 6 - maternity leaves
- 8 - other leave

- **Retention**

Teacher:

- Retention rate – 97.5% (39 of 40 continuous contracts)
- 25 teachers retired (includes 1 school administrator, 1 superintendent)
- 17 teachers resigned
- School-based administrator retention rate - 100

Support Staff:

- Retention rate – 100% (42 of 42 permanent postings)
- 16 support staff retired
- 11 support staff resigned

**Training & Development (Prairie South):**

- **Teacher:**
  - Year-long teacher orientation process consists of 3 days
  - 25 new teachers attended New Teacher Orientation (new teacher is defined as a teacher new to the profession or to Prairie South who has a continuous contract, a replacement contract, or a temporary contract that is 5 months or greater)
  - Day 1 and Day 2 took place prior to the commencement of school.

| **New Teacher Orientation** | |
|---|---|
| Day 1 (full day) | Welcome to Teaching in Prairie South, Teacher Supervision & Evaluation, AESOP, Lessons from New Teachers, Classroom Management, Classroom Management Scenarios, Electronic Pay Stubs |
| Day 2 (full day) | Making Connections, Reading (GRR, Comprehension, Connections), EAL Overview & Best Practices, Inclusive Practice, Learning Support Teams |
| Day 3 (full day) | STF (ie: Federation Overview, Code of Ethics & Provincial Agreement), Social Media, LINC Agreement, Altering Outcomes, Inclusionary Practices |

***Survey Results: All teachers who attended New Teacher Orientation were surveyed. The overall satisfaction rate was 3.97 out of 5.*

- **Administrators:**
  - Year-long administrator orientation consists of 2.5 days
  - Coaching Skills Training (Expedition Coaching Program by Destination Leadership)
  - 6 new administrators attended New Administrator Orientation
  - Day 1 and Day 2 took place prior to the commencement of school

| **New School Based Administrators Orientation** | |
|---|---|
| Day 1 (full day) | Where to Begin-As a New Principal, Principal/Vice-Principal Professional Growth Supervision & Evaluation, School Start Up – Leading Your School's Professional Learning |

| | |
|---|---|
| Day 2 (half day) | Working Morning with Superintendents (Domain Exploration: Personal Leadership, Cultural Leadership, Learning Leadership, Strategic Leadership, Human Resource Leadership, Managerial Leadership) |
| Day 3 (full day) | Teacher Supervision & Evaluation (Report Writing), Dealing with Conflict & Assessing Your Conflict Resolution Style, Having Courageous Conversations & Crucial Conversations, Business – My Budget File & Decentralized Budgets, Facilities Overview, Transportation, Information Technology & Connect, Business Odds & Ends |

***Survey Results: All administrators who attended New Administrator Orientation were surveyed. The overall satisfaction rate was 4.63 out of 5.*

| **All School-Based Administrator's Meetings** | |
|---|---|
| September 22, 23 | Cluster Chairs & School-Based Admin Leadership Team Mandate, Inclusion Redefined Focus Group Preparation, AP Renewal; Updates & Process Going Forward, Organizational Chart Review & Office Staff Meet & Greet, CUPE Support, Teambuilding, Collective Agreement Hotspots, Wall Walk & A3 Updating, Governance, Administration & Student Achievement Accountability Report, Literacy Leadership, The Feedback Challenge, Gender & Sexual Orientation Issues in Schools |
| December 2 | LIP/LIT Shared Understandings Teacher Data Review, Police Partnerships: Opportunity & Challenges, ESSP Update-Provincial Data & Level 1 A3 Adjustments, Connect Tips & Tricks, Inclusion Focus Group Data Review, PSS VTEC Presentation & Process |
| February 10 | Mental Health, Anxiety & Stigma |
| April 20 | TTFM Options for Engagement & LIP Connections, Positive Space Initiative, HUB Spring Presentation, Student Voice-Aligning VTEC & Non-Graduates' Stories, Diversity Policy Process, Shared Beliefs: Continuing the Inclusion Conversation |
| June 1 | Beginning Details, Shared Understandings, Level 2 A3 Updates, HR Updates, Administrative Procedures Update, Sharing Performance Feedback for Growth |

**Training & Development (External):**

- 35 teachers received tuition reimbursement for 75 courses (ELAC) for a total cost of $96,008.90
- 4 new administrators attended the Principal Short Course
- 8 teachers attended the teacher accreditation seminar (teacher accreditation is on a 5 year renewal basis)

- **Support Staff (Prairie South):**

| **Professional Development** | |
|---|---|
| Educational Assistants | Human Resources & Learning offered an optional session for all Educational Assistants on August 31. The session covered the rights, responsibilities and the role of Educational Assistants in the classroom. |
| All Support Staff | Optional professional development was available on October 15/15 and March 4/16 for all support staff. Sessions were held in both Moose Jaw and Assiniboia and included: Cleaning Products & Training, Basic Computer Training, Non-Violent Crisis Intervention Training, Computer Tips & Tricks Software Exploration, Do We Sabotage our Happiness?, Math Strategies, School Level Accounting, Standard First Aid/CPR, Working with Challenging Students, safeTALK, Reading Strategies, Resources & Supports Available from Palliser Regional Library, Drugs, Gangs & Youth |

- **Support Staff (External):**
  - 1 Out of scope staff received tuition reimbursement for 1 course for a total cost of $558.80
  - 11 CUPE support staff received tuition reimbursement for 16 courses for a total cost of $15,262.46.

**Performance Management**:

**Note: In 2015-16, Track 5 was eliminated by combining Track 4 & 5 into one Track.

Track 1 – First & Second Year Teacher/Admin
Track 2 – Four Year Supervision Cycle
Track 3 – Professional Growth Plan
Track 4 – No Demonstrating Proficiency

| **Supervision & Evaluation - Teachers** | |
|---|---|
| Track 1 | 87 |
| Track 2 | 113 |
| Track 3 | 328 |
| Track 4 | 1 |

| Supervision & Evaluation - Administrators | |
|---|---|
| Track 1 | 11 |
| Track 2 | 12 |
| Track 3 | 30 |
| Track 4 | 1 |
| Superintendents | 5 |

| Supervision & Evaluation – Support Staff | |
|---|---|
| Probationary | 54 |
| Passed Probation | 31 |
| Failed Probation or Trial Period | 1 |

| Employee Management - Teachers | |
|---|---|
| Clarification Conversations | 2 |
| Work Place Investigations | 1 |
| Mutual Terminations/Mutual Removal of Duties | 0 |
| Termination | 0 |
| Letters (Clarification, Cautionary, Reprimand) | 1 |
| Harassment Complaints | 0 |

| Employee Management - Support Staff | |
|---|---|
| Workplace Investigations | 0 |
| Harassment Complaints | 0 |
| Letters of Warning | 11 |
| Letters of Suspension | 2 |
| Termination | 4 |
| Failed Probation or Trial Period | 1 |
| Voluntary Demotion | 0 |

| Grievances – Support Staff | |
|---|---|
| Outstanding Grievances | 1 |
| Withdrawn and Resolved | 19 |

**Note – 13 of the resolved grievances go back as far as 2009.

***Grievance Procedure: All three steps are set out in the CUPE Collective Agreement: Step 1 – Supervisor, Step 2 – HR, Step 3 – Board*

- School Surplus/Redundancy: overall, 2.35 FTE teachers were surplus to five school staffs. 2.0 of the positions were transferred to a school that had an opening, and 0.35 FTE was absorbed through Threshold Adjustments. The surplus practice, which aligns with AP 416 and the redundancy language of *The Education Act, 1995,* was applied.

- Permanent Lay-offs/Abolishments: 27.9
- Seasonal Lay-Offs: 12 Educational Assistants
- Reductions: 0

**Teacher Attendance:**

**Prairie South Teacher Illness (Long Term/Short Term)**

| | # of days | # of teachers* | # of days per teacher | % of Days per teacher |
|---|---|---|---|---|
| Illness | 2569.78 | | 5.97 | 2.96% |
| Illness LT | 566.87 | | 1.32 | 0.65% |
| **Total** | **3136.65** | **430.48** | **7.29** | **3.61%** |

*** # of teachers (June FTE)**

- Consultants, Admin % and LEADS members are not included

**Comparison to External Standards (Stats Canada)**

| | Prairie South | Stats Canada |
|---|---|---|
| Illness (ST & LT) | 8.63 | 8.0 |

**Total Teacher Absences for 2015-2016**

| Category for Absences: | Days | Percent | Days per Teacher |
|---|---|---|---|
| LINC Agreement | 3226.62 | 34.31% | **7.35** |
| Prov. Agreement/Ed. Act/Sask Empl. Act | 4455.77 | 47.38% | **10.14** |
| Prairie South | 1721.61 | 18.31% | **3.92** |
| **Total** | **9404.00** | **100.00%** | **21.41** |

- **Appendices (for more information)**
  - Annual teacher by reason %'s & number of days (*Appendix B*)
  - Break down – 3 areas (sick,[LT & ST], LINC, Central Office Controls) (*Appendix C*)
  - Compare to self over time (*Appendix D*)

**Support Staff:**

| Prairie South Support Staff Illness (Long Term/Short Term) | | | | |
|---|---|---|---|---|
| | **# of days** | **# of staff*** | **# of days per employee** | **% of Days/ employee** |
| Illness | 2947.86 | | 8.44 | 4.24% |
| Illness LT | 38 | | .11 | .06% |
| **Total** | **2985.86** | **349.41** | **8.55** | **4.30%** |

*** # of staff (June FTE)**
- no bus drivers
- average number of days per year 199

| Comparison to External Standards (Stats Canada) | | |
|---|---|---|
| | Prairie South | Stats Canada |
| Illness (ST & LT) | 8.55 | 8.0 |

**Total Support Staff Absences for 2015-2016 (Without Vacation)**

| **Category for Absences:** | **Days** | **Percent** | **Days per Employee** |
|---|---|---|---|
| CUPE & Out of Scope Agreements | 7497.82 | 98.57% | 21.46 |
| Prairie South | 108.93 | 1.43% | .31 |
| **Total** | **7606.75** | **100.00%** | **21.77** |

*For total including vacation, see Appendix E

- **Appendices (for more information)**
  - Annual support staff by reason %'s & number of days (*Appendix E)*
  - Break down – 3 areas (sick (LT & ST), CUPE, Central Office Controls (*Appendix F*)
  - Compare to self over time *(Appendix G)*

## Administrative Issues

- **Issue:** Saskatchewan Professional Teacher Regulatory Board (SPTRB) was established with plans for full implementation for the 2016-17 school year.
- **Response:** Teachers, principals and the Human Resources department worked collaboratively to meet the regulatory board's mandate of having teachers register yearly.

- **Issue:** The PSTA did not ratify the LINC agreement, which was presented to the membership in late November/early December.
- **Response:** The PSTA recently served bargaining notice, pending the announcement of Transformational Change.

- **Issue:** Prairie South Schools lacked a consistent practice for the allocation of noon hour supervision.
- **Response:** A noon hour supervision formula was established for implementation for the 2016-17 school year.

- **Issue:** The Teacher Professional Growth Rubric was last updated in 2012, and therefore, required updating.
- **Response:** Human Resources and the Learning Department worked with a teacher committee to update the rubric. The updated rubric was implemented this fall.

## Celebrations

- Improved Teacher Attendance:

| Teacher Absence Comparison | | | |
|---|---|---|---|
| Category for Absences: | 2013-14 Days | 2014-15 Days | 2015-16 Days |
| # Illness Days/Teacher (short term/long term) | 9.24 | 8.63 | 7.29 |
| Total Days per Employee | 24.71 | 23.74 | 21.41 |

  - Teacher absenteeism was reduced by 506.4 days from 2013-14 to 2014-15, and again by 641.29 days from 2014-15 to 2015-16 for a total of 1147.69.

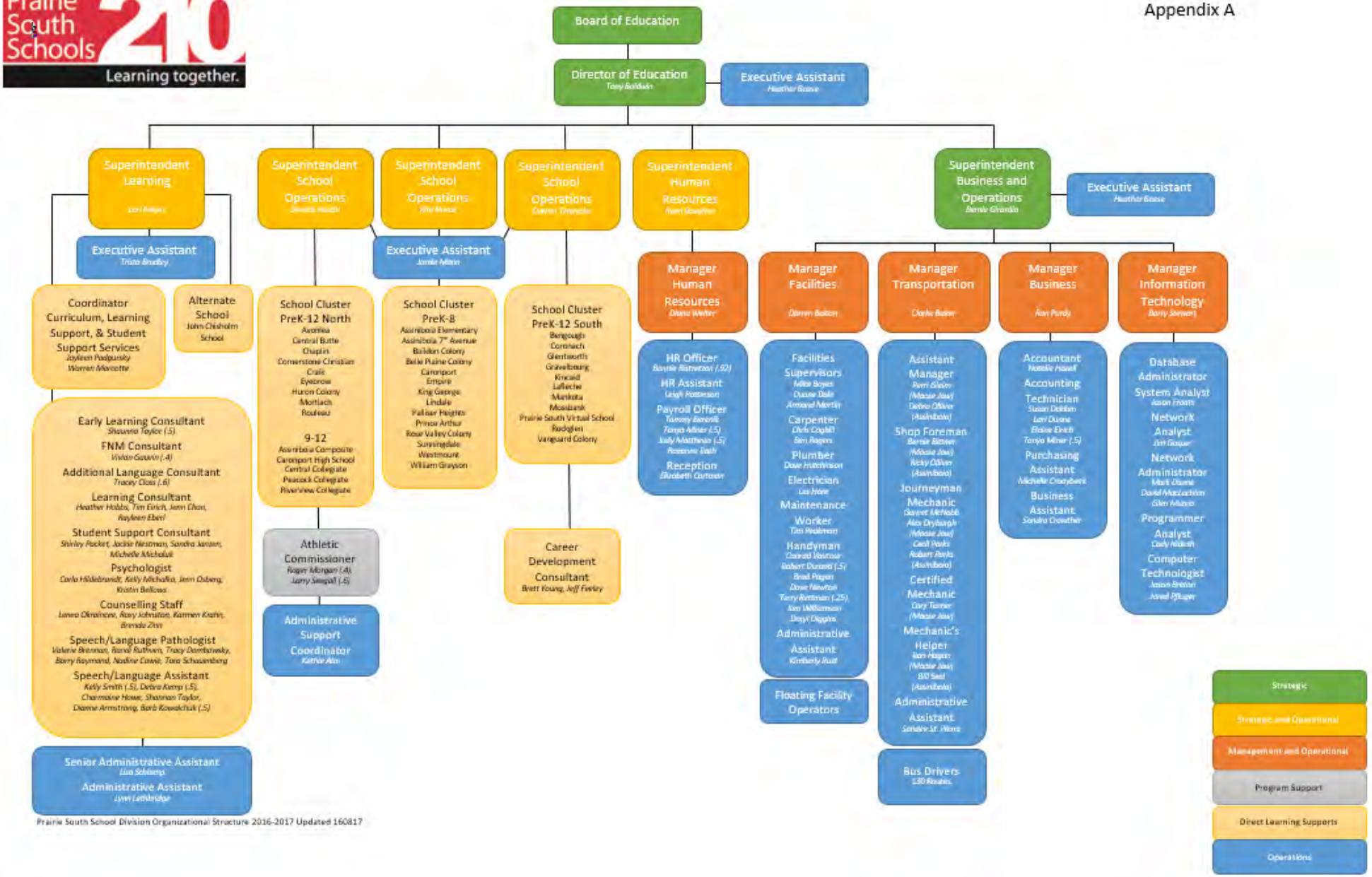
- Support Staff short term and long term absences was reduced from 9.97 days per employee to 8.55 days per employee from 2014-15 to 2015-16 school year. At the same time, the Stats Canada number went up from 7.4 days per employee to 8.0 days per employee.

- 19 grievances were resolved dating back to 2009.

## Governance Implications

- Agreed to bargain LINC agreement in early 2017

Appendix A




Prairie South School Division Organizational Structure 2016-2017 Updated 160817

# TEACHER ABSENCES 2015/2016

| Absence Reason | Aug/Sept | October | November | December | January | February | March | Mar 14 - Apr 28 | May | June | Total | % of Possible Days |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Compassionate Leave | 25.78 | 7 | 19 | 46.38 | 17.5 | 15.6 | 14 | 40.38 | 21.1 | 22.6 | **229.34** | **0.26%** |
| Competition Leave | 0 | 2.4 | 0 | 2 | 0 | 0 | 0 | 4 | 0 | | **8.4** | **0.01%** |
| Convocation Leave | 0 | 0.5 | 0 | 2.35 | 1 | 0 | 0 | 0 | 3 | 30.87 | **37.72** | **0.04%** |
| Court/Jury | 0 | 7 | 0.5 | 0 | 0 | 5 | 1 | 0 | 8 | 1 | **22.5** | **0.03%** |
| Education Leave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | **0** | **0.00%** |
| Emergency Leave | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4.1 | 0 | 0.5 | **5.6** | **0.01%** |
| Executive Leave | 2 | 2 | 1.4 | 2.5 | 0 | 1 | 0 | 4.5 | 2.4 | 8.89 | **24.69** | **0.03%** |
| Extra/Co-curr Teach | 82.43 | 56.79 | 22.33 | 28 | 15.2 | 29.3 | 39.75 | 50.46 | 97.55 | 79.32 | **501.13** | **0.58%** |
| FACI Meet/PD | 0 | 0 | 0 | 0 | 0 | 0.5 | 0 | 0 | 0 | | **0.5** | **0.00%** |
| HUMA - Meet/PD | 95.5 | 19.7 | 8.6 | 67.4 | 26.1 | 50.5 | 0.5 | 51.6 | 7.4 | 45.5 | **372.8** | **0.43%** |
| Illness - Teacher | 177.25 | 178.76 | 254.29 | 333.13 | 230.32 | 223.9 | 234.77 | 435.26 | 227.99 | 274.11 | **2569.78** | **2.96%** |
| Illness - Long Term | 7.65 | 34.65 | 86.77 | 69.96 | 59.87 | 49.24 | 72.2 | 88.81 | 37.11 | 60.61 | **566.87** | **0.65%** |
| Internship Seminar | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | **40** | **0.05%** |
| LRNG Meet/PD | 7.5 | 21.09 | 29.13 | 42.76 | 47.7 | 42.18 | 52.84 | 97.84 | 73.03 | 44.92 | **458.99** | **0.53%** |
| Medical/Dental Appt | 87.25 | 111.23 | 146.27 | 170.07 | 120.93 | 121.46 | 83.78 | 117.69 | 126.91 | 123.99 | **1209.58** | **1.39%** |
| Noon Supervision Day | 7 | 13.73 | 12.5 | 22.3 | 9.4 | 29 | 24.89 | 48.03 | 31.68 | 40 | **238.53** | **0.27%** |
| Paternity Leave | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | | **2** | **0.00%** |
| PD DEC Teachers | 24.14 | 74.29 | 123.1 | 34.66 | 40.5 | 29.8 | 38.5 | 62.91 | 42.5 | 22.5 | **492.9** | **0.57%** |
| Pressing Teacher | 21.7 | 16.5 | 16 | 20.96 | 10.8 | 9.4 | 8.01 | 31.1 | 17.58 | 30.72 | **182.77** | **0.21%** |
| Prep Time | 12 | 51.9 | 228.26 | 50.9 | 39.3 | 27.4 | 181.8 | 95.49 | 141.46 | 435.54 | **1264.05** | **1.46%** |
| PSTA | 0 | 0.5 | 1.4 | 1 | 0 | 0.5 | 0 | 4.3 | 1 | 1 | **9.7** | **0.01%** |
| Rec. Of Service | 25.7 | 48.01 | 56.4 | 59.53 | 28.96 | 49.5 | 42 | 105.86 | 76.33 | 155.71 | **648** | **0.75%** |
| Secondment | 0 | 2 | 2 | 2.5 | 2.5 | 9 | 0 | 2.9 | 1 | 4 | **25.9** | **0.03%** |
| SOEH | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | | **7** | **0.01%** |
| SONO | 31.96 | 8.15 | 3.52 | 6.3 | 25.5 | 24.29 | 9.5 | 16.1 | 108.16 | 41.08 | **274.56** | **0.32%** |
| SOSO | 6.62 | 3.02 | 24.9 | 6.89 | 4 | 1 | 3.5 | 12.2 | 2 | 1.5 | **65.63** | **0.08%** |
| STF Business - Invoice | 5.2 | 5.5 | 9.2 | 3 | 2 | 0 | 5.2 | 17.8 | 9.2 | 1 | **58.1** | **0.07%** |
| Unpaid Sick Leave | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 1.54 | 1 | **3.04** | **0.00%** |
| TRAN Meet/PD | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | | **1** | **0.00%** |
| Leave Without Pay | 5.5 | 8 | 1 | 11.15 | 5.28 | 2 | 13 | 9.64 | 9.8 | 17.55 | **82.92** | **0.10%** |
| **Total Absences** | **670.18** | **672.72** | **1047.57** | **985.74** | **686.86** | **723.57** | **825.24** | **1301.47** | **1046.74** | **1443.91** | **9404** | **10.83%** |

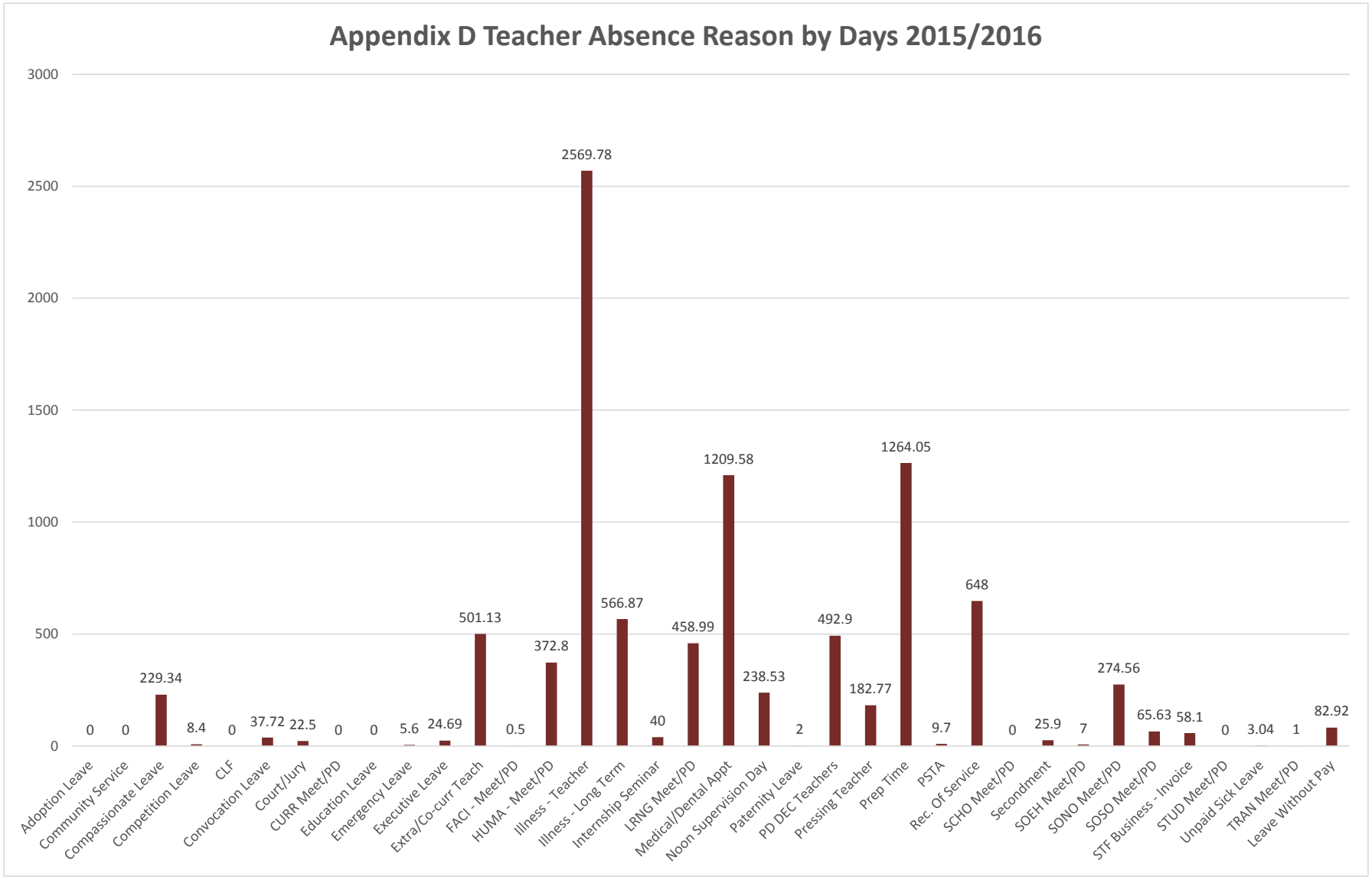
| Possible Days | Days | FTE | Total Days |
|---|---|---|---|
| August/September | 23 | 436.06 | 10029.38 |
| October | 17 | 437.58 | 7438.86 |
| November | 21 | 437.58 | 9189.18 |
| December | 21 | 438.38 | 9205.98 |
| January | 15 | 438.38 | 6575.7 |
| February | 15 | 439.18 | 6587.7 |
| March | 15 | 439.18 | 6587.7 |
| April | 28 | 439.18 | 12297.04 |
| May | 19 | 439.28 | 8346.32 |
| June | 24 | 439.28 | 10542.72 |
| | **198** | | **86800.58** |

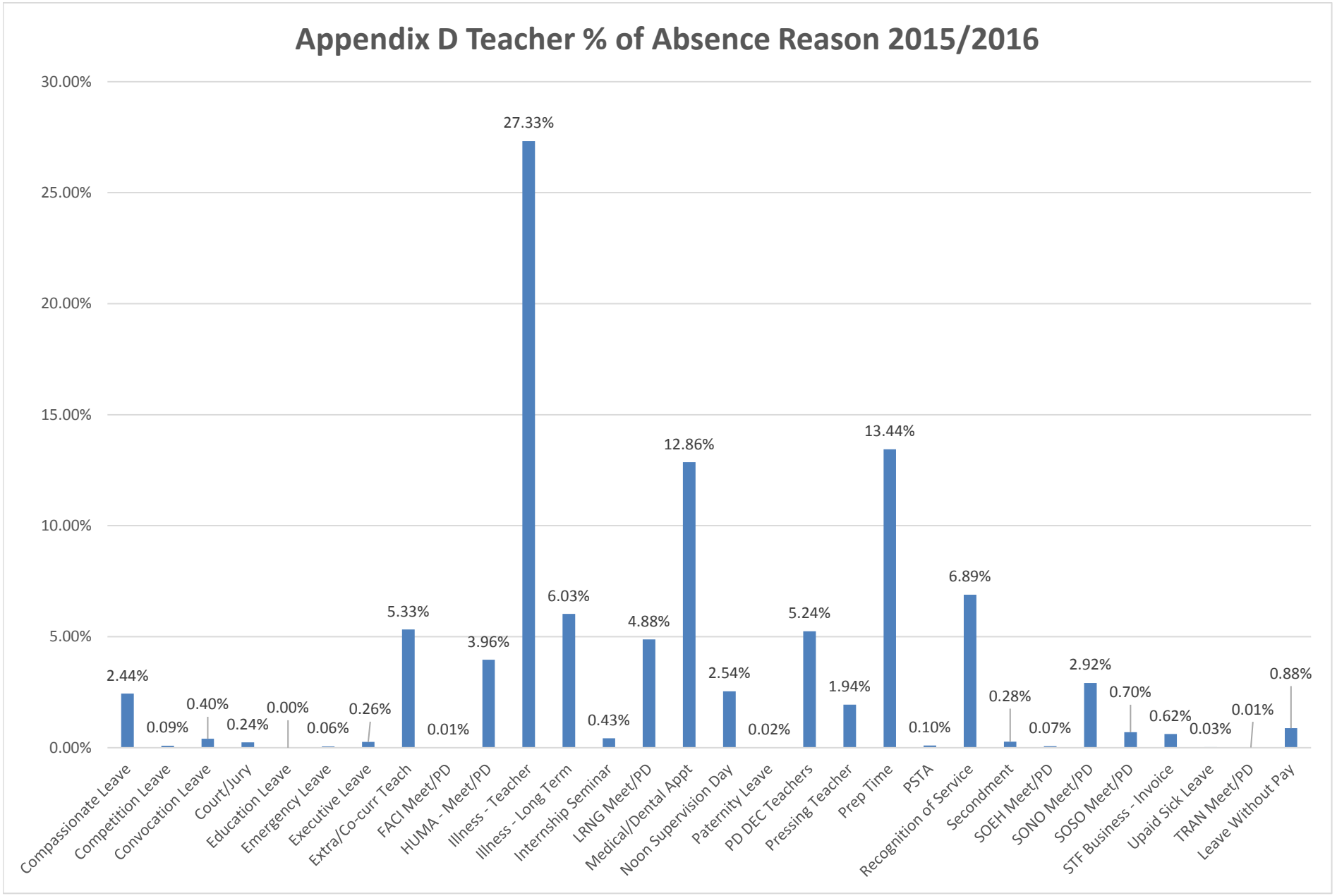
Appendix C

# TEACHER ABSENCES 2015/2016

| Absence Reason | Total | % by Reason | LINC | Days Per Teacher | Prov. Agree/Ed Act/Trade Union Act | Days Per Teacher | PSSD | Days Per Teacher |
|---|---|---|---|---|---|---|---|---|
| Compassionate Leave | **229.34** | **2.44%** | 229.34 | 0.52 | | | | |
| Competition Leave | **8.4** | **0.09%** | 8.4 | 0.02 | | | | |
| Convocation Leave | **37.72** | **0.40%** | 37.72 | 0.09 | | | | |
| Court/Jury | **22.5** | **0.24%** | | | 22.5 | 0.05 | | |
| Education Leave | **0** | **0.00%** | | | | | | |
| Emergency Leave | **5.6** | **0.06%** | 5.6 | 0.01 | | | | |
| Executive Leave | **24.69** | **0.26%** | 24.69 | 0.06 | | | | |
| Extra/Co-curr Teach | **501.13** | **5.33%** | | | | | 501.13 | 1.14 |
| FACI Meet/PD | **0.5** | **0.01%** | | | | | 0.5 | 0.00 |
| HUMA - Meet/PD | **372.8** | **3.96%** | | | | | 372.8 | 0.85 |
| Illness - Teacher | **2569.78** | **27.33%** | | | 2569.78 | 5.85 | | |
| Illness - Long Term | **566.87** | **6.03%** | | | 566.87 | 1.29 | | |
| Internship Seminar | **40** | **0.43%** | | | | | 40 | 0.09 |
| LRNG Meet/PD | **458.99** | **4.88%** | | | | | 458.99 | 1.04 |
| Medical/Dental Appt | **1209.58** | **12.86%** | | | 1209.58 | 2.75 | | |
| Noon Supervision Day | **238.53** | **2.54%** | 238.53 | 0.54 | | | | |
| Paternity Leave | **2** | **0.02%** | 2 | 0.00 | | | | |
| PD DEC Teachers | **492.9** | **5.24%** | 492.9 | 1.12 | | | | |
| Pressing Teacher | **182.77** | **1.94%** | 182.77 | 0.42 | | | | |
| Prep Time | **1264.05** | **13.44%** | 1264.05 | 2.88 | | | | |
| PSTA | **9.7** | **0.10%** | 9.7 | 0.02 | | | | |
| Recognition of Service | **648** | **6.89%** | 648 | 1.48 | | | | |
| Secondment | **25.9** | **0.28%** | | | 25.9 | 0.06 | | |
| SOEH Meet/PD | **7** | **0.07%** | | | | | 7 | 0.02 |
| SONO Meet/PD | **274.56** | **2.92%** | | | | | 274.56 | 0.63 |
| SOSO Meet/PD | **65.63** | **0.70%** | | | | | 65.63 | 0.15 |
| STF Business - Invoice | **58.1** | **0.62%** | | | 58.1 | 0.13 | | |
| Upaid Sick Leave | **3.04** | **0.03%** | | | 3.04 | 0.01 | | |
| TRAN Meet/PD | **1** | **0.01%** | | | | | 1 | 0.00 |
| Leave Without Pay | **82.92** | **0.88%** | 89.92 | 0.20 | | | | |
| **Total Absences** | **9404** | **100.00%** | **3233.62** | **7.36** | **4455.77** | **10.14** | **1721.61** | **3.92** |
| | | | **34.39%** | | **47.38%** | | **18.31%** | |

| Teacher Absences | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 | 2015/16 | Inc/Decr |
|---|---|---|---|---|---|---|---|---|---|
| Adoption Leave | 0 | 0 | 2.5 | 0 | 0 | 0 | 0 | 0 | **0** |
| Community Service | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **0** |
| Compassionate Leave | 330.11 | 271.4 | 216.49 | 208.35 | 215.03 | 251.3 | 231.14 | 229.34 | **-1.8** |
| Competition Leave | 25.5 | 20 | 24.23 | 18 | 11.6 | 14.41 | 4.5 | 8.4 | **3.9** |
| CLF | 0 | 0 | 0 | 37.2 | 0 | 0 | 0 | 0 | **0** |
| Convocation Leave | 45.3 | 32.74 | 39.4 | 51.8 | 44.95 | 27.53 | 55.81 | 37.72 | **-18.09** |
| Court/Jury | 0 | 0 | 7.5 | 4.1 | 6.25 | 1 | 2 | 22.5 | **20.5** |
| CURR Meet/PD | 1032.44 | 977 | 684.42 | 211.32 | 0 | 0 | 0 | 0 | **0** |
| Education Leave | 0 | 0 | 0 | 36.4 | 0 | 0 | 9 | 0 | **-9** |
| Emergency Leave | 39.34 | 106.7 | 55.67 | 15.4 | 200.5 | 14.9 | 10.9 | 5.6 | **-5.3** |
| Executive Leave | 13.25 | 11.48 | 26.49 | 54.66 | 36.03 | 27.5 | 32 | 24.69 | **-7.31** |
| Extra/Co-curr Teach | 460.65 | 453.4 | 338.29 | 396.59 | 410.04 | 344.59 | 409.95 | 501.13 | **91.18** |
| FACI - Meet/PD | 34.1 | 20 | 0.63 | 0 | 1.5 | 7.85 | 0 | 0.5 | **0.5** |
| HUMA - Meet/PD | 362.28 | 263.2 | 211.63 | 434.16 | 281.34 | 289.3 | 303.5 | 372.8 | **69.3** |
| Illness - Teacher | 3542.17 | 4618 | 3047.85 | 2402.96 | 2543.35 | 2643.13 | 2012.23 | 2569.78 | **557.55** |
| Illness - Long Term | 0 | 0 | 1049.4 | 1283.19 | 1283.22 | 1303.13 | 1643.49 | 566.87 | **-1076.62** |
| Internship Seminar | 24.1 | 32.5 | 40.64 | 31.9 | 30.8 | 28 | 36.9 | 40 | **3.1** |
| LRNG Meet/PD | 0 | 0 | 0 | 0 | 367.68 | 474.75 | 502.26 | 458.99 | **-43.27** |
| Medical/Dental Appt | 1930.02 | 1251.68 | 1287.4 | 1405.8 | 1557.12 | 1624.61 | 1269.12 | 1209.58 | **-59.54** |
| Noon Supervision Day | 179.23 | 170.7 | 195.71 | 210.56 | 232.62 | 230.23 | 250.55 | 238.53 | **-12.02** |
| Paternity Leave | 9 | 12.8 | 6 | 4 | 9.74 | 0 | 10 | 2 | **-8** |
| PD DEC Teachers | 669.31 | 659.2 | 418.41 | 514.28 | 437.11 | 412.67 | 404.08 | 492.9 | **88.82** |
| Pressing Teacher | 323.49 | 352.1 | 347.73 | 324.37 | 310.15 | 313.05 | 239.27 | 182.77 | **-56.5** |
| Prep Time | 578.94 | 844.9 | 855.83 | 1180.57 | 1241.03 | 1209.02 | 1280.73 | 1264.05 | **-16.68** |
| PSTA | 55.31 | 46.29 | 31.46 | 39.53 | 9.76 | 13.7 | 7.4 | 9.7 | **2.3** |
| Rec. Of Service | 552.09 | 556.2 | 593.78 | 571.49 | 646.22 | 643.02 | 661.94 | 648 | **-13.94** |
| SCHO Meet/PD | 255.33 | 373.9 | 343.46 | 146.99 | 0 | 0 | 0 | 0 | **0** |
| Secondment | 33.4 | 25.1 | 67.17 | 17.5 | 41.3 | 8.1 | 24.9 | 25.9 | **1** |
| SOEH Meet/PD | 0 | 0 | 0 | 25 | 16.12 | 6.5 | 4 | 7 | **3** |
| SONO Meet/PD | 0 | 0 | 0 | 191.44 | 384.66 | 345.76 | 321.29 | 274.56 | **-46.73** |
| SOSO Meet/PD | 0 | 0 | 0 | 44.53 | 80.77 | 77.94 | 100.27 | 65.63 | **-34.64** |
| STF Business - Invoice | 55.31 | 46.29 | 107.24 | 74.9 | 91.06 | 99.92 | 84.26 | 58.1 | **-26.16** |
| STUD Meet/PD | 571.93 | 506.6 | 439.98 | 271.47 | 0 | 0 | 0 | 0 | **0** |
| Unpaid Sick Leave | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 3.04 | **-26.96** |
| TRAN Meet/PD | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | **1** |
| Leave Without Pay | 192.02 | 92.65 | 244.22 | 125.73 | 131.19 | 139.78 | 103.8 | 82.92 | **-20.88** |
| Total Absences | **11314.62** | **11744.83** | **10684.53** | **10334.19** | **10624.14** | **10551.69** | **10045.29** | **9404.00** | **-641.29** |
| **Ave days per teacher(MBF)** | **23.5** | **23.32** | **21.28** | **20.58** | **21.24** | **21.13** | **20.28** | **20.20** | |


Appendix D Teacher Absence Reason by Days 2015/2016
3000
2500
2000
1500
1000
500
0
0
0
229.34
8.4
0
37.72
22.5
0
0
5.6
24.69
501.13
0.5
372.8
2569.78
566.87
40
458.99
1209.58
238.53
2
492.9
182.77
1264.05
9.7
648
0
25.9
7
274.56
65.63
58.1
0
3.04
1
82.92
Adoption Leave
Community Service
Compassionate Leave
Competition Leave
CLF
Convocation Leave
Court/Jury
CURR Meet/PD
Education Leave
Emergency Leave
Executive Leave
Extra/Co-curr Teach
FACI - Meet/PD
HUMA - Meet/PD
Illness - Teacher
Illness - Long Term
Internship Seminar
LRNG Meet/PD
Medical/Dental Appt
Noon Supervision Day
Paternity Leave
PD DEC Teachers
Pressing Teacher
Prep Time
PSTA
Rec. Of Service
SCHO Meet/PD
Secondment
SOEH Meet/PD
SONO Meet/PD
SOSO Meet/PD
STF Business - Invoice
STUD Meet/PD
Unpaid Sick Leave
TRAN Meet/PD
Leave Without Pay


Appendix D Teacher % of Absence Reason 2015/2016
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
2.44%
0.09%
0.40%
0.24%
0.00%
0.06%
0.26%
5.33%
0.01%
3.96%
27.33%
6.03%
0.43%
4.88%
12.86%
2.54%
0.02%
5.24%
1.94%
13.44%
0.10%
6.89%
0.28%
0.07%
2.92%
0.70%
0.62%
0.03%
0.01%
0.88%
Compassionate Leave
Competition Leave
Convocation Leave
Court/Jury
Education Leave
Emergency Leave
Executive Leave
Extra/Co-curr Teach
FACI Meet/PD
HUMA - Meet/PD
Illness - Teacher
Illness - Long Term
Internship Seminar
LRNG Meet/PD
Medical/Dental Appt
Noon Supervision Day
Paternity Leave
PD DEC Teachers
Pressing Teacher
Prep Time
PSTA
Recognition of Service
Secondment
SOEH Meet/PD
SONO Meet/PD
SOSO Meet/PD
STF Business - Invoice
Upaid Sick Leave
TRAN Meet/PD
Leave Without Pay

# SUPPORT STAFF ABSENCES 2015/2016

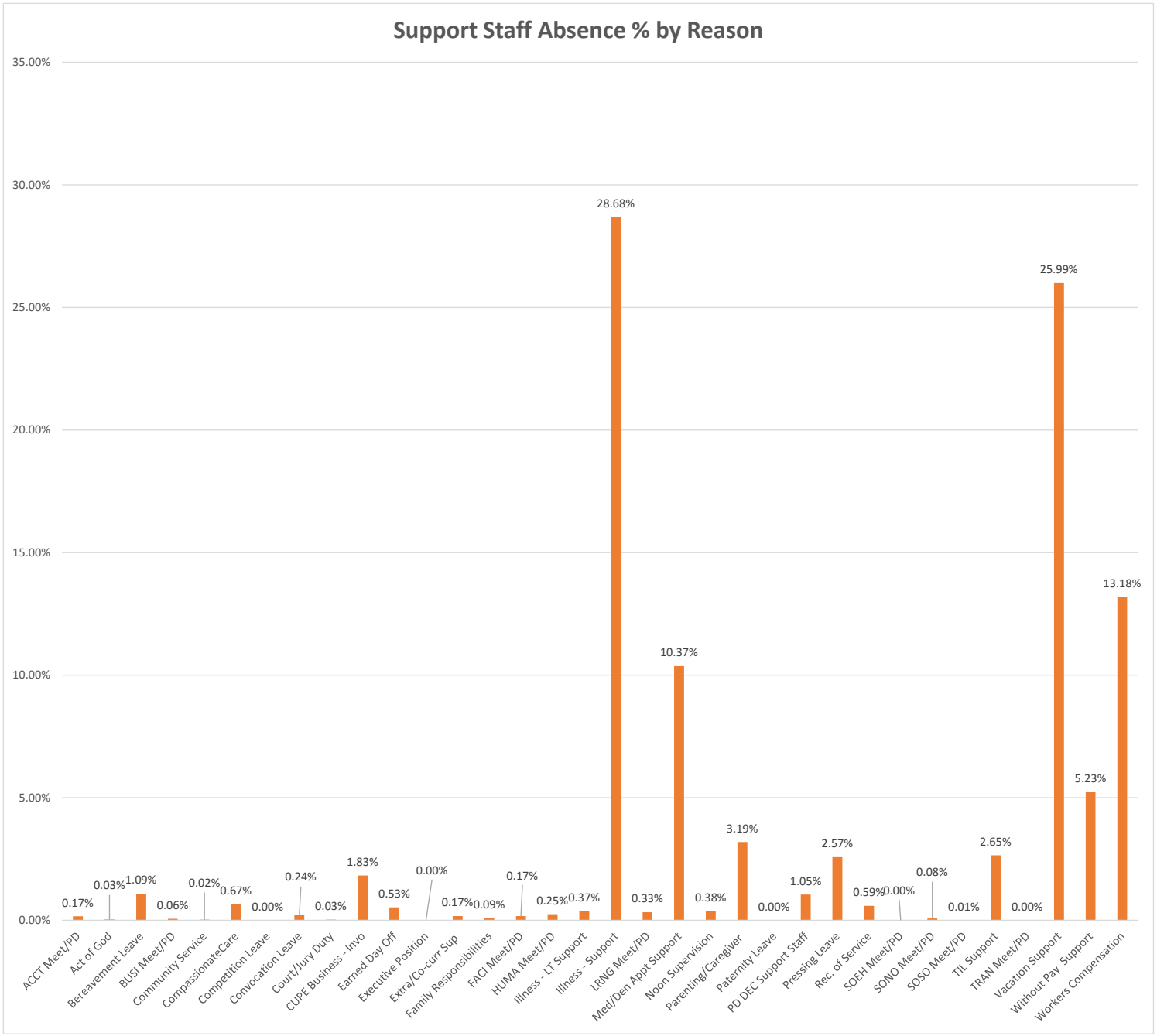
| Absence Reason | September | October | November | December | January | February | March | April | May | June | July | August | Total | % of Possible Days |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACCT Meet/PD | 1.38 | 4.14 | 5 | | | 1 | 1.53 | 2 | 2 | | | | **17.05** | **0.03%** |
| Act of God | | | | | | | 2.57 | | 1 | | | | **3.57** | **0.01%** |
| Bereavement Leave | 6.5 | 22.06 | 14.96 | 9.03 | 15 | 4 | 9 | 8.97 | 8 | 5 | | 9 | **111.52** | **0.18%** |
| BUSI Meet/PD | | | | | | | 2.13 | | | 4 | | | **6.13** | **0.01%** |
| Community Service | | 1 | | | | | | 1.39 | | | | | **2.39** | **0.00%** |
| Compassionate Care | 13.89 | 5 | 5 | 8.96 | 2 | 7 | 11 | 0.47 | 2 | 8.39 | 4 | 1 | **68.71** | **0.11%** |
| Competition Leave | | | | | | | | | | | | | **0** | **0.00%** |
| Convocation Leave | 0.19 | 2 | | | | | | 2 | 3 | 17.04 | | | **24.23** | **0.04%** |
| Court/Jury Duty | 1.27 | | | | | 1 | | | | | 0.63 | | **2.9** | **0.00%** |
| CUPE Business - Invo | 3.17 | 16 | 20.2 | 5 | 10 | 31.88 | 34 | 19.9 | 26.74 | 20 | 1 | | **187.89** | **0.30%** |
| Earned Day Off | 1 | 7.56 | 5.44 | 7.41 | 3.77 | 6 | 4 | 8 | 7.04 | 0.5 | 3.5 | | **54.22** | **0.09%** |
| Executive Position | | | | | | | | | | | | | **0** | **0.00%** |
| Extra/Co-curr Sup | 8 | 0.42 | 0.42 | 1 | | 2 | | | 4 | 1.74 | | | **17.58** | **0.03%** |
| Family Responsibilities | | | | | | | | | | 9.33 | | | **9.33** | **0.02%** |
| FACI Meet/PD | | 8.94 | 1 | | | | 7.4 | | | | | | **17.34** | **0.03%** |
| HUMA Meet/PD | 0.87 | 1.54 | | 1 | | 2.25 | 5.86 | | 8.13 | 6 | | | **25.65** | **0.04%** |
| Illness - LT Support | 10.5 | 10.5 | 10 | 7 | | | | | | | | | **38** | **0.06%** |
| Illness - Support | 298.54 | 278.83 | 232.58 | 159.24 | 314.94 | 314.56 | 277.49 | 266.83 | 333.11 | 331.47 | 69.87 | 70.4 | **2947.86** | **4.78%** |
| LRNG Meet/PD | | 8 | | | 2 | | 5 | 4 | 7 | 8 | | | **34** | **0.06%** |
| Med/Den Appt Support | 95.88 | 86.03 | 105.15 | 83.14 | 117.45 | 108.66 | 96.32 | 100.53 | 115.54 | 118.51 | 13.38 | 25.03 | **1065.62** | **1.73%** |
| Noon Supervision | 1 | | 1 | 1.5 | 5 | 12.79 | 6.95 | 4 | 2.5 | 3.94 | | | **38.68** | **0.06%** |
| Parenting/Caregiver | 49.88 | 50 | 40.6 | 28.98 | 40.85 | 23.66 | 10.58 | 26.61 | 26.16 | 25.29 | 2.53 | 2.87 | **328.01** | **0.53%** |
| Paternity Leave | | | | | | | | | | | | | **0** | **0.00%** |
| PD DEC Support Staff | 6 | 22.46 | 19 | 1 | 7.98 | | 10.67 | 5.5 | 30.9 | 4.06 | | | **107.57** | **0.17%** |
| Pressing Leave | 27.82 | 32.31 | 25.51 | 17.58 | 35.91 | 25.81 | 14.36 | 17.34 | 24.61 | 31.53 | 6.03 | 5.56 | **264.37** | **0.43%** |
| Rec. of Service | 1 | 2.44 | 4.59 | 1 | 5 | 10.54 | 6.24 | 6.5 | 8 | 15.63 | | | **60.94** | **0.10%** |
| SOEH Meet/PD | | | | | | | | | | | | | **0** | **0.00%** |
| SONO Meet/PD | 5 | | | | | 1.86 | | | 1 | | | | **7.86** | **0.01%** |
| SOSO Meet/PD | | | | 0.9 | | | | | | | | | **0.9** | **0.00%** |
| TIL Support | 18.82 | 19.06 | 20.22 | 25.12 | 8.66 | 32.38 | 23.08 | 15.14 | 32.18 | 26.28 | 16.1 | 35.28 | **272.32** | **0.44%** |
| TRAN Meet/PD | | | | | | | | | | | | | **0** | **0.00%** |
| Vacation Support | 117.44 | 90.75 | 133.65 | 265.27 | 139.21 | 144.89 | 127.48 | 119.64 | 154.95 | 215.72 | 568.87 | 593.57 | **2671.44** | **4.33%** |
| Without Pay Support | 16.46 | 46.53 | 49 | 29.83 | 84.2 | 64.79 | 82.89 | 51.37 | 53.61 | 42.43 | 15.37 | 1.4 | **537.88** | **0.87%** |
| Workers Compensation | 94.07 | 99.34 | 150.64 | 138.94 | 142.07 | 124.48 | 127.53 | 154.29 | 141.92 | 97.23 | 38.02 | 45.7 | **1354.23** | **2.20%** |
| **Total Absences** | **778.68** | **814.91** | **843.96** | **791.9** | **934.04** | **919.55** | **866.08** | **814.48** | **993.39** | **992.09** | **739.3** | **789.81** | **10278.19** | **16.66%** |

| Possible Days | Days | FTE | Total Days |
|---|---|---|---|
| September | 16.58 | 343.00 | 5686.94 |
| October | 16.58 | 347.00 | 5753.26 |
| November | 16.58 | 348.00 | 5769.84 |
| December | 16.58 | 350.00 | 5803.00 |
| January | 16.58 | 350.00 | 5803.00 |
| February | 16.58 | 350.08 | 5804.33 |
| March | 16.58 | 350.08 | 5804.33 |
| April | 16.58 | 350.08 | 5804.33 |
| May | 16.58 | 350.08 | 5804.33 |
| June | 16.58 | 349.41 | 5793.22 |
| July | 16.58 | 116.15 | 1925.77 |
| August | 16.58 | 116.15 | 1925.77 |
| | 198.96 | | **61678.10** |

**bus drivers absences nor FTE are inlcuded in this report.

# CUPE & Out of Scope Staff Absences 2015-2016

| Absence Reason | Total | % by Reason | Days per Employee without vacation | Days per Employee with vacation | Absences as per CUPE & OOS | Absences as per PSSD |
|---|---|---|---|---|---|---|
| ACCT Meet/PD | 17.05 | 0.17% | 0.05 | 0.05 | | 17.05 |
| Act of God | 3.57 | 0.03% | 0.01 | 0.01 | 3.57 | |
| Bereavement Leave | 111.52 | 1.09% | 0.32 | 0.32 | 111.52 | |
| BUSI Meet/PD | 6.13 | 0.06% | 0.02 | 0.02 | | 6.13 |
| Community Service | 2.39 | 0.02% | 0.01 | 0.01 | 2.39 | |
| CompassionateCare | 68.71 | 0.67% | 0.20 | 0.20 | 68.71 | |
| Competition Leave | 0 | 0.00% | 0.00 | 0.00 | | |
| Convocation Leave | 24.23 | 0.24% | 0.07 | 0.07 | 24.23 | |
| Court/Jury Duty | 2.9 | 0.03% | 0.01 | 0.01 | 2.9 | |
| CUPE Business - Invo | 187.89 | 1.83% | 0.54 | 0.54 | 187.89 | |
| Earned Day Off | 54.22 | 0.53% | 0.16 | 0.16 | 54.22 | |
| Executive Position | 0 | 0.00% | 0.00 | 0.00 | | |
| Extra/Co-curr Sup | 17.58 | 0.17% | 0.05 | 0.05 | 17.58 | |
| Family Responsibilities | 9.33 | 0.09% | 0.03 | 0.03 | 9.33 | |
| FACI Meet/PD | 17.34 | 0.17% | 0.05 | 0.05 | | 17.34 |
| HUMA Meet/PD | 25.65 | 0.25% | 0.07 | 0.07 | | 25.65 |
| Illness - LT Support | 38 | 0.37% | 0.11 | 0.11 | 38 | |
| Illness - Support | 2947.86 | 28.68% | 8.44 | 8.44 | 2947.86 | |
| LRNG Meet/PD | 34 | 0.33% | 0.10 | 0.10 | | 34 |
| Med/Den Appt Support | 1065.62 | 10.37% | 3.05 | 3.05 | 1065.62 | |
| Noon Supervision | 38.68 | 0.38% | 0.11 | 0.11 | 38.68 | |
| Parenting/Caregiver | 328.01 | 3.19% | 0.94 | 0.94 | 328.01 | |
| Paternity Leave | 0 | 0.00% | 0.00 | 0.00 | | |
| PD DEC Support Staff | 107.57 | 1.05% | 0.31 | 0.31 | 107.57 | |
| Pressing Leave | 264.37 | 2.57% | 0.76 | 0.76 | 264.37 | |
| Rec. of Service | 60.94 | 0.59% | 0.17 | 0.17 | 60.94 | |
| SOEH Meet/PD | 0 | 0.00% | 0.00 | 0.00 | | |
| SONO Meet/PD | 7.86 | 0.08% | 0.02 | 0.02 | | 7.86 |
| SOSO Meet/PD | 0.9 | 0.01% | 0.00 | 0.00 | | 0.9 |
| TIL Support | 272.32 | 2.65% | 0.78 | 0.78 | 272.32 | |
| TRAN Meet/PD | 0 | 0.00% | 0.00 | 0.00 | | |
| Vacation Support | 2671.44 | 25.99% | 0.00 | 7.65 | | |
| Without Pay Support | 537.88 | 5.23% | 1.54 | 1.54 | 537.88 | |
| Workers Compensation | 1354.23 | 13.18% | 3.88 | 3.88 | 1354.23 | |
| **Total Absences** | **10278.19** | **100.00%** | 21.77 | 29.42 | **7497.82** | **108.93** |
| | | | | | **72.95%** | **1.06%** |


Support Staff Absence % by Reason
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
0.17%
0.03%
1.09%
0.06%
0.02%
0.67%
0.00%
0.24%
0.03%
1.83%
0.53%
0.00%
0.17%
0.09%
0.17%
0.25%
0.37%
28.68%
0.33%
10.37%
0.38%
3.19%
0.00%
1.05%
2.57%
0.59%
0.00%
0.08%
0.01%
2.65%
0.00%
25.99%
5.23%
13.18%
ACCT Meet/PD
Act of God
Bereavement Leave
BUSI Meet/PD
Community Service
CompassionateCare
Competition Leave
Convocation Leave
Court/Jury Duty
CUPE Business - Invo
Earned Day Off
Executive Position
Extra/Co-curr Sup
Family Responsibilities
FACI Meet/PD
HUMA Meet/PD
Illness - LT Support
Illness - Support
LRNG Meet/PD
Med/Den Appt Support
Noon Supervision
Parenting/Caregiver
Paternity Leave
PD DEC Support Staff
Pressing Leave
Rec. of Service
SOEH Meet/PD
SONO Meet/PD
SOSO Meet/PD
TIL Support
TRAN Meet/PD
Vacation Support
Without Pay Support
Workers Compensation

# Support Staff

| Absence Reason | 2012-13 | 2013-2014 | 2014-2015 | 2015-2016 |
|---|---|---|---|---|
| ACCT Meet/PD | 15.35 | 8.73 | 17.29 | 17.05 |
| Act of God | 195.43 | 33.95 | 10.88 | 3.57 |
| Bereavement Leave | | | | 111.52 |
| BUSI Meet/PD | 8.28 | 14.17 | 2 | 6.13 |
| Community Service | 0.33 | 0.77 | 1.94 | 2.39 |
| Compassionate Leave/Care | 237.67 | 271.39 | 208.85 | 68.71 |
| Competition Leave | 7 | 3 | 0 | 0 |
| Convocation Leave | 31.02 | 15.13 | 15.5 | 24.23 |
| Court/Jury Duty | 0.27 | 1 | 4.5 | 2.9 |
| CUPE Business - Invo | 113.21 | 216.81 | 195.55 | 187.87 |
| Earned Day Off | 47.49 | 49.06 | 44.77 | 54.22 |
| Executive Position | 0 | 0.13 | 0 | 0 |
| Extra/Co-curr Sup | 27.45 | 13 | 17.07 | 17.58 |
| Family Responsibilities | | | | 9.33 |
| FACI Meet/PD | 42.96 | 12 | 48.83 | 17.34 |
| HUMA Meet/PD | 27.53 | 40.18 | 73.62 | 25.65 |
| Illness - LT Support | 1178.79 | 509.42 | 255.16 | 38 |
| Illness - Support | 2684.15 | 3507.35 | 3328.69 | 2947.86 |
| LRNG Meet/PD | 55.84 | 30.38 | 37.5 | 34 |
| Med/Den Appt Support | 1309.16 | 1270.82 | 1157.19 | 1065.62 |
| Noon Supervision | 0 | 0 | 2.03 | 38.68 |
| Parenting/Caregiver | 353.67 | 327.35 | 339.72 | 328.01 |
| Paternity Leave | 9 | 0 | 0 | 0 |
| PD DEC Support Staff | 81.25 | 99.03 | 120.95 | 107.57 |
| Prerssing Leave | 334.18 | 322.48 | 285.03 | 264.37 |
| Rec. of Service | 67.46 | 70.58 | 74.29 | 60.94 |
| Secondment | 2 | 0 | 0 | 0 |
| SOEH Meet/PD | 51.62 | 3 | 0 | 0 |
| SONO Meet/PD | 10.19 | 8.5 | 14.36 | 7.86 |
| SOSO Meet/PD | 0.93 | 1.38 | 0.97 | 0.9 |
| TIL Support | 262.68 | 304.17 | 297.21 | 272.32 |
| TRAN Meet/PD | 14.75 | 6 | 8 | 0 |
| Vacation Support | 2418.51 | 2257.55 | 2463.19 | 2671.44 |
| Without Pay  Support | 587.46 | 590.99 | 476.41 | 537.88 |
| Workers Compensation | 443.58 | 322.54 | 733.89 | 1354.23 |
| **TOTAL** | **10619.21** | **10310.86** | **10235.39** | **10278.17** |

* Compassionate Leave was change to Bereavement Leave in 2015-16

**Compasionate Care became in effect in 2015-16

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.7 |
| **Topic:** | **Out of Province Excursion – Central Collegiate Grade 10-12 Students to Medicine Hat, Alberta** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** Central's Grade 10-12 students to attend a Senior Boys Basketball Tournament in Medicine Hat, Alberta on February 2-4, 2017.

**Current Status:**

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Derrick Huschi | November 25, 2016 | Out-of-Province Excursion |

***Recommendation:***

That the Board approve Central Collegiate's Grade 10-12 students' attendance at a Senior Boys Basketball Tournament in Medicine Hat, Alberta on February 2-4, 2017.

Prairie South Schools 210 Learning together.
1075 9th Avenue North West, Moose Jaw, SK S6H 1V7 P 306.694.1200 1.877.434.1200 F 306.694.4955 prairiesouth.ca

# OVERNIGHT EXCURSIONS / OUTDOOR EDUCATION / HIGH RISK ACTIVITIES APPLICATION FORM

## Division Office Administration Approval Required

| A. INFORMATION | |
|---|---|
| **Name of Teacher: Ryan Boughen** | **School: Central Collegiate** |
| **Type of Activity:** ☐ Curricular x Extra-Curricular Sr Boys Basketball<br>☐ High Risk Activity _____ | |
| **Grade Level: 10-12** | **Number of Students: 12** |
| **Destination: Medicine Hat** | **Trip Date: Feb 2-4, 2017** |
| **Number of School Days (Partial/Full): 1.5** | |
| **Transportation:** ☐ Travel by Bus (PSSD No. 210) or ☐ Other: _____<br>x Travel by Car/Van (List names of drivers): Ryan Boughen, Barry Seaborn | |
| **Number of Teachers, Parents, Chaperones: 3** | |
| **Qualifications/Certifications of Teachers, Parents, Chaperones:**<br>x First Aid ☐ Lifeguard ☐ Canoe Certification ☐ Other _____ | |

**B. SAFETY GUIDELINES**

- x Parent consent forms and medical information including the Health Card Number will be obtained.
- ☐ Evacuation Plan is in place and will be communicated to appropriate individuals.
- x Designated supervisor has access to emergency vehicles at all times.
- x Access to cellular or satellite phone or other communication device.
- x A list of emergency telephone numbers will be formulated.
- ☐ Have reviewed the Physical Activity Safety Guidelines section on Outdoor Education.
- x Appropriate number of supervisors as designated in the Physical Activity Safety Guidelines.
- ☐ Male and Female Chaperones for a co-ed activity.

**C. BUDGET**

- ❖ Anticipated Budget: $700 (no sub teacher costs)
  - Budget breakdown (be sure to include cost of substitute staff)
- ❖ Description of Funding Sources: player fees, fundraising activities, school funds
- ❖ Out of Pocket Cost per Participant: $80-100 (hotel rooms & meals)

**SECTIONS D, E and F MUST BE COMPLETED FOR ALL CURRICULAR EXCURSIONS**

**D. LEARNING OBJECTIVES**

**E. LEARNING ACTIVITIES** ***(Outline prior training for outdoor education and high risk activities)***

a) Pre-Excursion Learning

b) Excursion Learning

c) Post-Excursion Learning

**F. SCHEDULE OF ACTIVITIES**

Medicine Hat High Basketball Tournament. 16 teams participating in a 3 day tournament with a 4 game guarantee.

R. Boffin — Teacher Signature — Nov 24/16 — Date

Principal Signature — Nov. 24, 2016 — Date

Director/Superintendent Signature

☐ **Request Approved** ☐ **Request Denied**

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.8 |
| **Topic:** | **Out of Province Excursion – Kincaid Grade 5-12 Students to Hidden Valley Ski Resort** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** Kincaid's Grade 5-12 students to attend a ski trip to Hidden Valley Ski Resort on January 13, 2017.

**Current Status:**

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Derrick Huschi | November 16, 2016 | Out-of-Province Excursion |

***Recommendation:***

That the Board approve Kincaid's Grade 5-12 students to attend a ski trip to Hidden Valley Ski Resort on January 13, 2017.

Prairie South Schools 210 Learning together.
15 Thatcher Drive East, Moose Jaw, SK S6J 1L8 P 306 694 1200 F 306 694 4955 1-877-434-1200 prairiesouth.ca

# OVERNIGHT EXCURSIONS / OUTDOOR EDUCATION / HIGH RISK ACTIVITIES APPLICATION FORM

## Division Office Administration Approval Required

| A. INFORMATION | |
|---|---|
| **Name of Teacher: Paul Promhouse** | **School: Kincaid** |
| **Type of Activity:** ☐ Curricular ☐ Extra-Curricular_____<br>X High Risk Activity _____ | |
| **Grade Level: 5 – 12** | **Number of Students: 40 -50** |
| **Destination:Hidden Valley Ski Resort** | **Trip Date: Jan 13/17** |
| **Number of School Days (Partial/Full):Non- Instructional Friday** | |
| **Transportation:** ☐ Travel by Bus (PSSD No. 210) or Other: Chartered Bus<br>☐ Travel by Car/Van (List names of drivers): ___To be determined_____<br>_____ _____ _____ | |
| **Number of Teachers, Parents, Chaperones: 2 or 3 teachers , 2 or 3 Chaperones** | |
| **Qualifications/Certifications of Teachers, Parents, Chaperones:**<br>☑ First Aid ☐ Lifeguard ☐ Canoe Certification ☐ Other _____ | |

| B. SAFETY GUIDELINES |
|---|
| ✓ Parent consent forms and medical information including the Health Card Number will be obtained. |
| ✓ Evacuation Plan is in place and will be communicated to appropriate individuals. |
| ✓ Designated supervisor has access to emergency vehicles at all times. |
| ✓ Access to cellular or satellite phone or other communication device. |
| ✓ A list of emergency telephone numbers will be formulated. |
| ✓ Have reviewed the Physical Activity Safety Guidelines section on Outdoor Education. |
| ✓ Appropriate number of supervisors as designated in the Physical Activity Safety Guidelines. |
| ✓ Male and Female Chaperones for a co-ed activity. |

| C. BUDGET |
|---|
| ❖ Anticipated Budget _____ $ 3500.00_____ |
| ❖ Description of Funding Sources : Both Student and Decentralized |
| ❖ Out of Pocket Cost per Participant : $ 75.00 |

**SECTIONS D, E and F MUST BE COMPLETED FOR ALL CURRICULAR EXCURSIONS**

## D. LEARNING OBJECTIVES

See attached

## E. LEARNING ACTIVITIES *(Outline prior training for outdoor education and high risk activities)*

a) Pre-Excursion Learning

see attached

b) Excursion Learning

c) Post-Excursion Learning

## F. SCHEDULE OF ACTIVITIES

See attached

Teacher Signature — Date: Nov 15/16

Principal Signature — Date: Nov 15/16.

Director/Superintendent Signature

☐ **Request Approved** ☐ **Request Denied**

# ***Kincaid School Ski Trip***

## *D. Learning Objectives:*

Students will demonstrate the desire to participate in vigorous physical activities.

Students will demonstrate an understanding of how one's level of personal fitness is related to their overall well-being.

Students will display an understanding of the terminology, rules, safety concepts, mechanical principles and current developments that apply to outdoor pursuits.

Students will display increased self-confidence, self-sufficiency and individual initiative.

Students will develop an awareness of the potential of the natural environment for worthwhile lifetime outdoor pursuits in all seasons.

Students will develop an appreciation and respect for the natural environment.

Students will develop social skills that promote acceptable standards of behaviour and positive relationships with each other and the environment.

Students will develop the ability to identify and pursue a variety of fitness-related activities that complement selected outdoor pursuits.

Students will develop an appreciation of the role of outdoor pursuits in the achievement and maintenance of personal fitness.

Students will identify, assess and respond to physical hazards encountered in the natural environment.

Students will identify, assess and respond to physiological and psychological factors often associated with outdoor experiences.

Students will select appropriate personal and group gear for outdoor activities.

## *E. Learning Activities:*

### a). Pre-Excursion Learning

-ski hill safety (ie: identifying symbols which mark the degree of difficulty for each run)
-skier responsibilities (ie: do not stop abruptly in front of another skier)
- appropriate dress for the ski hill (ie: no long scarves or loose clothing items)
- basic instruction for using the various lifts.

### *b). Excursion Learning:*

- mandatory lessons conducted by qualified instructors
- safety video and instruction provided by the ski hill
- demonstation and practice using the triple chair and t-bar
- skier's responsibilities on the ski hill

### *c). Post Excursion Learning:*

-discussion of the importance of safety and mandatory lessons
- review of the need for appropriate dress
- reflection of progress made by skiers following a day of skiing

## *F. Schedule of Activities:*

6:15- Meet at school

6:30- Depart

9:30- Arrive at ski hill
-mandatory lessons

4:30- Ski hill closes

5:30 depart Hill

7:30- Supper at Pizza Hut ( Swift Current)

10:00- Arrive home

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.9 |
| **Topic:** | **Out of Province Excursion – Lindale Grade 8 Students to Asessippi, Manitoba** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** Lindale's Grade 8 students to attend a ski trip to Asessippi, Manitoba on February 28 – March 2, 2017

**Current Status:**

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Derrick Huschi | November 8, 2016 | Out-of-Province Excursion |

***Recommendation:***

That the Board approve Lindale's grade 8 students to attend a ski trip to Asessippi, Manitoba on February 28 – March 2, 2017.

Nov. 3, 2016

To Whom I May Concern:

Attached is my proposal for the Grade 8 Asessippi trip I take the Grade 8's on annually in February. I am sending it in now as I need to confirm bookings for the trip as soon as possible. Starting the process earlier will give me more preparation time after approval.

Thank you for your consideration.

Sincerely,

Marie Fish

# Prairie South School Division No. 210

15 Thatcher Drive East
Moose Jaw, SK S6J 1L8

Phone: (306) 694-1200 Fax: (306) 694-4955
Outside the Moose Jaw Area: 1-877-434-1200

www.prairiesouth.ca


## OVERNIGHT EXCURSIONS / OUTDOOR EDUCATION / HIGH RISK ACTIVITIES APPLICATION FORM

### Division Office Administration Approval Required

**A. INFORMATION**

| | |
|---|---|
| **Name of Teacher: Marie Fish,** | **School: Lindale School** |
| **Type of Activity:** X Curricular ☐ Extra-Curricular_____ ☐ High Risk Activity _____ | |
| **Grade Level: 8** | **Number of Students: 34** |
| **Destination: Asessippi Ski Resort** | **Trip Date: Feb. 28 – March 2, 2017** |
| **Number of School Days (Partial/Full): 2 full days** | |
| **Transportation:** Travel by Bus (PSSD No. 210) or X Other: __chartered bus<br>Travel by Car/Van (List names of drivers): _undetermined at this point<br>_____ _____ _____ | |
| **Number of Teachers, Parents, Chaperones: 6** | |
| **Qualifications/Certifications of Teachers, Parents, Chaperones:**<br>X First Aid ☐ Lifeguard X Canoe Certification ☐ Other _____ | |

**B. SAFETY GUIDELINES**

X Parent consent forms and medical information including the Health Card Number will be obtained.
X Evacuation Plan is in place and will be communicated to appropriate individuals.
X Designated supervisor has access to emergency vehicles at all times.
X Access to cellular or satellite phone or other communication device.
X A list of emergency telephone numbers will be formulated.
X Have reviewed the Physical Activity Safety Guidelines section on Outdoor Education.
X Appropriate number of supervisors as designated in the Physical Activity Safety Guidelines.
X Male and Female Chaperones for a co-ed activity.

**C. BUDGET**

- Anticipated Budget _____attached
- Description of Funding Sources __ See attached under Proposed Expenses
- Out of Pocket Cost per Participant - none

**SECTIONS D, E and F MUST BE COMPLETED FOR ALL CURRICULAR EXCURSIONS**

## D. LEARNING OBJECTIVES

As Attached

## E. LEARNING ACTIVITIES *(Outline prior training for outdoor education and high risk activities)*

a) Pre-Excursion Learning

b) Excursion Learning — As Attached

c) Post-Excursion Learning

## F. SCHEDULE OF ACTIVITIES

As Attached

Marie Zisk
Teacher Signature

Nov. 3/16
Date

Principal Signature

Nov 7/16
Date

Director/Superintendent Signature

☐ **Request Approved** ☐ **Request Denied**

# Grade 8 Winter Alternate Environment Activity Proposal
## Teachers : Marie Fish

As part of the Alternate Environment Activities within the Grade 8 Outcomes Movement Activities Focus, I would like to plan 3-day, 2-night excursion for all the grade 8 students to Asessippi Ski Resort and Winter Park from Tuesday, Feb. 28 to March 2, 2017. There are approximately 34 students involved as well as parent and teacher chaperones.

Marie Fish

## Outcomes

**Physical Education**

**8.8 – Alternate Environment Activities**

**Apply and adapt selected activity – related skills *(e.g., turning, balancing, snow ploughing,) and strategies required for participation in alternate environment activities (eg.* downhill skiing, *tobogganing,).***

### Indicators

a. **Willingly participates in the alternate environment activities of downhill skiing and tobogganing focusing on developing the skills that are unique to these activities.**
b. **Apply self, peer, and/or teacher-determined adaptations to skill performance in downhill skiing to support participation and/or skill development of self and others.**
c. **Determine and practice skills required to enhance enjoyment of movement in downhill skiing.**

**Assessment**

**Formative**

- Each student is required to take a lesson on the first morning of skiing. 5 – 6 qualified instructors group the students according to their experience and whether they are skiing or snowboarding. The instructors do a pre-assessment of each student in their group for their current ability level. They then teach the students according to what the students' weaknesses are from the pre-assessment.

**Summative**

- At the end of the first lesson, the students are assessed again for level of competence. Each student is given a lift pass according to the competence level. This pass will only allow them to go on certain lifts as there are 4 lifts in Asessippi, each with varying degrees of difficulty. The student will only be allowed to use lifts with runs at their competency level.
- At any time in the 2 days we are skiing, the students can set up an appointment with their instructor to be re-evaluated. If they have improved, they are given a different pass accordingly.

Health

USC8.1 – Analyze and establish effective strategies of support for purposes of helping others increase health-enhancing behaviours.

Indicators

a. Recognize times and situations in which others might appreciate help.

Assessment

Formative

- **Packing and Unpacking**
  Students are verbally instructed, monitored and given verbal feedback on their willingness to help.
- **Meals**
  Students are put into work groups for preparing for and cleaning up after meals. The groups decide on their individual tasks and are monitored and given feedback by chaperones during their tasks.
- **Setting up and Packing up sleeping areas**
  Each individual is responsible for preparing their sleeping area in the hall and cleaning up their area.
- **General Clean-up of Hall**
  All students are responsible for general clean-up of the hall on our last morning. Chaperones assess and give verbal feedback to help students get responsibilities done.

USC8.6 - Examine and assess the concept of sustainability from many perspectives, and develop an understanding of its implications for the well-being of self, others, and the environment.

Indicators

a. Investigate the connections between the health of the environment and the health of people.

b. Examine and appreciate the ways natural environments meet physical, aesthetic, and spiritual needs.

Assessment

Formative

- Prior to the trip, students watch a DVD provided by Asessippi that deals with that deals with the expectations for taking care of the environment while students are at Assessippi. Discussion will follow.

- Throughout the trip, whole group discussions take place regularily about the importance of looking after our environment so activities like this can continue. Discussion also occurs around what is the environmental impact of skiing as compared to other outdoor activities.

## E. LEARNING ACTIVITIES

a) Pre-Excursion Learning

i) Handout – School Trip Safety Guidelines by Canada West Ski Areas Association
   - includes what to wear, helmet safety, what to expect, Alpine Responsibility Code, safe use of the ski lifts, signage, and emergency situation protocol.

ii) 2- DVD package – A Little Respect – Think First
iii) Meal planning
iv) Expectations of students for spending an extended time in a large group setting.
v) Expectations for packing
vi) Regular fitness activities associated with skiing/snowboarding in Phys. Ed.

b) Excursion Learning

i) Mandatory Ski lessons
Day 1 – Structured skill lessons and evaluations
Day 2 – opportunity to further their skill level with small group instruction on more challenging terrain than Day 1.
ii) Presentation reviewing safety and ski hill etiquette by Asessippi instructors
iii) Cooperation in a group setting
iv) Meal preparation and clean-up
v) Cooperative games

c) Post-Excursion Learning.

i) Student written evaluation/self-assessment
ii) Review of basic movement patterns used and major muscle groups important for skiing/snowboarding.

# Proposed Expenses

**I. Individual Cost per student**

| | |
|---|---|
| 2 night accommodation - | $25.00 |
| 2 day lift passes - | - $54.00 |
| 2 Day Skis, Boots, Helmet & Pole Rent | - $40.50 |
| Food Voucher (each day) | - $11.00 |
| Total per student | -$130.50 |

**I. Add Ons (Optional for students)**

| | |
|---|---|
| Tubing Add On | - $9.00 |
| Board Boots Only (Per Day) | - $10.00 |
| Board Only (per day) | - $15.25 |
| Equipment Switch (by 1:00pm) | - $ 5.00 |
| Skis Only (per day) | - $12.00 |

**Note:** Students who decide to take snowboarding lessons and then want to switch back to skis, will only be charges $5.00 if the equipment is returned by 1:00 and $10.00 if returned before the end of the day.

**Note:** Tubing is offered to students on the second day. Approximately one-third of the students will choose just to tube and not ski. The hill will reimburse our second day lift passes for those students.

**Note :** The rentals of equipment and helmets may not apply to some students as they bring their own equipment and helmet. In the past about one-quarter to one-third of our students have their own equipment.

2. Bus cost - **$4000**
   This includes travel. Accommodations for 2 nights for the bus driver is extra.

3. Groceries – Breakfast - 2
   - lunch – 2
   - supper – 1
   - Cost approximately $100

**Note:** To help cover costs for food, a meal plan is made and distributed to all parents. Any parents that are willing to donate food items communicate with me on which items they will donate. Whatever is left over is what I purchase. In the past, the response to this as been outstanding. I have not spent more than $125 on groceries as the rest is generously covered by the parent donations.

Grand Total Projected cost – 40 x 130.50 + 4000 + 100 = $9300

**Funding Sources**

| | |
|---|---|
| Decentralized Budget | $5300 |
| Projected Fundraising | $4000 |
| | |
| Total | $9300 |

**General comments**

Throughout my teaching career, I have taken students to Mission Ridge Ski Resort, Ochapawaye Resort, White Track Resort and Asessippi. In my judgement, Asessippi stands out above the rest for the following reasons:

1. **SAFETY**
   - Asessippi is the only resort that controls what lifts and runs the students are able to ski on. Many accidents occur while skiing when skiers choose runs that are above their level. At this resort, the students cannot go on the more difficult runs until they are ready which provides for a much safer and more positive experience for the students.
2. **Distance**
   - With Asessippi being only 3.5 hours away from Moose Jaw, it is closer than both Table Mountain and Ochapawaye which cuts down on travel costs.
3. **Accommodations**
   - With Inglis being only about 5 – 10 minutes away from the hill, the hall works as a perfect place for us to sleep and eat. We could not get accommodations that close to the hill for the same price at any other ski hill.
4. **Differentiation**
   - With 4 chairlifts and a t-bar, the diversity of runs offered at Asessippi addresses the needs of all levels of skiers that a school group will bring on any ski excursion. There is safe runs and challenging runs for all levels of skiers. The mountains is the only other place where you can find such diversity.

## Grade 8 Winter Alternate Environment Activity Proposal

## Lindale School

The itinerary is as follows:

**Tuesday, Feb. 28**

| | |
|---|---|
| 3:00 | Departure from Lindale |
| 5:30 | Supper break (Western Pizza in Melville) |
| 7:30 – 8:00 | Arrival at Inglis Hall |
| 8:00 – 9:30 | Unpacking<br>General meeting with students on responsibilities, rules, etc. |
| 9:30 – 10:30 | Planned activities |
| 10:30 | Bed preparation |
| 11:00 | Lights out |

**Wednesday, Mar. 1**

| | |
|---|---|
| 7:00 – 8:30 | Rise and Shine<br>Breakfast |
| 8:30 | Depart for the hill |
| 9:00 – 4:00 | Skiing/Snowboarding<br>Mandatory lesson to begin. |
| 4:00 – 4:30 | Return to Inglis Hall |
| 4:30 – 6:30 | Supper |
| 6:30 – 10:30 | Organized skits/activities<br>Option to return to hill for night skiing |
| 10:30 | Bed preparation |
| 11:00 | Lights out |

**Thursday, Mar. 2**

| | |
|---|---|
| 7:00 – 9:00 | Rise and Shine<br>Breakfast<br>Pack up |
| 9:00 | Travel to the hill |
| 9:30 – 4:00 | Ski/Snowboard/tubing |
| 4:00 | Depart for home |
| 6:00 | Supper stop |
| 8:00 – 8:30 | Arrival back at Lindale |

Chaperones will include myself, another teacher chaperone and 4-5 parent chaperones that will have costs covered. Any other parents that come will have to cover their own costs.

Marie Fish
Excursion Organizer

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 5.10 |
| **Topic:** | **Out of Province Excursion – Palliser Heights Grade 8 Students to Asessippi, Manitoba** | | |
| **Intent:** | ☒ Decision ☐ Discussion ☐ Information | | |

**Background:** Palliser Heights Grade 8 students to attend a ski trip to Asessippi, Manitoba on January 24-26, 2017.

**Current Status:**

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Derrick Huschi | Dec. 1/16 | Out-of-Province Excursion |

***Recommendation:***

That the Board approve Palliser Heights Grade 8 students to attend a ski trip to Asessippi, Manitoba on January 24-26, 2017.

Prairie South Schools 210 Learning together.
1075 9th Avenue North West, Moose Jaw, SK S6H 1V7 P 306.694.1200 1.877.434.1200 F 306.694.4955 prairiesouth.ca

# OVERNIGHT EXCURSIONS / OUTDOOR EDUCATION / HIGH RISK ACTIVITIES APPLICATION FORM

## Division Office Administration Approval Required

| A. INFORMATION | |
|---|---|
| **Name of Teacher: Gallagher & Ethier (Rogers)** | **School: Palliser Heights** |
| **Type of Activity:** ☑ Curricular ☐ Extra-Curricular_____ ☑ High Risk Activity _____ | |
| **Grade Level: 8** | **Number of Students: approx. 50** |
| **Destination: Asessippi Ski Resort** | **Trip Date: Jan 24-26** |
| **Number of School Days (Partial/Full): 2 school days** | |
| **Transportation:** ☐ Travel by Bus (PSSD No. 210) or ☐ Other: Chartered Bus (Engelheim)_____ ☐ Travel by Car/Van (List names of drivers): _One emergency vehicle driven by teacher/admin (no students) | |
| **Number of Teachers, Parents, Chaperones: 3 staff members, 1 volunteer chaperone (former intern), 3-4 parent volunteers. Both Male and Female Chaperones will be present.** | |
| **Qualifications/Certifications of Teachers, Parents, Chaperones:** ☑ First Aid ☐ Lifeguard ☐ Canoe Certification ☑ Other Trained Asessippi Staff____ | |

| B. SAFETY GUIDELINES |
|---|
| ☑ Parent consent forms and medical information including the Health Card Number will be obtained. |
| ☑ Evacuation Plan is in place and will be communicated to appropriate individuals. |
| ☑ Designated supervisor has access to emergency vehicles at all times. |
| ☑ Access to cellular or satellite phone or other communication device. |
| ☑ A list of emergency telephone numbers will be formulated. |
| ☑ Have reviewed the Physical Activity Safety Guidelines section on Outdoor Education. |
| ☑ Appropriate number of supervisors as designated in the Physical Activity Safety Guidelines. |
| ☑ Male and Female Chaperones for a co-ed activity. |

| C. BUDGET |
|---|
| ❖ Anticipated Budget=Transportation $3000.00 (bus and emergency vehicle), Accommodations $1200.00, Skiing Equipment/Lifts Approx. $4, 600.00,<br>- Budget breakdown (be sure to include cost of substitute staff) |
| ❖ Description of Funding Sources: Decentralized Budget, SCC support & Student Fundraiser, Parent Donations |

❖ Out of Pocket Cost per Participant: No mandatory student fees

**SECTIONS D, E and F MUST BE COMPLETED FOR ALL CURRICULAR EXCURSIONS**

## D. LEARNING OBJECTIVES

Apply and adapt selected activity-related skills (e.g., carrying, paddling, gripping, hanging, wheeling, digging, fire building, snow ploughing, compass reading) and strategies required for participation in alternate environment activities (e.g., backpacking, hiking, cycling, overnight camping, canoeing, snowshoeing, wall climbing, in-line skating, skate boarding, cross-country skiing, tracking, roping, dog sledding, skating, orienteering, downhill skiing, tobogganing, Quincy building.

Demonstrate the skills required to administer basic first aid (e.g., scene management, seeking help, treating minor injuries, applying precautions for body fluids) required as a result of injury caused by participation in movement activities.

## E. LEARNING ACTIVITIES *(Outline prior training for outdoor education and high risk activities)*

a) Pre-Excursion Learning

Alpine Responsibility Code. Lessons on Frostbite and Hypothermia. Basic First Aid, Meal Planning, Packing, Hydration.

b) Excursion Learning

Beginner/Intermediate/Advanced Ski/Snowboard Lessons

Skiing Snowboarding Skill Development

c) Post-Excursion Learning

Journal Entries/Reflection

## F. SCHEDULE OF ACTIVITIES

**Jan 24th**

Depart School at 4:00 pm

Stop in Melville, Sask for supper at 6:00 pm-Optional

8:30 pm-arrival at accommodation-Inglis, Manitoba

**Jan 25th**

9:00 am Departure for Asessippi Ski Hill

9:15 am arrival at Asessippi for Equipment Pick up

10:00 am-4:30 pm Lessons and Skiing

5:00 pm Departure to Accommodations-Inglis, Man

5:15 pm Arrival at Accommodations

**Jan 26th**

9:00 am Departure for Asessippi Ski Hill

9:15 am arrival at Asessippi

10:00 am-4:30 pm Lessons and Skiing

5:00 pm Departure to Moose Jaw, Sask

Andrew M. Gallagher
Teacher Signature

Nov 29th, 2016
Date

Principal Signature

Nov 29th, 2016
Date

Director/Superintendent Signature

☐ **Request Approved** ☐ **Request Denied**

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 8.1 |
| **Topic:** | **Measuring Up: Canadian Results of the OECD PISA Study** | | |
| **Intent:** | ☐ Decision ☐ Discussion ☒ Information | | |

**Background:**

In 2015 the sixth cycle of PISA was completed and it focuses on scientific literacy. While science was also assessed in previous PISA cycles, the domain was the major focus only in 2006. Students who participated in PISA 2015 entered primary school at about the same time as the PISA 2006 survey so the 2015 results provide an opportunity to relate policy changes to changes in learning outcomes using the benchmarks set by the original 2006 survey when science was also the major focus of assessment. With an emphasis on science in 2015, PISA reports on scientific literacy as well as three "competency" subscales related to explaining phenomena scientifically, evaluating and designing scientific enquiry, and interpreting data and evidence scientifically.

Seventy-two countries participated in PISA 2015, including all 35 OECD countries. Between 5,000 and 10,000 students aged 15 from at least 150 schools were typically tested in each country. In Canada, approximately 20,000 15-year-olds from about 900 schools participated across the ten provinces.

Prairie South students were part of the sample group from Saskatchewan.

**Current Status:**

The Council of Ministers of Education, Canada (CMEC) released the *Measuring Up* report on December 6th, 2016.

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

Some media coverage related to *Measuring Up* has existed in the past week. Media focus has been the excellent ranking of Canada as a whole and the poor performance of Saskatchewan relative to the rest of Canada.

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Tony Baldwin | December 9, 2016 | • *Measuring Up* report |

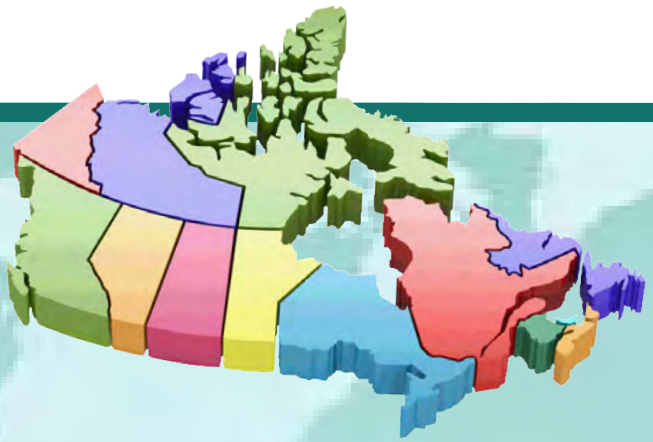
***Recommendation:***

That the Board review the materials provided.

# Measuring up: Canadian Results of the OECD PISA Study

## The Performance of Canada's Youth in Science, Reading and Mathematics

2015 First Results for Canadians Aged 15



cmec

Canada

# Measuring up: Canadian Results of the OECD PISA Study

## The Performance of Canada's Youth in Science, Reading, and Mathematics

### 2015 First Results for Canadians Aged 15


**Authors**

**Kathryn O'Grady,** Council of Ministers of Education, Canada
**Marie-Anne Deussing,** Employment and Social Development Canada
**Tanya Scerbina,** Council of Ministers of Education, Canada
**Karen Fung,** Council of Ministers of Education, Canada
**Nadia Muhe,** Council of Ministers of Education, Canada



cmec
Council of Ministers of Education, Canada
Conseil des ministres de l'Éducation (Canada)

Canada

The Council of Ministers of Education, Canada (CMEC) was formed in 1967 by the jurisdictional ministers responsible for education to provide a forum in which they could discuss matters of mutual interest, undertake educational initiatives cooperatively, and represent the interests of the provinces and territories with national educational organizations, the federal government, foreign governments, and international organizations. CMEC is the national voice for education in Canada and, through CMEC, the provinces and territories work collectively on common objectives in a broad range of activities at the elementary, secondary, and postsecondary levels.

Through the CMEC Secretariat, the Council serves as the organization in which ministries and departments of education undertake cooperatively the activities, projects, and initiatives of particular interest to all jurisdictions. One of the activities on which they cooperate is the development and implementation of pan-Canadian testing based on contemporary research and best practices in the assessment of student achievement in core subjects.

**Note of appreciation**

*The Council of Ministers of Education (Canada) would like to thank the students, teachers, and administrators whose participation in the Programme for International Student Assessment ensured its success. The quality of your commitment has made this study possible. We are truly grateful for your contribution to a pan-Canadian understanding of educational policy and practices in science, reading, and mathematics of 15-year-olds.*

Council of Ministers of Education, Canada
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*Ce rapport est également disponible en français.*

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# Introduction

The skills and knowledge that individuals bring to their jobs, to further studies, and to our society play an important role in determining our economic success and our overall quality of life. Today's knowledge-based economy is driven by advances in information and communication technologies, by reduced trade barriers, and by the globalization of markets that have changed the type of knowledge and skills that the future economy requires. There is a demand for a strong set of foundational skills upon which further learning can be built.

Education systems play a central role in building this strong base. Students leaving secondary education without a strong foundation may experience difficulty accessing the postsecondary education system or the labour market and they may benefit less when learning opportunities are presented later in life. Without the tools needed to be effective learners throughout their lives, these individuals with limited skills risk economic and social marginalization.

Governments in industrialized countries have devoted large portions of their budgets to provide high-quality schooling. Given these investments, they are interested in the relative effectiveness of their education systems. To address these issues, member countries of the Organisation for Economic Co-operation and Development (OECD), along with partner countries and economies,[1] developed a common tool to improve their understanding of what makes young people — and entire education systems — successful. This tool is the Programme for International Student Assessment (PISA). It measures the extent to which youth, at age 15, have acquired some of the knowledge and skills that are essential for full participation in modern societies.

## The Programme for International Student Assessment

PISA is a collaborative effort among member countries of the OECD. PISA is designed to provide policy-oriented international indicators of the skills and knowledge of 15-year-old students and to shed light on a range of factors that contribute to successful students, schools, education systems, and learning environments.[2] It measures skills that are generally recognized as key outcomes of the educational process. The assessment focuses on young people's ability to use their knowledge and skills to meet real-life challenges. These skills are believed to be prerequisites for efficient learning in adulthood and for full participation in society.

Information gathered through PISA enables a thorough comparative analysis of the performance of students near the end of their compulsory education. PISA also permits exploration of the ways that achievement varies across different social and economic groups and the factors that influence achievement within and among countries.

Over the past decade, PISA has brought significant public and educational attention to international assessments and related studies by generating data to enhance policy-makers' ability to formulate decisions based on evidence. Canadian provinces have used information gathered from PISA, along with other sources of information such as the Pan-Canadian Assessment Program (PCAP),[3] other international assessments, as well as their own provincial assessment programs, to inform various education-related initiatives. In Canada, PISA is carried out through a partnership between Employment and Social Development Canada (ESDC) and the Council of Ministers of Education, Canada (CMEC).

[1] The word *countries* will be used to denote countries and economies.

[2] OECD, *PISA 2015 assessment and analytical framework: Science, reading, mathematic and financial literacy* (Paris: OECD, 2016). Available at http://dx.doi.org/10.1787/9789264255425-en.

[3] Council of Ministers of Education, Canada, *PCAP-13 2007 report on the assessment of 13-year-olds in reading, mathematics, and science* (Toronto: CMEC, 2008).

The project began in 2000 and focuses on the capabilities of 15-year-olds as they near the end of compulsory education. It reports on scientific, mathematic, and reading literacy every three years and provides a more detailed look at one of those domains in the years when it is the major focus.

## Why did Canada participate in PISA?

Canada's continued participation in PISA stems from many of the same questions that motivate other participating countries and economies. In Canada, provinces and territories responsible for education invest significant public resources in the provision of elementary and secondary education and Canadians are interested in the outcomes of compulsory education provided to their youth. How can resources be directed to the achievement of higher levels of knowledge and skills upon which lifelong learning is founded and to potentially reduce social inequality in life outcomes?

Elementary and secondary education systems play a key role in providing students with the knowledge and skills that form an essential foundation necessary to further develop human capital — either through participation in the workforce, postsecondary education, or lifelong learning. Previous studies based on PISA data have shown the relationship between strong skills in the core subject areas at age 15 and outcomes in later life. For example, results from the Youth in Transition Survey (YITS) show that there is a strong association between reading proficiency and education attainment.[4] Canadian students in the bottom quartile of PISA reading scores were much more likely to drop out of secondary school and less likely to have completed a year of postsecondary education than those in the high quartile of reading score. In contrast, Canadian students in the top PISA level (Level 5) of reading performance were twenty times more likely to go to university that those in the lowest PISA level (at or below Level 1).[5]

Questions about educational effectiveness can be partly answered with data on the average performance of Canada's youth in key subject areas. However, two other questions with respect to equity can be answered only by examining the distribution of competencies: who are the students at the lowest levels of achievement? Do certain groups or regions appear to be at greater risk? These are important questions because, among other things, acquisition of knowledge and skills during compulsory schooling influences access to postsecondary education, eventual success in the labour market, and the effectiveness of continuous, lifelong learning.

## What is PISA 2015?

In 2015 the sixth cycle of PISA was completed and it focuses on scientific literacy. While science was also assessed in previous PISA cycles, the domain was the major focus only in 2006. Students who participated in PISA 2015 entered primary school at about the same time as the PISA 2006 survey so the 2015 results provide an opportunity to relate policy changes to changes in learning outcomes using the benchmarks set by the original 2006 survey when science was also the major focus of assessment. With an emphasis on science in 2015, PISA reports on scientific literacy as well as three "competency" subscales related to explaining phenomena scientifically, evaluating and designing scientific enquiry, and interpreting data and evidence scientifically. Comparing country performance is based on knowledge of science content as well as procedural and epistemic knowledge of science.

"Content knowledge" refers to knowledge of facts, concepts, ideas, and theories about the natural world that science has established, while "procedural knowledge" refers to the knowledge of the practices and concepts on which empirical enquiry is based. "Epistemic knowledge" refers to an understanding of the role of specific constructs and defining features essential to the process of knowledge building in science. The three main areas

[4] OECD, *Pathways to success: How knowledge and skills at age 15 shape future lives in Canada* (Paris: OECD, 2010); OECD, *Learning beyond fifteen: Ten years after PISA* (Paris: OECD, 2012). Available at https://www.oecd.org/canada/49893598.pdf.

[5] OECD, *Pathways to success*.

of science knowledge are physical systems, living systems, and Earth and space systems.[6] As minor domains in PISA 2015, reading and mathematics are measured at only an overall, rather than detailed, level and as such are not reported by performance level or subscales. PISA 2015 also includes a collaborative problem solving and a financial literacy assessment for those countries that decided to participate in the computer-based assessment.[7]

Recognizing the pervasiveness of computer-based tools in the workplace and in everyday life in the 21st century, PISA 2015 assessed all subjects for the first time via computer, although paper-based assessment instruments were provided for countries that chose not to test their students by computer, albeit for reading, mathematics, and science trend items only. Prior to PISA 2015, the assessment was implemented through a paper-based format although the 2009 reading framework and the 2012 mathematics and problem-solving frameworks included electronic assessments and expanded the definition of "PISA literacies" beyond what can be measured by a traditional paper-and-pencil test.

Seventy-two countries participated in PISA 2015, including all 35 OECD countries.[8] Between 5,000 and 10,000 students aged 15 from at least 150 schools were typically tested in each country. In Canada, approximately 20,000 15-year-olds from about 900 schools participated across the ten provinces.[9]

The large Canadian sample was required to produce reliable estimates representative of each province and for both French- and English-language school systems in Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, and British Columbia. PISA was administered in English and in French according to the respective school system.

The 2015 PISA assessment was administered in schools during regular school hours in April and May 2015. The assessment was a two-hour computer-based test. Students also completed a 35-minute student background questionnaire providing information about themselves and their home, while school principals completed a 20-minute questionnaire about their schools. As part of PISA 2015, international options could also be implemented. Canada chose to add a one-hour financial literacy assessment as well as a five-minute paper-based questionnaire to collect information on the attitudes of 15-year-old students toward trades; however, only some provinces chose to participate in these options.

An overview of PISA 2015 is given in the table below. It includes information on participants, test design and administration, and national and international options.

[6] OECD, *PISA 2015 assessment and analytical framework*, p. 19.

[7] Results of the collaborative problem-solving and financial literacy components will be released in 2017.

[8] OECD countries include Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States. Partner countries and economies are: Albania, Algeria, Argentina, Beijing, Shanghai, Jiangsu, Guangdong (BSJG)–China, Brazil, Bulgaria, Chinese Taipei, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Georgia, Hong Kong–China, Indonesia, Jordan, Kazakhstan, Kosovo, Lebanon, Lithuania, Macao–China, Malaysia, Malta, Moldova, Montenegro, Peru, Qatar, Republic of Macedonia, Romania, Russian Federation, Singapore, Thailand, Trinidad and Tobago, Tunisia, United Arab Emirates, Uruguay, and Vietnam.

[9] No data were collected in the three territories or in First Nations schools. Further information on sampling procedures and response rates for Canada can be found in Appendix A.

## Table 1

**Overview of PISA 2015**

| | International | Canada |
|---|---|---|
| **Participating countries/ provinces** | • 72 countries and economies | • 10 provinces |
| **Population** | • Youth aged 15 | • Same |
| **Number of participating students** | • Between 5,000 and 10,000 per country with some exceptions for a total of around 510,000 students | • Approximately 20,000 students |
| **Domains** | • Major: science<br>• Minor: reading and mathematics<br>• Computer-based collaborative problem solving | • Same |
| **Languages in which the test was administered** | • 47 languages | • English and French |
| **International assessment** | • Two hours of direct assessments of science, reading, mathematics, and collaborative problem solving<br>• Thirty-five-minute contextual questionnaire administered to youth<br>• Twenty-minute school questionnaire administered to school principals | • Same |
| **International options** | • Ten-minute optional questionnaire on information technology and communications familiarity administered to students<br>• Ten-minute optional questionnaire on educational career administered to students<br>• Twenty-minute optional questionnaire administered to parents<br>• One-hour optional assessment of financial literacy<br>• Thirty-minute optional teacher questionnaire | • One-hour optional assessment of financial literacy in Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, and British Columbia. |
| **National options** | • Other options were undertaken in a limited number of countries | • Five minutes of additional questions administered to students regarding their attitudes towards trades in Newfoundland and Labrador, Prince Edward Island, New Brunswick-English sector, Manitoba, Saskatchewan, and British Columbia. |

## Objectives of the report

This report provides the initial results from the PISA 2015 assessment for Canada and the provinces. It presents the national and provincial results in science, reading, and mathematics and complements the information presented in the PISA 2015 International report.[10] It also compares results to other participating countries and economies and across Canadian provinces.

Chapter 1 provides information on the performance of Canadian 15-year-old students on the PISA 2015 assessment in science. Chapter 2 presents results on the performance of Canada and the provinces in the minor domains of reading and mathematics. The major findings and opportunities for further study are discussed in the conclusion.

[10] The PISA 2015 International report is released in two volumes. Results presented in this report correspond to results presented in *PISA 2015 Results: Excellence and Equity in Education,* Volume I (Paris: OECD 2016).

# Chapter 1

# Canadian Students' Performance in Science in an International Context

The results of student performance on the science assessment are presented in this report in two ways: as the percentage of students attaining proficiency levels and as overall average scores. The performance of 15-year-olds for science overall is described in terms of seven PISA proficiency levels for Canada and the provinces. The average scores for science overall are then compared to those from the other countries and economies that participated in PISA 2015. Results are presented for Canada overall and by province, both for science overall and by the subscales of science (competencies and knowledge areas). Then the performance of students enrolled in anglophone and francophone school systems is presented for those provinces in which the two groups were sampled separately. This chapter also compares Canadian students' performance in science by gender. Given that science was assessed as a major domain for a second time in PISA (the first time was in 2006), change in science performance over time will also be discussed.

## Defining science

Science education in primary and secondary school should prepare students so that by the time they leave school they can understand and engage in discussions about the science and technology-related issues that shape our world. They should also have the skills needed to participate in higher education in fields related to science if they wish to. Most current curricula for science education are designed on the assumption that an understanding of science is so important that the subject should be a central feature in every young person's education.[11]

In the PISA context, *science* refers to "scientific literacy" which is defined as the ability to engage with science-related issues, and with the ideas of science, as a reflective citizen. A scientifically literate person is willing to engage in reasoned discourse about science and technology, which requires the competencies to: explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically.[12]

The science framework was originally developed for PISA 2006 and has kept its essential features in 2015 which allows participating countries to report on trends in performance over time. However, two major improvements were made to the 2006 framework: 1) "knowledge about science" has been defined more clearly and split into two components — procedural knowledge and epistemic knowledge; and 2) the move from a paper-based to a computer-based assessment. These two elements do not jeopardize the possibility of reporting on trends in science performance because they expand the information already available in PISA 2006.

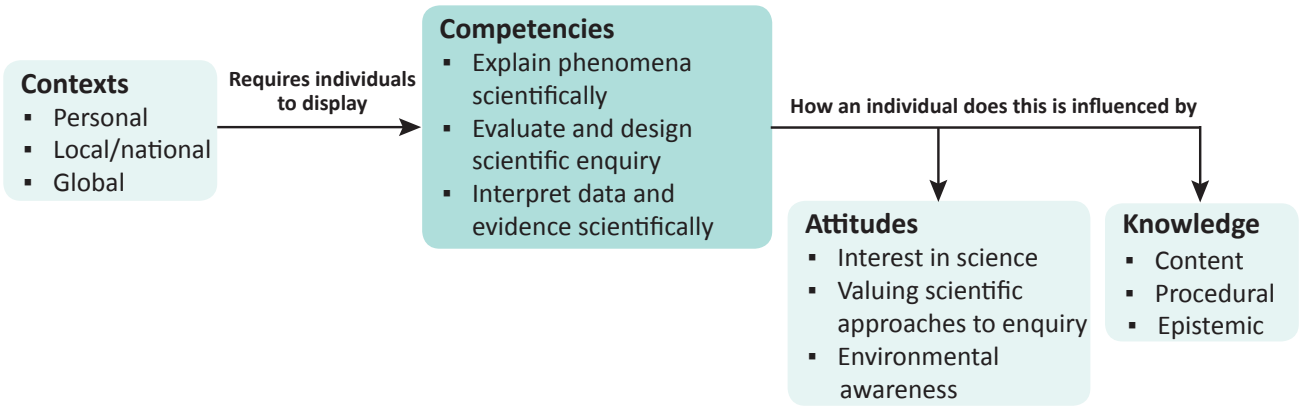
For PISA assessment purposes, the domain of science is divided into three competencies (explain phenomena scientifically, evaluate and design scientific enquiry, and interpret data and evidence scientifically); two knowledge types (content and procedural/epistemic); and three areas of knowledge of science (physical systems, living systems, and Earth and space systems). PISA 2015 also measured students' interest in and awareness of science and environmental issues as well as their perceived value of scientific approaches.

[11] OECD, *PISA 2015 Results: Excellence and Equity in Education,* Volume 1 (Paris: OECD, 2016)
[12] OECD, *PISA 2015 assessment and analytical framework: Science, reading, mathematic and financial literacy*, (Paris: OECD, 2016), available at http://dx.doi.org/10.1787/9789264255425-en.

The main features of the PISA 2015 science framework are presented in the following illustration.[13]

**Figure 1**

**Main features of the PISA 2015 science framework**




Three competencies are used in PISA 2015 to describe how a scientifically literate person engages in issues and ideas related to science. The competencies appear in Table 1.1.

**Table 1.1**

**Competencies of science**

**Explain phenomena scientifically** — being able to recognize, offer, and evaluate explanations for a range of natural and technological phenomena by demonstrating the ability to:

- Recall and apply appropriate scientific knowledge.
- Identify, use, and generate explanatory models and representations.
- Make and justify appropriate predictions.
- Offer explanatory hypotheses.
- Explain the potential implications of scientific knowledge for society.

**Evaluate and design scientific enquiry** — being able to describe and appraise scientific investigations and propose ways of addressing questions scientifically by demonstrating the ability to:

- Identify the question explored in a given scientific study.
- Distinguish questions that could be investigated scientifically.
- Propose a way of exploring a given question scientifically.
- Evaluate ways of exploring a given question scientifically.
- Describe and evaluate how scientists ensure the reliability of data, and the objectivity and generalizability of explanations.

**Interpret data and evidence scientifically** — being able to analyze and evaluate data, claims, and arguments in a variety of representations and draw appropriate scientific conclusions by demonstrating the ability to:

- Transform data from one representation to another.
- Analyze and interpret data and draw appropriate conclusions.
- Identify the assumptions, evidence, and reasoning in science-related texts.
- Distinguish between arguments that are based on scientific evidence and theory and those based on other considerations.
- Evaluate scientific arguments and evidence from different sources (e.g., newspapers, the Internet, journals).*

* Adapted from Figures 2.4 a, b, and c in OECD, *PISA 2015 assessment and analytical framework*.

[13] OECD, *PISA 2015 assessment and analytical framework*, p. 23.

Each of the scientific competencies requires some content knowledge (knowledge of theories, explanatory ideas, information, and facts), but also an understanding of how such knowledge has been derived (procedural knowledge) and of the nature of that knowledge (epistemic knowledge).

For PISA 2015, content knowledge was classified according to the three broad content areas central to the disciplines. Although their definitions and delineations may vary, these are very consistent with the way provincial curricula[14] as well as pan-Canadian[15] and other international assessments[16] are organized. Descriptions of these content areas appear in Table 1.2.

**Table 1.2**

| Content knowledge of science |
|---|
| **Physical systems** that require knowledge of: |
| • structure of matter (e.g., particle model, bonds)<br>• properties of matter (e.g., changes of state, thermal and electrical conductivity)<br>• chemical changes of matter (e.g., chemical reactions, energy transfer, acids/bases)<br>• motion and forces (e.g., velocity, friction) and action at a distance (e.g., magnetic, gravitational, and electrostatic forces)<br>• energy and its transformation (e.g., conservation, dissipation, chemical reactions)<br>• interactions between energy and matter (e.g., light and radio waves, sound and seismic waves) |
| **Living systems** that require knowledge of: |
| • cells (e.g., structures and function, DNA, plant and animal)<br>• the concept of an organism (e.g., unicellular and multicellular)<br>• humans (e.g., health; nutrition; subsystems such as digestion, respiration, circulation, excretion, and reproduction and their relationship)<br>• populations (e.g., species, evolution, biodiversity, genetic variation)<br>• ecosystems (e.g. food chains, matter, and energy flow)<br>• biosphere (e.g., ecosystem services, sustainability) |
| **Earth and space** systems that require knowledge of: |
| • structures of the Earth systems (e.g., lithosphere, atmosphere, hydrosphere)<br>• energy in the Earth systems (e.g., sources, global climate)<br>• change in Earth systems (e.g., plate tectonics, geochemical cycles, constructive and destructive forces)<br>• Earth's history (e.g., fossils, origin, and evolution)<br>• Earth in space (e.g., gravity, solar systems, galaxies)<br>• the history and scale of the universe and its history (e.g., light year, Big Bang theory).* |

* Adapted from Figure 2.5 in OECD, *PISA 2015 assessment and analytical framework*.

For the reporting of knowledge in PISA 2015, procedural knowledge and epistemic knowledge were combined into one category. The examples listed in the table below convey the general features of the types of procedural and epistemic knowledge addressed in the assessment.

[14] For updated science curricula, please visit official jurisdictional Web sites.
[15] See K. O'Grady, and K. Hume, *PCAP 2013: Report on the pan-Canadian assessment of science, reading, and mathematics* (Toronto: Council of Ministers of Education, Canada, 2014).
[16] See I. Mullis, M. Martin, G. Ruddock, C. O'Sullivan, and C. Preuschoff. *TIMSS assessment frameworks* (Chestnut Hill, MA: Boston College, 2009), available at http://timssandpirls.bc.edu/timss2015/frameworks.html.

**Table 1.3**

**Procedural and epistemic knowledge of science**

**Procedural knowledge** requires an understanding of how scientific knowledge is derived. It includes:

- the concept of variables, including dependent, independent, and control variables;
- concepts of measurement, for example, quantitative (measurements), qualitative (observations), the use of a scale, categorical and continuous variables;
- ways of assessing and minimizing uncertainty, such as repeating and averaging measurements;
- mechanisms to ensure the replicability (closeness of agreement between repeated measures of the same quantity) and accuracy of data (the closeness of agreement between a measured quantity and a true value of the measure);
- common ways of abstracting and representing data using tables, graphs, and charts, and using them appropriately;
- the control-of-variables strategy and its role in experimental design or the use of randomized controlled trials to avoid confounded findings and identify possible causal mechanisms; and
- the nature of an appropriate design for a given scientific question, for example, experimental, field-based, or pattern-seeking.

**Epistemic knowledge** requires an understanding of the nature of knowledge in science.

It involves the constructs and defining features of science:

- the nature of scientific observations, facts, hypotheses, models, and theories;
- the purpose and goals of science (to produce explanations of the natural world) as distinguished from technology (to produce an optimal solution to human need), and what constitutes a scientific or technological question and appropriate data;
- The values of science, for example, a commitment to publication, objectivity, and the elimination of bias; and
- the nature of reasoning used in science, for example, deductive, inductive, inference to the best explanation (abductive), analogical, and model-based.

**Epistemic knowledge** requires a recognition of these constructs' and features' role in justifying the knowledge produced by science. That is:

- how scientific claims are supported by data and reasoning in science;
- the function of different forms of empirical enquiry in establishing knowledge, their goal (to test explanatory hypotheses or identify patterns), and their design (observation, controlled experiments, correlational studies);
- how measurement error affects the degree of confidence in scientific knowledge;
- the use and role of physical, system, and abstract models and their limits;
- the role of collaboration and critique, and how peer review helps to establish confidence in scientific claims; and
- the role of scientific knowledge, along with other forms of knowledge, in identifying and addressing societal and technological issues.*

* Adapted from Figures 2.6 and 2.7 in OECD, *PISA 2015 assessment and analytical framework*.

## PISA achievement results by proficiency levels in science

PISA developed useful benchmarks relating a range of average scores in science to levels of knowledge and skills that are measured by the assessment. Although these levels are not linked directly to any specific program of study in science, they provide an overall picture of students' accumulated understanding at age 15. PISA science literacy is expressed on a seven-level proficiency scale in which tasks at the lower end of the scale (Level 1) are deemed easier and less complex than other tasks at the higher end (Level 6). This progression in task difficulty/complexity applies to both the overall science scale and for each competency and knowledge area. Table 1.4 provides a summary description of the tasks that students are able to do at the seven proficiency levels for overall science along with the corresponding lower limit for the level. It is assumed that students classified at a given proficiency level can perform most of that tasks at that level as well as those at the lower levels. Proficiency level achievement is reported for only the major domain in the Canadian report of the PISA 2015 assessment.

## Table 1.4

### PISA 2015 Science proficiency levels — Summary description*

| Level | Lower score limit | Percentage of students able to perform tasks at this level or above | Task characteristics |
|---|---|---|---|
| **6** | 707.93 | 1.1% of students across the OECD and 2.0% in Canada | Students at Level 6 of the PISA science assessment are able to successfully complete the most difficult PISA items. At Level 6, students can:<br>• draw on a range of interrelated scientific ideas and concepts from the physical, life, Earth, and space sciences, link different information sources and representations, and move flexibly among them;<br>• use content, procedural, and epistemic knowledge to offer explanatory hypotheses of novel scientific phenomena, events, and processes or to make predictions;<br>• discriminate between relevant and irrelevant information and draw on knowledge external to the normal school curriculum when interpreting data and evidence;<br>• distinguish between arguments that are based on scientific evidence and theory and those based on other considerations; and<br>• evaluate competing designs of complex experiments, field studies, or simulations and justify their choices. |
| **5** | 633.33 | 7.7% of students across the OECD and 12.4% in Canada | At Level 5, students can:<br>• use abstract scientific ideas or concepts to explain unfamiliar and more complex phenomena, events, and processes involving multiple causal links;<br>• apply more sophisticated epistemic knowledge to evaluate alternative experimental designs and justify their choices and use theoretical knowledge to interpret information or make predictions; and<br>• evaluate ways of exploring a given question scientifically and identify limitations in interpretations of data sets, including sources and the effects of uncertainty in scientific data. |
| **4** | 558.73 | 26.7% of students across the OECD and 38.4% in Canada | At Level 4, students can:<br>• use more complex or more abstract content knowledge, which is either provided or recalled, to construct explanations of more complex or less familiar events and processes;<br>• conduct experiments involving two or more independent variables in a constrained context;<br>• justify an experimental design, drawing on elements of procedural and epistemic knowledge; and<br>• interpret data drawn from a moderately complex data set or less familiar context, draw appropriate conclusions that go beyond the data, and provide justifications for their choices. |
| **3** | 484.14 | 54.0% of students across the OECD and 68.7% in Canada | At Level 3, students can:<br>• draw upon moderately complex content knowledge to identify or construct explanations of familiar phenomena;<br>• construct explanations with relevant cueing or support in less familiar or more complex situations;<br>• draw on elements of procedural or epistemic knowledge to carry out a simple experiment in a constrained context; and<br>• distinguish between scientific and nonscientific issues and identify the evidence supporting a scientific claim. |
| **2** | 409.54 | 78.8% of students across the OECD and 88.9% in Canada | Level 2 is considered the baseline level of science proficiency that is required to participate fully in modern society. At Level 2, students can:<br>• draw on everyday content knowledge and basic procedural knowledge to identify an appropriate scientific explanation, interpret data, and identify the question being addressed in a simple experimental design;<br>• use basic or everyday scientific knowledge to identify a valid conclusion from a simple data set; and<br>• demonstrate basic epistemic knowledge by being able to identify questions that could be investigated scientifically. |
| **1a** | 334.94 | 94.5% of students across the OECD and 98.0% in Canada | At Level 1a, students can:<br>• use basic or everyday content and procedural knowledge to recognize or identify explanations of simple scientific phenomenon;<br>• undertake structured scientific enquiries with no more than two variables with support;<br>• identify simple causal or correlational relationships and interpret graphical and visual data that require a low level of cognitive demand; and<br>• select the best scientific explanation for given data in familiar personal, local, and global contexts. |
| **1b** | 260.54 | 99.4% of students across the OECD and 99.9% in Canada | At Level 1b, students can:<br>• use basic or everyday scientific knowledge to recognize aspects of familiar or simple phenomenon; and<br>• identify simple patterns in data, recognize basic scientific terms, and follow explicit instructions to carry out a scientific procedure. |

* Adapted from OECD, *PISA 2015 Results: Excellence and Equity in Education*.
*Note*: Level 1 and Level 1a are used interchangeably. Level 1b is also referred to as below Level 1.

## Canadian students achieve a high level of proficiency in science

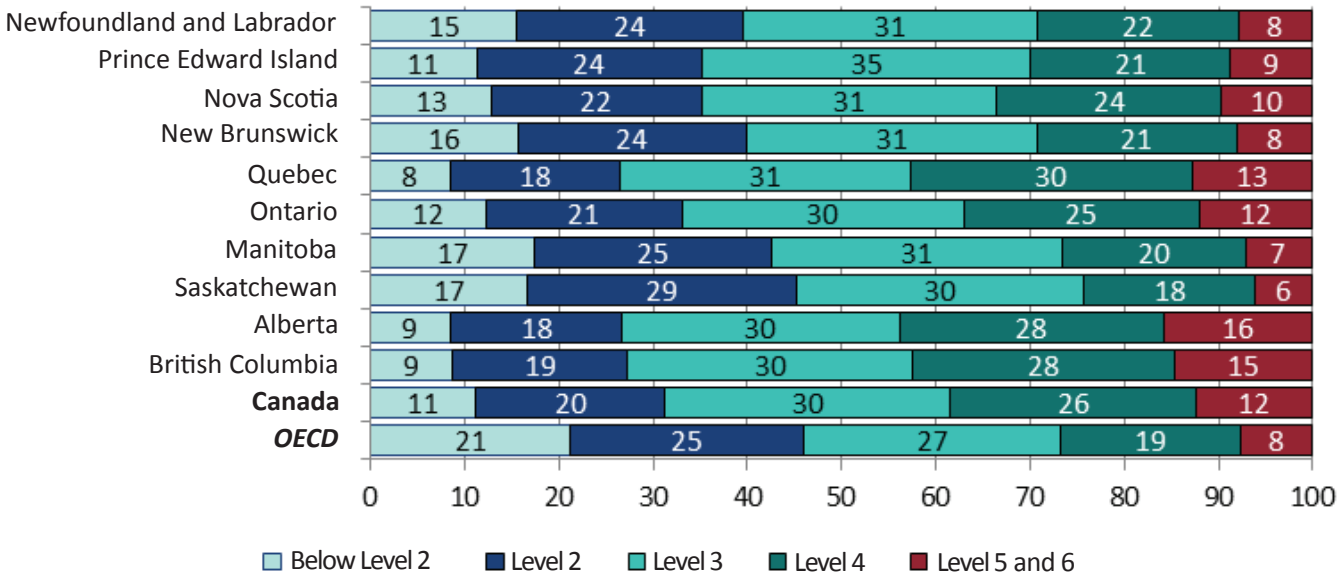
In PISA 2015, 89 per cent of Canadian students and 79 per cent of students in OECD countries performed at or above Level 2 in science, which is the baseline level of science proficiency (Appendix B.1.1). Across provinces, the percentage of Canadian students at or above the baseline level of performance ranges from 83 per cent in Saskatchewan and Manitoba to over 90 per cent in Quebec, Alberta, and British Columbia (Figure 1.1). By contrast, 11 per cent of Canadian students did not reach the baseline Level 2 in science, compared with 21 per cent for the OECD. More than 60 countries had a higher proportion of students performing at the lower level compared to Canada. Provincially, there is a lot of variability among the provinces. Quebec (8%), Alberta (9%), and British Columbia (9%) had a lower proportion of low achievers; Manitoba and Saskatchewan had a higher (17%) proportion of low achievers in science.

At the higher end of the PISA science scale, 12 per cent of Canadian students performed at Level 5 or above compared to 8 per cent performing at this level for the OECD. Although this is a higher proportion of students than in most other countries participating in PISA, seven countries and economies (Beijing, Shanghai, Jiangsu, Guangdong [BSJG]–China, Estonia, New Zealand, Australia, the Netherlands, United Kingdom, and Korea) had a similar proportion of students performing at Level 5 or above as Canada did, while four had a statistically higher proportion (Singapore, Chinese Taipei, Japan, and Finland). At the provincial level, the proportion of students achieving at this higher level is 10 per cent or more in Nova Scotia, Quebec, Ontario, Alberta, and British Columbia.

Across the OECD, 6 per cent of 15-year-olds did not achieve Level 1 while this proportion was 2 per cent in Canada. Provincially, 4 per cent of students in Manitoba did not achieve Level 1, compared to 1 percent of students in Quebec, Alberta, and British Columbia.

**Figure 1.1**

**Distribution of students by proficiency level on the overall science scale — Canada, provinces, and OECD**




*Note:* Percentages may not add up to 100 due to rounding. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## PISA achievement results by average scores in science

The PISA scores for science are expressed on a scale with an average or mean of 500 points for the OECD countries and a standard deviation of 100. This average was established in 2006 and reestablished at 493 in 2015.[17] This means that approximately two-thirds of all students in OECD countries scored between 393 and 593 (i.e., within one standard deviation of the average) on this PISA 2015 assessment.

International studies such as PISA summarize student performance by comparing the relative standing of countries based on their average test scores. This approach can be misleading because there is a margin of error associated with each score (see note below). When interpreting average performances, only those differences between countries that are statistically significant should be taken into account.

**A note on statistical comparisons**

Because PISA's goal is to report results on the skills of 15-year-old students, a random sample of 15-year-old students was selected to complete PISA. The averages (for mean scores and for proficiency-levels proportions) were computed from the scores of random samples of students from each country and not from the population of students in each country. Consequently, it cannot be said with certainty that a sample average has the same value as the population average that would have been obtained had all 15-year-old students been assessed. A degree of error is associated with the scores describing student performance because these scores are estimated based on student responses to test items. A statistic, called the standard error, is used to express the degree of uncertainty associated with sampling error and measurement error. The standard error can be used to construct a confidence interval that provides a means of making inferences about the population averages and proportions in a manner that reflects the uncertainty associated with sample estimates. A 95 per cent confidence interval is used in this report and represents a range of plus or minus about two standard errors around the sample average. Using this confidence interval, it can be inferred that the population mean or proportion would lie within the confidence interval in 95 out of 100 replications of the measurement, using different samples randomly drawn from the same population.

When comparing scores among countries, provinces, or population subgroups, the degree of error in each average should be considered to determine whether averages are significantly different from each other. Standard errors and confidence intervals may be used as the basis for performing these comparative statistical tests. Such tests can identify, with a known probability, whether actual differences are likely to be observed in the populations being compared.

For example, when an observed difference is significant at the .05 level, it implies that the probability is less than .05 that the observed difference could have occurred because of sampling or measurement error. When comparing countries and provinces, extensive use is made of this type of statistical test to reduce the likelihood that differences resulting from sampling or measurement errors will be interpreted as real.

Only statistically significant differences at the .05 level are noted in this report, unless otherwise stated. If the confidence intervals overlap, an additional test of significance (t-test) was conducted to determine whether the difference was statistically significant. In case of multiple t-tests, no corrections were made to reduce the false positive, or Type-I error rate.

When comparing results over time, the standard error includes a linking error to account for the fact that different cohorts of students have been tested over time with a test that also varied slightly over time.

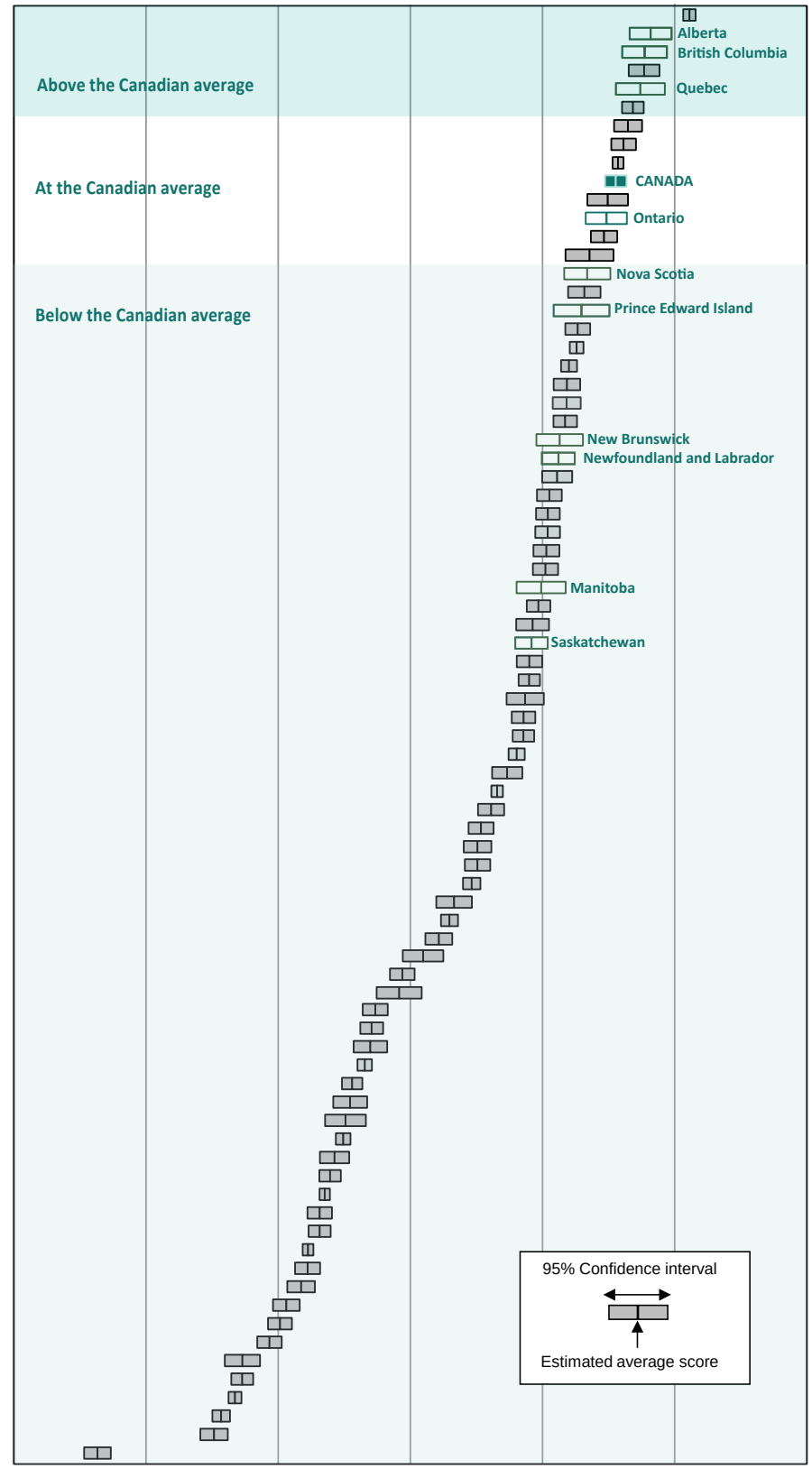
## Canadian students perform well in science in a global context

Overall, Canadian 15-year-old students achieved a mean score of 528 which is 35 points over the OECD average. As Figure 1.2 illustrates, Canada was outperformed by Singapore, Japan, and Estonia, ranking third (along with Finland) among OECD countries and fourth (along with Chinese Taipei, Finland, Macao–China, Vietnam, Hong Kong–China, and BSJG–China) among all 72 participating countries and economies.

[17] Further details on the interpretation of change over time are provided in tables in separate sections of this report.

# Figure 1.2

## Estimated average scores and confidence intervals for countries and provinces: Science




| Countries and provinces | Average | S.E. |
|---|---|---|
| Singapore | 556 | (1.2) |
| Alberta | 541 | (4.0) |
| British Columbia | 539 | (4.3) |
| *Japan* | 538 | (3.0) |
| Quebec | 537 | (4.7) |
| *Estonia* | 534 | (2.1) |
| Chinese Taipei | 532 | (2.7) |
| *Finland* | 531 | (2.4) |
| Macao-China | 529 | (1.1) |
| *CANADA* | 528 | (2.1) |
| Vietnam | 525 | (3.9) |
| Ontario | 524 | (3.9) |
| Hong Kong-China | 523 | (2.5) |
| BSJG-China | 518 | (4.6) |
| Nova Scotia | 517 | (4.5) |
| *Korea* | 516 | (3.1) |
| Prince Edward Island | 515 | (5.4) |
| *New Zealand* | 513 | (2.4) |
| *Slovenia* | 513 | (1.3) |
| *Australia* | 510 | (1.5) |
| *United Kingdom* | 509 | (2.6) |
| *Germany* | 509 | (2.7) |
| *The Netherlands* | 509 | (2.3) |
| New Brunswick | 506 | (4.5) |
| Newfoundland and Labrador | 506 | (3.2) |
| *Switzerland* | 506 | (2.9) |
| *Ireland* | 503 | (2.4) |
| *Belgium* | 502 | (2.3) |
| *Denmark* | 502 | (2.4) |
| *Poland* | 501 | (2.5) |
| *Portugal* | 501 | (2.4) |
| Manitoba | 499 | (4.7) |
| *Norway* | 498 | (2.3) |
| *United States* | 496 | (3.2) |
| Saskatchewan | 496 | (3.1) |
| *Austria* | 495 | (2.4) |
| *France* | 495 | (2.1) |
| *Sweden* | 493 | (3.6) |
| *Czech Republic* | 493 | (2.3) |
| *Spain* | 493 | (2.1) |
| *Latvia* | 490 | (1.6) |
| Russian Federation | 487 | (2.9) |
| *Luxembourg* | 483 | (1.1) |
| *Italy* | 481 | (2.5) |
| *Hungary* | 477 | (2.4) |
| Lithuania | 475 | (2.7) |
| Croatia | 475 | (2.5) |
| *Iceland* | 473 | (1.7) |
| *Israel* | 467 | (3.4) |
| Malta | 465 | (1.6) |
| *Slovak Republic* | 461 | (2.6) |
| *Greece* | 455 | (3.9) |
| *Chile* | 447 | (2.4) |
| Bulgaria | 446 | (4.4) |
| United Arab Emirates | 437 | (2.4) |
| Uruguay | 435 | (2.2) |
| Romania | 435 | (3.2) |
| Cyprus | 433 | (1.4) |
| Moldova | 428 | (2.0) |
| Albania | 427 | (3.3) |
| *Turkey* | 425 | (3.9) |
| Trinidad and Tobago | 425 | (1.4) |
| Thailand | 421 | (2.8) |
| Costa Rica | 420 | (2.1) |
| Qatar | 418 | (1.0) |
| Colombia | 416 | (2.4) |
| *Mexico* | 416 | (2.1) |
| Montenegro | 411 | (1.0) |
| Georgia | 411 | (2.4) |
| Jordan | 409 | (2.7) |
| Indonesia | 403 | (2.6) |
| Brazil | 401 | (2.3) |
| Peru | 397 | (2.4) |
| Lebanon | 386 | (3.4) |
| Tunisia | 386 | (2.1) |
| Republic of Macedonia | 384 | (1.2) |
| Kosovo | 378 | (1.7) |
| Algeria | 376 | (2.6) |
| Dominican Republic | 332 | (2.6) |

*Note:* OECD countries appear in italics. The OECD average was 493, with a standard error of 0.4. The results of Argentina, Kazakhstan, and Malaysia are excluded because of insufficient coverage to ensure comparability (see Appendix B.1.2 for these results). See Appendix B.3.1 for further comparisons between provinces and participating countries. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

When interpreting provincial and international results, it should be kept in mind that PISA students were aged between 15 years and 3 months and 16 years and 2 months in participating countries. In Canada, 88 per cent of students were at the Grade 10 (Secondary 4) level and they achieved a mean score of 532. Grade 9 students (10 per cent) achieved a mean score of 501. Small proportions of students participating in PISA 2015 were in lower or higher grades.

Table 1.5 lists those countries performing significantly better than or equally as well as Canada on the overall science scale (with all remaining countries that took part in PISA 2015 being statistically below the Canadian average). Science results are also reported for each competency, knowledge, and content area subscale. Students' facility at applying science to problems and issues is dependent on skills inherent in all three competencies. A closer analysis of results in each category can help inform policy-level discussions, curricular emphasis, or teaching practice.

Canadian results by scientific competency are similar, with an average score of 530 in *evaluating and designing scientific enquiry* and in *explaining phenomena scientifically,* and 525 in *interpreting data and evidence scientifically*. Across OECD countries, students scored 493 in all three competency subscales. Only Singapore achieved a higher average score than Canada in *evaluating and designing scientific enquiry* while Singapore and Japan outperformed Canada in *explaining phenomena scientifically*, and Singapore, Japan, Estonia, Chinese Taipei, and Macao–China outperformed Canada in *interpreting data and evidence scientifically*.

Canadian students achieved an average score of 528 in both the *content* and the *procedural and epistemic* knowledge subscales. Across OECD countries, students scored 493 on both knowledge subscales. *Content* knowledge was further reported for each of three important systems in science. At the Canadian level, there was no significant difference in achievement across the three system subscales. The scores across OECD countries varied slightly: *living systems* (492), *physical systems* (493), and *Earth and space systems* (494).

**Table 1.5**

**Countries performing better than or as well as Canada – Science**

| | Better than Canada* | As well as Canada* |
|---|---|---|
| **Science overall** | Singapore, Japan, Estonia | Chinese Taipei, Finland, Macao–China, Vietnam, Hong Kong–China, BSJG–China |
| **Science – Competency subscales** | | |
| Explain phenomena scientifically | Singapore, Japan | Chinese Taipei, Finland, Estonia, Macao–China, Hong Kong–China, BSJG–China |
| Evaluate and design scientific enquiry | Singapore | Japan, Estonia, Finland, Macao–China, Chinese Taipei, Hong Kong–China |
| Interpret data and evidence scientifically | Singapore, Japan, Estonia, Chinese Taipei, Macao–China | Finland, Korea, Hong Kong–China, BSJG–China |
| **Science – Knowledge subscales** | | |
| Content | Singapore, Japan, Chinese Taipei | Finland, Estonia, Macao–China, Hong Kong–China, BSJG–China, |
| Procedural and epistemic | Singapore, Japan, Estonia | Macao–China, Chinese Taipei, Finland, Hong Kong–China |
| **Science – Content area subscales** | | |
| Physical systems | Singapore, Japan, Estonia, Finland | Macao–China, Chinese Taipei, Hong Kong–China, BSJG–China, |
| Living systems | Singapore, Japan | Chinese Taipei, Estonia, Finland, Macao–China, Hong Kong–China |
| Earth and space systems | Singapore, Japan, Estonia | Finland, Chinese Taipei, Macao–China, Hong Kong–China, Korea |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Countries performing as well as Canada have a confidence interval that overlaps that of Canada.

## There are marked variations between provinces

At the provincial level, 15-year-old students in Quebec, Alberta, and British Columbia performed above the Canadian average in overall science, with average scores of 537, 541, and 539, respectively. Only Singapore (556) had higher achievement than these three jurisdictions. Students in Ontario performed at the Canadian average while the other provinces were below the Canadian average. With the exception of Manitoba and Saskatchewan which scored at the OECD average, all provinces scored above the OECD average in science (Appendix B.1.2).

An analysis of results by scientific competencies also reveals provincial differences. As presented in Table 1.6 and Appendix B.1.3, Alberta was above the Canadian mean score and Ontario was at the mean score for all three scientific competencies. Quebec students achieved above the Canadian mean for the competencies of *evaluating and designing scientific enquiry* and *interpreting data and evidence scientifically* and at the Canadian mean for *explaining phenomena scientifically*. British Columbia students achieved above the Canadian mean for the competencies of *explaining phenomena scientifically* and *interpreting data and evidence scientifically* and at the Canadian mean for *evaluating and designing scientific enquiry*. Students in Nova Scotia performed at the

Canadian average in *interpreting data and evidence scientifically*. Students in all other provinces were below the Canadian average for all three scientific competencies.

There were also provincial differences in performance between the different knowledge subscales. Students in Alberta and British Columbia achieved scores above the Canadian average in both knowledge subscales while students in Ontario performed at the Canadian average in both knowledge subscales. Quebec students achieved above the Canadian average in *procedural and epistemic knowledge* and at the Canadian average in *content knowledge.* Students in Prince Edward Island scored at the Canadian average in *content knowledge* but below the Canadian average on the *procedural and epistemic* knowledge subscale. All other provinces were below the Canadian average on both knowledge subscales (Table 1.6 and Appendix B.1.4).

When it came to the different content areas at the provincial level, Alberta performed better than the Canadian average in all three content areas, while British Columbia performed better than the Canadian average in the *living systems* subscale and Quebec in *physical systems* and *Earth and space systems*. Students in British Columbia performed at the Canadian average in *physical systems* and *Earth and space systems,* while students in Quebec performed at the Canadian average in *living systems.* Students in Ontario performed at the Canadian average in all three content areas, while students achieved as well as the Canadian average in both *physical* and *living systems* in Prince Edward Island and Nova Scotia (Table 1.6 and Appendix B.1.5).

**Table 1.6**

**Provincial results in science relative to the Canadian average**

| | **Better than Canada*** | **As well as Canada*** |
|---|---|---|
| **Science overall** | Quebec, Alberta, British Columbia | Ontario |
| **Science – Competency subscales** | | |
| Explain phenomena scientifically | Alberta, British Columbia | Quebec, Ontario |
| Evaluate and design scientific enquiry | Quebec, Alberta | Ontario, British Columbia |
| Interpret data and evidence scientifically | Quebec, Alberta, British Columbia | Nova Scotia, Ontario |
| **Science – Knowledge subscales** | | |
| Content | Alberta, British Columbia | Prince Edward Island, Quebec, Ontario |
| Procedural and epistemic | Quebec, Alberta, British Columbia | Ontario |
| **Science – Content area subscales** | | |
| Physical systems | Quebec, Alberta | Prince Edward Island, Nova Scotia, Ontario, British Columbia |
| Living systems | Alberta, British Columbia | Prince Edward Island, Nova Scotia, Quebec, Ontario |
| Earth and space systems | Quebec, Alberta | Ontario, British Columbia |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

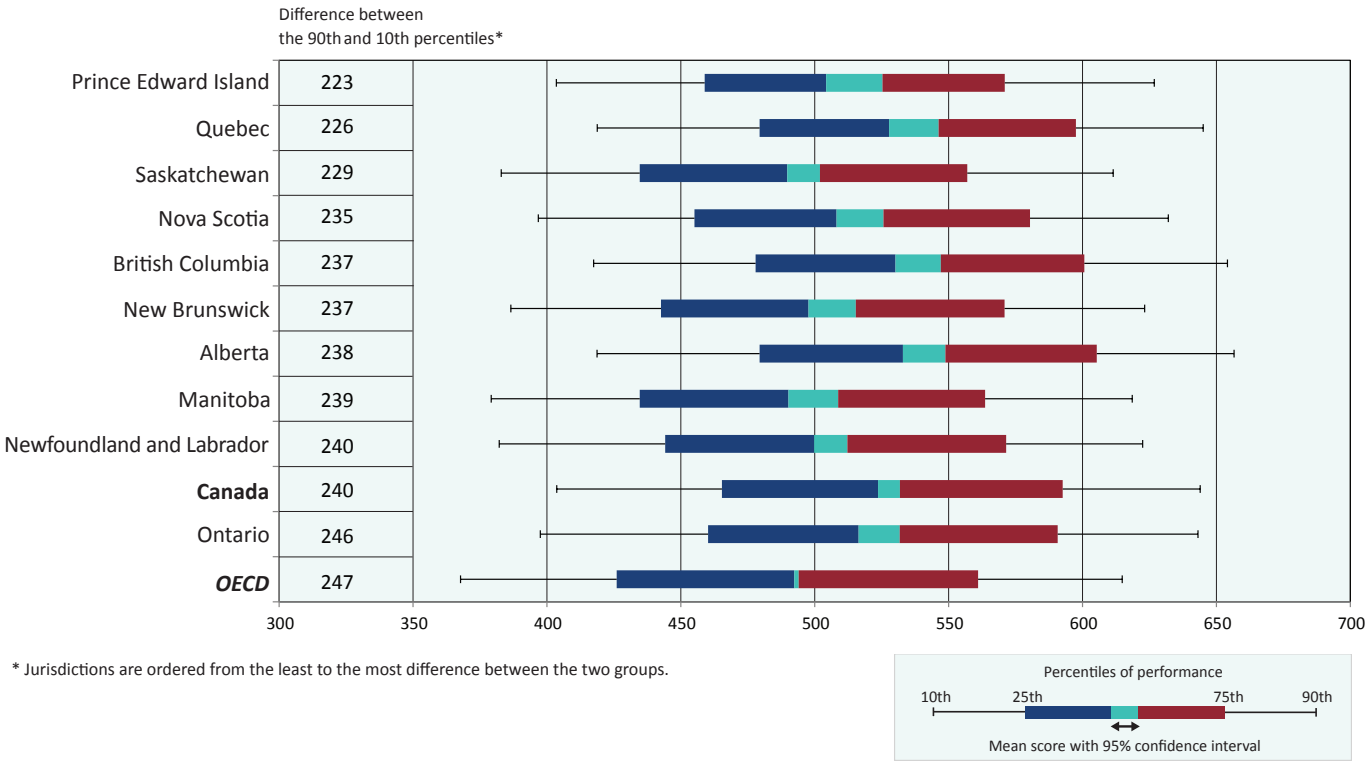
## Canadian results in science are characterized by relatively high levels of equity

Another way of studying differences in achievement is to look at the distribution of scores within a population. The difference between the mean score of students at the 90th percentile and those at the 10th percentile is often used as a proxy for equity in educational outcomes whereby the relative distribution of scores or the gap that exists between students with the highest and lowest levels of performance within each jurisdiction is examined. Figure 1.3 shows the difference in average scores between lowest achievers and highest achievers in science in Canada and the provinces. For Canada overall, those in the highest decile scored 240 points higher compared to those in the lowest decile. This compares to 247 across OECD countries.

At the provincial level, the largest gap can be observed in Ontario (less equity) and the smallest in Prince Edward Island (more equity). Although high-achieving countries tend to have a larger gap, high achievement does not necessarily come at the cost of equity. Notably, Singapore and Japan achieved higher average scores comparable to Canada (556 and 538 respectively) (Appendix B.1.2) but only Japan has similar equity levels as seen by the difference in the achievement gap (271 and 243 respectively) (Appendix B.1.6).

**Figure 1.3**

**PISA 2015 Science – Difference between high and low achievers, Canada, provinces, and OECD**




* Jurisdictions are ordered from the least to the most difference between the two groups.

*Note:* Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## In Canada, science results show significant differences by the school system's language

In seven Canadian provinces (Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, and British Columbia), the sample was sufficiently large to allow for separate reporting for students in the anglophone and francophone school systems.[18]

No difference between the two language systems in science performance was found in Canada overall or in New Brunswick and British Columbia, as shown in Table 1.7 and Appendix B.1.7. The remaining provinces show a statistically different performance on the overall science scale between the anglophone and the francophone school systems. Students in the majority-language system (students in the anglophone school systems in Nova Scotia, Ontario, Manitoba, and Alberta and students in the francophone school system in Quebec) performed better than their counterparts in the minority-language system. The same pattern is found for the scientific competencies and knowledge subscales and for two content area subscales, living and physical systems. For Earth and space systems, there is higher achievement in francophone school systems for Canada overall (Table 1.8 and Appendices B.1.8 to B.1.10).

**Table 1.7**

**Estimated average overall science scores, by province and language of the school system**

| | Anglophone school system | | Francophone school system | | Difference between systems* | |
|---|---|---|---|---|---|---|
| | Average | S.E. | Average | S.E. | Score difference | S.E. |
| Nova Scotia | 518 | (4.6) | 477 | (7.3) | **42** | (8.7) |
| New Brunswick | 508 | (5.7) | 502 | (4.9) | 6 | (7.1) |
| Quebec | 514 | (3.5) | 540 | (5.3) | **-26** | (6.2) |
| Ontario | 526 | (4.1) | 486 | (4.2) | **39** | (5.4) |
| Manitoba | 501 | (5.0) | 473 | (6.9) | **28** | (8.3) |
| Alberta | 541 | (4.1) | 504 | (8.9) | **37** | (10.6) |
| British Columbia | 539 | (4.3) | 532 | (15.8) | 7 | (15.9) |
| **Canada** | 526 | (2.2) | 533 | (4.7) | -7 | (5.0) |

* Results in bold indicate a statistical difference between the two systems. A negative difference means that the result for the francophone school system is higher. The Canadian results include students from all provinces. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

These results suggest that policy-makers may wish to analyze provincial results more closely, given that some of the largest differences between the majority- and the minority-language school systems amount to between 26 and 42 points for overall science scale and between 22 and 49 points on the PISA competency, knowledge, and content area subscales.

[18] Within anglophone school systems, students in French Immersion programs completed the science component in English.

**Table 1.8**

**Summary of differences in provincial results between language systems in science competency, knowledge, and content area subscales**

| | Significantly higher* performance in anglophone school system | Significantly higher* performance in francophone school system | No significant differences between school systems |
|---|---|---|---|
| **Science – Competency subscales** | | | |
| Explain phenomena scientifically<br>Evaluate and design scientific enquiry<br>Interpret data and evidence scientifically | Nova Scotia, Ontario, Manitoba, Alberta | Quebec | Canada, New Brunswick, British Columbia |
| **Science – Knowledge subscales** | | | |
| Content<br>Procedural and epistemic | Nova Scotia, Ontario, Manitoba, Alberta | Quebec | Canada, New Brunswick, British Columbia |
| **Science – Content area subscales** | | | |
| Physical systems<br>Living systems | Nova Scotia, Ontario, Manitoba, Alberta | Quebec | Canada, New Brunswick, British Columbia |
| Earth and space systems | Nova Scotia, Ontario, Manitoba, Alberta | Canada, Quebec | New Brunswick, British Columbia |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## There is no gender gap in science in Canada overall

Policy-makers have an interest in reducing gender disparities in education. Student motivation in school can have a significant impact on their later career choices and earning prospects.

In science overall, there was no difference in average achievement scores between boys and girls in Canada and the provinces (Appendix B.1.11). There was a small gender gap in OECD countries: boys outperformed girls in science by four points on average in PISA 2015, with much variability between participating countries: in over 20 countries, girls outperformed boys in science while boys outperformed girls in a similar number of countries.

In Canada, there was a higher proportion of boys than girls performing at the highest levels of proficiency (Levels 5 and 6) as well as at the lowest levels of proficiency (below Level 2) in science. Provincially, more boys than girls performed at the highest levels of proficiency in Newfoundland and Labrador and Quebec while no gender differences were observed in any of the provinces at the lowest levels of proficiency (Table 1.9 and Appendix B.1.12).

When looking at the different scientific competency, knowledge, and content area subscales, we see that performance was remarkably similar between 15-year-old boys and girls in Canada in the science competency of *interpreting data and evidence scientifically* and for all three content area subscales: *physical systems*, *living systems*, and *Earth and space systems* (Table 1.10). Girls outperformed boys in *evaluating and designing scientific enquiry* and in *procedural and epistemic* knowledge while boys outperformed girls in *explaining phenomena scientifically* and in *content* knowledge.

**Table 1.9**

**Distribution of students on the overall science scale by proficiency level and gender**

| Levels 5 and 6 | | |
|---|---|---|
| **Percentage of girls is significantly higher* than percentage of boys** | **Percentage of boys is significantly higher* than percentage of girls** | **No significant differences in the percentage of boys and girls** |
| | Canada, Newfoundland and Labrador, Quebec | Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia |
| **Below Level 2** | | |
| **Percentage of girls is significantly higher* than percentage of boys** | **Percentage of boys is significantly higher* than percentage of girls** | **No significant differences in the percentage of boys and girls** |
| | Canada | all provinces |

* Differences in percentages at proficiency levels are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant.

Gender differences at the provincial level for science overall and by subscale are shown in Table 1.10 and in appendices B.1.13 to B.1.15.

## Table 1.10

**Summary of gender differences in average science scores for Canada and the provinces**

| | Girls performed significantly higher* than boys | Boys performed significantly higher* than girls | No significant differences between boys and girls |
|---|---|---|---|
| **Science overall** | | | Canada, all provinces |
| **Science – Competency subscales** | | | |
| Explain phenomena scientifically | | Canada, Newfoundland and Labrador, Quebec, Saskatchewan, Alberta, British Columbia | Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba |
| Evaluate and design scientific enquiry | Canada, Prince Edward Island, Ontario | | Newfoundland and Labrador, Nova Scotia, New Brunswick, Quebec, Manitoba, Saskatchewan, Alberta, British Columbia |
| Interpret data and evidence scientifically | | | Canada, all provinces |
| **Science – Knowledge subscales** | | | |
| Content | | Canada, Newfoundland and Labrador, Quebec, Saskatchewan | Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Alberta, British Columbia |
| Procedural and epistemic | Canada, Ontario | | Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Manitoba, Saskatchewan, Alberta, British Columbia |
| **Science – Content area subscales** | | | |
| Physical systems | | Quebec | Canada, Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia |
| Living systems | | | Canada, all provinces |
| Earth and space systems | | | Canada, all provinces |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## The mean performance of Canadian students in science has remained stable over time

PISA 2015 provides the fourth assessment of science since 2006 when the first full assessment of science took place. As a result, PISA 2015 enables countries and provincial education systems to compare their own performance over time between 2006 and 2015. This important information can inform educational policy and instructional practices.

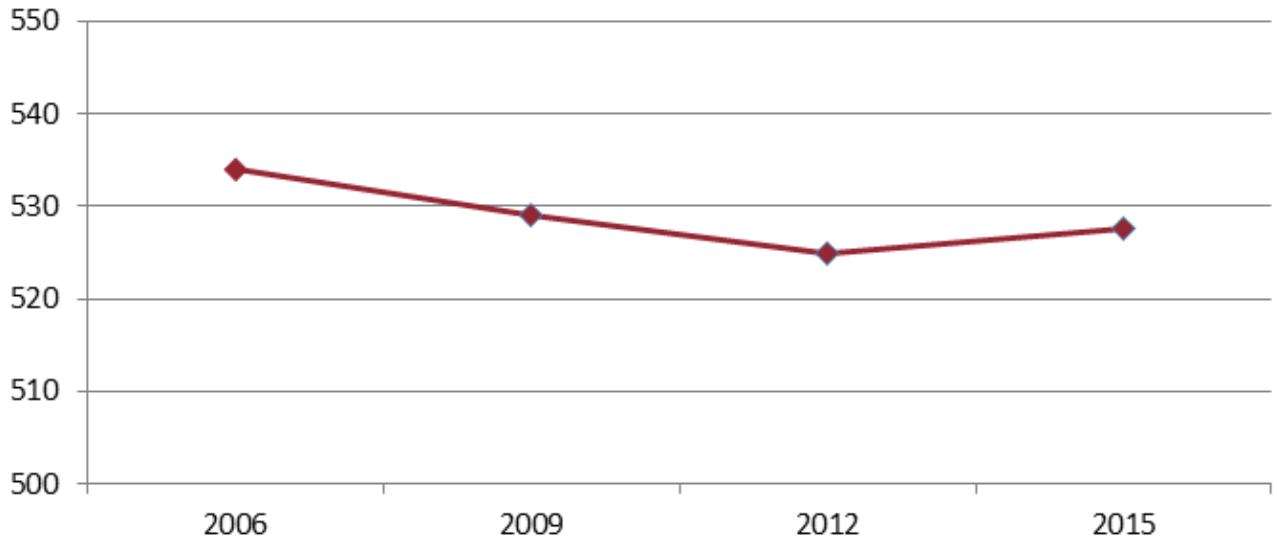
While this section looks at changes over time, performance differences should be interpreted with caution. It is possible to compare changes in student performance over time in each PISA domain because a number of common test questions are used in each survey. However, the limited number of such common test items used increases the chances of measurement error. To account for this, an extra error factor, known as the linking error, is introduced into the standard error. The standard errors with linking errors should be used whenever comparing performance across assessments (but not when comparing results across countries/economies or subpopulations within a particular assessment).[19] Consequently only those changes that are indicated as statistically significant should be considered.

In Canada, as well as across the OECD countries, science performance did not change between 2006 and 2015. However, there were changes in performance in some of the 57 countries that participated in both PISA 2006 and PISA 2015. In six countries (Qatar, Portugal, Macao–China, Romania, Norway, and Colombia) science performance improved on a statistically significant basis, while in 14 countries, science performance declined between the baseline year and 2015. No changes were observed in the remaining countries.

In 2006, Canada's average performance in science was at its highest with a score of 534 points: Canada ranked third, after Finland (563) and Hong Kong–China (542). Since then, Canadian results have remained very stable with average scores of 529, 525, and 528 points in 2009, 2012, and 2015 respectively (Figure 1.4). Although the lack of improvement is a cause for closer analysis, it is important to note that a significant change in science performance is observed only between 2006 and 2012. Compared to the baseline, there is no significant change between 2006 and 2009 or between 2006 and 2015.

**Figure 1.4**

**PISA Canadian results over time, 2006–2015 science overall**




*Note:* Difference compared with baseline (2006).

[19] See OECD, *PISA 2015 Results: Excellence and Equity in Education*, for information on linking errors.

Provincially, no significant change in science achievement was observed in most provinces, with the exception of Newfoundland and Labrador, Manitoba, and Saskatchewan where the average score decreased by approximately 20 points (Table 1.11 and Appendix B.1.16).

**Table 1.11**

**Comparison of performance in science in PISA 2006–2015, Canada and the provinces**

| | 2006 | | 2009 | | 2012 | | 2015** | |
|---|---|---|---|---|---|---|---|---|
| | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error |
| Newfoundland and Labrador | 526 | 2.5 | 518 | 4.0 | 514* | 5.0 | 506* | 5.5 |
| Prince Edward Island | 509 | 2.7 | 495* | 3.5 | 490* | 4.4 | 515 | 7.0 |
| Nova Scotia | 520 | 2.5 | 523 | 3.7 | 516 | 4.6 | 517 | 6.3 |
| New Brunswick | 506 | 2.3 | 501 | 3.5 | 507 | 4.4 | 506 | 6.3 |
| Quebec | 531 | 4.2 | 524 | 4.1 | 516* | 4.8 | 537 | 6.5 |
| Ontario | 537 | 4.2 | 531 | 4.2 | 527 | 5.6 | 524 | 6.0 |
| Manitoba | 523 | 3.2 | 506* | 4.7 | 503* | 4.8 | 499* | 6.5 |
| Saskatchewan | 517 | 3.6 | 513 | 4.5 | 516 | 4.6 | 496* | 5.5 |
| Alberta | 550 | 3.8 | 545 | 5.0 | 539 | 5.8 | 541 | 6.0 |
| British Columbia | 539 | 4.7 | 535 | 4.8 | 544 | 5.3 | 539 | 6.2 |
| **Canada** | 534 | 2.0 | 529 | 3.0 | 525* | 4.0 | 528 | 4.9 |

* Significant difference compared with baseline (2006). The standard error of measurement includes a linking error to account for the comparison of results over time between the baseline (2006) and subsequent years.

** Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

At the Canadian level, the proportion of low-performing (below Level 2) 15-year-old students remained stable in science between 2006 and 2015; however, the proportion of students achieving below Level 2 has increased in Newfoundland and Labrador and Manitoba. The proportion of students achieving Levels 5 and 6 also remained unchanged over the 2006–to–2015 period although provincially, the proportion decreased in Newfoundland and Labrador, Manitoba, and Saskatchewan (Appendix B.1.17).

With the exception of Newfoundland and Labrador where a gender gap in science achievement favoured girls in 2006, there have been no significant differences between girls and boys across Canada and in the other provinces over time in science (Appendix B.1.18)

## Summary

Canada continues to perform well in science, with close to 90 per cent of Canadian students reaching the baseline level of science proficiency required to participate fully in modern society (Level 2) while almost one in ten students reached Levels 5 or 6. Globally, Canada ranked third among OECD countries and fourth among all participating countries and economies.

In spite of these strong results, PISA 2015 results in scientific literacy also suggest that there is cause for some concern. Almost one in ten Canadian students do not meet the benchmark level of science proficiency, a proportion which has not changed since the baseline year in 2006, and students in minority-language settings achieve lower results in science compared to their counterparts in majority-language settings.

# Chapter 2

# Canadian Students' Reading and Mathematics Performance in an International Context

This chapter presents the overall results of the PISA 2015 assessments in the minor domains of reading and mathematics. For each domain, the performance of 15-year-old students across Canada and in the 10 provinces is compared to the performance of 15-year-olds from the other countries that participated in PISA 2015. Next, it examines the performance of students enrolled in anglophone and francophone school systems for those provinces where the two groups were sampled sufficiently. This is followed by a comparison between the performance of boys and girls in Canada and the provinces. Changes over time are discussed.

## Defining reading and mathematics

Since reading and mathematics were minor domains in PISA 2015, there were fewer assessment items in these two areas compared to the major domain of science. As a result, PISA 2015 allows for only an update on overall performance in reading and mathematics, and not on their sub-domains. Additionally, although paper-based assessments were provided for countries that chose not to test their students by computer, in Canada, computer was the primary mode of delivery for all domains in PISA 2015. Because the computer-based assessments of reading and mathematics were an optional domain in PISA 2012 and were not taken by all countries, they are not part of the reading and mathematical literacy trends.

With an emphasis on functional knowledge and skills that allow active participation in society, PISA defines reading and mathematics like this:[20]

- *Reading literacy* (hereafter referred to as reading) is an individual's capacity to understand, use, reflect on, and engage with written texts, to achieve one's goals, develop one's knowledge and potential, and participate in society.
- *Mathematical literacy* (hereafter referred to as mathematics) is an individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It assists individuals to recognize the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged, and reflective citizens.

As is the case for science, the scores for reading and mathematics are expressed on a scale with an average among OECD countries of 500 and a standard deviation of 100. This average was established in the year in which the domain became the main focus of the assessment (2000 for reading and 2003 for mathematics). Approximately two-thirds of the students in OECD countries scored between 400 and 600 (i.e., within one standard deviation of the average). Because participating countries and performance have changed over time, the OECD average scores for reading and mathematics in PISA 2015 differ slightly from 500.

[20] OECD, *PISA 2015 assessment and analytical framework: Science, reading, mathematic and financial literacy* (Paris: OECD 2016), available at http://dx.doi.org/10.1787/9789264255425-en.

## Canadian students perform well in reading and mathematics in a global context

One way to summarize student performance and compare the relative standing of countries is by examining their average test scores. However, simply ranking countries based on their average scores can be misleading because there is a margin of uncertainty associated with each score. As discussed in Chapter 1, when interpreting average performances, only those differences between countries that are statistically significant should be noted.

On average, Canadian 15-year-olds performed well in reading and mathematics (Table 2.1 and Figures 2.1 and 2.2). Canadian students had an average score of 527 in reading and 516 in mathematics, well above the OECD average of 493 and 490, respectively. Table 2.1 shows the countries that performed significantly better than or the same as Canada in reading and mathematics. The averages of the students in all the remaining countries were significantly below those of Canada. Among the 72 countries that participated in PISA 2015, only one outperformed Canada in reading while six outperformed Canada in mathematics.

**Table 2.1**

**Countries performing better than or as well as Canada in reading and mathematics**

| | Better than Canada* | As well as Canada* |
|---|---|---|
| **Reading** | Singapore | Hong Kong–China, Finland, Ireland |
| **Mathematics** | Singapore, Hong Kong–China, Macao–China, Chinese Taipei, Japan, BSJG–China | Korea, Switzerland, Estonia, the Netherlands, Denmark, Finland |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant.

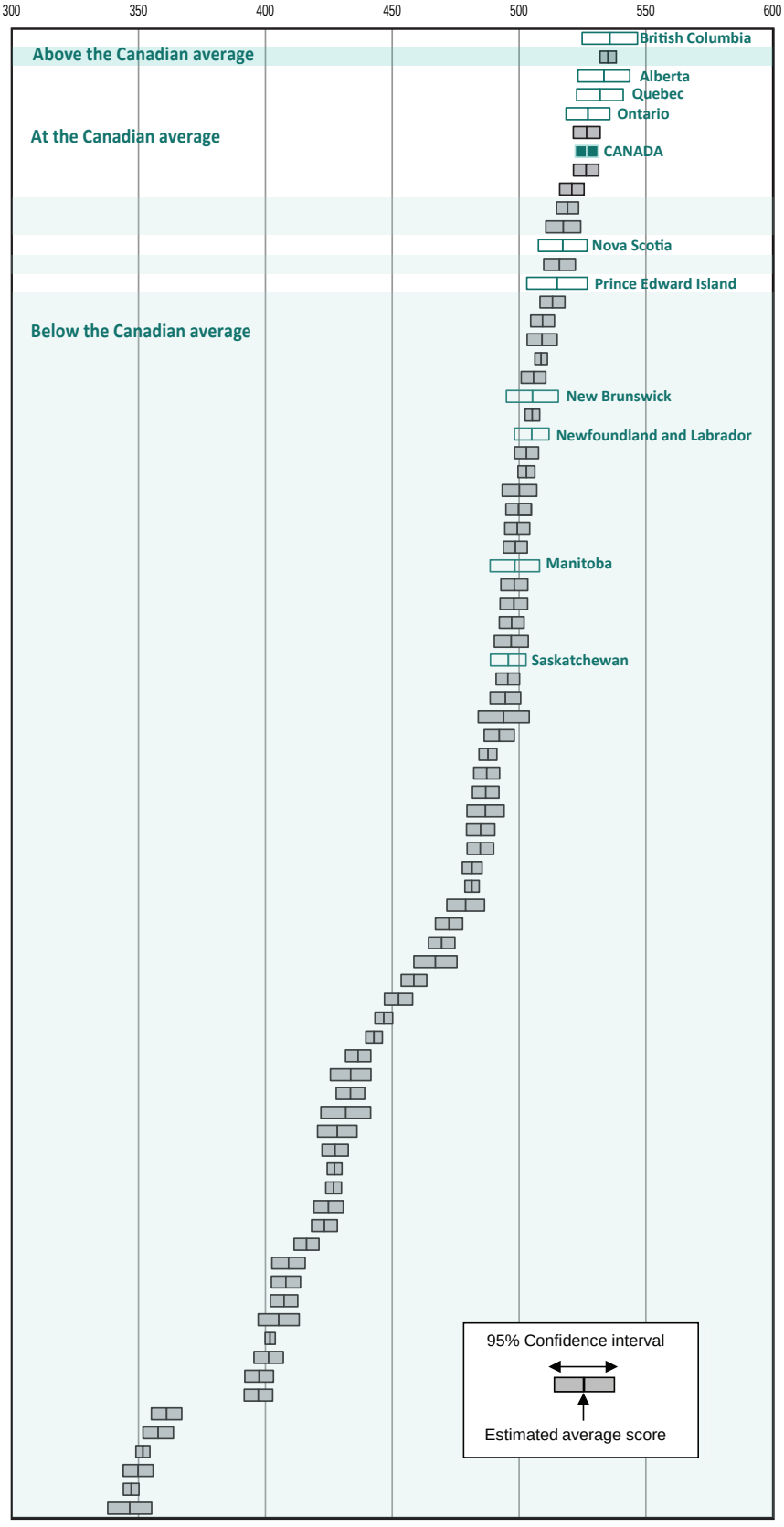
While average performance is useful in assessing the overall performance of students, it can mask significant variation within a jurisdiction. The gap that exists between students with the highest and those with the lowest levels of performance is an important indicator of the equity of educational outcomes. Further information on the performance within jurisdictions can be obtained by examining the relative distribution of scores.

For Canada overall, those in the highest decile (90$^{th}$ percentile) scored 238 points higher in reading and 227 points higher in mathematics than those in the lowest decile (10$^{th}$ percentile). This compares to 249 points in reading and 232 points in mathematics across all OECD countries.

The amount of variation in performance within a country in reading and mathematics fluctuated widely (see Appendix tables B.2.3 and B.2.4). Canada was one of the few countries with above-average performance and below-average disparity in student performance, as measured by the difference between the 90$^{th}$ and 10$^{th}$ percentiles.

## Figure 2.1

### Estimated average scores and confidence intervals for countries and provinces: Reading

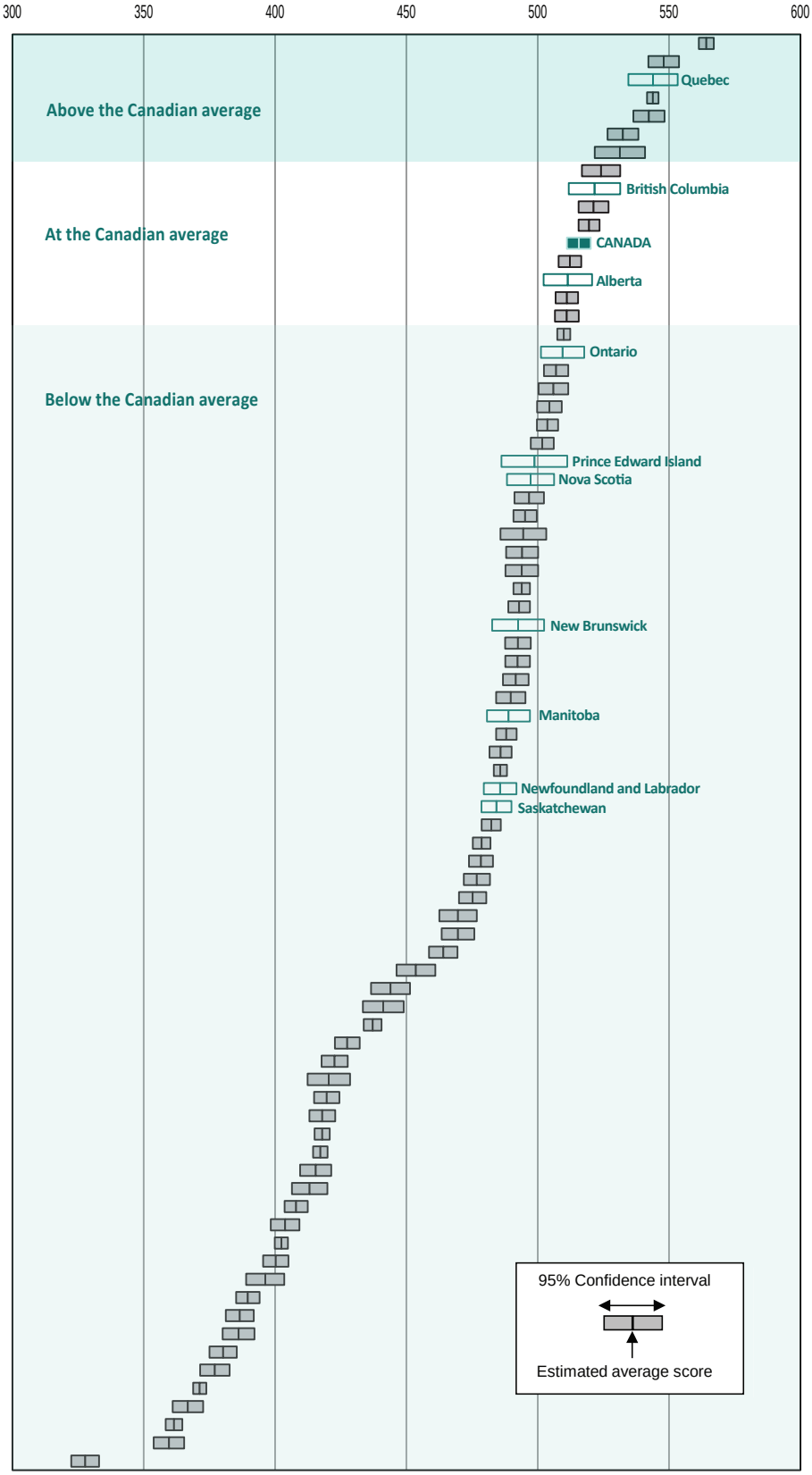



| Countries and provinces | Average | S.E. |
|---|---|---|
| British Columbia | **536** | **(5.6)** |
| Singapore | 535 | (1.6) |
| Alberta | **533** | **(5.2)** |
| Quebec | **532** | **(4.7)** |
| Ontario | **527** | **(4.4)** |
| Hong Kong-China | 527 | (2.7) |
| *CANADA* | **527** | **(2.3)** |
| *Finland* | 526 | (2.5) |
| *Ireland* | 521 | (2.5) |
| Estonia | 519 | (2.2) |
| *Korea* | 517 | (3.5) |
| Nova Scotia | **517** | **(4.9)** |
| *Japan* | 516 | (3.2) |
| Prince Edward Island | **515** | **(6.1)** |
| *Norway* | 513 | (2.5) |
| *New Zealand* | 509 | (2.4) |
| *Germany* | 509 | (3.0) |
| Macao-China | 509 | (1.3) |
| *Poland* | 506 | (2.5) |
| New Brunswick | **505** | **(5.2)** |
| *Slovenia* | 505 | (1.5) |
| Newfoundland and Labrador | **505** | **(3.5)** |
| *The Netherlands* | 503 | (2.4) |
| *Australia* | 503 | (1.7) |
| *Sweden* | 500 | (3.5) |
| *Denmark* | 500 | (2.5) |
| *France* | 499 | (2.5) |
| *Belgium* | 499 | (2.4) |
| Manitoba | **498** | **(5.0)** |
| *Portugal* | 498 | (2.7) |
| *United Kingdom* | 498 | (2.8) |
| Chinese Taipei | 497 | (2.5) |
| *United States* | 497 | (3.4) |
| Saskatchewan | **496** | **(3.6)** |
| *Spain* | 496 | (2.4) |
| Russian Federation | 495 | (3.1) |
| BSJG-China | 494 | (5.1) |
| *Switzerland* | 492 | (3.0) |
| *Latvia* | 488 | (1.8) |
| *Czech Republic* | 487 | (2.6) |
| Croatia | 487 | (2.7) |
| Vietnam | 487 | (3.7) |
| *Austria* | 485 | (2.8) |
| *Italy* | 485 | (2.7) |
| *Iceland* | 482 | (2.0) |
| *Luxembourg* | 481 | (1.4) |
| *Israel* | 479 | (3.8) |
| Lithuania | 472 | (2.7) |
| *Hungary* | 470 | (2.7) |
| *Greece* | 467 | (4.3) |
| *Chile* | 459 | (2.6) |
| *Slovak Republic* | 453 | (2.8) |
| Malta | 447 | (1.8) |
| Cyprus | 443 | (1.7) |
| Uruguay | 437 | (2.5) |
| Romania | 434 | (4.1) |
| United Arab Emirates | 434 | (2.9) |
| Bulgaria | 432 | (5.0) |
| *Turkey* | 428 | (4.0) |
| Costa Rica | 427 | (2.6) |
| Trinidad and Tobago | 427 | (1.5) |
| Montenegro | 427 | (1.6) |
| Colombia | 425 | (2.9) |
| *Mexico* | 423 | (2.6) |
| Moldova | 416 | (2.5) |
| Thailand | 409 | (3.3) |
| Jordan | 408 | (2.9) |
| Brazil | 407 | (2.8) |
| Albania | 405 | (4.1) |
| Qatar | 402 | (1.0) |
| Georgia | 401 | (3.0) |
| Peru | 398 | (2.9) |
| Indonesia | 397 | (2.9) |
| Tunisia | 361 | (3.1) |
| Dominican Republic | 358 | (3.1) |
| Republic of Macedonia | 352 | (1.4) |
| Algeria | 350 | (3.0) |
| Kosovo | 347 | (1.6) |
| Lebanon | 347 | (4.4) |

*Notes*: OECD countries appear in italics. The OECD average was 493, with a standard error of 0.5.
The results of Argentina, Kazakhstan, and Malaysia are excluded because of insufficient coverage to ensure comparability (see Appendix B.2.1 for these results). Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Figure 2.2

### Estimated average scores and confidence intervals for countries and provinces: Mathematics




| Countries and provinces | Average | S.E. |
|---|---|---|
| Singapore | 564 | (1.5) |
| Hong Kong-China | 548 | (3.0) |
| Quebec | **544** | **(4.8)** |
| Macao-China | 544 | (1.1) |
| Chinese Taipei | 542 | (3.0) |
| *Japan* | 532 | (3.0) |
| BSJG-China | 531 | (4.9) |
| *Korea* | 524 | (3.7) |
| British Columbia | **522** | **(5.0)** |
| *Switzerland* | 521 | (2.9) |
| *Estonia* | 520 | (2.0) |
| *CANADA* | **516** | **(2.3)** |
| *The Netherlands* | 512 | (2.2) |
| Alberta | **511** | **(4.7)** |
| *Denmark* | 511 | (2.2) |
| *Finland* | 511 | (2.3) |
| *Slovenia* | 510 | (1.3) |
| Ontario | **509** | **(4.2)** |
| *Belgium* | 507 | (2.4) |
| *Germany* | 506 | (2.9) |
| *Poland* | 504 | (2.4) |
| *Ireland* | 504 | (2.1) |
| *Norway* | 502 | (2.2) |
| Prince Edward Island | **499** | **(6.4)** |
| Nova Scotia | **497** | **(4.6)** |
| *Austria* | 497 | (2.9) |
| *New Zealand* | 495 | (2.3) |
| Vietnam | 495 | (4.5) |
| Russian Federation | 494 | (3.1) |
| *Sweden* | 494 | (3.2) |
| *Australia* | 494 | (1.6) |
| *France* | 493 | (2.1) |
| New Brunswick | **493** | **(5.1)** |
| *United Kingdom* | 492 | (2.5) |
| *Czech Republic* | 492 | (2.4) |
| *Portugal* | 492 | (2.5) |
| *Italy* | 490 | (2.8) |
| Manitoba | **489** | **(4.2)** |
| *Iceland* | 488 | (2.0) |
| *Spain* | 486 | (2.2) |
| *Luxembourg* | 486 | (1.3) |
| Newfoundland and Labrador | **486** | **(3.2)** |
| Saskatchewan | **484** | **(2.9)** |
| *Latvia* | 482 | (1.9) |
| Malta | 479 | (1.7) |
| Lithuania | 478 | (2.3) |
| *Hungary* | 477 | (2.5) |
| *Slovak Republic* | 475 | (2.7) |
| *Israel* | 470 | (3.6) |
| *United States* | 470 | (3.2) |
| Croatia | 464 | (2.8) |
| *Greece* | 454 | (3.8) |
| Romania | 444 | (3.8) |
| Bulgaria | 441 | (4.0) |
| Cyprus | 437 | (1.7) |
| United Arab Emirates | 427 | (2.4) |
| Chile | 423 | (2.5) |
| *Turkey* | 420 | (4.1) |
| Moldova | 420 | (2.5) |
| Uruguay | 418 | (2.5) |
| Montenegro | 418 | (1.5) |
| Trinidad and Tobago | 417 | (1.4) |
| Thailand | 415 | (3.0) |
| Albania | 413 | (3.4) |
| Mexico | 408 | (2.2) |
| Georgia | 404 | (2.8) |
| Qatar | 402 | (1.3) |
| Costa Rica | 400 | (2.5) |
| Lebanon | 396 | (3.7) |
| Colombia | 390 | (2.3) |
| Peru | 387 | (2.7) |
| Indonesia | 386 | (3.1) |
| Jordan | 380 | (2.7) |
| Brazil | 377 | (2.9) |
| Republic of Macedonia | 371 | (1.3) |
| Tunisia | 367 | (3.0) |
| Kosovo | 362 | (1.6) |
| Algeria | 360 | (3.0) |
| Dominican Republic | 328 | (2.7) |

*Notes:* OECD countries appear in italics. The OECD average was 490, with a standard error of 0.4.
The results of Argentina, Kazakhstan, and Malaysia are excluded because of insufficient coverage to ensure comparability (see Appendix B.2.2 for these results).Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Most provinces performed at or above the OECD average in reading and mathematics

In reading, the performance of students in all provinces, was at or above the OECD average. In mathematics, students in Saskatchewan performed below the OECD average while students in all other provinces performed at or above the OECD average.

As Table 2.2 shows, students in Quebec performed above the Canadian average in mathematics and at the Canadian average in reading. Students in Alberta and British Columbia performed at the Canadian average in both minor domains. Students in Newfoundland and Labrador, New Brunswick, Manitoba, and Saskatchewan performed below the Canadian average in both minor domains. Students in Prince Edward Island, Nova Scotia, and Ontario performed below the Canadian average in mathematics and at the Canadian average in reading.

**Table 2.2**

**Provincial results in reading and mathematics relative to the Canadian average**

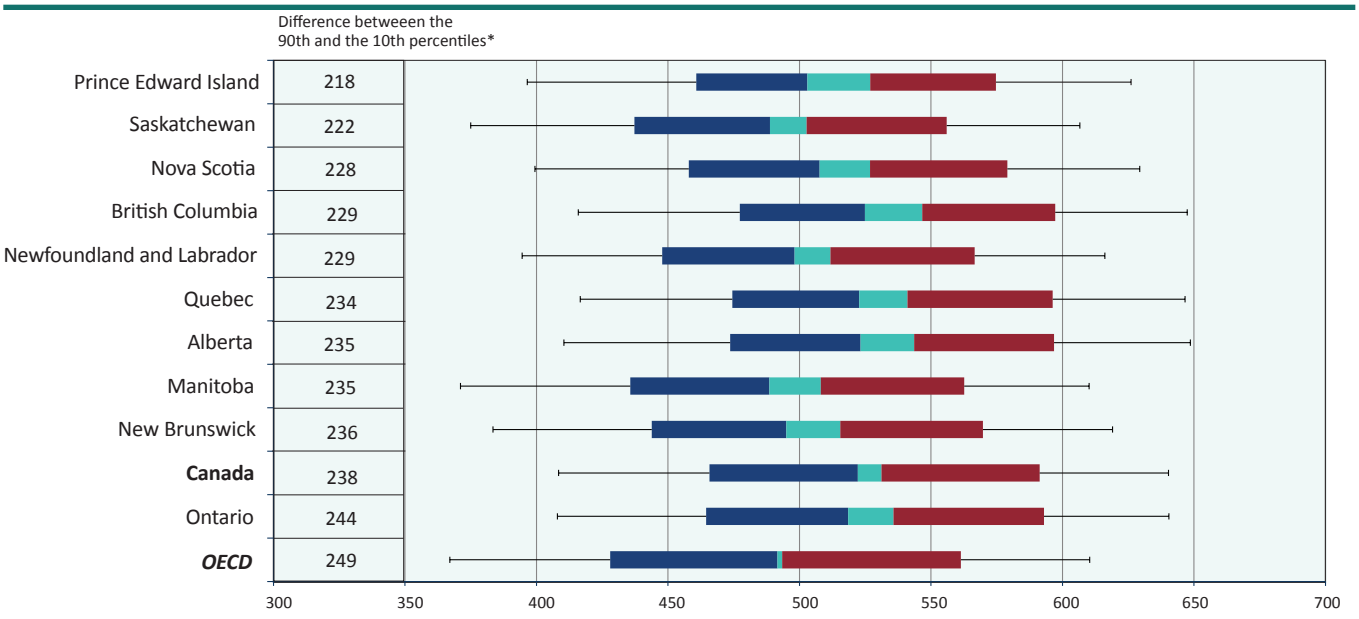
| | Better than Canada* | As well as Canada* |
|---|---|---|
| **Reading** | | Prince Edward Island, Nova Scotia, Quebec, Ontario, Alberta, British Columbia |
| **Mathematics** | Quebec | Alberta, British Columbia |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

Figures 2.3 and 2.4 show the difference in average scores between those in the lowest decile (10$^{th}$ percentile) and those in the highest (90$^{th}$ percentile) in reading and mathematics. For reading, differences range from 218 in Prince Edward Island to 244 in Ontario, while for mathematics, they ranged from 198 in Prince Edward Island to 227 in Quebec. In all provinces, the difference in performance between high achievers and low achievers was smaller than the OECD average. This indicates that Canada's education systems continue to achieve high degree of equity.

## Figure 2.3

### PISA 2015 Reading:
### Difference between high and low achievers, Canada, provinces, and OECD

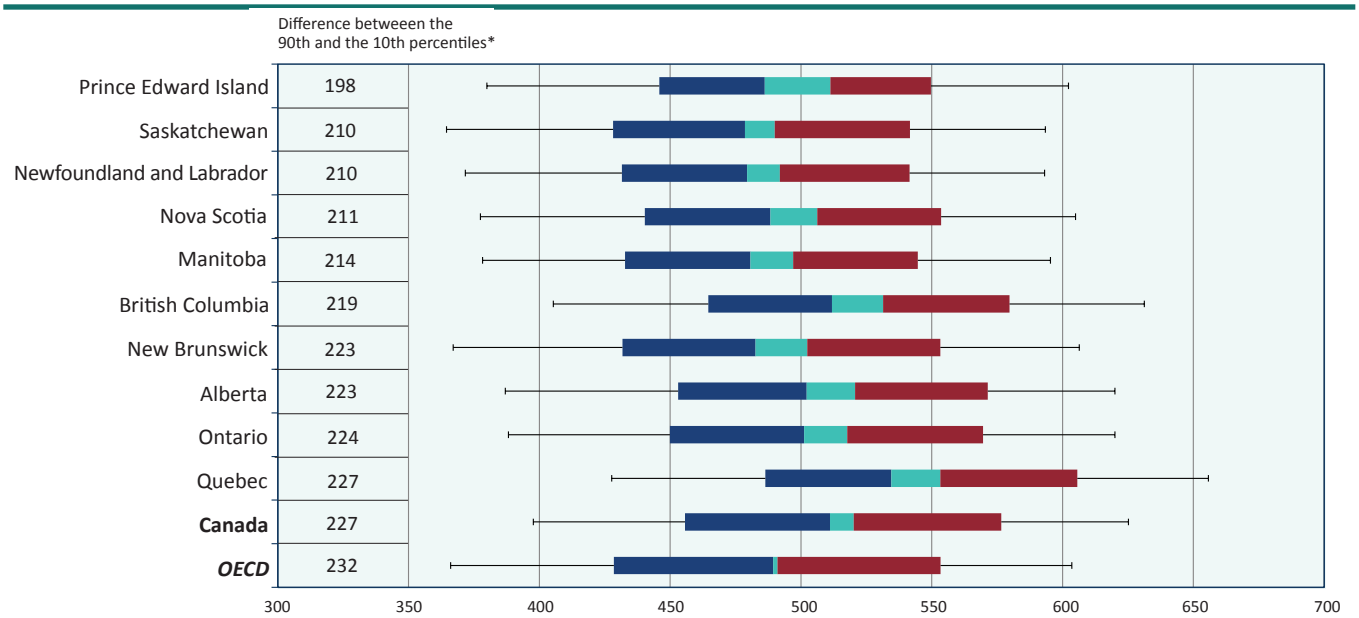



*Jurisdictions are ordered from the least to the most difference between the two groups.

*Note:* Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Figure 2.4

### PISA 2015 Mathematics:
### Difference between high and low achievers, Canada, provinces, and OECD




*Jurisdictions are ordered from the least to the most difference between the two groups.

*Note:* Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Across Canada, differences in reading and mathematics performance are seen between students attending majority-language school systems and those attending minority-language systems in reading and mathematics

Seven provinces had sufficiently large samples in the anglophone and francophone school systems (Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, and British Columbia). The performance of the minority-language group (students in francophone school systems in Nova Scotia, New Brunswick, Ontario, Manitoba, Alberta, and British Columbia and students in the anglophone school system in Quebec) is compared to that of the majority-language group.

As Table 2.3 indicates, the relative performance of students in the two systems varied across provinces and by domain. Across Canada, the difference in reading performance between students in the anglophone school systems and those in the francophone school systems was not statistically significant. However, across the provinces, students in the majority-language school systems outperformed their peers in the minority-language school systems in four of the seven provinces. The differences between systems varied from 40 points in Manitoba to 57 points in Nova Scotia.

**Table 2.3**

**Estimated average reading and mathematics scores, by province and language of the school system**

| | Anglophone school system | | Francophone school system | | Difference between systems* | |
|---|---|---|---|---|---|---|
| | Average | Standard error | Average | Standard error | Score difference | Standard error |
| **Reading** | | | | | | |
| Nova Scotia | 519 | (5.1) | 462 | (7.6) | **57** | (9.2) |
| New Brunswick | 509 | (6.6) | 493 | (6.3) | 16 | (8.7) |
| Quebec | 523 | (6.0) | 533 | (5.3) | -10 | (8.3) |
| Ontario | 529 | (4.5) | 476 | (5.0) | **54** | (6.4) |
| Manitoba | 501 | (5.3) | 461 | (8.1) | **40** | (9.6) |
| Alberta | 534 | (5.2) | 487 | (12.6) | **46** | (14.5) |
| British Columbia | 536 | (5.6) | 516 | (14.9) | 20 | (14.6) |
| **Canada** | 527 | (2.7) | 526 | (4.7) | 1 | (5.6) |
| **Mathematics** | | | | | | |
| Nova Scotia | 497 | (4.7) | 491 | (8.3) | 7 | (8.7) |
| New Brunswick | 488 | (5.8) | 505 | (7.3) | **-17** | (8.5) |
| Quebec | 505 | (6.7) | 549 | (5.4) | **-44** | (9.0) |
| Ontario | 510 | (4.4) | 496 | (6.5) | 14 | (7.8) |
| Manitoba | 489 | (4.5) | 482 | (8.9) | 8 | (10.7) |
| Alberta | 512 | (4.7) | 503 | (12.4) | 8 | (12.8) |
| British Columbia | 522 | (5.0) | 531 | (16.0) | -9 | (16.9) |
| **Canada** | 509 | (2.6) | 542 | (5.0) | **-34** | (5.5) |

* Results in bold indicate a statistically significant difference between the two systems. A negative difference means that the result for the francophone school system is higher. The Canadian results include students from all provinces. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

In mathematics, Canadian students in the francophone school systems (542) outperformed their peers in the anglophone school systems (509) by 34 points, mainly as a result of the relatively strong performance of students in the francophone school system in Quebec. As Table 2.3 indicates, in only New Brunswick and Quebec did a statistically significant difference in mathematics performance exist between the two school systems. In both provinces, students from the francophone school system achieved a higher average in mathematics than their peers in the anglophone school system, although in Quebec, the francophone school system is a majority-language school system while in New Brunswick, it is a minority-language one.

## Canadian girls outperformed boys in reading, while Canadian boys outperformed girls in mathematics

As was the case since PISA 2000, girls performed significantly better than boys in PISA 2015 on the reading test in all countries and in all provinces. On average across OECD countries, girls outperformed boys in reading by 27 points in PISA 2015, while in Canada, this difference was 26 points. At the provincial level, the gender gap favouring girls ranged from 18 points in Newfoundland and Labrador to 36 points in Prince Edward Island (Table 2.4, Appendix B.2.7).

In mathematics, on average across OECD countries, boys had a statistically significant higher score than girls, but the eight-point difference was small compared to the large gender gap in reading. In Canada, boys outperformed girls in mathematics by nine points. Across the provinces, a gender gap favouring boys was observed in Newfoundland and Labrador, Quebec, Ontario, Alberta, and British Columbia, with no significant gender differences in mathematics observed in the remaining provinces (Table 2.4, Appendix B.2.8).

**Table 2.4**

**Summary of gender differences in average reading and mathematics scores for Canada and the provinces**

| | Girls performed significantly better* than boys | Boys performed significantly better* than girls | No significant differences between boys and girls |
|---|---|---|---|
| **Reading** | Canada, Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia | | |
| **Mathematics** | | Canada, Newfoundland and Labrador, Quebec, Ontario, Alberta, British Columbia | Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan |

* Differences in scores are statistically significant only when confidence intervals do not overlap. If the confidence intervals overlap, an additional test of significance was conducted to determine whether the difference was statistically significant. Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Canadian students' performance in reading remained relatively stable over time while performance in mathematics stabilized between 2012 and 2015

PISA 2015 is the sixth assessment of reading since 2000, when the first major assessment of reading took place, and the fifth assessment of mathematics since 2003, when the first major assessment of mathematics took place. Because a comprehensive analysis of trends in reading (between 2000 and 2012) and in mathematics (between 2003 and 2012) was included in the PISA 2012 national report,[21] this chapter focuses on changes in reading since 2009 and changes in mathematics since 2012 — the most recent cycles when reading and mathematics were major domains. Performance changes over time are always compared to a baseline year, an administration in which the subject was the major domain.

While this section looks at changes over time, performance differences should be interpreted with caution. It is possible to compare changes in student performance over time in each PISA domain because a number of common test questions are used in each survey. However, the limited number of such common test items used increases the chances of measurement error. To account for this, an extra error factor, known as the linking error, is introduced into the standard error. The standard errors with linking errors should be used whenever comparing performance across assessments (but not when comparing results across countries/economies or subpopulations within a particular assessment).[22] Only those changes that are indicated as statistically significant should be considered.

In Canada, as well as across the OECD countries, reading performance did not change between 2009 and 2015. However, there were changes in performance in some of the 59 countries that participated in both PISA 2009 and PISA 2015. In 19 countries[23] reading performance improved on a statistically significant basis, while in 11 countries[24] it declined, with the other countries maintaining their scores.

In mathematics, after a significant decline between 2003 and 2012, the performance of Canadian students in mathematics remained unchanged between 2012 and 2015. On average across OECD countries, mathematics performance also remained broadly stable over the 2012 to 2015 period, although changes in performance were observed in some of the 61 countries that participated in both cycles. Mathematics performance increased on a statistically significant basis in 10 countries[25] and decreased in 12,[26] with no statistically significant changes observed in the remaining countries.

Performance in reading and mathematics remained stable across the provinces with the following exceptions: reading performance improved in Prince Edward Island between 2009 and 2015 and mathematics performance improved in Prince Edward Island and decreased in Saskatchewan over the 2012-to-2015 period (Table 2.5).

[21] Brochu, P., Deussing, M.-P., Houme, K., & Chuy, M. (2013). *Measuring up: Canadian results of the OECD PISA Study: The performance of Canada's youth in mathematics, reading, and science – 2012. First results for Canadians aged 15*. Toronto: Council of Ministers of Education, Canada.
[22] See OECD, *PISA 2015 Results: Excellence and Equity in Education*, for information on linking errors.
[23] Albania, Austria, Colombia, Croatia, Estonia, Germany, Ireland, Luxembourg, Macao–China, Montenegro, Norway, Peru, Qatar, Russian Federation, Singapore, Slovenia, Spain, Trinidad and Tobago, and Uruguay.
[24] Australia, Greece, Hungary, Iceland, Korea, New Zealand, Slovak Republic, Thailand, Tunisia, Turkey, and United Arab Emirates (Dubai region only).
[25] Albania, Colombia, Denmark, Montenegro, Norway, Peru, Qatar, Russian Federation, Slovenia, and Sweden.
[26] Australia, Brazil, Chinese Taipei, Hong Kong–China, Korea, the Netherlands, Poland, Singapore, Tunisia, Turkey, United States, and Vietnam.

## Table 2.5

### Comparison of performance in reading in PISA 2009, 2012, and 2015, Canada and the provinces

| | 2009 | | 2012 | | 2015** | |
|---|---|---|---|---|---|---|
| | Average | Standard error | Average | Standard error | Average | Standard error |
| **Reading** | | | | | | |
| Newfoundland and Labrador | 506 | (3.7) | 503 | (4.5) | 505 | (4.9) |
| Prince Edward Island | 486 | (2.4) | 490 | (3.7) | 515* | (7.0) |
| Nova Scotia | 516 | (2.7) | 508 | (4.0) | 517 | (6.0) |
| New Brunswick | 499 | (2.5) | 497 | (3.7) | 505 | (6.3) |
| Quebec | 522 | (3.1) | 520 | (4.4) | 532 | (5.8) |
| Ontario | 531 | (3.0) | 528 | (5.1) | 527 | (5.6) |
| Manitoba | 495 | (3.6) | 495 | (4.2) | 498 | (6.0) |
| Saskatchewan | 504 | (3.3) | 505 | (3.8) | 496 | (4.9) |
| Alberta | 533 | (4.6) | 525 | (4.8) | 533 | (6.2) |
| British Columbia | 525 | (4.2) | 535 | (5.2) | 536 | (6.5) |
| **Canada** | 524 | (1.5) | 523 | (3.2) | 527 | (4.1) |

* Significant difference compared with baseline (2009). The linkage error is incorporated into the standard error for 2012 and 2015 to account for the comparison of results over time, compared with baseline (2009).
** Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Table 2.6

### Comparison of performance in mathematics in PISA 2012 and 2015, Canada and the provinces

| | 2012 | | 2015** | |
|---|---|---|---|---|
| | Average | Standard error | Average | Standard error |
| **Mathematics** | | | | |
| Newfoundland and Labrador | 490 | (3.7) | 486 | (4.8) |
| Prince Edward Island | 479 | (2.5) | 499* | (7.3) |
| Nova Scotia | 497 | (4.1) | 497 | (5.8) |
| New Brunswick | 502 | (2.6) | 493 | (6.2) |
| Quebec | 536 | (3.4) | 544 | (5.9) |
| Ontario | 514 | (4.1) | 509 | (5.5) |
| Manitoba | 492 | (2.9) | 489 | (5.5) |
| Saskatchewan | 506 | (3.0) | 484* | (4.6) |
| Alberta | 517 | (4.6) | 511 | (5.9) |
| British Columbia | 522 | (4.4) | 522 | (6.1) |
| **Canada** | 518 | (1.8) | 516 | (4.2) |

* Significant difference compared with baseline (2012). The linkage error is incorporated into the standard error for 2015 to account for the comparison of results over time, compared with baseline (2012).
** Results for the province of Quebec in this table should be treated with caution because of a possible non-response bias (see Appendix A for further details).

## Summary

Because reading and mathematics were minor domains in PISA 2015, a smaller proportion of students were assessed in them compared to the science assessment. Additionally, they made up a smaller number of items than in the science assessment. This chapter therefore provides an update on overall performance in each of these domains only, and not on their sub-domains as was done in previous years.

Canada continues to perform well internationally in reading and mathematics. Students in Canada scored well above the OECD average and were outperformed by students in only one country in reading and six in mathematics among the 72 countries that participated in PISA 2015. Among the provinces, students in Quebec, Ontario, Alberta, and British Columbia performed above the OECD average in both reading and mathematics. Students in Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and New Brunswick performed above the OECD average in reading and at the average in mathematics. Students in Manitoba performed at the OECD average in reading and mathematics, while students in Saskatchewan performed at the average in reading and below the average in mathematics. Students in the anglophone, majority-language school systems in Nova Scotia, Ontario, Manitoba, and Alberta performed significantly better in reading than their peers in the francophone, minority-language school systems. In mathematics, students in the francophone school systems in Quebec and New Brunswick achieved a higher average score than their peers in the anglophone school systems. As was observed in past PISA assessments, girls continue to perform better than boys in reading. Boys performed better than girls in mathematics in Canada overall in half of the provinces; whereas there is no gender gap found in the other provinces.

Canada's overall mean performance in reading remained stable over the 2009 to 2015 period while at the same time its international standing among PISA participants improved. Among the countries that participated in both the 2009 and 2015 assessments, four countries outperformed Canada in 2009 while only one outperformed Canada in 2015. After seeing a decline in the mathematics performance of its students between 2003 and 2012, Canada's performance in mathematics remained stable between 2012 and 2015 and its relative standing improved among the countries that participated in both assessments, with five countries outperforming Canada in 2015 compared to eight in 2012.

Reading performance in all provinces except for Prince Edward Island remained stable since 2009. In Prince Edward Island, a significant improvement in reading performance was observed over the period. Consequently, Prince Edward Island went from performing below the OECD average in 2012 to performing above it in 2015. Only Prince Edward Island and Saskatchewan observed a change in the mathematics performance of their students since 2012. Saskatchewan experienced a significant decline in the mathematics performance of its students and consequently went from performing above the OECD average in 2012 to performing below the OECD average in 2015. On the other hand, Prince Edward Island had a significant increase in performance in mathematics and, as a result, went from performing below the OECD average in 2012 to performing at the OECD average in 2015.

# Conclusion

The Program for International Student Assessment (PISA) is an international study that measures trends in learning outcomes in science, reading, and mathematics for students at age 15. The study has been conducted every three years under the aegis of the Organisation for Economic Cooperation and Development (OECD) since 2000. In 2015, it was administered in 72 countries and economies, including Canada. The major focus of PISA 2015 was science while reading, mathematics, and financial literacy were tested as minor domains. Over 20,000 students from approximately 900 schools took the PISA assessment in the 10 Canadian provinces in the spring of 2015.

PISA is valuable for its capacity to provide comparative information on skill levels of students near the end of their compulsory education. Not only does PISA enable comparisons between provinces, countries, and economies on the knowledge and skills of their youth, it also provides an opportunity to monitor their change in performance over time.

## Overview of results

### *Performance in science, reading, and mathematics*

According to the results of PISA 2015, Canada remains one of the top-performing countries in science. Close to 90 per cent of Canadian students and 79 per cent of students in OECD countries performed at or above Level 2 in science, which is the baseline level of science proficiency required for people to take advantage of further learning opportunities and to participate fully in modern society. At the provincial level, the percentage of Canadian students at or above the baseline level of performance ranged from 83 per cent in Saskatchewan and Manitoba to over 90 per cent in Quebec, Alberta, and British Columbia. At the lower end of the PISA science scale, 11 per cent of Canadian students performed below the baseline compared with 21 per cent of students across the OECD countries.

Twelve per cent of Canadian students performed at the highest proficiency levels (Levels 5 and 6) in PISA 2015 compared to 8 per cent performing at this level for the OECD. The proportion of high-performing students was 10 per cent or more in Nova Scotia, Quebec, Ontario, Alberta, and British Columbia. However, in spite of Canada's strong performance in science, Singapore, the leading country in PISA 2015, had a much higher proportion of students performing at the highest levels (24 vs. 12%).

Overall, Canadian 15-year-old students achieved a mean score of 528 in overall science, 35 points above the OECD average, and were surpassed by students from only three countries. At the provincial level, with the exception of Manitoba and Saskatchewan which scored at the OECD average, all provinces performed above the OECD average. From a Canadian perspective, students in Quebec, Alberta, and British Columbia achieved higher average scores than the Canadian average, placing them among the top-performing participants globally.

Canadian results by scientific competency show some differences, with a higher average score in *explaining phenomena scientifically* and *evaluating and designing scientific enquiry* (530), and a lower score in *interpreting data and evidence scientifically* (525). Across OECD countries and economies, students scored 493 in all three competency subscales.

Canadian students achieved an average score of 528 in both the *content* and the *procedural and epistemic* knowledge subscales. The average score across OECD countries was 493 on both knowledge subscales.

At the Canadian level, there was no significant difference in student achievement across the three broad content areas assessed in PISA 2015 and the Canadian results were more than 30 points higher than the OECD averages in all three content subscales. The scores across OECD countries were also very similar in the three content areas.

Canada continues to perform well internationally in reading. Canadian students scored well above the OECD average and were outperformed by only one country in reading. At the provincial level, with the exception of Manitoba and Saskatchewan which scored at the OECD average, all provinces scored above the OECD average. Students in Prince Edward Island, Nova Scotia, Quebec, Ontario, Alberta, and British Columbia performed at the Canadian average in reading, whereas students in Newfoundland and Labrador, New Brunswick, Manitoba, and Saskatchewan performed below the Canadian average.

Canada also achieved a strong performance in mathematics. Canadian students scored well above the OECD average and were outperformed by only six countries in mathematics among the 72 countries that participated in PISA 2015. At the provincial level, Quebec students performed higher than the Canadian average while Alberta and British Columbia students performed at the Canadian average.

### *Performance by language of the school system*

In 2015, there was no overall achievement difference in Canada between the anglophone and francophone school systems in science and reading. For those provinces where there was a significant difference in achievement between the two language systems in science and reading, students in majority-language settings (students in anglophone school systems in Nova Scotia, Ontario, Manitoba, and Alberta and students in the francophone school system in Quebec) performed better than their counterparts in the minority-language settings. The same pattern was found for most scientific competencies, knowledge, and content area subscales, with the exception that for Canada overall students in francophone schools achieved higher scores for the Earth and space systems subscale. For mathematics, Canadian students in francophone school systems performed better than their counterparts in the anglophone systems, with students in the francophone school systems in New Brunswick and Quebec outperforming those in the anglophone school systems. No significant differences were observed between the two school systems in the other provinces.

### *Performance by gender*

No gender achievement gap for science was found in Canada or the provinces. This result is consistent with the most recent Pan-Canadian Assessment Program (PCAP) evaluation of science in 2013.[27]

As was the case internationally, Canadian girls continue to outperform boys in reading, and this was true in all provinces. In mathematics, boys continue to outperform girls in Canada overall and in Newfoundland and Labrador, Quebec, Ontario, Alberta, and British Columbia; no gender differences were found in other provinces.

### *Performance comparisons over time*

For science, at the Canadian level and in most provinces, very few statistically significant differences were observed in the proportion of top-performing (Level 5 or above) and low-performing (below Level 2) 15-year-olds between the baseline year of 2006 and 2015. Science performance has not changed over the period in Canada although three provinces experienced significant declines. The average score decreased by approximately 20 points in Newfoundland and Labrador, Manitoba, and Saskatchewan.

[27] K. O'Grady, & K. Houme, *PCAP 2013 Report on the Pan-Canadian assessment of science, reading, and mathematics* (Toronto: Council of Ministers of Education, Canada, 2014). Available at http://www.cmec.ca/Publications/Lists/Publications/Attachments/337/PCAP-2013-Public-Report-EN.pdf

Between 2009 — the last time the major focus of PISA was reading — and 2015, reading performance in Canada and across most provinces remained stable. The only exception was Prince Edward Island which saw a significant improvement in its mean reading score. As well, after observing a decline in the mathematics performance of its students between the baseline year of 2003 and 2012, Canada's performance in mathematics remained stable between 2012 and 2015, with only two provinces experiencing a significant change. More specifically, students in Prince Edward Island saw a significant improvement in their mathematics performance between 2012 and 2015 while students in Saskatchewan saw a significant decline.

### *Equity in education*

As a measure of equity in educational outcomes, PISA considers the difference between the average score of students at the 90$^{th}$ percentile and those at the 10$^{th}$ percentile. In all three domains assessed by PISA, the gap between high and low achievers was smaller in Canada than in OECD countries (indicating more equity). Provincially, Prince Edward Island and Saskatchewan show a relatively smaller gap in all three domains.

## Final statement

The results of this assessment suggest that in Canada, a majority of students have attained a level of scientific literacy that enables them to use their knowledge and skills to engage with issues and ideas related to science.

The PISA 2015 results provide both affirmation and direction for Canadian jurisdictions and classrooms. While students appear to understand what is expected of them in science and appear to practise the key aspects when completing scientific tasks, there is room for improvement because there are numerous students below the baseline level (Level 2) for whom science remains a challenging subject.

Results from PISA 2015 provide an opportunity to confirm the success of our world-class education systems from a global perspective. Canada remains in the group of top-performing countries and achieves its standing with relatively equitable outcomes. The trend in decreasing average scores noted in past PISA cycles stabilized in 2015. However, results from PISA as well as other pan-Canadian and international assessments show that several provinces have experienced a decline in the skill levels of their youth over the past decade.

The comparative approach taken in this report does not lend itself to developing explanations for these changes. The report provides information for ministries and departments of education as well as for education partners to work together in validating current education policies, learning outcomes, teaching approaches and strategies, as well as resources to ensure that they continue meeting the needs of our society. Further analysis of the information collected through PISA will help readers gain a better understanding of the extent to which important background variables contribute to the differences in performance highlighted here. Reports on such secondary analysis will be available in forthcoming publications of *Assessment Matters!* (a series of articles available on the CMEC Web site).[28]

Today's PISA teenagers will eventually become adults responsible for the success of our economy, so it is important to both celebrate the successes and address the challenges highlighted in this report. It is essential that our education systems contribute significantly in preparing Canadian youth for full participation in our modern society for generations to come.

[28] *Assessment Matters!* is available at http://www.cmec.ca/131/Programs-and-Initiatives/Assessment/Overview/index.html

# *Appendix A*

# PISA 2015 sampling procedures, exclusion rates, and response rates

The accuracy of PISA survey results depends on the quality of the information on which the sample is based, as well as the sampling procedures. The PISA 2015 sample for Canada was based on a two-stage stratified sample. The first stage consisted of sampling individual schools in which 15-year-old students were enrolled. Schools were sampled systematically, with probabilities proportional to size (the measure of size being a function of the estimated number of eligible 15-year-old students enrolled in the school). While a minimum of 150 schools were required to be selected in each country, in Canada a much larger sample of schools was selected to produce reliable estimates for each province and for each of the anglophone and francophone school systems in Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Alberta, and British Columbia.

The second stage of the selection process sampled students within the schools. Once schools were selected, a list of all 15-year-old students in each was prepared. From this list, up to 42 students were then selected with equal probability. All 15-year-old students were selected if fewer than 42 were enrolled. In Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, and Quebec, as well as in the francophone school systems in Manitoba and Alberta, more than 42 students were selected in some schools to meet sample-size requirements.

Each country participating in PISA attempted to maximize the coverage of PISA's target population within the sampled schools. Within each sampled school, all eligible students (namely those 15 years of age), regardless of grade, were first listed. Tables A.1a and A.1b show the total number of excluded students by province who were then further described and classified into specific categories in accordance with the international standards. Students could be excluded based on three categories as determined by school staff: 1) students with a functional disability (i.e., the student has a moderate to severe permanent physical disability such that s/he cannot perform in the PISA testing situation); 2) students with an intellectual disability (the student has a mental or emotional disability and is cognitively delayed such that s/he cannot perform in the PISA testing situation); and 3) students with a limited proficiency in the assessment language (if the student is unable to read or speak any of the languages of the assessment in the country and would be unable to overcome the language barrier in the testing situation — typically a student who has received less than one year of instruction in the language of the assessment).

The weighted student exclusion rate for Canada overall was 6.9 per cent which is above the maximum exclusion rate of 5 per cent allowed by quality standards in PISA. The weighted student exclusion rate ranged from 3.8 per cent in Quebec to 14.3 per cent in Prince Edward Island. Across all provinces the vast majority of exclusions was a result of an intellectual disability (category 2 above). Compared with PISA 2012, the weighted student exclusion rates increased by more than 2 per cent in Prince Edward Island, Manitoba, Alberta, and British Columbia, and decreased by more than 2 per cent in Newfoundland and Labrador. Steps will be required in future PISA cycles to address the issue of high exclusion rates for schools and students in some provinces.

## Table A.1a

### PISA 2015 student exclusion rate

| | Total number of eligible students sampled (participating, not participating, and excluded) | | Total number of students excluded | | Student exclusion rate | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Unweighted*** | **Weighted**** | **Unweighted*** | **Weighted**** | **Unweighted*** | **Weighted**** |
| Newfoundland and Labrador | 1,662 | 5,579 | 85 | 303 | 5.1 | 5.4 |
| Prince Edward Island | 543 | 1,625 | 80 | 233 | 14.7 | 14.3 |
| Nova Scotia | 2,014 | 9,594 | 153 | 754 | 7.6 | 7.9 |
| New Brunswick | 2,180 | 8,068 | 199 | 679 | 9.1 | 8.4 |
| Quebec | 5,734 | 72,433 | 145 | 2,743 | 2.5 | 3.8 |
| Ontario | 6,581 | 152,406 | 298 | 10,298 | 4.5 | 6.8 |
| Manitoba | 3,134 | 13,554 | 231 | 1,095 | 7.4 | 8.1 |
| Saskatchewan | 2,705 | 12,851 | 137 | 623 | 5.1 | 4.8 |
| Alberta | 3,312 | 42,814 | 200 | 3,366 | 6.0 | 7.9 |
| British Columbia | 2,944 | 47,475 | 302 | 5,247 | 10.3 | 11.1 |
| **Canada** | **30,809** | **366,399** | **1,830** | **25,340** | **5.9** | **6.9** |

* Based on students selected to participate.
** Weighted based on student enrolment such that the total weighted value represents all 15-year-olds enrolled in the province and not just those selected for PISA.

## Table A.1b

### PISA 2015 student exclusion rate by type of exclusion

| | Exclusion rate: students with a physical disability | | Exclusion rate: students with an intellectual disability | | Exclusion rate: students with limited language skills | |
|---|---|---|---|---|---|---|
| | **Unweighted*** | **Weighted**** | **Unweighted*** | **Weighted**** | **Unweighted*** | **Weighted**** |
| **Canada and provinces** | **%** | **%** | **%** | **%** | **%** | **%** |
| Newfoundland and Labrador | 0.3 | 0.6 | 4.5 | 4.4 | 0.4 | 0.5 |
| Prince Edward Island | 1.8 | 1.7 | 12.0 | 11.7 | 0.9 | 0.9 |
| Nova Scotia | 0.4 | 0.4 | 6.3 | 6.4 | 0.9 | 1.0 |
| New Brunswick | 1.4 | 0.9 | 7.5 | 7.4 | 0.2 | 0.2 |
| Quebec | 0.1 | 0.3 | 2.1 | 3.1 | 0.3 | 0.4 |
| Ontario | 0.3 | 0.3 | 3.4 | 5.2 | 0.9 | 1.2 |
| Manitoba | 0.4 | 0.5 | 5.0 | 5.0 | 2.0 | 2.6 |
| Saskatchewan | 0.4 | 0.3 | 3.5 | 3.5 | 1.2 | 1.0 |
| Alberta | 0.8 | 1.1 | 3.6 | 4.9 | 1.6 | 1.9 |
| British Columbia | 0.9 | 1.0 | 5.7 | 6.1 | 3.7 | 4.0 |
| **Canada** | **0.5** | **0.5** | **4.2** | **4.9** | **1.2** | **1.5** |

* Based on students selected to participate.
** Weighted based on student enrolment such that the total weighted value represents all 15-year-olds enrolled in the province and not just those selected for PISA.

To minimize the potential for response bias, data quality standards in PISA require minimum participation rates for schools and students. At the Canada-wide level, a minimum response rate of 85 per cent was required for schools initially selected. PISA 2015 also requires a minimum student participation rate of 80 per cent within all participating schools combined (original sample and replacements) at the national level.

Table A.2 shows the response rates for schools and students, before and after replacement, for Canada and the 10 provinces. At the national level 1,010 schools were selected to participate in PISA 2015, and 703 of these initially selected schools participated. As such, the weighted school participation rate was 78.6 per cent for Canada which was slightly lower than the international standard.

## Canada was required to complete a non-response bias analysis for school-response rate.

At the provincial level, school response rates after replacement ranged from 51.7 per cent in Quebec to 99.3 per cent in Prince Edward Island. Canada was required to conduct a non-response bias analysis to determine whether the data were of acceptable quality for inclusion in the PISA data set. Where the school response rates were below the international standard of 85 per cent, a non-response bias analysis was undertaken for Quebec, Ontario, and Alberta where weighted school response rates (after replacement) were 51.5, 81.9, and 80.4 per cent respectively.

The following measures related to school characteristics and student achievement were used for this analysis:

- In Quebec, these measures included school demographic data for all schools covered by PISA 2015 (type of funding of the school, language of the school, and size of the school), and average student-achievement scores for schools in science and reading.
- In Ontario, these measures included school demographic data for all schools covered by PISA 2015 (type of funding of the school, language of the school, and size of the school), and school success rate for a 2015 provincial assessment for schools selected for the PISA sample.
- In Alberta, these measures included school success rates for a provincial assessment covering the topics of math, reading, and science for all schools covered by PISA 2015 and demographic data for the full PISA sample.

### *Quebec non-response analysis revealed potential bias.*

The results showed some differences by non-response in the percentage of English schools, the percentage of public schools, and the percentage of schools in each school size in Quebec.

Results from the average student-achievement scores for schools in science showed significant differences between non-responding schools for the adjusted estimates of the mean and the median (absolute differences are 2.15 and 2.81 per cent respectively), and the corresponding population parameters. There was no significant difference in reading.

### *Ontario non-response analysis revealed no potential bias.*

In Ontario, absolute differences between the distribution of the population and the non-response adjusted sample were found for the results of the language of the school, for school funding type, and for school size. However, these differences are attributed to the sample design and weighting strategy, and not non-response bias. Likewise, the analysis using the success rate for the provincial assessment showed no difference between the non-response adjusted estimates and the population parameters.

### *Alberta non-response analysis revealed no potential bias.*

In Alberta, differences between the distribution of the population and the non-response adjusted sample for the results of the language of the school and for school funding type were explained by small sample sizes for French and private schools. The differences found for the school size were attributed to the sample design and weighting strategy, and not non-response bias. In terms of the analysis using the success rate for the provincial assessment, very few statistically significant differences were observed between the non-response adjusted estimates and the population parameters estimates.

### *Non-response bias conclusion*

Based on the non-response bias analysis, the PISA international consortium judged that the Canadian data overall were of suitable quality to be included fully in the PISA data sets without restrictions. However, the results from the province of Quebec are to be treated with caution because of a possible non-response bias, and should be annotated accordingly in all international regional analyses and national reporting.

At the student level, Canada's response rate after replacement was 80.8 per cent. Apart from Alberta and British Columbia, all provinces achieved a student response rate of 80 per cent or higher. Because Canada had undertaken a non-response bias analysis for schools, no additional analyses were required. The consortium deemed the Canadian and provincial data to be fully included in the PISA data sets.

## Table A.2

### PISA 2015 school and student response rates

| Canada and provinces | Total number of selected schools (participating and not participating) | School response rate before replacement | | School response rate after replacement | | Total number of eligible students sampled (participating and not participating) | | Total number of students participating | | Weighted % student participation rate after replacement (participating and not participating) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Number | Weighted % | Number | Weighted % | Unweighted | Weighted | Unweighted | Weighted | |
| Newfoundland and Labrador | 55 | 49 | 97.0 | 49 | 97.0 | 1,489 | 4,897 | 1,197 | 3,959 | 80.9 |
| Prince Edward Island | 21 | 18 | 99.3 | 18 | 99.3 | 448 | 1,323 | 392 | 1,164 | 88.0 |
| Nova Scotia | 59 | 53 | 98.6 | 54 | 98.7 | 1,758 | 8,505 | 1,414 | 6,882 | 80.9 |
| New Brunswick | 68 | 53 | 96.0 | 53 | 96.0 | 1,832 | 6,669 | 1,544 | 5,488 | 82.3 |
| Quebec | 180 | 78 | 40.3 | 93 | 51.7 | 3,543 | 35,531 | 2,885 | 28,941 | 81.5 |
| Ontario | 200 | 131 | 78.5 | 136 | 81.9 | 5,034 | 113,570 | 4,123 | 92,974 | 81.9 |
| Manitoba | 112 | 85 | 92.4 | 85 | 92.4 | 2,712 | 11,017 | 2,285 | 9,191 | 83.4 |
| Saskatchewan | 106 | 83 | 92.6 | 83 | 92.6 | 2,327 | 10,609 | 1,894 | 8,637 | 81.4 |
| Alberta | 114 | 80 | 80.4 | 80 | 80.4 | 2,558 | 30,495 | 1,973 | 23,559 | 77.3 |
| British Columbia | 95 | 73 | 89.9 | 75 | 92.3 | 2,425 | 37,770 | 1,897 | 29,678 | 78.6 |
| **Canada** | **1,010** | **703** | **74.5** | **726** | **78.6** | **24,126** | **260,387** | **19,604** | **210,476** | **80.8** |

*Note*: School response rates were weighted based on student enrolment.

# *Appendix B*
# *PISA 2015 data tables*

## Table B.1.1

**Percentage of students at each proficiency level for countries, economies, and provinces: SCIENCE**

| | Proficiency levels | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Below Level 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | | Level 6 | |
| Country, economy, or province | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error |
| Vietnam | 0.2 | (0.1) | 5.7 | (0.7) | 25.3 | (1.4) | 36.6 | (1.2) | 23.9 | (1.2) | 7.1 | (0.8) | 1.2 | (0.5) |
| Macao | 1.2 | (0.2) | 6.9 | (0.4) | 20.6 | (0.7) | 34.2 | (0.9) | 28.0 | (0.7) | 8.3 | (0.5) | 0.9 | (0.2) |
| **Quebec** | **1.4** | **(0.4)** | **7.0** | **(1.0)** | **18.0** | **(1.3)** | **30.8** | **(1.5)** | **29.9** | **(1.4)** | **11.0** | **(1.2)** | **1.8** | **(0.5)** |
| **Alberta** | **1.3** | **(0.3)** | **7.3** | **(0.9)** | **18.0** | **(1.4)** | **29.6** | **(1.6)** | **27.9** | **(1.6)** | **13.1** | **(1.3)** | **2.8** | **(0.5)** |
| **British Columbia** | **1.3** | **(0.4)** | **7.4** | **(1.2)** | **18.6** | **(1.4)** | **30.2** | **(1.7)** | **27.9** | **(1.6)** | **11.9** | **(1.4)** | **2.7** | **(0.5)** |
| Estonia | 1.3 | (0.2) | 7.5 | (0.6) | 20.1 | (0.7) | 30.7 | (0.9) | 26.9 | (0.9) | 11.6 | (0.7) | 1.9 | (0.3) |
| Hong Kong-China | 1.6 | (0.3) | 7.8 | (0.6) | 19.7 | (0.9) | 36.1 | (0.9) | 27.4 | (1.1) | 6.9 | (0.6) | 0.4 | (0.1) |
| Singapore | 2.1 | (0.2) | 7.5 | (0.5) | 15.1 | (0.5) | 23.4 | (0.6) | 27.7 | (0.7) | 18.6 | (0.7) | 5.6 | (0.4) |
| Japan | 1.9 | (0.3) | 7.7 | (0.6) | 18.1 | (0.8) | 28.2 | (0.9) | 28.8 | (0.9) | 12.9 | (0.8) | 2.4 | (0.4) |
| **Canada** | **2.0** | **(0.2)** | **9.1** | **(0.4)** | **20.2** | **(0.6)** | **30.3** | **(0.5)** | **26.1** | **(0.7)** | **10.4** | **(0.5)** | **2.0** | **(0.2)** |
| **Prince Edward Island** | **1.6** | **(0.8)** | **9.7** | **(2.0)** | **24.0** | **(2.9)** | **34.8** | **(3.4)** | **21.3** | **(3.2)** | **8.1** | **(1.9)** | **0.6** | **(0.7)** |
| Finland | 2.6 | (0.4) | 8.9 | (0.6) | 19.1 | (0.7) | 29.2 | (0.8) | 26.0 | (0.8) | 11.9 | (0.6) | 2.4 | (0.3) |
| **Ontario** | **2.3** | **(0.4)** | **10.0** | **(0.9)** | **20.7** | **(1.1)** | **30.0** | **(1.0)** | **25.0** | **(1.5)** | **10.0** | **(1.0)** | **2.0** | **(0.4)** |
| Chinese Taipei | 3.0 | (0.3) | 9.4 | (0.6) | 18.1 | (0.6) | 27.0 | (0.9) | 27.1 | (0.8) | 12.7 | (0.8) | 2.7 | (0.5) |
| **Nova Scotia** | **2.2** | **(0.7)** | **10.6** | **(1.3)** | **22.3** | **(1.3)** | **31.4** | **(1.8)** | **23.7** | **(2.0)** | **8.7** | **(1.0)** | **1.1** | **(0.4)** |
| Korea | 3.3 | (0.4) | 11.1 | (0.7) | 21.7 | (0.9) | 29.2 | (0.9) | 24.0 | (1.0) | 9.2 | (0.7) | 1.4 | (0.2) |
| Slovenia | 3.1 | (0.3) | 11.9 | (0.5) | 23.3 | (0.7) | 29.1 | (0.9) | 22.1 | (0.8) | 9.1 | (0.6) | 1.5 | (0.3) |
| Ireland | 3.0 | (0.4) | 12.4 | (0.8) | 26.4 | (0.9) | 31.1 | (0.9) | 20.1 | (0.8) | 6.3 | (0.4) | 0.8 | (0.2) |
| **Newfoundland and Labrador** | **3.0** | **(0.7)** | **12.5** | **(1.3)** | **24.1** | **(1.8)** | **31.1** | **(1.8)** | **21.5** | **(1.4)** | **7.0** | **(1.0)** | **0.7** | **(0.4)** |
| **New Brunswick** | **2.7** | **(0.8)** | **12.9** | **(1.6)** | **24.3** | **(1.7)** | **30.8** | **(2.2)** | **21.2** | **(1.6)** | **7.3** | **(1.0)** | **0.8** | **(0.3)** |
| Denmark | 3.3 | (0.3) | 12.5 | (0.7) | 25.9 | (0.9) | 31.1 | (1.1) | 20.2 | (0.8) | 6.1 | (0.5) | 0.9 | (0.2) |
| BSJG-China | 4.4 | (0.6) | 11.8 | (0.9) | 20.7 | (1.1) | 25.8 | (1.1) | 23.8 | (1.1) | 11.5 | (1.1) | 2.1 | (0.5) |
| Poland | 2.9 | (0.4) | 13.3 | (0.7) | 26.6 | (0.9) | 29.9 | (0.9) | 19.9 | (0.8) | 6.3 | (0.5) | 1.0 | (0.2) |
| **Saskatchewan** | **3.2** | **(0.7)** | **13.5** | **(1.2)** | **28.6** | **(1.5)** | **30.4** | **(1.6)** | **18.1** | **(1.2)** | **5.6** | **(0.7)** | **0.6** | **(0.3)** |
| Germany | 4.2 | (0.5) | 12.8 | (0.7) | 22.7 | (0.8) | 27.7 | (0.8) | 22.0 | (0.8) | 8.8 | (0.6) | 1.8 | (0.2) |
| Latvia | 2.7 | (0.3) | 14.5 | (0.7) | 29.8 | (0.8) | 31.7 | (0.8) | 17.4 | (0.8) | 3.5 | (0.4) | 0.3 | (0.1) |
| Portugal | 3.4 | (0.4) | 14.0 | (0.9) | 25.4 | (0.8) | 28.8 | (0.8) | 21.0 | (0.8) | 6.7 | (0.5) | 0.7 | (0.1) |
| United Kingdom | 3.8 | (0.3) | 13.6 | (0.7) | 22.6 | (0.7) | 27.5 | (0.7) | 21.6 | (0.7) | 9.1 | (0.6) | 1.8 | (0.2) |
| New Zealand | 4.4 | (0.3) | 13.0 | (0.8) | 21.6 | (0.8) | 26.3 | (0.8) | 21.8 | (0.8) | 10.1 | (0.6) | 2.7 | (0.4) |
| **Manitoba** | **3.6** | **(1.0)** | **13.9** | **(1.6)** | **25.1** | **(1.6)** | **30.8** | **(1.6)** | **19.5** | **(1.7)** | **6.3** | **(1.1)** | **0.8** | **(0.6)** |
| Australia | 4.8 | (0.3) | 12.8 | (0.5) | 21.6 | (0.5) | 27.3 | (0.5) | 22.3 | (0.5) | 9.2 | (0.4) | 2.0 | (0.2) |
| Russian Federation | 3.0 | (0.4) | 15.2 | (1.0) | 31.2 | (0.9) | 30.9 | (0.9) | 16.0 | (0.9) | 3.5 | (0.4) | 0.2 | (0.1) |
| Spain | 4.0 | (0.4) | 14.3 | (0.7) | 26.5 | (0.7) | 31.3 | (0.7) | 18.9 | (0.7) | 4.7 | (0.4) | 0.3 | (0.1) |
| Switzerland | 4.5 | (0.5) | 13.9 | (0.8) | 22.8 | (0.8) | 26.3 | (1.1) | 22.7 | (1.0) | 8.6 | (0.6) | 1.1 | (0.2) |
| The Netherlands | 4.3 | (0.5) | 14.3 | (0.7) | 21.8 | (0.9) | 26.1 | (0.9) | 22.4 | (0.8) | 9.5 | (0.5) | 1.6 | (0.2) |
| Norway | 4.7 | (0.4) | 14.0 | (0.7) | 24.6 | (0.8) | 29.1 | (0.8) | 19.6 | (0.8) | 6.9 | (0.5) | 1.1 | (0.2) |
| Belgium | 5.4 | (0.4) | 14.4 | (0.6) | 21.9 | (0.6) | 26.8 | (0.7) | 22.5 | (0.7) | 8.0 | (0.4) | 1.0 | (0.1) |
| United States | 4.8 | (0.5) | 15.5 | (0.8) | 25.5 | (0.8) | 26.6 | (0.9) | 19.1 | (0.9) | 7.3 | (0.6) | 1.2 | (0.2) |
| Czech Republic | 4.6 | (0.5) | 16.1 | (0.8) | 25.9 | (0.8) | 27.7 | (0.9) | 18.4 | (0.7) | 6.3 | (0.4) | 0.9 | (0.2) |
| Austria | 5.0 | (0.5) | 15.8 | (0.8) | 23.9 | (0.8) | 28.1 | (0.8) | 19.5 | (0.8) | 6.8 | (0.5) | 0.9 | (0.2) |
| Sweden | 6.6 | (0.6) | 15.0 | (0.9) | 24.0 | (0.9) | 26.8 | (0.9) | 19.0 | (0.9) | 7.2 | (0.6) | 1.3 | (0.2) |
| France | 6.7 | (0.6) | 15.3 | (0.6) | 22.0 | (0.9) | 26.5 | (0.8) | 21.4 | (0.8) | 7.2 | (0.5) | 0.8 | (0.1) |
| Italy | 6.0 | (0.6) | 17.2 | (0.8) | 27.1 | (0.9) | 28.6 | (1.0) | 17.0 | (0.7) | 3.8 | (0.4) | 0.2 | (0.1) |

## Table B.1.1 (cont'd)

**Percentage of students at each proficiency level for countries, economies, and provinces: SCIENCE**

| | Proficiency levels | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Below Level 1 | | Level 1 | | Level 2 | | Level 3 | | Level 4 | | Level 5 | | Level 6 | |
| Country, economy, or province | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error | % | Standard error |
| Croatia | 5.5 | (0.5) | 19.2 | (1.0) | 29.5 | (0.9) | 27.5 | (1.0) | 14.4 | (0.7) | 3.6 | (0.4) | 0.4 | (0.1) |
| Lithuania | 5.9 | (0.5) | 18.9 | (0.8) | 29.7 | (0.9) | 26.3 | (0.7) | 15.1 | (0.7) | 3.9 | (0.5) | 0.3 | (0.1) |
| Iceland | 6.6 | (0.5) | 18.7 | (0.9) | 29.0 | (1.0) | 27.3 | (0.9) | 14.6 | (0.8) | 3.5 | (0.4) | 0.3 | (0.1) |
| Luxembourg | 6.9 | (0.5) | 18.9 | (0.6) | 24.8 | (0.7) | 25.1 | (0.7) | 17.3 | (0.6) | 6.0 | (0.4) | 0.9 | (0.2) |
| Hungary | 7.6 | (0.7) | 18.4 | (0.9) | 25.5 | (0.8) | 27.3 | (0.9) | 16.6 | (0.8) | 4.3 | (0.4) | 0.3 | (0.1) |
| Kazakhstan | 4.3 | (0.6) | 23.8 | (1.3) | 38.2 | (1.2) | 23.9 | (1.3) | 8.1 | (0.9) | 1.7 | (0.5) | 0.1 | (0.1) |
| Slovak Republic | 11.0 | (0.9) | 19.7 | (0.8) | 27.6 | (0.8) | 24.8 | (0.7) | 13.3 | (0.6) | 3.3 | (0.3) | 0.3 | (0.1) |
| Israel | 11.5 | (0.9) | 19.9 | (0.9) | 24.4 | (0.8) | 23.3 | (1.0) | 15.0 | (0.8) | 5.1 | (0.5) | 0.7 | (0.1) |
| Malta | 14.5 | (0.6) | 18.0 | (0.9) | 23.4 | (0.8) | 21.7 | (0.9) | 14.8 | (0.9) | 6.1 | (0.4) | 1.6 | (0.3) |
| Greece | 10.3 | (1.1) | 22.4 | (1.1) | 28.4 | (1.1) | 25.2 | (1.1) | 11.6 | (0.9) | 2.0 | (0.3) | 0.1 | (0.1) |
| Malaysia | 7.8 | (0.8) | 25.9 | (1.2) | 36.4 | (1.0) | 23.6 | (1.1) | 5.8 | (0.6) | 0.6 | (0.2) | 0.0 | (0.0) |
| Chile | 9.8 | (0.6) | 25.0 | (0.9) | 31.0 | (1.0) | 23.8 | (0.9) | 9.1 | (0.7) | 1.2 | (0.2) | 0.0 | (0.0) |
| Bulgaria | 15.1 | (1.3) | 22.8 | (1.1) | 25.2 | (1.1) | 22.6 | (1.2) | 11.4 | (0.9) | 2.7 | (0.4) | 0.2 | (0.1) |
| Romania | 10.2 | (0.9) | 28.4 | (1.4) | 35.0 | (1.4) | 19.9 | (1.0) | 5.9 | (0.7) | 0.7 | (0.2) | 0.0 | (0.0) |
| Argentina | 11.5 | (0.9) | 28.2 | (1.0) | 34.2 | (1.0) | 20.1 | (1.1) | 5.3 | (0.5) | 0.7 | (0.2) | 0.0 | (0.0) |
| Uruguay | 12.4 | (0.8) | 28.4 | (0.9) | 30.3 | (0.8) | 20.3 | (0.8) | 7.4 | (0.5) | 1.2 | (0.2) | 0.1 | (0.0) |
| Albania | 11.9 | (0.9) | 29.8 | (1.2) | 34.5 | (1.0) | 18.9 | (1.3) | 4.5 | (0.6) | 0.3 | (0.1) | 0.0 | (0.0) |
| United Arab Emirates | 15.6 | (0.8) | 26.1 | (0.7) | 26.9 | (0.6) | 19.0 | (0.7) | 9.5 | (0.5) | 2.5 | (0.2) | 0.2 | (0.1) |
| Cyprus | 15.3 | (0.6) | 26.9 | (0.8) | 28.6 | (0.8) | 19.6 | (0.7) | 8.1 | (0.4) | 1.5 | (0.2) | 0.1 | (0.1) |
| Moldova | 14.1 | (0.8) | 28.2 | (0.8) | 31.5 | (1.2) | 19.7 | (0.9) | 5.9 | (0.6) | 0.7 | (0.1) | 0.0 | (0.0) |
| Turkey | 12.9 | (1.1) | 31.6 | (1.5) | 31.3 | (1.3) | 19.1 | (1.4) | 4.8 | (0.9) | 0.3 | (0.1) | 0.0 | (0.0) |
| Trinidad and Tobago | 17.9 | (0.7) | 27.9 | (0.9) | 27.1 | (0.8) | 18.3 | (0.7) | 7.3 | (0.5) | 1.3 | (0.2) | 0.1 | (0.1) |
| Costa Rica | 10.8 | (0.7) | 35.6 | (1.0) | 35.5 | (0.8) | 15.2 | (0.9) | 2.7 | (0.4) | 0.1 | (0.1) | 0.0 | (0.0) |
| Thailand | 13.0 | (0.8) | 33.7 | (1.1) | 32.2 | (0.9) | 16.0 | (0.8) | 4.6 | (0.6) | 0.4 | (0.2) | 0.0 | (0.0) |
| Mexico | 12.8 | (0.8) | 35.0 | (1.0) | 34.7 | (0.9) | 15.1 | (0.9) | 2.3 | (0.3) | 0.1 | (0.1) | 0.0 | (0.0) |
| Colombia | 16.2 | (1.0) | 32.8 | (0.9) | 30.6 | (0.9) | 15.9 | (0.7) | 4.1 | (0.4) | 0.3 | (0.1) | 0.0 | (0.0) |
| Jordan | 19.4 | (1.1) | 30.4 | (0.9) | 30.9 | (1.0) | 16.1 | (0.9) | 3.1 | (0.4) | 0.2 | (0.1) | 0.0 | (0.0) |
| Qatar | 21.8 | (0.5) | 28.0 | (0.6) | 24.6 | (0.5) | 16.4 | (0.5) | 7.5 | (0.3) | 1.6 | (0.1) | 0.1 | (0.0) |
| Georgia | 20.3 | (1.1) | 30.5 | (1.1) | 28.2 | (1.0) | 15.2 | (0.7) | 4.9 | (0.5) | 0.8 | (0.2) | 0.1 | (0.1) |
| Montenegro | 18.9 | (0.5) | 32.1 | (0.7) | 29.0 | (0.6) | 15.1 | (0.5) | 4.4 | (0.3) | 0.5 | (0.1) | 0.0 | (0.0) |
| Indonesia | 15.6 | (1.2) | 40.4 | (1.5) | 31.7 | (1.3) | 10.6 | (0.8) | 1.6 | (0.3) | 0.1 | (0.1) | 0.0 | (0.0) |
| Brazil | 24.2 | (0.8) | 32.4 | (0.6) | 25.4 | (0.6) | 13.1 | (0.6) | 4.2 | (0.4) | 0.6 | (0.1) | 0.0 | (0.0) |
| Peru | 21.8 | (1.0) | 36.7 | (1.0) | 27.9 | (1.0) | 11.5 | (0.7) | 2.0 | (0.3) | 0.1 | (0.1) | 0.0 | (0.0) |
| Lebanon | 30.4 | (1.6) | 32.3 | (1.2) | 22.0 | (1.2) | 11.6 | (0.9) | 3.3 | (0.4) | 0.4 | (0.1) | 0.0 | (0.0) |
| Republic of Macedonia | 29.1 | (0.8) | 33.8 | (0.9) | 24.6 | (0.7) | 10.3 | (0.5) | 2.0 | (0.3) | 0.2 | (0.1) | 0.0 | (0.0) |
| Tunisia | 21.7 | (1.2) | 44.2 | (1.1) | 26.6 | (1.1) | 6.8 | (0.6) | 0.7 | (0.3) | 0.0 | (0.0) | 0.0 | (0.0) |
| Kosovo | 28.4 | (1.1) | 39.3 | (1.1) | 24.4 | (1.0) | 7.2 | (0.7) | 0.7 | (0.2) | 0.0 | (0.0) | 0.0 | (0.0) |
| Algeria | 28.0 | (1.3) | 42.8 | (1.0) | 22.7 | (1.1) | 5.6 | (0.6) | 0.9 | (0.2) | 0.0 | (0.0) | 0.0 | (0.0) |
| Dominican Republic | 55.4 | (1.6) | 30.4 | (1.3) | 11.3 | (0.8) | 2.6 | (0.5) | 0.3 | (0.1) | 0.0 | (0.0) | 0.0 | (0.0) |
| **OECD average** | **5.5** | **(0.1)** | **15.7** | **(0.1)** | **24.8** | **(0.1)** | **27.2** | **(0.1)** | **19.0** | **(0.1)** | **6.7** | **(0.1)** | **1.1** | **(0.0)** |

*Note:* Countries, economies, and provinces have been sorted in descending order by the total percentage of students who attained Level 2 or higher. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results: Excellence and Equity in Education, Volume I* (Paris: OECD, 2016) for a note regarding Cyprus. Below Level 1 consists of students who scored at below Level 1 and Level 1b. Level 1 refers to Level 1a.

## Table B.1.2

**Estimated average scores and confidence intervals for countries, economies, and provinces: SCIENCE**

| Country, economy, or province | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|
| Singapore | 556 | (1.2) | 553 | 558 |
| **Alberta** | **541** | **(4.0)** | **533** | **549** |
| **British Columbia** | **539** | **(4.3)** | **530** | **547** |
| Japan | 538 | (3.0) | 533 | 544 |
| **Quebec** | **537** | **(4.7)** | **528** | **546** |
| Estonia | 534 | (2.1) | 530 | 538 |
| Chinese Taipei | 532 | (2.7) | 527 | 538 |
| Finland | 531 | (2.4) | 526 | 535 |
| Macao-China | 529 | (1.1) | 526 | 531 |
| **Canada** | **528** | **(2.1)** | **524** | **532** |
| Vietnam | 525 | (3.9) | 517 | 532 |
| **Ontario** | **524** | **(3.9)** | **516** | **532** |
| Hong Kong-China | 523 | (2.5) | 518 | 528 |
| BSJG-China | 518 | (4.6) | 509 | 527 |
| **Nova Scotia** | **517** | **(4.5)** | **508** | **526** |
| Korea | 516 | (3.1) | 510 | 522 |
| **Prince Edward Island** | **515** | **(5.4)** | **504** | **525** |
| New Zealand | 513 | (2.4) | 509 | 518 |
| Slovenia | 513 | (1.3) | 510 | 515 |
| Australia | 510 | (1.5) | 507 | 513 |
| United Kingdom | 509 | (2.6) | 504 | 514 |
| Germany | 509 | (2.7) | 504 | 514 |
| The Netherlands | 509 | (2.3) | 504 | 513 |
| **New Brunswick** | **506** | **(4.5)** | **498** | **515** |
| **Newfoundland and Labrador** | **506** | **(3.2)** | **500** | **512** |
| Switzerland | 506 | (2.9) | 500 | 511 |
| Ireland | 503 | (2.4) | 498 | 507 |
| Belgium | 502 | (2.3) | 498 | 506 |
| Denmark | 502 | (2.4) | 497 | 507 |
| Poland | 501 | (2.5) | 497 | 506 |
| Portugal | 501 | (2.4) | 496 | 506 |
| **Manitoba** | **499** | **(4.7)** | **490** | **509** |
| Norway | 498 | (2.3) | 494 | 503 |
| United States | 496 | (3.2) | 490 | 502 |
| **Saskatchewan** | **496** | **(3.1)** | **490** | **502** |
| Austria | 495 | (2.4) | 490 | 500 |
| France | 495 | (2.1) | 491 | 499 |
| Sweden | 493 | (3.6) | 486 | 500 |
| Czech Republic | 493 | (2.3) | 488 | 497 |
| Spain | 493 | (2.1) | 489 | 497 |
| Latvia | 490 | (1.6) | 487 | 493 |
| Russian Federation | 487 | (2.9) | 481 | 492 |
| Luxembourg | 483 | (1.1) | 481 | 485 |
| Italy | 481 | (2.5) | 476 | 485 |
| Hungary | 477 | (2.4) | 472 | 481 |
| Lithuania | 475 | (2.7) | 470 | 481 |
| Croatia | 475 | (2.5) | 471 | 480 |
| Iceland | 473 | (1.7) | 470 | 477 |
| Israel | 467 | (3.4) | 460 | 473 |
| Malta | 465 | (1.6) | 462 | 468 |
| Slovak Republic | 461 | (2.6) | 456 | 466 |
| Kazakhstan | 456 | (3.7) | 449 | 464 |
| Greece | 455 | (3.9) | 447 | 463 |
| Chile | 447 | (2.4) | 442 | 452 |
| Bulgaria | 446 | (4.4) | 437 | 454 |
| Malaysia | 443 | (3.0) | 437 | 449 |
| United Arab Emirates | 437 | (2.4) | 432 | 441 |
| Uruguay | 435 | (2.2) | 431 | 440 |
| Romania | 435 | (3.2) | 429 | 441 |
| Cyprus | 433 | (1.4) | 430 | 435 |
| Argentina | 432 | (2.9) | 427 | 438 |
| Moldova | 428 | (2.0) | 424 | 432 |
| Albania | 427 | (3.3) | 421 | 434 |
| Turkey | 425 | (3.9) | 418 | 433 |
| Trinidad and Tobago | 425 | (1.4) | 422 | 427 |
| Thailand | 421 | (2.8) | 416 | 427 |
| Costa Rica | 420 | (2.1) | 416 | 424 |
| Qatar | 418 | (1.0) | 416 | 420 |
| Colombia | 416 | (2.4) | 411 | 420 |
| Mexico | 416 | (2.1) | 412 | 420 |
| Montenegro | 411 | (1.0) | 409 | 413 |
| Georgia | 411 | (2.4) | 406 | 416 |
| Jordan | 409 | (2.7) | 403 | 414 |
| Indonesia | 403 | (2.6) | 398 | 408 |
| Brazil | 401 | (2.3) | 396 | 405 |
| Peru | 397 | (2.4) | 392 | 401 |
| Lebanon | 386 | (3.4) | 380 | 393 |
| Tunisia | 386 | (2.1) | 382 | 391 |
| Republic of Macedonia | 384 | (1.2) | 381 | 386 |
| Kosovo | 378 | (1.7) | 375 | 382 |
| Algeria | 376 | (2.6) | 371 | 381 |
| Dominican Republic | 332 | (2.6) | 327 | 337 |

*Note :* The OECD average was 493, with a standard error of 0.4. Countries, economies, and provinces have been sorted in descending order by average score. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.1.3

**Estimated average scores and confidence intervals for Canada and the provinces: SCIENCE BY COMPETENCY SUBSCALES**

| | Canada and provinces | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|---|
| **Explain phenomena scientifically** | | | | | |
| | **Canada** | **530** | **(2.1)** | **526** | **534** |
| | Newfoundland and Labrador | 509 | (3.5) | 502 | 516 |
| | Prince Edward Island | 516 | (5.6) | 505 | 527 |
| | Nova Scotia | 519 | (4.9) | 509 | 528 |
| | New Brunswick | 509 | (4.5) | 500 | 518 |
| | Quebec | 537 | (5.2) | 527 | 547 |
| | Ontario | 525 | (3.8) | 518 | 533 |
| | Manitoba | 504 | (5.0) | 494 | 514 |
| | Saskatchewan | 501 | (3.3) | 494 | 508 |
| | Alberta | 547 | (4.6) | 538 | 556 |
| | British Columbia | 542 | (4.5) | 533 | 550 |
| | *Note:* The OECD average was 493, with a standard error of 0.5. | | | | |
| **Evaluate and design scientific enquiry** | | | | | |
| | **Canada** | **530** | **(2.7)** | **524** | **535** |
| | Newfoundland and Labrador | 506 | (4.0) | 498 | 514 |
| | Prince Edward Island | 515 | (7.0) | 502 | 529 |
| | Nova Scotia | 516 | (6.1) | 504 | 528 |
| | New Brunswick | 508 | (5.6) | 497 | 519 |
| | Quebec | 542 | (5.5) | 532 | 553 |
| | Ontario | 527 | (5.0) | 517 | 537 |
| | Manitoba | 498 | (5.5) | 487 | 509 |
| | Saskatchewan | 495 | (3.9) | 488 | 503 |
| | Alberta | 540 | (4.9) | 530 | 549 |
| | British Columbia | 537 | (5.8) | 526 | 549 |
| | *Note:* The OECD average was 493, with a standard error of 0.5. | | | | |
| **Interpret data and evidence scientifically** | | | | | |
| | **Canada** | **525** | **(2.7)** | **520** | **530** |
| | Newfoundland and Labrador | 501 | (3.5) | 494 | 508 |
| | Prince Edward Island | 512 | (6.1) | 500 | 524 |
| | Nova Scotia | 514 | (5.5) | 503 | 525 |
| | New Brunswick | 503 | (5.3) | 493 | 513 |
| | Quebec | 536 | (5.3) | 525 | 546 |
| | Ontario | 521 | (4.8) | 512 | 530 |
| | Manitoba | 498 | (4.7) | 488 | 507 |
| | Saskatchewan | 491 | (3.4) | 485 | 498 |
| | Alberta | 537 | (4.7) | 527 | 546 |
| | British Columbia | 536 | (5.8) | 525 | 547 |
| | *Note:* The OECD average was 493, with a standard error of 0.5. | | | | |

## Table B.1.4

**Estimated average scores and confidence intervals for Canada and the provinces: SCIENCE BY KNOWLEDGE SUBSCALES**

| | Canada and provinces | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|---|
| **Content** | | | | | |
| | **Canada** | **528** | **(2.2)** | **524** | **533** |
| | Newfoundland and Labrador | 507 | (3.4) | 501 | 514 |
| | Prince Edward Island | 517 | (6.7) | 504 | 530 |
| | Nova Scotia | 517 | (4.5) | 509 | 526 |
| | New Brunswick | 508 | (5.2) | 498 | 518 |
| | Quebec | 537 | (5.1) | 527 | 546 |
| | Ontario | 523 | (4.0) | 516 | 531 |
| | Manitoba | 502 | (4.7) | 493 | 511 |
| | Saskatchewan | 499 | (3.4) | 492 | 505 |
| | Alberta | 545 | (4.3) | 537 | 554 |
| | British Columbia | 540 | (4.4) | 532 | 549 |
| | *Note:* The OECD average was 493, with a standard error of 0.5. | | | | |
| **Procedural and epistemic** | | | | | |
| | **Canada** | **528** | **(2.4)** | **523** | **532** |
| | Newfoundland and Labrador | 504 | (3.4) | 498 | 511 |
| | Prince Edward Island | 514 | (5.6) | 503 | 525 |
| | Nova Scotia | 515 | (4.9) | 505 | 524 |
| | New Brunswick | 505 | (5.0) | 495 | 515 |
| | Quebec | 538 | (5.1) | 528 | 548 |
| | Ontario | 525 | (4.4) | 517 | 534 |
| | Manitoba | 498 | (4.7) | 489 | 507 |
| | Saskatchewan | 493 | (3.3) | 487 | 500 |
| | Alberta | 538 | (4.5) | 529 | 547 |
| | British Columbia | 537 | (4.7) | 528 | 547 |
| | *Note:* The OECD average was 493, with a standard error of 0.4. | | | | |

## Table B.1.5

**Estimated average scores and confidence intervals for Canada and the provinces: SCIENCE BY CONTENT SUBSCALES**

| | Canada and provinces | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|---|
| **Physical systems** | | | | | |
| | **Canada** | **527** | **(2.4)** | **523** | **532** |
| | Newfoundland and Labrador | 506 | (4.6) | 497 | 516 |
| | Prince Edward Island | 518 | (6.3) | 505 | 530 |
| | Nova Scotia | 517 | (5.3) | 507 | 527 |
| | New Brunswick | 505 | (5.0) | 495 | 515 |
| | Quebec | 537 | (5.2) | 526 | 547 |
| | Ontario | 524 | (4.3) | 515 | 532 |
| | Manitoba | 502 | (5.0) | 493 | 512 |
| | Saskatchewan | 498 | (4.2) | 489 | 506 |
| | Alberta | 543 | (4.9) | 533 | 553 |
| | British Columbia | 534 | (5.2) | 524 | 545 |
| | *Note:* The OECD average was 493, with a standard error of 0.5. | | | | |
| **Living systems** | | | | | |
| | **Canada** | **528** | **(2.4)** | **523** | **532** |
| | Newfoundland and Labrador | 505 | (3.6) | 498 | 512 |
| | Prince Edward Island | 516 | (6.0) | 504 | 527 |
| | Nova Scotia | 518 | (4.8) | 509 | 528 |
| | New Brunswick | 507 | (5.2) | 497 | 517 |
| | Quebec | 535 | (5.0) | 525 | 545 |
| | Ontario | 525 | (4.5) | 516 | 533 |
| | Manitoba | 497 | (4.8) | 488 | 507 |
| | Saskatchewan | 493 | (3.5) | 486 | 500 |
| | Alberta | 539 | (4.7) | 530 | 548 |
| | British Columbia | 543 | (4.9) | 533 | 552 |
| | *Note:* The OECD average was 492, with a standard error of 0.5. | | | | |
| **Earth and space systems** | | | | | |
| | **Canada** | **529** | **(2.5)** | **524** | **534** |
| | Newfoundland and Labrador | 503 | (4.0) | 495 | 511 |
| | Prince Edward Island | 516 | (5.7) | 505 | 528 |
| | Nova Scotia | 515 | (5.1) | 505 | 525 |
| | New Brunswick | 508 | (5.6) | 497 | 519 |
| | Quebec | 542 | (5.4) | 532 | 553 |
| | Ontario | 525 | (4.3) | 516 | 533 |
| | Manitoba | 500 | (5.0) | 491 | 510 |
| | Saskatchewan | 498 | (4.1) | 490 | 506 |
| | Alberta | 542 | (5.2) | 532 | 553 |
| | British Columbia | 538 | (6.1) | 526 | 550 |
| | *Note:* The OECD average was 494, with a standard error of 0.5. | | | | |

## Table B.1.6

### Variation in student performance for countries, economies, and provinces: SCIENCE

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| Tunisia | 287 | (3.1) | 306 | (2.6) | 341 | (2.2) | 428 | (2.5) | 472 | (3.8) | 500 | (5.3) | 166 |
| Algeria | 268 | (3.4) | 291 | (3.3) | 329 | (2.5) | 419 | (3.2) | 465 | (4.5) | 496 | (6.1) | 174 |
| Indonesia | 296 | (4.1) | 319 | (3.2) | 356 | (2.9) | 447 | (3.3) | 493 | (3.9) | 522 | (4.9) | 175 |
| Costa Rica | 310 | (2.6) | 332 | (2.3) | 370 | (2.3) | 466 | (2.8) | 514 | (3.3) | 541 | (3.7) | 182 |
| Mexico | 301 | (3.2) | 325 | (2.5) | 366 | (2.2) | 464 | (2.8) | 510 | (3.1) | 535 | (3.4) | 185 |
| Dominican Republic | 224 | (3.0) | 244 | (2.7) | 281 | (2.5) | 376 | (3.3) | 429 | (4.9) | 461 | (6.3) | 185 |
| Kosovo | 266 | (3.3) | 289 | (2.2) | 328 | (2.2) | 426 | (2.2) | 474 | (3.7) | 501 | (4.3) | 185 |
| Kazakhstan | 340 | (4.2) | 363 | (3.3) | 403 | (3.2) | 505 | (4.6) | 558 | (6.9) | 590 | (8.7) | 195 |
| Vietnam | 404 | (4.7) | 428 | (4.1) | 470 | (4.3) | 576 | (4.5) | 624 | (6.6) | 655 | (8.3) | 196 |
| Malaysia | 320 | (3.7) | 345 | (3.5) | 389 | (3.4) | 496 | (3.4) | 541 | (3.9) | 568 | (5.0) | 196 |
| Peru | 278 | (3.2) | 301 | (2.6) | 342 | (2.4) | 448 | (3.3) | 500 | (3.9) | 529 | (4.7) | 198 |
| Albania | 301 | (3.8) | 328 | (3.2) | 373 | (3.2) | 481 | (4.8) | 530 | (5.0) | 558 | (4.7) | 202 |
| Thailand | 301 | (2.7) | 324 | (2.9) | 365 | (2.6) | 473 | (3.6) | 528 | (4.9) | 559 | (6.0) | 203 |
| Romania | 309 | (4.2) | 334 | (3.8) | 379 | (3.6) | 488 | (4.1) | 539 | (5.1) | 570 | (5.4) | 205 |
| Turkey | 301 | (3.8) | 325 | (3.5) | 368 | (3.7) | 482 | (5.5) | 532 | (6.1) | 560 | (5.7) | 207 |
| Argentina | 303 | (4.1) | 329 | (3.5) | 376 | (3.4) | 487 | (3.4) | 536 | (3.7) | 567 | (4.1) | 207 |
| Colombia | 291 | (3.9) | 315 | (3.1) | 357 | (2.8) | 471 | (2.9) | 524 | (3.4) | 554 | (3.5) | 208 |
| Hong Kong-China | 379 | (5.5) | 413 | (4.5) | 473 | (3.5) | 579 | (2.6) | 622 | (2.7) | 646 | (3.2) | 209 |
| Macao-China | 389 | (3.6) | 420 | (2.3) | 474 | (1.7) | 586 | (1.8) | 630 | (2.0) | 656 | (3.2) | 210 |
| Latvia | 355 | (3.3) | 382 | (3.0) | 432 | (2.4) | 548 | (2.0) | 596 | (2.2) | 623 | (3.3) | 214 |
| Russian Federation | 352 | (4.1) | 379 | (3.8) | 428 | (3.4) | 544 | (3.3) | 595 | (3.5) | 623 | (3.7) | 215 |
| Jordan | 268 | (5.2) | 299 | (3.8) | 351 | (3.4) | 468 | (3.0) | 517 | (3.4) | 544 | (3.5) | 217 |
| Republic of Macedonia | 248 | (3.2) | 277 | (3.0) | 325 | (1.9) | 440 | (2.1) | 496 | (2.7) | 528 | (4.1) | 219 |
| Montenegro | 277 | (2.8) | 304 | (2.1) | 352 | (1.5) | 468 | (1.9) | 526 | (2.9) | 558 | (3.1) | 221 |
| Moldova | 290 | (4.0) | 318 | (3.0) | 367 | (2.6) | 488 | (2.9) | 541 | (3.1) | 570 | (3.8) | 223 |
| **Prince Edward Island** | **370** | **(15.7)** | **404** | **(10.3)** | **459** | **(7.6)** | **571** | **(8.7)** | **627** | **(13.1)** | **654** | **(10.2)** | **223** |
| Chile | 308 | (3.1) | 336 | (2.7) | 385 | (3.0) | 509 | (3.2) | 560 | (3.3) | 589 | (3.4) | 225 |
| Uruguay | 301 | (2.8) | 326 | (2.6) | 372 | (2.4) | 496 | (3.0) | 552 | (3.6) | 583 | (4.2) | 226 |
| **Quebec** | **383** | **(6.9)** | **419** | **(7.0)** | **479** | **(6.5)** | **598** | **(5.6)** | **645** | **(5.8)** | **673** | **(6.7)** | **226** |
| **Saskatchewan** | **352** | **(6.9)** | **383** | **(5.2)** | **435** | **(4.7)** | **557** | **(4.2)** | **611** | **(4.4)** | **643** | **(6.0)** | **229** |
| Ireland | 356 | (5.0) | 387 | (3.9) | 441 | (3.2) | 565 | (2.5) | 618 | (2.5) | 648 | (3.2) | 231 |
| Spain | 344 | (4.0) | 374 | (3.5) | 432 | (2.9) | 556 | (2.4) | 605 | (2.4) | 633 | (2.9) | 231 |
| Brazil | 265 | (2.4) | 291 | (2.1) | 337 | (1.9) | 460 | (3.3) | 522 | (4.1) | 558 | (4.6) | 231 |
| Estonia | 384 | (4.3) | 416 | (3.3) | 473 | (2.7) | 597 | (2.7) | 648 | (2.9) | 677 | (3.7) | 233 |
| Croatia | 332 | (3.5) | 360 | (3.3) | 411 | (3.4) | 538 | (2.8) | 593 | (3.3) | 624 | (3.9) | 233 |
| Georgia | 267 | (3.8) | 297 | (3.7) | 348 | (3.0) | 471 | (3.1) | 531 | (3.9) | 566 | (4.5) | 233 |
| Denmark | 351 | (3.8) | 383 | (3.6) | 440 | (3.1) | 565 | (2.8) | 617 | (3.2) | 648 | (4.0) | 234 |
| Lebanon | 249 | (4.6) | 276 | (3.9) | 322 | (3.6) | 446 | (5.1) | 511 | (4.9) | 545 | (5.2) | 235 |
| Poland | 354 | (4.3) | 384 | (3.4) | 437 | (2.9) | 565 | (3.1) | 619 | (3.5) | 650 | (4.0) | 235 |
| **Nova Scotia** | **366** | **(9.6)** | **397** | **(7.2)** | **455** | **(6.5)** | **580** | **(5.0)** | **632** | **(6.7)** | **662** | **(6.4)** | **235** |
| **British Columbia** | **381** | **(6.9)** | **417** | **(7.6)** | **478** | **(5.3)** | **601** | **(5.1)** | **654** | **(5.8)** | **686** | **(6.9)** | **237** |
| **New Brunswick** | **355** | **(9.5)** | **387** | **(9.4)** | **443** | **(7.2)** | **571** | **(5.4)** | **623** | **(5.8)** | **652** | **(6.7)** | **237** |
| **Alberta** | **384** | **(6.2)** | **419** | **(5.7)** | **479** | **(5.7)** | **605** | **(4.5)** | **657** | **(5.1)** | **685** | **(4.9)** | **238** |

## Table B.1.6 (cont'd)

### Variation in student performance for countries, economies, and provinces: SCIENCE

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| Iceland | 324 | (3.5) | 354 | (3.1) | 408 | (2.9) | 538 | (2.3) | 593 | (3.3) | 622 | (3.9) | 238 |
| **Manitoba** | **347** | **(8.9)** | **379** | **(6.5)** | **435** | **(6.2)** | **564** | **(6.0)** | **619** | **(7.1)** | **647** | **(7.7)** | **239** |
| Lithuania | 329 | (3.2) | 357 | (3.8) | 410 | (2.9) | 540 | (3.3) | 597 | (3.7) | 626 | (4.3) | 240 |
| Italy | 328 | (4.1) | 359 | (3.8) | 415 | (3.2) | 547 | (2.8) | 599 | (2.8) | 626 | (3.3) | 240 |
| **Newfoundland and Labrador** | **352** | **(7.4)** | **382** | **(6.8)** | **444** | **(5.3)** | **571** | **(4.6)** | **622** | **(4.8)** | **651** | **(6.9)** | **240** |
| **Canada** | **369** | **(3.3)** | **404** | **(2.9)** | **465** | **(2.5)** | **593** | **(2.2)** | **644** | **(2.6)** | **674** | **(2.7)** | **240** |
| Portugal | 349 | (3.8) | 379 | (3.2) | 435 | (3.4) | 568 | (2.7) | 620 | (3.1) | 649 | (3.1) | 241 |
| Greece | 305 | (5.7) | 333 | (5.6) | 388 | (5.2) | 522 | (3.8) | 575 | (4.1) | 604 | (4.5) | 241 |
| Cyprus | 286 | (2.9) | 314 | (2.4) | 365 | (2.1) | 497 | (2.2) | 557 | (2.8) | 590 | (4.1) | 243 |
| Japan | 375 | (5.3) | 412 | (4.4) | 475 | (3.9) | 605 | (3.2) | 655 | (4.0) | 683 | (4.7) | 243 |
| Trinidad and Tobago | 279 | (4.0) | 306 | (3.5) | 356 | (1.9) | 491 | (2.1) | 551 | (3.3) | 585 | (3.7) | 244 |
| **Ontario** | **364** | **(5.8)** | **398** | **(5.1)** | **460** | **(4.8)** | **591** | **(4.3)** | **643** | **(5.1)** | **674** | **(5.3)** | **246** |
| Korea | 352 | (4.7) | 388 | (4.5) | 451 | (3.8) | 584 | (3.3) | 636 | (3.7) | 665 | (3.9) | 248 |
| Finland | 364 | (4.6) | 402 | (4.2) | 466 | (3.5) | 599 | (2.5) | 651 | (2.7) | 681 | (3.5) | 250 |
| Slovenia | 354 | (3.1) | 386 | (2.6) | 445 | (2.1) | 581 | (2.1) | 636 | (3.0) | 667 | (3.6) | 250 |
| Czech Republic | 338 | (4.1) | 367 | (3.7) | 424 | (3.4) | 561 | (2.5) | 618 | (3.1) | 650 | (3.8) | 251 |
| Norway | 338 | (3.8) | 370 | (3.3) | 432 | (3.0) | 566 | (2.9) | 622 | (3.3) | 655 | (3.9) | 251 |
| Hungary | 319 | (4.0) | 347 | (4.1) | 406 | (3.5) | 547 | (3.0) | 601 | (3.5) | 630 | (3.7) | 254 |
| Austria | 335 | (3.8) | 365 | (3.4) | 424 | (3.6) | 565 | (2.8) | 621 | (3.0) | 652 | (3.6) | 256 |
| United States | 336 | (4.1) | 368 | (3.9) | 425 | (3.7) | 567 | (3.9) | 626 | (3.9) | 658 | (4.9) | 258 |
| Qatar | 268 | (1.9) | 295 | (1.8) | 344 | (1.3) | 486 | (2.1) | 554 | (1.9) | 589 | (2.4) | 259 |
| Slovak Republic | 296 | (5.3) | 329 | (4.6) | 391 | (3.6) | 532 | (2.8) | 588 | (3.2) | 621 | (3.7) | 259 |
| United Arab Emirates | 284 | (3.3) | 312 | (2.8) | 364 | (2.8) | 505 | (3.2) | 571 | (3.2) | 608 | (3.0) | 259 |
| Switzerland | 339 | (4.7) | 373 | (4.1) | 433 | (4.3) | 580 | (3.3) | 632 | (2.9) | 662 | (3.3) | 259 |
| Chinese Taipei | 358 | (4.6) | 395 | (4.6) | 465 | (3.5) | 603 | (3.5) | 655 | (4.2) | 685 | (4.9) | 260 |
| Germany | 342 | (4.4) | 376 | (4.3) | 439 | (3.6) | 580 | (2.8) | 636 | (2.9) | 669 | (3.8) | 260 |
| United Kingdom | 345 | (2.9) | 377 | (3.2) | 438 | (2.9) | 581 | (3.1) | 638 | (3.2) | 670 | (3.5) | 261 |
| Luxembourg | 323 | (2.9) | 351 | (2.6) | 407 | (2.2) | 556 | (1.7) | 615 | (2.3) | 649 | (3.1) | 264 |
| Belgium | 332 | (3.4) | 364 | (3.8) | 429 | (3.5) | 577 | (2.2) | 629 | (2.1) | 657 | (2.2) | 265 |
| Bulgaria | 283 | (4.8) | 313 | (4.8) | 370 | (5.3) | 521 | (5.1) | 578 | (5.2) | 611 | (5.6) | 266 |
| The Netherlands | 341 | (4.0) | 372 | (4.3) | 434 | (3.9) | 583 | (2.5) | 638 | (2.9) | 668 | (3.6) | 266 |
| Australia | 336 | (2.6) | 372 | (2.5) | 438 | (2.2) | 583 | (1.9) | 639 | (2.2) | 672 | (2.8) | 267 |
| France | 322 | (4.1) | 355 | (3.7) | 421 | (3.4) | 571 | (2.4) | 623 | (2.8) | 652 | (3.3) | 268 |
| Sweden | 322 | (4.7) | 357 | (4.6) | 421 | (4.2) | 567 | (4.2) | 625 | (4.0) | 658 | (4.4) | 269 |
| BSJG-China | 341 | (6.5) | 377 | (6.0) | 445 | (5.6) | 595 | (5.3) | 649 | (5.6) | 677 | (6.5) | 271 |
| Singapore | 373 | (3.7) | 412 | (2.8) | 485 | (2.2) | 631 | (1.8) | 683 | (2.2) | 712 | (3.1) | 271 |
| New Zealand | 341 | (3.5) | 374 | (3.8) | 439 | (3.8) | 588 | (2.8) | 647 | (3.5) | 682 | (3.8) | 273 |
| Israel | 295 | (4.9) | 327 | (4.6) | 389 | (4.4) | 544 | (4.1) | 606 | (3.7) | 640 | (3.5) | 279 |
| Malta | 273 | (4.2) | 310 | (4.3) | 382 | (3.4) | 548 | (2.8) | 618 | (3.4) | 656 | (4.4) | 308 |
| **OECD average** | **336** | **(0.7)** | **368** | **(0.6)** | **426** | **(0.6)** | **561** | **(0.5)** | **615** | **(0.5)** | **645** | **(0.6)** | **247** |

*Note:* Countries, economies, and provinces have been sorted in ascending order by the difference in score points between the 10th and 90th percentiles. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.1.7

**Estimated average scores by language of the school system for Canada and the provinces: SCIENCE**

| | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **526** | **(2.2)** | **533** | **(4.7)** | **-7** | **(5.0)** |
| Nova Scotia | 518 | (4.6) | 477 | (7.3) | 42* | (8.7) |
| New Brunswick | 508 | (5.7) | 502 | (4.9) | 6 | (7.1) |
| Quebec | 514 | (3.5) | 540 | (5.3) | -26* | (6.2) |
| Ontario | 526 | (4.1) | 486 | (4.2) | 39* | (5.4) |
| Manitoba | 501 | (5.0) | 473 | (6.9) | 28* | (8.3) |
| Alberta | 541 | (4.1) | 504 | (8.9) | 37* | (10.6) |
| British Columbia | 539 | (4.3) | 532 | (15.8) | 7 | (15.9) |

* Statistically significant differences.

## Table B.1.8

**Estimated average scores by language of the school system for Canada and the provinces: SCIENCE BY COMPETENCY SUBSCALES**

| | | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Explain phenomena scientifically** | | | | | | | |
| | **Canada** | **529** | **(2.2)** | **533** | **(5.0)** | **-5** | **(5.2)** |
| | Nova Scotia | 520 | (5.0) | 480 | (8.0) | 40* | (9.2) |
| | New Brunswick | 511 | (5.6) | 504 | (6.8) | 7 | (8.7) |
| | Quebec | 512 | (5.6) | 540 | (5.6) | -28* | (7.2) |
| | Ontario | 527 | (3.9) | 489 | (6.4) | 38* | (7.2) |
| | Manitoba | 506 | (5.2) | 478 | (7.0) | 28* | (8.3) |
| | Alberta | 547 | (4.7) | 507 | (10.2) | 40* | (11.7) |
| | British Columbia | 542 | (4.5) | 540 | (16.1) | 1 | (16.3) |
| **Evaluate and design scientific enquiry** | | | | | | | |
| | **Canada** | **528** | **(3.1)** | **538** | **(5.5)** | **-10** | **(6.3)** |
| | Nova Scotia | 517 | (6.4) | 479 | (9.9) | 37* | (12.8) |
| | New Brunswick | 507 | (6.7) | 510 | (7.4) | -3 | (9.1) |
| | Quebec | 521 | (6.9) | 545 | (6.1) | -24* | (9.1) |
| | Ontario | 529 | (5.3) | 490 | (8.7) | 39* | (10.6) |
| | Manitoba | 499 | (5.8) | 474 | (9.9) | 25* | (11.6) |
| | Alberta | 540 | (5.0) | 502 | (11.8) | 38* | (13.3) |
| | British Columbia | 537 | (5.8) | 530 | (19.3) | 8 | (19.4) |
| **Interpret data and evidence scientifically** | | | | | | | |
| | **Canada** | **523** | **(2.9)** | **531** | **(5.1)** | **-7** | **(5.5)** |
| | Nova Scotia | 515 | (5.8) | 473 | (8.5) | 43* | (11.3) |
| | New Brunswick | 506 | (6.6) | 493 | (5.9) | 13 | (8.4) |
| | Quebec | 516 | (6.0) | 538 | (5.7) | -22* | (7.3) |
| | Ontario | 523 | (4.9) | 481 | (6.1) | 42* | (6.8) |
| | Manitoba | 499 | (5.1) | 468 | (8.9) | 32* | (11.2) |
| | Alberta | 537 | (4.7) | 499 | (11.6) | 38* | (13.4) |
| | British Columbia | 536 | (5.8) | 521 | (15.2) | 15 | (15.4) |

* Statistically significant differences.

## Table B.1.9

**Estimated average scores by language of the school system for Canada and the provinces: SCIENCE BY KNOWLEDGE SUBSCALES**

| | | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Content** | | | | | | | |
| | **Canada** | **527** | **(2.3)** | **534** | **(5.1)** | **-7** | **(5.5)** |
| | Nova Scotia | 518 | (4.7) | 483 | (8.1) | 36* | (9.8) |
| | New Brunswick | 509 | (6.3) | 503 | (6.7) | 6 | (8.6) |
| | Quebec | 510 | (4.9) | 540 | (5.7) | -30* | (7.5) |
| | Ontario | 525 | (4.1) | 491 | (5.0) | 34* | (6.5) |
| | Manitoba | 504 | (4.9) | 481 | (6.6) | 23* | (8.2) |
| | Alberta | 546 | (4.3) | 508 | (11.3) | 38* | (12.3) |
| | British Columbia | 540 | (4.4) | 544 | (17.9) | -3 | (17.8) |
| **Procedural and epistemic** | | | | | | | |
| | **Canada** | **526** | **(2.6)** | **533** | **(5.1)** | **-7** | **(5.5)** |
| | Nova Scotia | 516 | (5.1) | 477 | (8.0) | 39* | (9.4) |
| | New Brunswick | 507 | (6.4) | 499 | (5.8) | 7 | (8.5) |
| | Quebec | 517 | (5.1) | 540 | (5.7) | -23* | (7.3) |
| | Ontario | 527 | (4.5) | 484 | (5.0) | 43* | (6.3) |
| | Manitoba | 500 | (5.0) | 469 | (6.8) | 31* | (8.5) |
| | Alberta | 538 | (4.5) | 499 | (10.7) | 39* | (12.5) |
| | British Columbia | 537 | (4.7) | 526 | (16.3) | 12 | (16.3) |

* Statistically significant differences.

## Table B.1.10

**Estimated average scores by language of the school system for Canada and the provinces: SCIENCE BY CONTENT SUBSCALES**

| | | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Physical systems** | | | | | | | |
| | **Canada** | **526** | **(2.6)** | **533** | **(5.1)** | **-7** | **(5.6)** |
| | Nova Scotia | 518 | (5.4) | 479 | (8.7) | 39* | (10.2) |
| | New Brunswick | 505 | (6.7) | 503 | (5.2) | 2 | (8.8) |
| | Quebec | 516 | (5.8) | 539 | (5.8) | -24* | (8.0) |
| | Ontario | 525 | (4.4) | 489 | (6.2) | 36* | (7.2) |
| | Manitoba | 504 | (5.3) | 479 | (7.1) | 25* | (9.0) |
| | Alberta | 543 | (5.0) | 506 | (10.1) | 38* | (12.1) |
| | British Columbia | 534 | (5.2) | 536 | (17.1) | -2 | (17.0) |
| **Living systems** | | | | | | | |
| | **Canada** | **527** | **(2.6)** | **531** | **(5.0)** | **-4** | **(5.4)** |
| | Nova Scotia | 520 | (5.0) | 471 | (7.8) | 49* | (9.3) |
| | New Brunswick | 511 | (6.5) | 496 | (7.0) | 14 | (9.2) |
| | Quebec | 514 | (5.4) | 538 | (5.7) | -24* | (8.3) |
| | Ontario | 526 | (4.6) | 482 | (5.3) | 44* | (6.6) |
| | Manitoba | 499 | (5.1) | 464 | (8.3) | 35* | (9.5) |
| | Alberta | 539 | (4.7) | 496 | (9.1) | 43* | (11.3) |
| | British Columbia | 543 | (4.9) | 529 | (17.2) | 14 | (17.6) |
| **Earth and space systems** | | | | | | | |
| | **Canada** | **527** | **(2.7)** | **539** | **(5.2)** | **-12*** | **(5.8)** |
| | Nova Scotia | 516 | (5.3) | 483 | (7.7) | 33* | (9.5) |
| | New Brunswick | 508 | (6.6) | 506 | (7.3) | 2 | (8.9) |
| | Quebec | 515 | (7.6) | 546 | (5.9) | -30* | (9.4) |
| | Ontario | 526 | (4.5) | 490 | (5.0) | 36* | (6.4) |
| | Manitoba | 502 | (5.3) | 480 | (9.3) | 22* | (11.0) |
| | Alberta | 543 | (5.2) | 506 | (10.6) | 36* | (12.6) |
| | British Columbia | 538 | (6.1) | 537 | (17.8) | 1 | (18.2) |

* Statistically significant differences.

## Table B.1.11

**Estimated average scores by gender for Canada and the provinces: SCIENCE**

| | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **527** | **(2.3)** | **528** | **(2.5)** | **-1** | **(2.4)** |
| Newfoundland and Labrador | 502 | (3.8) | 510 | (5.2) | -9 | (6.5) |
| Prince Edward Island | 521 | (6.0) | 509 | (7.5) | 12 | (8.5) |
| Nova Scotia | 518 | (4.8) | 516 | (5.9) | 2 | (6.0) |
| New Brunswick | 507 | (4.5) | 506 | (6.2) | 0 | (6.3) |
| Quebec | 533 | (5.2) | 541 | (5.6) | -8 | (5.1) |
| Ontario | 525 | (4.2) | 523 | (4.5) | 2 | (3.7) |
| Manitoba | 500 | (6.1) | 499 | (5.0) | 0 | (5.8) |
| Saskatchewan | 493 | (4.0) | 498 | (3.7) | -5 | (4.6) |
| Alberta | 539 | (4.8) | 542 | (4.4) | -3 | (4.3) |
| British Columbia | 538 | (4.2) | 540 | (6.0) | -2 | (5.7) |

## Table B.1.12

**Proportion of males and females who performed below Level 2 and at Levels 5 and 6, PISA 2015, Canada and the provinces: SCIENCE**

| | Below Level 2 | | | | | | Levels 5 and 6 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Female | | Male | | Difference (F-M) | | Female | | Male | | Difference (F-M) | |
| **Canada and provinces** | **%** | **Standard error** | **%** | **Standard error** | **difference** | **Standard error** | **%** | **Standard error** | **%** | **Standard error** | **difference** | **Standard error** |
| **Canada** | **10.1** | **(0.6)** | **12.0** | **(0.7)** | **-1.9*** | **(0.7)** | **11.4** | **(0.7)** | **13.4** | **(0.8)** | **-2.0*** | **(1.0)** |
| Newfoundland and Labrador | 14.9 | (1.8) | 16.0 | (1.9) | -1.0 | (2.5) | 5.4 | (1.0) | 10.3 | (1.6) | -4.9* | (1.8) |
| Prince Edward Island | 8.1 | (2.3) | 14.3 | (3.0) | -6.2 | (3.4) | 7.5 | (2.4) | 9.9 | (2.8) | -2.4 | (3.4) |
| Nova Scotia | 11.7 | (2.0) | 14.0 | (1.8) | -2.3 | (2.2) | 9.7 | (1.6) | 9.8 | (1.8) | -0.1 | (2.3) |
| New Brunswick | 14.1 | (1.8) | 17.0 | (2.7) | -2.9 | (2.6) | 7.1 | (1.5) | 9.0 | (1.6) | -1.9 | (2.1) |
| Quebec | 7.8 | (1.2) | 9.2 | (1.3) | -1.4 | (1.2) | 10.4 | (1.6) | 15.4 | (2.1) | -4.9* | (2.3) |
| Ontario | 11.1 | (1.2) | 13.4 | (1.2) | -2.2 | (1.3) | 11.6 | (1.5) | 12.5 | (1.3) | -0.8 | (1.6) |
| Manitoba | 17.7 | (2.4) | 17.2 | (2.0) | 0.5 | (2.8) | 7.3 | (1.6) | 6.8 | (1.1) | 0.5 | (1.7) |
| Saskatchewan | 16.5 | (1.9) | 16.9 | (1.7) | -0.5 | (2.4) | 5.0 | (0.9) | 7.2 | (1.1) | -2.1 | (1.4) |
| Alberta | 7.7 | (1.3) | 9.4 | (1.2) | -1.7 | (1.6) | 14.9 | (1.7) | 16.9 | (1.7) | -2.0 | (2.0) |
| British Columbia | 7.8 | (1.3) | 9.6 | (1.5) | -1.8 | (1.5) | 13.5 | (1.6) | 15.8 | (1.9) | -2.3 | (1.9) |

* Statistically significant differences.

## Table B.1.13

### Estimated average scores by gender for Canada and the provinces: SCIENCE BY COMPETENCY SUBSCALES

| | | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Explain phenomena scientifically** | | | | | | | |
| | **Canada** | **525** | **(2.4)** | **535** | **(2.6)** | **-10*** | **(2.6)** |
| | Newfoundland and Labrador | 500 | (4.2) | 518 | (5.4) | -18* | (6.8) |
| | Prince Edward Island | 518 | (5.9) | 515 | (7.9) | 3 | (8.4) |
| | Nova Scotia | 515 | (5.2) | 522 | (6.5) | -7 | (6.6) |
| | New Brunswick | 504 | (4.7) | 513 | (6.3) | -9 | (6.4) |
| | Quebec | 529 | (5.3) | 545 | (6.1) | -16* | (4.8) |
| | Ontario | 522 | (4.4) | 529 | (4.3) | -6 | (4.1) |
| | Manitoba | 499 | (6.1) | 509 | (5.4) | -9 | (5.8) |
| | Saskatchewan | 494 | (4.3) | 507 | (4.1) | -13* | (5.1) |
| | Alberta | 542 | (5.3) | 552 | (5.0) | -10* | (4.5) |
| | British Columbia | 536 | (5.0) | 548 | (5.7) | -12* | (6.1) |
| **Evaluate and design scientific enquiry** | | | | | | | |
| | **Canada** | **535** | **(3.1)** | **525** | **(3.0)** | **10*** | **(2.7)** |
| | Newfoundland and Labrador | 508 | (5.0) | 505 | (6.4) | 3 | (8.2) |
| | Prince Edward Island | 527 | (7.3) | 504 | (9.7) | 24* | (10.2) |
| | Nova Scotia | 522 | (6.9) | 509 | (7.6) | 13 | (7.7) |
| | New Brunswick | 514 | (5.5) | 502 | (7.5) | 12 | (7.2) |
| | Quebec | 542 | (6.3) | 542 | (5.8) | 0 | (5.3) |
| | Ontario | 535 | (5.4) | 520 | (5.4) | 15* | (4.1) |
| | Manitoba | 503 | (7.0) | 493 | (5.9) | 10 | (6.6) |
| | Saskatchewan | 499 | (5.2) | 492 | (4.3) | 7 | (5.4) |
| | Alberta | 544 | (5.6) | 536 | (5.6) | 9 | (5.3) |
| | British Columbia | 541 | (5.9) | 533 | (7.4) | 8 | (6.6) |
| **Interpret data and evidence scientifically** | | | | | | | |
| | **Canada** | **525** | **(2.8)** | **525** | **(3.2)** | **1** | **(2.8)** |
| | Newfoundland and Labrador | 498 | (4.5) | 504 | (5.4) | -6 | (7.0) |
| | Prince Edward Island | 519 | (6.6) | 504 | (8.4) | 15 | (9.0) |
| | Nova Scotia | 516 | (6.2) | 512 | (6.6) | 4 | (6.5) |
| | New Brunswick | 504 | (4.9) | 502 | (7.2) | 1 | (6.6) |
| | Quebec | 533 | (5.8) | 538 | (6.1) | -5 | (5.4) |
| | Ontario | 523 | (4.9) | 519 | (5.4) | 3 | (4.1) |
| | Manitoba | 499 | (6.3) | 496 | (5.0) | 3 | (6.4) |
| | Saskatchewan | 491 | (4.6) | 492 | (4.3) | -1 | (5.8) |
| | Alberta | 536 | (5.6) | 537 | (4.9) | -1 | (4.8) |
| | British Columbia | 535 | (5.4) | 537 | (7.7) | -3 | (6.4) |

* Statistically significant differences.

## Table B.1.14

**Estimated average scores by gender for Canada and the provinces: SCIENCE BY KNOWLEDGE SUBSCALES**

| | | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Content** | | | | | | | |
| | **Canada** | **524** | **(2.3)** | **533** | **(2.6)** | **-9*** | **(2.5)** |
| | Newfoundland and Labrador | 499 | (3.8) | 516 | (5.2) | -17* | (6.1) |
| | Prince Edward Island | 518 | (7.2) | 516 | (8.9) | 2 | (9.2) |
| | Nova Scotia | 514 | (4.9) | 520 | (6.2) | -6 | (6.7) |
| | New Brunswick | 504 | (4.9) | 512 | (6.9) | -8 | (6.2) |
| | Quebec | 528 | (5.4) | 546 | (5.9) | -18* | (4.9) |
| | Ontario | 521 | (4.3) | 526 | (4.5) | -6 | (3.9) |
| | Manitoba | 499 | (6.0) | 506 | (5.0) | -7 | (5.9) |
| | Saskatchewan | 493 | (4.2) | 504 | (3.9) | -12* | (4.5) |
| | Alberta | 541 | (4.9) | 550 | (4.9) | -9 | (4.6) |
| | British Columbia | 535 | (4.4) | 546 | (6.0) | -10 | (5.9) |
| **Procedural and epistemic** | | | | | | | |
| | **Canada** | **530** | **(2.6)** | **525** | **(2.8)** | **6*** | **(2.4)** |
| | Newfoundland and Labrador | 504 | (4.6) | 505 | (5.3) | -2 | (7.2) |
| | Prince Edward Island | 523 | (6.6) | 506 | (8.0) | 17 | (9.4) |
| | Nova Scotia | 519 | (5.6) | 510 | (6.1) | 9 | (6.4) |
| | New Brunswick | 508 | (4.7) | 501 | (7.0) | 7 | (6.5) |
| | Quebec | 537 | (5.5) | 538 | (5.9) | -1 | (5.0) |
| | Ontario | 530 | (4.6) | 521 | (5.1) | 9* | (4.1) |
| | Manitoba | 502 | (6.1) | 494 | (5.0) | 7 | (5.9) |
| | Saskatchewan | 495 | (4.3) | 491 | (4.0) | 3 | (4.9) |
| | Alberta | 539 | (5.3) | 536 | (4.7) | 3 | (4.5) |
| | British Columbia | 539 | (4.4) | 535 | (6.6) | 4 | (6.0) |

* Statistically significant differences.

## Table B.1.15

### Estimated average scores by gender for Canada and the provinces: SCIENCE BY CONTENT SUBSCALES

| | | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|---|
| | Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Physical systems** | | | | | | | |
| | **Canada** | **525** | **(2.4)** | **530** | **(3.3)** | **-5** | **(3.3)** |
| | Newfoundland and Labrador | 501 | (4.7) | 512 | (6.9) | -12 | (7.2) |
| | Prince Edward Island | 522 | (7.2) | 513 | (8.6) | 8 | (9.8) |
| | Nova Scotia | 516 | (5.5) | 517 | (6.8) | -1 | (6.6) |
| | New Brunswick | 504 | (4.9) | 506 | (7.0) | -2 | (6.8) |
| | Quebec | 530 | (5.6) | 543 | (6.1) | -13* | (5.3) |
| | Ontario | 523 | (4.6) | 524 | (5.2) | -2 | (5.0) |
| | Manitoba | 500 | (6.5) | 504 | (5.4) | -5 | (6.7) |
| | Saskatchewan | 494 | (4.9) | 501 | (4.8) | -8 | (4.8) |
| | Alberta | 541 | (5.9) | 545 | (5.7) | -4 | (6.1) |
| | British Columbia | 533 | (4.9) | 537 | (7.1) | -4 | (6.3) |
| **Living systems** | | | | | | | |
| | **Canada** | **528** | **(2.6)** | **527** | **(2.9)** | **1** | **(2.6)** |
| | Newfoundland and Labrador | 503 | (4.5) | 508 | (5.5) | -5 | (7.1) |
| | Prince Edward Island | 522 | (6.4) | 509 | (8.5) | 13 | (9.1) |
| | Nova Scotia | 521 | (5.6) | 516 | (5.8) | 5 | (6.2) |
| | New Brunswick | 508 | (5.3) | 506 | (6.8) | 2 | (6.5) |
| | Quebec | 533 | (5.3) | 537 | (5.9) | -4 | (5.2) |
| | Ontario | 527 | (4.6) | 522 | (5.1) | 4 | (4.0) |
| | Manitoba | 499 | (6.4) | 495 | (4.9) | 3 | (5.9) |
| | Saskatchewan | 492 | (4.5) | 494 | (4.5) | -2 | (5.8) |
| | Alberta | 538 | (6.0) | 539 | (4.6) | -1 | (5.0) |
| | British Columbia | 542 | (4.9) | 543 | (6.4) | -1 | (5.9) |
| **Earth and space systems** | | | | | | | |
| | **Canada** | **528** | **(2.7)** | **530** | **(3.0)** | **-2** | **(2.9)** |
| | Newfoundland and Labrador | 498 | (4.8) | 508 | (5.6) | -9 | (6.8) |
| | Prince Edward Island | 521 | (6.2) | 512 | (8.1) | 9 | (9.0) |
| | Nova Scotia | 514 | (5.6) | 515 | (6.4) | -1 | (6.3) |
| | New Brunswick | 507 | (5.6) | 508 | (7.3) | -1 | (6.9) |
| | Quebec | 538 | (5.6) | 546 | (6.7) | -8 | (6.0) |
| | Ontario | 525 | (4.5) | 524 | (5.2) | 1 | (4.4) |
| | Manitoba | 501 | (6.2) | 500 | (5.7) | 1 | (6.4) |
| | Saskatchewan | 496 | (5.5) | 500 | (4.4) | -5 | (5.6) |
| | Alberta | 540 | (6.3) | 545 | (5.2) | -5 | (5.0) |
| | British Columbia | 537 | (6.1) | 540 | (7.4) | -3 | (5.9) |

* Statistically significant differences.

## Table B.1.16

**Comparisons of performance, PISA 2006, 2009, 2012, and 2015, Canada and the provinces: SCIENCE**

| | 2006 | | 2009 | | 2012 | | 2015 | |
|---|---|---|---|---|---|---|---|---|
| Canada and provinces | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error |
| **Canada** | **534** | **(2.0)** | **529** | **(3.0)** | **525*** | **(4.0)** | **528** | **(4.9)** |
| Newfoundland and Labrador | 526 | (2.5) | 518 | (4.0) | 514* | (5.0) | 506* | (5.5) |
| Prince Edward Island | 509 | (2.7) | 495* | (3.5) | 490* | (4.4) | 515 | (7.0) |
| Nova Scotia | 520 | (2.5) | 523 | (3.7) | 516 | (4.6) | 517 | (6.3) |
| New Brunswick | 506 | (2.3) | 501 | (3.5) | 507 | (4.4) | 506 | (6.3) |
| Quebec | 531 | (4.2) | 524 | (4.1) | 516* | (4.8) | 537 | (6.5) |
| Ontario | 537 | (4.2) | 531 | (4.2) | 527 | (5.6) | 524 | (6.0) |
| Manitoba | 523 | (3.2) | 506* | (4.7) | 503* | (4.8) | 499* | (6.5) |
| Saskatchewan | 517 | (3.6) | 513 | (4.5) | 516 | (4.6) | 496* | (5.5) |
| Alberta | 550 | (3.8) | 545 | (5.0) | 539 | (5.8) | 541 | (6.0) |
| British Columbia | 539 | (4.7) | 535 | (4.8) | 544 | (5.3) | 539 | (6.2) |

* Statistically significant differences compared to PISA 2006.

*Note:* The linkage error is incorporated into the standard error for 2009, 2012, and 2015. Also, for some provinces, the standard errors from 2006 to 2009 and to 2012 differ from those in the previous PISA reports on trend results. These differences result from the change of the method used by the OECD to compute the linkage error.

## Table B.1.17

**Proportion of students who performed below Level 2 and at Levels 5 and 6, in PISA 2006 and 2015, Canada and the provinces: SCIENCE**

| | Below Level 2 | | | | | | Levels 5 and 6 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2006 | | 2015 | | Difference 2006-2015 | | 2006 | | 2015 | | Difference 2006-2015 | |
| Canada and provinces | % | Standard error | % | Standard error | difference | Standard error | % | Standard error | % | Standard error | difference | Standard error |
| **Canada** | **10.0** | **(0.6)** | **11.1** | **(0.5)** | **1.1** | **(1.0)** | **14.4** | **(0.5)** | **12.4** | **(0.6)** | **-2.1*** | **(1.8)** |
| Newfoundland and Labrador | 11.9 | (0.9) | 15.5 | (1.3) | 3.5* | (1.7) | 13.5 | (1.1) | 7.8 | (1.0) | -5.8* | (2.2) |
| Prince Edward Island | 16.0 | (1.2) | 11.3 | (2.1) | -4.7 | (2.5) | 9.8 | (1.0) | 8.7 | (2.0) | -1.0 | (2.7) |
| Nova Scotia | 11.8 | (1.2) | 12.8 | (1.5) | 1.0 | (2.0) | 10.2 | (0.9) | 9.8 | (1.2) | -0.4 | (2.2) |
| New Brunswick | 15.3 | (1.0) | 15.6 | (1.9) | 0.3 | (2.3) | 7.9 | (0.8) | 8.1 | (1.1) | 0.1 | (2.1) |
| Quebec | 11.3 | (1.2) | 8.5 | (1.1) | -2.8 | (1.8) | 14.3 | (1.1) | 12.8 | (1.5) | -1.5 | (2.4) |
| Ontario | 9.5 | (1.2) | 12.3 | (1.0) | 2.8 | (1.7) | 14.2 | (1.1) | 12.1 | (1.1) | -2.1 | (2.2) |
| Manitoba | 12.5 | (1.2) | 17.4 | (1.7) | 5.0* | (2.2) | 12.4 | (1.1) | 7.1 | (1.1) | -5.3* | (2.2) |
| Saskatchewan | 13.6 | (1.3) | 16.7 | (1.4) | 3.1 | (2.0) | 10.8 | (1.1) | 6.2 | (0.7) | -4.6* | (2.1) |
| Alberta | 6.2 | (0.9) | 8.6 | (1.0) | 2.4 | (1.4) | 18.3 | (1.2) | 15.9 | (1.4) | -2.5 | (2.4) |
| British Columbia | 9.1 | (1.2) | 8.7 | (1.2) | -0.4 | (1.8) | 15.9 | (1.5) | 14.7 | (1.5) | -1.2 | (2.6) |

* Statistically significant differences.

## Table B.1.18

**Gender differences in student performance, PISA 2006 and 2015, Canada and the provinces: SCIENCE**

| | 2006 | | 2015 | |
|---|---|---|---|---|
| **Canada and provinces** | **Gender difference (F-M)** | **Standard error** | **Gender difference (F-M)** | **Standard error** |
| **Canada** | **-4** | **(2.2)** | **-1** | **(2.4)** |
| Newfoundland and Labrador | 12* | (4.9) | -9 | (6.5) |
| Prince Edward Island | 3 | (5.0) | 12 | (8.5) |
| Nova Scotia | -1 | (4.9) | 2 | (6.0) |
| New Brunswick | -1 | (4.1) | 0 | (6.3) |
| Quebec | -8 | (4.2) | -8 | (5.1) |
| Ontario | -4 | (4.1) | 2 | (3.7) |
| Manitoba | -4 | (5.3) | 0 | (5.8) |
| Saskatchewan | 5 | (5.7) | -5 | (4.6) |
| Alberta | -4 | (4.7) | -3 | (4.3) |
| British Columbia | -5 | (5.4) | -2 | (5.7) |

* Statistically significant differences.

## Table B.2.1

**Estimated average scores and confidence intervals for countries, economies, and provinces: READING**

| Country, economy, or province | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|
| **British Columbia** | **536** | **(5.6)** | **525** | **547** |
| Singapore | 535 | (1.6) | 532 | 538 |
| **Alberta** | **533** | **(5.2)** | **523** | **544** |
| **Quebec** | **532** | **(4.7)** | **523** | **541** |
| **Ontario** | **527** | **(4.4)** | **519** | **536** |
| Hong Kong-China | 527 | (2.7) | 521 | 532 |
| **Canada** | **527** | **(2.3)** | **522** | **531** |
| Finland | 526 | (2.5) | 521 | 531 |
| Ireland | 521 | (2.5) | 516 | 526 |
| Estonia | 519 | (2.2) | 515 | 523 |
| Korea | 517 | (3.5) | 511 | 524 |
| **Nova Scotia** | **517** | **(4.9)** | **508** | **527** |
| Japan | 516 | (3.2) | 510 | 522 |
| **Prince Edward Island** | **515** | **(6.1)** | **503** | **527** |
| Norway | 513 | (2.5) | 508 | 518 |
| New Zealand | 509 | (2.4) | 505 | 514 |
| Germany | 509 | (3.0) | 503 | 515 |
| Macao-China | 509 | (1.3) | 506 | 511 |
| Poland | 506 | (2.5) | 501 | 511 |
| **New Brunswick** | **505** | **(5.2)** | **495** | **516** |
| Slovenia | 505 | (1.5) | 502 | 508 |
| **Newfoundland and Labrador** | **505** | **(3.5)** | **498** | **512** |
| The Netherlands | 503 | (2.4) | 498 | 508 |
| Australia | 503 | (1.7) | 500 | 506 |
| Sweden | 500 | (3.5) | 493 | 507 |
| Denmark | 500 | (2.5) | 495 | 505 |
| France | 499 | (2.5) | 494 | 504 |
| Belgium | 499 | (2.4) | 494 | 503 |
| **Manitoba** | **498** | **(5.0)** | **489** | **508** |
| Portugal | 498 | (2.7) | 493 | 503 |
| United Kingdom | 498 | (2.8) | 493 | 503 |
| Chinese Taipei | 497 | (2.5) | 492 | 502 |
| United States | 497 | (3.4) | 490 | 504 |
| **Saskatchewan** | **496** | **(3.6)** | **489** | **503** |
| Spain | 496 | (2.4) | 491 | 500 |
| Russian Federation | 495 | (3.1) | 489 | 501 |
| BSJG-China | 494 | (5.1) | 484 | 504 |
| Switzerland | 492 | (3.0) | 486 | 498 |
| Latvia | 488 | (1.8) | 484 | 491 |
| Czech Republic | 487 | (2.6) | 482 | 492 |
| Croatia | 487 | (2.7) | 482 | 492 |
| Vietnam | 487 | (3.7) | 479 | 494 |
| Austria | 485 | (2.8) | 479 | 490 |
| Italy | 485 | (2.7) | 480 | 490 |
| Iceland | 482 | (2.0) | 478 | 485 |
| Luxembourg | 481 | (1.4) | 479 | 484 |
| Israel | 479 | (3.8) | 472 | 486 |
| Lithuania | 472 | (2.7) | 467 | 478 |
| Hungary | 470 | (2.7) | 464 | 475 |
| Greece | 467 | (4.3) | 459 | 476 |
| Chile | 459 | (2.6) | 454 | 464 |
| Slovak Republic | 453 | (2.8) | 447 | 458 |
| Malta | 447 | (1.8) | 443 | 450 |
| Cyprus | 443 | (1.7) | 440 | 446 |
| Uruguay | 437 | (2.5) | 432 | 442 |
| Romania | 434 | (4.1) | 426 | 442 |
| United Arab Emirates | 434 | (2.9) | 428 | 439 |
| Bulgaria | 432 | (5.0) | 422 | 442 |
| Malaysia | 431 | (3.5) | 424 | 437 |
| Turkey | 428 | (4.0) | 421 | 436 |
| Costa Rica | 427 | (2.6) | 422 | 433 |
| Trinidad and Tobago | 427 | (1.5) | 424 | 430 |
| Kazakhstan | 427 | (3.4) | 420 | 434 |
| Montenegro | 427 | (1.6) | 424 | 430 |
| Argentina | 425 | (3.2) | 419 | 432 |
| Colombia | 425 | (2.9) | 419 | 431 |
| Mexico | 423 | (2.6) | 418 | 428 |
| Moldova | 416 | (2.5) | 411 | 421 |
| Thailand | 409 | (3.3) | 403 | 416 |
| Jordan | 408 | (2.9) | 402 | 414 |
| Brazil | 407 | (2.8) | 402 | 413 |
| Albania | 405 | (4.1) | 397 | 413 |
| Qatar | 402 | (1.0) | 400 | 404 |
| Georgia | 401 | (3.0) | 395 | 407 |
| Peru | 398 | (2.9) | 392 | 403 |
| Indonesia | 397 | (2.9) | 392 | 403 |
| Tunisia | 361 | (3.1) | 355 | 367 |
| Dominican Republic | 358 | (3.1) | 352 | 364 |
| Republic of Macedonia | 352 | (1.4) | 349 | 355 |
| Algeria | 350 | (3.0) | 344 | 356 |
| Kosovo | 347 | (1.6) | 344 | 350 |
| Lebanon | 347 | (4.4) | 338 | 355 |

*Note:* The OECD average was 493, with a standard error of 0.5. Countries, economies, and provinces have been sorted in descending order by average score. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.2.2

**Estimated average scores and confidence intervals for provinces, countries and economies: MATHEMATICS**

| Country, economy, or province | Average | Standard error | Confidence interval – 95% lower limit | Confidence interval – 95% upper limit |
|---|---|---|---|---|
| Singapore | 564 | (1.5) | 561 | 567 |
| Hong Kong-China | 548 | (3.0) | 542 | 554 |
| **Quebec** | **544** | **(4.8)** | **535** | **553** |
| Macao-China | 544 | (1.1) | 542 | 546 |
| Chinese Taipei | 542 | (3.0) | 536 | 548 |
| Japan | 532 | (3.0) | 527 | 538 |
| BSJG-China | 531 | (4.9) | 522 | 541 |
| Korea | 524 | (3.7) | 517 | 531 |
| **British Columbia** | **522** | **(5.0)** | **512** | **531** |
| Switzerland | 521 | (2.9) | 516 | 527 |
| Estonia | 520 | (2.0) | 516 | 524 |
| **Canada** | **516** | **(2.3)** | **511** | **520** |
| The Netherlands | 512 | (2.2) | 508 | 517 |
| **Alberta** | **511** | **(4.7)** | **502** | **521** |
| Denmark | 511 | (2.2) | 507 | 515 |
| Finland | 511 | (2.3) | 507 | 516 |
| Slovenia | 510 | (1.3) | 507 | 512 |
| **Ontario** | **509** | **(4.2)** | **501** | **518** |
| Belgium | 507 | (2.4) | 502 | 512 |
| Germany | 506 | (2.9) | 500 | 512 |
| Poland | 504 | (2.4) | 500 | 509 |
| Ireland | 504 | (2.1) | 500 | 508 |
| Norway | 502 | (2.2) | 497 | 506 |
| **Prince Edward Island** | **499** | **(6.4)** | **486** | **511** |
| **Nova Scotia** | **497** | **(4.6)** | **488** | **506** |
| Austria | 497 | (2.9) | 491 | 502 |
| New Zealand | 495 | (2.3) | 491 | 500 |
| Vietnam | 495 | (4.5) | 486 | 503 |
| Russian Federation | 494 | (3.1) | 488 | 500 |
| Sweden | 494 | (3.2) | 488 | 500 |
| Australia | 494 | (1.6) | 491 | 497 |
| France | 493 | (2.1) | 489 | 497 |
| **New Brunswick** | **493** | **(5.1)** | **483** | **502** |
| United Kingdom | 492 | (2.5) | 488 | 497 |
| Czech Republic | 492 | (2.4) | 488 | 497 |
| Portugal | 492 | (2.5) | 487 | 497 |
| Italy | 490 | (2.8) | 484 | 495 |
| **Manitoba** | **489** | **(4.2)** | **481** | **497** |
| Iceland | 488 | (2.0) | 484 | 492 |
| Spain | 486 | (2.2) | 482 | 490 |
| Luxembourg | 486 | (1.3) | 483 | 488 |
| **Newfoundland and Labrador** | **486** | **(3.2)** | **479** | **492** |
| **Saskatchewan** | **484** | **(2.9)** | **479** | **490** |
| Latvia | 482 | (1.9) | 479 | 486 |
| Malta | 479 | (1.7) | 475 | 482 |
| Lithuania | 478 | (2.3) | 474 | 483 |
| Hungary | 477 | (2.5) | 472 | 482 |
| Slovak Republic | 475 | (2.7) | 470 | 480 |
| Israel | 470 | (3.6) | 463 | 477 |
| United States | 470 | (3.2) | 463 | 476 |
| Croatia | 464 | (2.8) | 459 | 469 |
| Kazakhstan | 460 | (4.3) | 451 | 468 |
| Greece | 454 | (3.8) | 446 | 461 |
| Malaysia | 446 | (3.3) | 440 | 452 |
| Romania | 444 | (3.8) | 437 | 451 |
| Bulgaria | 441 | (4.0) | 433 | 449 |
| Cyprus | 437 | (1.7) | 434 | 441 |
| United Arab Emirates | 427 | (2.4) | 423 | 432 |
| Chile | 423 | (2.5) | 418 | 428 |
| Turkey | 420 | (4.1) | 412 | 429 |
| Moldova | 420 | (2.5) | 415 | 424 |
| Uruguay | 418 | (2.5) | 413 | 423 |
| Montenegro | 418 | (1.5) | 415 | 421 |
| Trinidad and Tobago | 417 | (1.4) | 414 | 420 |
| Thailand | 415 | (3.0) | 410 | 421 |
| Albania | 413 | (3.4) | 406 | 420 |
| Argentina | 409 | (3.1) | 403 | 415 |
| Mexico | 408 | (2.2) | 404 | 412 |
| Georgia | 404 | (2.8) | 398 | 409 |
| Qatar | 402 | (1.3) | 400 | 405 |
| Costa Rica | 400 | (2.5) | 395 | 405 |
| Lebanon | 396 | (3.7) | 389 | 403 |
| Colombia | 390 | (2.3) | 385 | 394 |
| Peru | 387 | (2.7) | 381 | 392 |
| Indonesia | 386 | (3.1) | 380 | 392 |
| Jordan | 380 | (2.7) | 375 | 385 |
| Brazil | 377 | (2.9) | 371 | 383 |
| Republic of Macedonia | 371 | (1.3) | 369 | 374 |
| Tunisia | 367 | (3.0) | 361 | 373 |
| Kosovo | 362 | (1.6) | 358 | 365 |
| Algeria | 360 | (3.0) | 354 | 365 |
| Dominican Republic | 328 | (2.7) | 322 | 333 |

*Note:* The OECD average was 490, with a standard error of 0.4. Countries, economies and provinces have been sorted in descending order by average score. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.2.3

### Variation in student performance for countries, economies, and provinces: READING

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| Algeria | 232 | (4.1) | 258 | (4.1) | 301 | (2.6) | 397 | (3.8) | 443 | (4.8) | 472 | (5.4) | 185 |
| Vietnam | 367 | (5.2) | 393 | (4.9) | 438 | (4.3) | 537 | (4.2) | 580 | (5.3) | 605 | (6.2) | 187 |
| Indonesia | 272 | (5.9) | 300 | (5.1) | 346 | (3.7) | 448 | (3.0) | 495 | (3.3) | 522 | (4.0) | 195 |
| Mexico | 292 | (3.8) | 321 | (3.6) | 370 | (3.0) | 478 | (3.2) | 523 | (3.9) | 549 | (4.2) | 202 |
| Kosovo | 215 | (4.3) | 243 | (2.8) | 294 | (2.5) | 403 | (2.3) | 447 | (2.6) | 471 | (3.0) | 204 |
| Costa Rica | 298 | (4.0) | 326 | (3.5) | 374 | (3.0) | 480 | (3.2) | 530 | (3.8) | 560 | (4.8) | 204 |
| Thailand | 281 | (4.0) | 308 | (3.3) | 354 | (3.7) | 463 | (4.2) | 514 | (4.9) | 543 | (5.9) | 206 |
| Kazakhstan | 299 | (4.4) | 325 | (4.1) | 372 | (3.4) | 481 | (4.7) | 533 | (5.3) | 563 | (6.6) | 207 |
| Malaysia | 290 | (5.7) | 322 | (5.0) | 377 | (4.1) | 488 | (3.7) | 531 | (3.9) | 556 | (5.3) | 209 |
| Tunisia | 228 | (6.0) | 257 | (4.7) | 305 | (3.6) | 416 | (3.2) | 467 | (3.6) | 496 | (5.1) | 209 |
| Macao-China | 365 | (3.7) | 399 | (2.6) | 456 | (2.0) | 566 | (2.0) | 610 | (2.8) | 635 | (3.4) | 212 |
| Turkey | 291 | (4.8) | 322 | (4.9) | 372 | (4.4) | 487 | (5.2) | 535 | (5.9) | 561 | (6.1) | 213 |
| **Prince Edward Island** | **367** | **(20.6)** | **404** | **(10.4)** | **461** | **(8.7)** | **575** | **(8.4)** | **622** | **(9.8)** | **648** | **(14.1)** | **218** |
| Hong Kong-China | 372 | (5.6) | 412 | (4.5) | 473 | (3.7) | 587 | (2.5) | 632 | (3.1) | 656 | (3.5) | 220 |
| Dominican Republic | 226 | (4.5) | 250 | (3.8) | 297 | (3.5) | 416 | (4.1) | 471 | (5.1) | 503 | (5.8) | 220 |
| Latvia | 341 | (3.8) | 374 | (3.4) | 431 | (3.0) | 548 | (2.0) | 595 | (2.5) | 621 | (3.6) | 221 |
| **Saskatchewan** | **355** | **(7.3)** | **384** | **(5.9)** | **437** | **(5.4)** | **556** | **(4.7)** | **605** | **(4.5)** | **633** | **(5.8)** | **222** |
| Ireland | 373 | (4.6) | 406 | (4.1) | 463 | (3.1) | 582 | (2.7) | 629 | (2.8) | 657 | (4.1) | 222 |
| Spain | 343 | (4.5) | 379 | (3.9) | 438 | (3.3) | 558 | (2.7) | 603 | (2.9) | 629 | (3.5) | 224 |
| Denmark | 347 | (4.1) | 383 | (4.3) | 443 | (3.2) | 561 | (2.6) | 608 | (3.4) | 635 | (3.6) | 225 |
| Estonia | 369 | (4.2) | 404 | (4.0) | 460 | (2.8) | 581 | (2.6) | 630 | (2.9) | 659 | (3.2) | 226 |
| Russian Federation | 350 | (4.4) | 381 | (3.9) | 434 | (3.9) | 556 | (3.5) | 608 | (3.5) | 637 | (3.7) | 227 |
| **Nova Scotia** | **366** | **(9.4)** | **401** | **(8.4)** | **458** | **(5.9)** | **579** | **(5.3)** | **628** | **(6.5)** | **657** | **(8.6)** | **228** |
| **British Columbia** | **381** | **(8.7)** | **419** | **(7.6)** | **477** | **(6.1)** | **597** | **(7.0)** | **648** | **(7.1)** | **678** | **(6.9)** | **229** |
| **Newfoundland and Labrador** | **353** | **(9.7)** | **387** | **(7.5)** | **448** | **(4.9)** | **567** | **(5.4)** | **616** | **(6.8)** | **641** | **(7.3)** | **229** |
| Chile | 310 | (4.9) | 342 | (3.7) | 398 | (3.3) | 521 | (3.2) | 572 | (3.5) | 599 | (3.7) | 229 |
| Argentina | 277 | (5.5) | 309 | (4.3) | 364 | (4.2) | 487 | (3.6) | 538 | (3.9) | 569 | (4.7) | 230 |
| Poland | 349 | (5.1) | 386 | (3.7) | 446 | (3.5) | 570 | (2.8) | 617 | (3.5) | 644 | (4.6) | 231 |
| Peru | 253 | (3.3) | 281 | (3.2) | 333 | (3.2) | 462 | (3.9) | 514 | (4.5) | 543 | (5.1) | 233 |
| **Quebec** | **368** | **(9.0)** | **410** | **(7.7)** | **474** | **(5.9)** | **596** | **(5.1)** | **644** | **(5.7)** | **672** | **(7.0)** | **234** |
| Colombia | 278 | (4.9) | 308 | (4.4) | 361 | (4.0) | 489 | (3.3) | 542 | (3.1) | 572 | (3.0) | 235 |
| **Alberta** | **377** | **(8.6)** | **412** | **(7.5)** | **474** | **(6.3)** | **597** | **(6.1)** | **647** | **(5.8)** | **675** | **(7.5)** | **235** |
| **Manitoba** | **345** | **(8.8)** | **378** | **(7.5)** | **436** | **(6.8)** | **563** | **(5.3)** | **613** | **(6.4)** | **642** | **(7.4)** | **235** |
| **New Brunswick** | **350** | **(11.0)** | **383** | **(12.0)** | **444** | **(7.8)** | **570** | **(5.4)** | **619** | **(6.3)** | **645** | **(7.0)** | **236** |
| Croatia | 334 | (4.6) | 367 | (4.2) | 424 | (3.8) | 553 | (3.1) | 603 | (3.3) | 632 | (3.6) | 237 |
| Japan | 352 | (7.0) | 391 | (5.8) | 457 | (4.2) | 581 | (3.4) | 629 | (3.7) | 656 | (3.8) | 238 |
| **Canada** | **366** | **(4.3)** | **404** | **(3.6)** | **466** | **(2.8)** | **591** | **(2.4)** | **642** | **(2.7)** | **671** | **(2.8)** | **238** |
| Slovenia | 346 | (4.1) | 382 | (2.7) | 444 | (2.3) | 570 | (2.1) | 621 | (3.4) | 648 | (3.9) | 239 |
| Finland | 359 | (5.4) | 401 | (4.7) | 469 | (3.7) | 592 | (2.7) | 640 | (2.6) | 668 | (3.8) | 239 |
| Portugal | 339 | (4.7) | 374 | (3.7) | 436 | (4.2) | 564 | (2.8) | 614 | (3.1) | 641 | (3.3) | 240 |
| Chinese Taipei | 331 | (4.5) | 371 | (4.2) | 437 | (3.4) | 563 | (3.0) | 611 | (3.8) | 638 | (4.8) | 240 |
| Jordan | 241 | (6.3) | 281 | (5.4) | 348 | (3.7) | 475 | (3.1) | 522 | (2.9) | 549 | (3.1) | 242 |

## Table B.2.3 (cont'd)

### Variation in student performance for countries, economies, and provinces: READING

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| **Ontario** | **364** | **(7.1)** | **401** | **(6.2)** | **465** | **(5.5)** | **593** | **(4.7)** | **645** | **(4.5)** | **675** | **(5.8)** | **244** |
| Italy | 323 | (4.8) | 359 | (4.2) | 421 | (3.7) | 552 | (3.1) | 602 | (2.9) | 631 | (3.5) | 244 |
| Montenegro | 271 | (3.5) | 304 | (2.5) | 361 | (2.5) | 493 | (2.4) | 549 | (2.8) | 581 | (3.0) | 245 |
| Romania | 276 | (6.3) | 310 | (5.4) | 370 | (5.0) | 499 | (4.7) | 555 | (5.4) | 588 | (6.1) | 245 |
| Lithuania | 312 | (4.6) | 347 | (3.5) | 407 | (3.0) | 541 | (3.6) | 593 | (4.4) | 622 | (3.7) | 246 |
| United Kingdom | 336 | (4.4) | 372 | (4.0) | 432 | (3.2) | 565 | (3.0) | 621 | (3.6) | 653 | (4.1) | 249 |
| Albania | 244 | (5.1) | 279 | (5.2) | 340 | (4.7) | 472 | (4.7) | 528 | (5.2) | 561 | (5.6) | 250 |
| Korea | 345 | (7.3) | 386 | (5.6) | 455 | (4.4) | 586 | (3.9) | 637 | (4.3) | 666 | (4.1) | 251 |
| Moldova | 253 | (4.2) | 289 | (3.7) | 349 | (3.1) | 485 | (3.3) | 541 | (4.1) | 574 | (5.0) | 252 |
| Uruguay | 280 | (3.7) | 311 | (3.1) | 368 | (3.3) | 504 | (3.1) | 563 | (4.6) | 597 | (5.5) | 252 |
| Switzerland | 322 | (5.6) | 360 | (5.0) | 426 | (4.0) | 563 | (3.6) | 614 | (3.6) | 643 | (3.7) | 254 |
| Hungary | 306 | (5.3) | 338 | (4.2) | 399 | (3.9) | 541 | (3.1) | 593 | (3.2) | 620 | (3.4) | 255 |
| Norway | 342 | (5.2) | 381 | (4.0) | 449 | (3.3) | 583 | (2.9) | 636 | (3.0) | 666 | (3.7) | 255 |
| Greece | 296 | (7.6) | 334 | (8.2) | 400 | (6.1) | 539 | (3.6) | 590 | (3.7) | 618 | (3.8) | 256 |
| Iceland | 310 | (4.9) | 350 | (4.3) | 417 | (3.2) | 552 | (2.6) | 607 | (4.0) | 638 | (5.0) | 256 |
| Singapore | 362 | (4.4) | 400 | (3.7) | 470 | (2.6) | 607 | (2.0) | 657 | (2.6) | 686 | (3.3) | 257 |
| Republic of Macedonia | 187 | (3.7) | 222 | (3.3) | 284 | (2.4) | 421 | (2.2) | 480 | (3.3) | 513 | (4.3) | 258 |
| Germany | 334 | (5.2) | 375 | (5.3) | 442 | (3.8) | 581 | (3.1) | 634 | (3.4) | 664 | (3.2) | 258 |
| United States | 326 | (6.0) | 364 | (5.4) | 430 | (4.7) | 568 | (3.9) | 624 | (3.8) | 655 | (3.7) | 259 |
| Brazil | 247 | (3.4) | 279 | (2.8) | 336 | (3.0) | 477 | (3.2) | 539 | (3.9) | 576 | (4.6) | 260 |
| Sweden | 321 | (6.0) | 364 | (4.6) | 433 | (4.4) | 573 | (3.8) | 625 | (3.6) | 655 | (4.4) | 262 |
| The Netherlands | 330 | (5.3) | 368 | (4.6) | 434 | (4.0) | 577 | (2.8) | 630 | (3.1) | 658 | (3.5) | 262 |
| Czech Republic | 315 | (5.7) | 352 | (4.8) | 418 | (4.0) | 559 | (2.8) | 614 | (3.5) | 645 | (3.6) | 262 |
| Belgium | 323 | (3.8) | 360 | (3.9) | 429 | (3.8) | 573 | (2.2) | 623 | (2.5) | 650 | (2.9) | 263 |
| Austria | 308 | (5.1) | 347 | (5.1) | 417 | (4.0) | 559 | (3.1) | 611 | (3.0) | 641 | (3.5) | 265 |
| Australia | 324 | (3.0) | 365 | (2.7) | 435 | (2.4) | 576 | (2.0) | 631 | (2.2) | 662 | (2.6) | 265 |
| Georgia | 226 | (5.7) | 266 | (4.2) | 332 | (3.9) | 474 | (3.3) | 533 | (4.5) | 568 | (4.9) | 268 |
| Cyprus | 268 | (3.7) | 305 | (2.7) | 372 | (2.8) | 516 | (2.6) | 573 | (3.4) | 606 | (4.2) | 269 |
| Trinidad and Tobago | 256 | (4.4) | 291 | (3.2) | 353 | (2.8) | 502 | (2.3) | 561 | (3.5) | 596 | (4.6) | 270 |
| Slovak Republic | 269 | (6.5) | 312 | (4.6) | 382 | (4.1) | 528 | (3.1) | 583 | (3.2) | 613 | (4.1) | 271 |
| New Zealand | 327 | (4.8) | 368 | (4.5) | 439 | (3.6) | 584 | (3.3) | 643 | (4.3) | 674 | (4.4) | 274 |
| United Arab Emirates | 258 | (3.9) | 295 | (3.9) | 359 | (3.5) | 509 | (3.4) | 572 | (3.1) | 605 | (3.2) | 277 |
| Luxembourg | 299 | (3.3) | 336 | (2.9) | 405 | (2.1) | 561 | (2.1) | 616 | (2.5) | 647 | (3.8) | 279 |
| BSJG-China | 304 | (8.7) | 346 | (7.2) | 420 | (6.1) | 573 | (5.7) | 630 | (6.3) | 661 | (7.3) | 283 |
| Qatar | 221 | (2.2) | 256 | (1.8) | 321 | (1.8) | 483 | (2.2) | 547 | (2.2) | 581 | (2.7) | 291 |
| France | 299 | (6.6) | 344 | (5.7) | 423 | (3.7) | 583 | (3.1) | 637 | (3.0) | 666 | (3.6) | 293 |
| Israel | 284 | (7.1) | 326 | (5.8) | 401 | (5.1) | 562 | (4.3) | 621 | (4.3) | 655 | (5.1) | 295 |
| Bulgaria | 241 | (6.2) | 277 | (6.6) | 347 | (7.0) | 517 | (5.5) | 578 | (5.0) | 611 | (5.4) | 300 |
| Lebanon | 167 | (5.5) | 203 | (5.8) | 265 | (4.9) | 426 | (6.2) | 503 | (7.0) | 546 | (7.6) | 301 |
| Malta | 236 | (5.6) | 284 | (4.9) | 366 | (3.7) | 533 | (2.7) | 595 | (3.1) | 631 | (3.8) | 311 |
| **OECD average** | **326** | **(0.9)** | **364** | **(0.8)** | **428** | **(0.6)** | **561** | **(0.5)** | **613** | **(0.6)** | **642** | **(0.7)** | **249** |

*Note:* Countries, economies, and provinces have been sorted in ascending order by the difference in score points between the 10th and 90th percentiles. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.2.4

### Variation in student performance for countries, economies, and provinces: MATHEMATICS

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| Costa Rica | 292 | (2.7) | 315 | (2.9) | 353 | (2.5) | 445 | (3.0) | 489 | (4.2) | 517 | (5.0) | 174 |
| Dominican Republic | 220 | (4.3) | 243 | (3.9) | 281 | (3.2) | 373 | (3.6) | 418 | (4.7) | 446 | (7.0) | 175 |
| Algeria | 247 | (4.2) | 271 | (3.8) | 312 | (3.0) | 405 | (3.6) | 452 | (4.4) | 481 | (5.2) | 181 |
| Mexico | 284 | (4.1) | 312 | (2.6) | 357 | (2.5) | 459 | (2.9) | 505 | (3.5) | 533 | (3.6) | 193 |
| Kosovo | 238 | (3.5) | 265 | (2.9) | 310 | (2.3) | 413 | (2.6) | 460 | (4.2) | 487 | (4.3) | 195 |
| **Prince Edward Island** | **375** | **(11.5)** | **401** | **(10.7)** | **446** | **(8.6)** | **550** | **(9.4)** | **599** | **(11.2)** | **624** | **(12.7)** | **198** |
| Colombia | 269 | (3.7) | 293 | (3.1) | 335 | (2.9) | 441 | (2.7) | 492 | (3.3) | 522 | (3.8) | 199 |
| Latvia | 353 | (4.4) | 382 | (3.0) | 430 | (2.7) | 536 | (2.1) | 582 | (2.9) | 608 | (3.1) | 200 |
| Indonesia | 264 | (4.1) | 289 | (4.1) | 331 | (3.5) | 436 | (3.9) | 492 | (5.4) | 528 | (6.2) | 203 |
| Macao-China | 408 | (4.4) | 439 | (2.4) | 491 | (1.7) | 599 | (1.9) | 643 | (2.5) | 669 | (4.0) | 204 |
| Ireland | 371 | (4.4) | 400 | (3.8) | 450 | (2.7) | 559 | (2.2) | 606 | (2.6) | 633 | (2.7) | 206 |
| Malaysia | 315 | (4.4) | 343 | (3.9) | 391 | (3.4) | 501 | (3.9) | 549 | (4.5) | 577 | (5.3) | 207 |
| Argentina | 280 | (4.3) | 306 | (3.4) | 354 | (3.5) | 463 | (3.7) | 514 | (4.1) | 545 | (4.7) | 207 |
| Thailand | 286 | (4.1) | 313 | (3.7) | 360 | (3.1) | 468 | (4.0) | 521 | (5.2) | 555 | (6.3) | 208 |
| Estonia | 386 | (3.7) | 415 | (3.1) | 464 | (2.6) | 576 | (2.6) | 623 | (2.7) | 650 | (3.4) | 209 |
| Denmark | 376 | (3.3) | 405 | (3.2) | 457 | (2.9) | 567 | (2.5) | 614 | (2.9) | 639 | (3.5) | 209 |
| **Saskatchewan** | **350** | **(7.9)** | **379** | **(6.8)** | **428** | **(4.4)** | **542** | **(4.5)** | **589** | **(5.2)** | **618** | **(5.4)** | **210** |
| **Newfoundland and Labrador** | **348** | **(7.6)** | **379** | **(6.9)** | **432** | **(4.5)** | **542** | **(4.6)** | **589** | **(6.2)** | **617** | **(6.9)** | **210** |
| Finland | 372 | (5.1) | 404 | (3.8) | 456 | (3.1) | 568 | (2.4) | 614 | (2.9) | 642 | (3.5) | 210 |
| Kazakhstan | 329 | (5.8) | 357 | (4.9) | 403 | (4.7) | 513 | (5.1) | 567 | (6.3) | 600 | (7.4) | 211 |
| **Nova Scotia** | **360** | **(8.3)** | **390** | **(7.2)** | **440** | **(5.3)** | **554** | **(5.1)** | **602** | **(7.2)** | **632** | **(6.6)** | **211** |
| Peru | 254 | (3.5) | 283 | (2.6) | 329 | (2.7) | 442 | (4.0) | 495 | (4.3) | 526 | (4.5) | 212 |
| Turkey | 291 | (4.8) | 317 | (3.9) | 363 | (3.8) | 477 | (6.0) | 529 | (6.3) | 559 | (7.5) | 212 |
| Tunisia | 235 | (4.7) | 263 | (4.6) | 310 | (3.3) | 421 | (3.6) | 476 | (5.0) | 510 | (7.2) | 213 |
| Russian Federation | 357 | (5.5) | 387 | (4.6) | 437 | (3.4) | 552 | (3.4) | 601 | (3.8) | 629 | (4.2) | 214 |
| **Manitoba** | **354** | **(8.6)** | **382** | **(7.4)** | **433** | **(5.2)** | **545** | **(5.4)** | **597** | **(6.7)** | **624** | **(8.5)** | **214** |
| Vietnam | 361 | (5.9) | 388 | (5.4) | 436 | (4.7) | 551 | (4.9) | 604 | (6.9) | 636 | (8.3) | 215 |
| Jordan | 238 | (6.1) | 271 | (4.0) | 324 | (3.2) | 439 | (3.2) | 489 | (3.2) | 519 | (3.9) | 219 |
| **British Columbia** | **380** | **(8.5)** | **412** | **(6.0)** | **465** | **(6.2)** | **580** | **(5.7)** | **631** | **(6.5)** | **663** | **(7.8)** | **219** |
| Norway | 359 | (4.0) | 391 | (3.4) | 444 | (2.5) | 561 | (2.7) | 610 | (3.0) | 638 | (3.0) | 219 |
| Spain | 342 | (3.8) | 374 | (3.4) | 428 | (2.8) | 546 | (2.5) | 593 | (3.3) | 621 | (3.7) | 220 |
| Chile | 284 | (4.0) | 313 | (3.5) | 363 | (2.9) | 483 | (3.5) | 534 | (3.6) | 563 | (3.7) | 221 |
| Albania | 272 | (5.7) | 303 | (4.3) | 354 | (4.0) | 472 | (4.2) | 525 | (4.4) | 556 | (5.0) | 221 |
| **New Brunswick** | **351** | **(10.7)** | **380** | **(9.3)** | **432** | **(6.4)** | **553** | **(5.4)** | **602** | **(6.8)** | **628** | **(7.3)** | **223** |
| **Alberta** | **365** | **(8.0)** | **398** | **(6.5)** | **453** | **(5.8)** | **571** | **(5.3)** | **621** | **(5.6)** | **650** | **(6.2)** | **223** |
| Romania | 305 | (5.1) | 334 | (4.6) | 384 | (4.3) | 502 | (4.6) | 557 | (5.4) | 590 | (5.9) | 223 |
| Montenegro | 279 | (3.5) | 308 | (2.8) | 358 | (2.2) | 477 | (2.4) | 531 | (2.3) | 563 | (3.3) | 223 |
| **Ontario** | **365** | **(5.6)** | **395** | **(5.2)** | **450** | **(5.2)** | **570** | **(4.7)** | **619** | **(5.4)** | **649** | **(6.3)** | **224** |
| Uruguay | 281 | (3.5) | 309 | (2.7) | 357 | (3.3) | 477 | (3.4) | 532 | (3.6) | 565 | (5.2) | 224 |
| Lithuania | 337 | (3.8) | 365 | (3.8) | 419 | (3.0) | 539 | (2.9) | 590 | (3.5) | 620 | (4.0) | 225 |
| Poland | 363 | (4.5) | 391 | (4.1) | 443 | (3.0) | 565 | (3.0) | 617 | (3.6) | 649 | (4.8) | 226 |
| **Quebec** | **392** | **(7.0)** | **426** | **(6.0)** | **486** | **(5.8)** | **606** | **(6.0)** | **652** | **(6.5)** | **681** | **(6.9)** | **227** |

## Table B.2.4 (cont'd)

### Variation in student performance for countries, economies, and provinces: MATHEMATICS

| Country, economy, or province | Percentiles | | | | | | | | | | | | Difference in score points between the 10th and 90th percentiles |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5th | | 10th | | 25th | | 75th | | 90th | | 95th | | |
| | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | Score | Standard error | |
| Japan | 381 | (5.6) | 416 | (4.4) | 474 | (3.5) | 594 | (3.5) | 643 | (4.2) | 672 | (5.4) | 227 |
| **Canada** | **368** | **(3.7)** | **400** | **(3.2)** | **456** | **(2.9)** | **577** | **(2.6)** | **627** | **(3.2)** | **657** | **(3.6)** | **227** |
| Slovenia | 363 | (3.5) | 394 | (2.5) | 449 | (2.1) | 572 | (1.9) | 622 | (3.0) | 651 | (4.1) | 228 |
| Brazil | 240 | (3.0) | 267 | (3.3) | 315 | (3.1) | 434 | (3.7) | 496 | (4.7) | 533 | (5.5) | 229 |
| Croatia | 322 | (4.6) | 351 | (4.2) | 402 | (3.7) | 525 | (3.3) | 580 | (3.6) | 612 | (4.5) | 229 |
| United States | 323 | (4.7) | 355 | (3.9) | 408 | (3.9) | 532 | (3.5) | 585 | (4.2) | 613 | (5.0) | 230 |
| Germany | 356 | (4.9) | 389 | (4.1) | 445 | (3.5) | 568 | (3.4) | 620 | (3.4) | 650 | (3.9) | 230 |
| Hong Kong-China | 389 | (5.8) | 426 | (5.0) | 490 | (4.3) | 611 | (2.8) | 659 | (3.5) | 687 | (4.6) | 232 |
| Sweden | 342 | (5.0) | 376 | (4.4) | 433 | (3.8) | 557 | (4.0) | 609 | (3.9) | 638 | (4.7) | 233 |
| Moldova | 271 | (4.8) | 303 | (3.7) | 358 | (3.4) | 482 | (3.3) | 536 | (4.1) | 568 | (4.2) | 233 |
| Greece | 306 | (5.7) | 336 | (5.3) | 391 | (5.0) | 517 | (4.0) | 570 | (3.7) | 598 | (4.2) | 234 |
| Czech Republic | 340 | (4.8) | 373 | (4.2) | 431 | (3.4) | 555 | (2.9) | 608 | (3.6) | 639 | (4.4) | 235 |
| The Netherlands | 356 | (3.9) | 390 | (3.9) | 449 | (3.3) | 579 | (2.4) | 627 | (3.1) | 655 | (3.6) | 237 |
| New Zealand | 342 | (3.8) | 375 | (3.8) | 431 | (3.2) | 560 | (2.8) | 613 | (3.1) | 646 | (4.4) | 238 |
| United Kingdom | 337 | (4.3) | 371 | (3.7) | 430 | (3.2) | 556 | (3.1) | 610 | (3.1) | 641 | (4.0) | 239 |
| Georgia | 250 | (4.9) | 285 | (4.3) | 341 | (3.6) | 467 | (3.4) | 525 | (4.7) | 559 | (6.3) | 240 |
| Italy | 334 | (4.7) | 368 | (3.8) | 426 | (3.3) | 555 | (3.6) | 610 | (3.8) | 640 | (4.4) | 241 |
| Iceland | 333 | (3.9) | 367 | (3.6) | 424 | (3.0) | 553 | (2.7) | 608 | (4.0) | 640 | (4.3) | 241 |
| Cyprus | 286 | (3.4) | 317 | (3.5) | 373 | (2.2) | 501 | (2.2) | 558 | (3.0) | 590 | (3.9) | 241 |
| Australia | 339 | (2.8) | 371 | (2.5) | 430 | (2.0) | 559 | (2.1) | 613 | (2.8) | 645 | (3.3) | 242 |
| Luxembourg | 334 | (2.8) | 363 | (2.2) | 417 | (2.1) | 553 | (2.0) | 607 | (2.5) | 638 | (3.7) | 244 |
| Republic of Macedonia | 217 | (4.5) | 251 | (3.0) | 306 | (2.0) | 434 | (2.4) | 496 | (3.4) | 533 | (4.4) | 245 |
| Hungary | 321 | (4.0) | 351 | (4.1) | 411 | (3.7) | 543 | (3.2) | 598 | (3.5) | 627 | (4.0) | 246 |
| Singapore | 399 | (2.8) | 436 | (2.6) | 500 | (2.4) | 632 | (1.6) | 682 | (2.4) | 711 | (3.4) | 247 |
| Austria | 337 | (5.7) | 370 | (4.5) | 431 | (3.9) | 564 | (3.4) | 618 | (3.7) | 648 | (4.2) | 247 |
| Slovak Republic | 312 | (5.4) | 349 | (4.2) | 412 | (3.9) | 543 | (2.8) | 596 | (3.3) | 625 | (3.9) | 247 |
| Switzerland | 358 | (5.1) | 394 | (4.4) | 455 | (3.9) | 590 | (3.4) | 641 | (3.4) | 671 | (3.9) | 247 |
| Portugal | 332 | (4.4) | 365 | (3.8) | 424 | (3.1) | 561 | (2.8) | 614 | (3.6) | 644 | (4.1) | 249 |
| France | 331 | (4.5) | 364 | (3.9) | 425 | (3.3) | 564 | (2.6) | 613 | (2.7) | 639 | (3.3) | 249 |
| United Arab Emirates | 275 | (3.8) | 306 | (3.3) | 360 | (2.9) | 493 | (3.2) | 557 | (3.5) | 593 | (3.6) | 251 |
| Trinidad and Tobago | 265 | (3.6) | 294 | (3.0) | 348 | (2.4) | 484 | (2.1) | 545 | (3.3) | 578 | (3.5) | 251 |
| Bulgaria | 284 | (5.6) | 315 | (5.2) | 371 | (4.7) | 509 | (4.9) | 568 | (5.6) | 601 | (5.8) | 253 |
| Belgium | 341 | (4.4) | 374 | (3.9) | 438 | (3.5) | 579 | (2.5) | 630 | (2.5) | 657 | (2.7) | 255 |
| Korea | 353 | (5.9) | 391 | (5.5) | 458 | (4.5) | 594 | (4.2) | 649 | (4.3) | 681 | (4.8) | 258 |
| Qatar | 248 | (2.6) | 278 | (2.0) | 331 | (1.8) | 470 | (1.6) | 536 | (2.0) | 573 | (2.8) | 258 |
| Lebanon | 236 | (5.5) | 268 | (5.2) | 324 | (4.7) | 464 | (4.6) | 531 | (5.5) | 568 | (6.2) | 263 |
| Chinese Taipei | 364 | (4.4) | 404 | (4.2) | 474 | (3.6) | 616 | (3.6) | 670 | (4.6) | 701 | (6.2) | 266 |
| Israel | 296 | (5.3) | 332 | (4.7) | 396 | (4.3) | 545 | (4.3) | 601 | (4.9) | 634 | (6.1) | 269 |
| BSJG-China | 351 | (6.7) | 388 | (5.9) | 458 | (5.9) | 609 | (5.8) | 664 | (5.6) | 695 | (6.2) | 276 |
| Malta | 289 | (5.9) | 331 | (3.5) | 405 | (2.5) | 558 | (2.5) | 616 | (3.0) | 648 | (4.3) | 285 |
| **OECD average** | **340** | **(0.8)** | **373** | **(0.7)** | **428** | **(0.6)** | **553** | **(0.5)** | **605** | **(0.6)** | **634** | **(0.7)** | **232** |

*Note:* Countries, economies, and provinces have been sorted in ascending order by the difference in score points between the 10th and 90th percentiles. BSJG-China represents Beijing, Shanghai, Jiangsu, and Guangdong. The coverage of Argentina, Kazakhstan, and Malaysia is too small to ensure comparability. See OECD, *PISA 2015 Results* for a note regarding Cyprus.

## Table B.2.5

### Estimated average scores by language of the school system for Canada and the provinces: READING

| | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **527** | **(2.7)** | **526** | **(4.7)** | **1** | **(5.6)** |
| Nova Scotia | 519 | (5.1) | 462 | (7.6) | 57* | (9.2) |
| New Brunswick | 509 | (6.6) | 493 | (6.3) | 16 | (8.7) |
| Quebec | 523 | (6.0) | 533 | (5.3) | -10 | (8.3) |
| Ontario | 529 | (4.5) | 476 | (5.0) | 54* | (6.4) |
| Manitoba | 501 | (5.3) | 461 | (8.1) | 40* | (9.6) |
| Alberta | 534 | (5.2) | 487 | (12.6) | 46* | (14.5) |
| British Columbia | 536 | (5.6) | 516 | (14.9) | 20 | (14.6) |

* Statistically significant differences.

## Table B.2.6

### Estimated average scores by language of the school system for Canada and the provinces: MATHEMATICS

| | Anglophone school system | | Francophone school system | | Difference between systems | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **509** | **(2.6)** | **542** | **(5.0)** | **-34*** | **(5.5)** |
| Nova Scotia | 497 | (4.7) | 491 | (8.3) | 7 | (8.7) |
| New Brunswick | 488 | (5.8) | 505 | (7.3) | -17* | (8.5) |
| Quebec | 505 | (6.7) | 549 | (5.4) | -44* | (9.0) |
| Ontario | 510 | (4.4) | 496 | (6.5) | 14 | (7.8) |
| Manitoba | 489 | (4.5) | 482 | (8.9) | 8 | (10.7) |
| Alberta | 512 | (4.7) | 503 | (12.4) | 8 | (12.8) |
| British Columbia | 522 | (5.0) | 531 | (16.0) | -9 | (16.9) |

* Statistically significant differences.

## Table B.2.7

### Estimated average scores by gender for Canada and the provinces: READING

| | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **540** | **(2.5)** | **514** | **(2.6)** | **26*** | **(2.1)** |
| Newfoundland and Labrador | 514 | (4.5) | 496 | (5.3) | 18* | (6.8) |
| Prince Edward Island | 534 | (6.3) | 497 | (8.3) | 36* | (8.6) |
| Nova Scotia | 531 | (5.3) | 503 | (6.0) | 28* | (5.5) |
| New Brunswick | 518 | (4.9) | 494 | (7.0) | 24* | (6.6) |
| Quebec | 541 | (5.0) | 522 | (5.9) | 19* | (5.7) |
| Ontario | 542 | (4.7) | 512 | (4.8) | 30* | (3.7) |
| Manitoba | 512 | (6.2) | 486 | (5.4) | 26* | (5.8) |
| Saskatchewan | 508 | (4.5) | 485 | (4.0) | 23* | (4.7) |
| Alberta | 545 | (6.1) | 521 | (5.2) | 24* | (4.8) |
| British Columbia | 549 | (5.3) | 522 | (6.9) | 27* | (4.9) |

* Statistically significant differences.

## Table B.2.8

### Estimated average scores by gender for Canada and the provinces: MATHEMATICS

| | Females | | Males | | Difference (female-male) | |
|---|---|---|---|---|---|---|
| **Canada and provinces** | **Average** | **Standard error** | **Average** | **Standard error** | **Difference** | **Standard error** |
| **Canada** | **511** | **(2.6)** | **520** | **(2.9)** | **-9*** | **(2.8)** |
| Newfoundland and Labrador | 477 | (3.8) | 494 | (5.0) | -17* | (6.3) |
| Prince Edward Island | 499 | (7.1) | 499 | (8.9) | 0 | (9.7) |
| Nova Scotia | 494 | (4.8) | 500 | (5.7) | -6 | (5.3) |
| New Brunswick | 490 | (4.8) | 495 | (6.8) | -5 | (6.1) |
| Quebec | 538 | (5.2) | 550 | (5.7) | -13* | (5.2) |
| Ontario | 505 | (4.7) | 514 | (4.7) | -8* | (4.2) |
| Manitoba | 485 | (5.4) | 493 | (4.6) | -8 | (5.5) |
| Saskatchewan | 479 | (4.1) | 489 | (3.9) | -10 | (5.5) |
| Alberta | 506 | (5.2) | 517 | (5.2) | -11* | (4.4) |
| British Columbia | 517 | (5.2) | 527 | (6.0) | -10* | (4.9) |

* Statistically significant differences.

## Table B.2.9a

### Comparisons of performance, PISA 2000, 2003, 2006, 2009, and 2012, Canada and the provinces: READING

| | 2000 | | 2003 | | 2006 | | 2009 | | 2012 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Canada and provinces | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error |
| **Canada** | **534** | **(1.6)** | **528** | **(5.6)** | **527** | **(5.5)** | **524** | **(5.2)** | **523** | **(6.2)** | **527** | **(7.2)** |
| Newfoundland and Labrador | 517 | (2.8) | 521 | (6.2) | 514 | (5.9) | 506 | (6.1) | 503 | (7.0) | 505 | (7.6) |
| Prince Edward Island | 517 | (2.4) | 495* | (5.8) | 497* | (5.7) | 486* | (5.5) | 490* | (6.5) | 515 | (9.1) |
| Nova Scotia | 521 | (2.3) | 513 | (5.8) | 505* | (6.1) | 516 | (5.6) | 508 | (6.7) | 517 | (8.4) |
| New Brunswick | 501 | (1.8) | 503 | (5.6) | 497 | (5.5) | 499 | (5.5) | 497 | (6.5) | 505 | (8.6) |
| Quebec | 536 | (3.0) | 525 | (6.8) | 522 | (7.1) | 522* | (5.8) | 520* | (6.9) | 532 | (8.3) |
| Ontario | 533 | (3.3) | 530 | (6.4) | 534 | (6.8) | 531 | (5.8) | 528 | (7.4) | 527 | (8.1) |
| Manitoba | 529 | (3.5) | 520 | (6.3) | 516 | (6.1) | 495* | (6.1) | 495* | (6.8) | 498* | (8.4) |
| Saskatchewan | 529 | (2.7) | 512* | (6.8) | 507* | (6.5) | 504* | (6.0) | 505* | (6.5) | 496* | (7.7) |
| Alberta | 550 | (3.3) | 543 | (6.8) | 535* | (6.5) | 533* | (6.8) | 525* | (7.2) | 533 | (8.6) |
| British Columbia | 538 | (2.9) | 535 | (5.9) | 528 | (7.5) | 525 | (6.5) | 535 | (7.4) | 536 | (8.8) |

* Statistically significant differences compared with PISA 2000.

*Note:* The linkage error is incorporated into the standard error for 2003, 2006, 2009, 2012, and 2015. Also, for some provinces, the standard errors from 2000 to 2003, to 2006, and to 2009 differ from those in the previous PISA reports on trend results. These differences result from the change of the method used by the OECD to compute the linkage error.

## Table B.2.9b

### Comparisons of performance, PISA 2009 and 2012, Canada and the provinces: READING

| | 2009 | | 2012 | | 2015 | |
|---|---|---|---|---|---|---|
| Canada and provinces | Average | Standard error | Average | Standard error | Difference | Standard error |
| **Canada** | **524** | **(1.5)** | **523** | **(3.2)** | **527** | **(4.1)** |
| Newfoundland and Labrador | 506 | (3.7) | 503 | (4.5) | 505 | (4.9) |
| Prince Edward Island | 486 | (2.4) | 490 | (3.7) | 515* | (7.0) |
| Nova Scotia | 516 | (2.7) | 508 | (4.0) | 517 | (6.0) |
| New Brunswick | 499 | (2.5) | 497 | (3.7) | 505 | (6.3) |
| Quebec | 522 | (3.1) | 520 | (4.4) | 532 | (5.8) |
| Ontario | 531 | (3.0) | 528 | (5.1) | 527 | (5.6) |
| Manitoba | 495 | (3.6) | 495 | (4.2) | 498 | (6.0) |
| Saskatchewan | 504 | (3.3) | 505 | (3.8) | 496 | (4.9) |
| Alberta | 533 | (4.6) | 525 | (4.8) | 533 | (6.2) |
| British Columbia | 525 | (4.2) | 535 | (5.2) | 536 | (6.5) |

* Statistically significant differences compared with PISA 2009.

*Note:* The linkage error is incorporated into the standard error for 2012 and 2015.

## Table B.2.10a

### Comparisons of performance, PISA 2003, 2006, 2009, and 2012, Canada and the provinces: MATHEMATICS

| | 2003 | | 2006 | | 2009 | | 2012 | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Canada and provinces | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error | Average | Standard error |
| **Canada** | **532** | **(1.8)** | **527** | **(2.4)** | **527** | **(2.6)** | **518*** | **(2.7)** | **516*** | **(6.1)** |
| Newfoundland and Labrador | 517 | (2.5) | 507* | (2.8) | 503* | (3.5) | 490* | (4.2) | 486* | (6.4) |
| Prince Edward Island | 500 | (2.0) | 501 | (2.7) | 487* | (3.0) | 479* | (3.2) | 499 | (8.5) |
| Nova Scotia | 515 | (2.2) | 506* | (2.6) | 512 | (3.0) | 497* | (4.5) | 497* | (7.2) |
| New Brunswick | 511 | (1.4) | 506 | (2.5) | 504* | (3.0) | 502* | (3.2) | 493* | (7.5) |
| Quebec | 536 | (4.5) | 540 | (4.4) | 543 | (4.0) | 536 | (3.9) | 544 | (7.4) |
| Ontario | 530 | (3.6) | 526 | (3.9) | 526 | (3.8) | 514* | (4.5) | 509* | (7.0) |
| Manitoba | 528 | (3.1) | 521 | (3.5) | 501* | (4.1) | 492* | (3.5) | 489* | (7.0) |
| Saskatchewan | 516 | (3.9) | 507 | (3.6) | 506 | (3.8) | 506 | (3.6) | 484* | (6.3) |
| Alberta | 549 | (4.3) | 530* | (4.0) | 529* | (4.8) | 517* | (5.0) | 511* | (7.3) |
| British Columbia | 538 | (2.4) | 523* | (4.6) | 523* | (5.0) | 522* | (4.8) | 522* | (7.5) |

* Statistically significant differences compared with PISA 2003.

*Note:* The linkage error is incorporated into the standard error for 2006, 2009, 2012, and 2015. Also, for some provinces, the standard errors from 2003 to 2006 and to 2009 differ from those in the previous PISA reports on trend results. These differences result from the change of the method used by the OECD to compute the linkage error.

## Table B.2.10b

### Comparisons of performance, PISA 2012, Canada and the provinces: MATHEMATICS

| | 2012 | | 2015 | |
|---|---|---|---|---|
| Canada and provinces | Average | Standard error | difference | Standard error |
| **Canada** | **518** | **(1.8)** | **516** | **(4.2)** |
| Newfoundland and Labrador | 490 | (3.7) | 486 | (4.8) |
| Prince Edward Island | 479 | (2.5) | 499* | (7.3) |
| Nova Scotia | 497 | (4.1) | 497 | (5.8) |
| New Brunswick | 502 | (2.6) | 493 | (6.2) |
| Quebec | 536 | (3.4) | 544 | (5.9) |
| Ontario | 514 | (4.1) | 509 | (5.5) |
| Manitoba | 492 | (2.9) | 489 | (5.5) |
| Saskatchewan | 506 | (3.0) | 484* | (4.6) |
| Alberta | 517 | (4.6) | 511 | (5.9) |
| British Columbia | 522 | (4.4) | 522 | (6.1) |

* Statistically significant differences compared with PISA 2012.

*Note:* The linkage error is incorporated into the standard error for 2015.

## Table B.3.1

### Multiple comparisons of achievement for countries, economies, and provinces: SCIENCE

**Instructions:** Choose a country, economy, or province from the left-hand column. Read across the row to compare its performance with that of Canada and the provinces, listed along the top of the chart. The symbols indicate whether its performance is above, below, or the same as* that of Canada and the provinces. For example, choose Ontario from the left-hand column. Its performance is below that of Alberta, British Columbia, and Quebec; the same as that of Canada, Nova Scotia, and Prince Edward Island; and above that of all other provinces.

* (i.e., any difference is not statistically significant)

▲ Average achievement significantly higher than comparison province or Canada.
Average achievement not significantly different from comparison province or Canada.
▼ Average achievement significantly lower than comparison province or Canada.

| Country, economy, or province | Average | Standard Error | Alberta | British Columbia | Quebec | Canada | Ontario | Nova Scotia | Prince Edward Island | New Brunswick | Newfoundland and Labrador | Manitoba | Saskatchewan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Singapore | 556 | (1.2) | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| **Alberta** | **541** | **(4.0)** | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| **British Columbia** | **539** | **(4.3)** | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Japan | 538 | (3.0) | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| **Quebec** | **537** | **(4.7)** | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Estonia | 534 | (2.1) | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Chinese Taipei | 532 | (2.7) | | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Finland | 531 | (2.4) | ▼ | | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Macao-China | 529 | (1.1) | ▼ | ▼ | | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| **Canada** | **528** | **(2.1)** | ▼ | ▼ | ▼ | | | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ |
| Vietnam | 525 | (3.9) | ▼ | ▼ | ▼ | | | | | ▲ | ▲ | ▲ | ▲ |
| **Ontario** | **524** | **(3.9)** | ▼ | ▼ | ▼ | | | | | ▲ | ▲ | ▲ | ▲ |
| Hong Kong-China | 523 | (2.5) | ▼ | ▼ | ▼ | | | | | ▲ | ▲ | ▲ | ▲ |
| BSJG-China | 518 | (4.6) | ▼ | ▼ | ▼ | | | | | | ▲ | ▲ | ▲ |
| **Nova Scotia** | **517** | **(4.5)** | ▼ | ▼ | ▼ | ▼ | | | | | ▲ | ▲ | ▲ |
| Korea | 516 | (3.1) | ▼ | ▼ | ▼ | ▼ | | | | | ▲ | ▲ | ▲ |
| **Prince Edward Island** | **515** | **(5.4)** | ▼ | ▼ | ▼ | ▼ | | | | | | ▲ | ▲ |
| New Zealand | 513 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | ▲ | ▲ |
| Slovenia | 513 | (1.3) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | ▲ | ▲ | ▲ |
| Australia | 510 | (1.5) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | ▲ | ▲ |
| United Kingdom | 509 | (2.6) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | | ▲ |
| Germany | 509 | (2.7) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | | ▲ |
| The Netherlands | 509 | (2.3) | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | | ▲ |
| **New Brunswick** | **506** | **(4.5)** | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | | |
| **Newfoundland and Labrador** | **506** | **(3.2)** | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | ▲ |
| Switzerland | 506 | (2.9) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | | ▲ |
| Ireland | 503 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| Belgium | 502 | (2.3) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| Denmark | 502 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| Poland | 501 | (2.5) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| Portugal | 501 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| **Manitoba** | **499** | **(4.7)** | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| Norway | 498 | (2.3) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | | | |
| United States | 496 | (3.2) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | ▼ | | |
| **Saskatchewan** | **496** | **(3.1)** | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | ▼ | | |
| Austria | 495 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| France | 495 | (2.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| Sweden | 493 | (3.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| Czech Republic | 493 | (2.3) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| Spain | 493 | (2.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| Latvia | 490 | (1.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | | |
| Russian Federation | 487 | (2.9) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |

## Table B.3.1 (cont'd)

### Multiple comparisons of achievement for countries, economies, and provinces: SCIENCE

**Instructions:** Choose a country, economy, or province from the left-hand column. Read across the row to compare its performance with that of Canada and the provinces, listed along the top of the chart. The symbols indicate whether its performance is above, below, or the same as* that of Canada and the provinces. For example, choose Ontario from the left-hand column. Its performance is below that of Alberta, British Columbia, and Quebec; the same as that of Canada, Nova Scotia, and Prince Edward Island; and above that of all other provinces.

* (i.e., any difference is not statistically significant)

▲ Average achievement significantly higher than comparison province or Canada.
Average achievement not significantly different from comparison province or Canada.
▼ Average achievement significantly lower than comparison province or Canada.

| Country, economy, or province | Average | Standard Error | Alberta | British Columbia | Quebec | Canada | Ontario | Nova Scotia | Prince Edward Island | New Brunswick | Newfoundland and Labrador | Manitoba | Saskatchewan |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Luxembourg | 483 | (1.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Italy | 481 | (2.5) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Hungary | 477 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Lithuania | 475 | (2.7) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Croatia | 475 | (2.5) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Iceland | 473 | (1.7) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Israel | 467 | (3.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Malta | 465 | (1.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Slovak Republic | 461 | (2.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Greece | 455 | (3.9) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Chile | 447 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Bulgaria | 446 | (4.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| United Arab Emirates | 437 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Uruguay | 435 | (2.2) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Romania | 435 | (3.2) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Cyprus | 433 | (1.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Moldova | 428 | (2.0) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Albania | 427 | (3.3) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Turkey | 425 | (3.9) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Trinidad and Tobago | 425 | (1.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Thailand | 421 | (2.8) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Costa Rica | 420 | (2.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Qatar | 418 | (1.0) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Colombia | 416 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Mexico | 416 | (2.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Montenegro | 411 | (1.0) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Georgia | 411 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Jordan | 409 | (2.7) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Indonesia | 403 | (2.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Brazil | 401 | (2.3) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Peru | 397 | (2.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Lebanon | 386 | (3.4) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Tunisia | 386 | (2.1) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Republic of Macedonia | 384 | (1.2) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Kosovo | 378 | (1.7) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Algeria | 376 | (2.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Dominican Republic | 332 | (2.6) | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |

*Note:* Significance tests were not adjusted for multiple comparisons. Five per cent of the comparisons would be statistically significant by chance alone. The results of Argentina, Kazakhstan, and Malaysia are excluded because of insufficient coverage to ensure comparability (see Appendix B.1.2 for these results).

# AGENDA ITEM

| | | | |
|---|---|---|---|
| **Meeting Date:** | December 13, 2016 | **Agenda Item #:** | 9.1 |
| **Topic:** | **SSBA Public Relations Campaign** | | |
| **Intent:** | ☐ Decision ☐ Discussion ☒ Information | | |

**Background:** In light of the announcement by Minister of Education Don Morgan on November 15, 2016, the SSBA has initiated a public relations campaign in support of locally elected Board of Education.

**Current Status:** Information on the SSBA campaign is available at http://saskschoolboards.ca/education-belongs-to-community/

**Pros and Cons:**

**Financial Implications:**

**Governance/Policy Implications:**

**Legal Implications:**

**Communications:**

| Prepared By: | Date: | Attachments: |
|---|---|---|
| Tony Baldwin | December 9, 2016 | |

***Recommendation:***
That the Board review the materials at the URL provided.