

Elections by the Numbers

Interpreting
data on voter
turnout

Elections by the Numbers



Big Idea

Voter turnout changes over time. It is important to understand voter turnout numbers because participation in elections affects our democracy.

Inquiry Question:

How does youth voting compare to that of other age groups?

Overall description

This activity is designed for a mathematics or data management classroom. It can also be used in a language arts or social studies classroom to increase numeracy and media literacy.

Students begin by thinking about trends in their school or community and then make predictions about possible voting trends. In small groups, they review two data sets: a graph showing voter turnout in Canada since Confederation and a table showing data on voter turnout by age from the last four federal elections. Using the table data, they calculate the percentage point change and percent change for each age group. They then create a concept to show the table data effectively.

To consolidate their learning, they explain the rationale for their decision and reflect on the meaning behind the trends.

× Duration

60 min

This lesson has been designed to be completed in one class period. If you use the optional extension activities, you will probably need more time.

× Competencies and skills

- Students will work collaboratively.
- Students will apply analytical, problem-solving and reasoning skills to understand and interpret election data by:
 - analyzing voter turnout data over time,
 - comparing voter turnout data by age groups, and
 - predicting future voting patterns.
- Students will create a model to accurately analyze, translate and represent data.
- Students will use their creativity and communication skills to illustrate their thinking by collaboratively designing an infographic, conceptual map, graph, chart or image. (Students may use technology or draw by hand.)

× Materials

- Graph: Voter turnout at federal elections, 1867–2021 (page 8)
- Table: Voter turnout by age group, 2011–2021 (page 9)
- Activity sheet: Change in voter turnout (page 10)
- Exit cards (page 11)
- Optional assessment rubric (page 12)
- Chart paper/whiteboards, markers and rulers for group work (not included)
- Calculator (not included)



Instructions

× Minds on

5 min

Introduce the idea of change over time with a class discussion on trends. Here are some questions to stimulate discussion:

- What are some trends in our school or community? (e.g., fashion, games, music)
- Do you think there are different trends for different age groups? (e.g., you, your parents, your grandparents) Why?
- How do you know if something is on its way out or on its way in?
- How could you track these trends in a more precise or mathematical way? (e.g., through a survey, poll, observation)

Write students' ideas on the board.

Now introduce the topic of trends in voting. Ask questions such as these:

- What do you think could be some trends in voting behaviours?
- Do you think there are different voting trends for different age groups? Why?
- How might you compare voting trends for different age groups?

× Activity

1. Analyzing a graph

10 min

Show students the graph “Voter turnout at federal elections, 1867–2021.” Display the graph or distribute copies. Have students discuss these questions in pairs or small groups:

- What information is included in the graph? What information is not included?
- What can we observe in the graph?
- What can we conclude from this graph?

2. Interpreting data

30 min

Explain that students will analyze data from the last four federal elections and create a concept to show their response to the inquiry question: How does youth voting compare to that of other age groups?

Distribute and/or display the data table, “Voter turnout by age group, 2011–2021.”

In small groups, students examine and analyze the data to determine what it shows. To help students better understand the meaning behind the data, have them fill out the activity sheet, “Change in voter turnout.” In this handout, students calculate both the percentage point change and the percent change for each age group.



The **percentage point change** is the difference between the recent election value and the older value.

To determine the **percent change**, you must first subtract the old value from the recent value. Then, divide that number by the old value. And finally, multiply your answer by 100.

Once students complete the activity sheet, ask:

- How does this change your thinking about the data?
- How might you choose to represent it?

Students then work together to brainstorm an effective way to represent this data that responds to the inquiry question: How does youth voting compare to that of other age groups?

Give students access to chart paper and/or whiteboards and markers.

They can create any kind of graph, chart, image, infographic, etc. to show the information in an effective way. This should be more of a conceptual activity, rather than an attempt to create a polished finished product.

✕ Consolidation

15 min

Have students share their ideas for how to show the data effectively. This could be done in a jigsaw, a gallery walk or a group presentation to the class. If time is short, you could choose a couple of samples to discuss and share. Here are some possible prompts:

- How did these students address the question, “How does youth voting compare to that of other age groups?”
- What information did they choose to include or exclude?
- Why do you think different age groups vote at different rates?
- What are some factors that could affect voter turnout for different age groups?

Give each student an exit card. Invite them to reflect on the following prompts and then write their responses on the card:

- What is interesting or important to you about the data on youth voting? Explain your thinking.
- Make a prediction about an election 10 years from now. Do you think voting among 18-to-24-year-olds will increase, decrease or stay the same? Explain your thinking.

✖ Optional extension activities

1. Have students work in pairs or individually to create a polished infographic using an application such as Piktochart or Google Drawings to represent their concept. Or students could create a polished infographic by hand.
 2. For a more in-depth analysis of voter turnout by age group, invite math or data management students to examine the enhanced data sets provided on the resource page (electionsanddemocracy.ca/elections-numbers-0).
 3. Find other election data (e.g., turnout by electoral district, provincial/territorial, municipal, or data from another elected organization) and have students show it more clearly or effectively.
 4. Conduct a simulation to further show the influence of voter turnout. Vote on an activity for the class (e.g., pizza lunch, what movie to watch, what field trip to go on), but have only 40% of the class vote. Ask the 60% who did not vote how it felt to have the rest of the class decide for them. Remind them that you chose 40% because that is about the same percentage of eligible youth who voted in the 2011 election.
- Discussion protocols are a helpful way to engage all students and provide support for academic conversations.
 - If calculating percent change is too advanced for students, they can create their visual representation using only the table data.
 - A jigsaw can be used to share ideas and increase individual student accountability. It ensures that students understand their own topic and are positioned as listeners and speakers. This helps to build confidence, as all students have the opportunity to have their voice heard. In a jigsaw, mixed groups of students walk around each station to view the products.
 - A gallery walk is a more informal walk around the classroom. It can provide opportunities for students to talk to each other about the material in a less structured way. It is usually shorter than a full jigsaw, but not as accountable.
 - Exit cards require students to write in response to prompts or questions based on the lesson. The cards provide immediate feedback to you to help you assess students' understanding of content, to gather feedback for your teaching, and to see what questions students are asking to suggest new areas of learning. For students, exit cards provide a reflective space to consolidate and reflect on their learning and practice and to enhance their metacognition.

✖ Teaching tips

- In the “Minds on” activity, students can write their answers before sharing them. This encourages the more introverted students to participate, and ensures that students' opinions are not influenced by others before they share with the class.

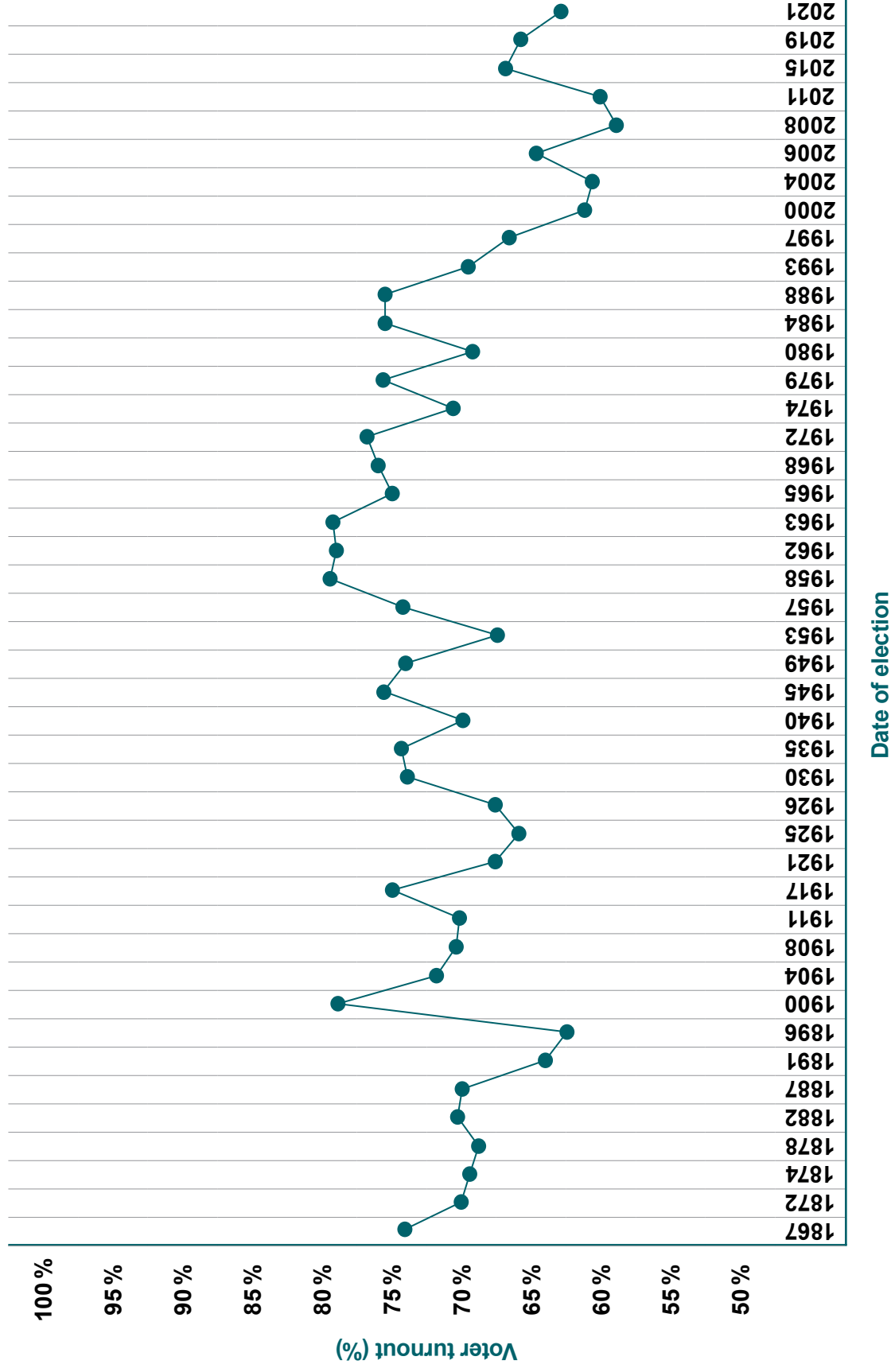


Materials

To be photocopied

✕ Graph: Voter turnout at federal elections

1867–2021



✕ Table: Voter turnout by age group

2011–2021

Age group	2011 Voter turnout (%)	2015 Voter turnout (%)	2019 Voter turnout (%)	2021 Voter turnout (%)
18 to 24 years	38.8	57.1	53.9	46.7
25 to 34 years	45.1	57.4	58.4	52.8
35 to 44 years	54.5	61.9	64.6	59.0
45 to 54 years	64.5	66.6	68.1	63.8
55 to 64 years	71.5	73.7	73.3	68.3
65 to 74 years	75.1	78.8	79.1	74.9
75 years and over	60.3	67.4	68.6	65.9
All ages	58.5	66.1	67.0	62.2

Note: Overall voter turnout is based on the population of eligible electors.

✖ Activity sheet: Change in voter turnout

2011–2021

Calculate the change in voter turnout for each age group. Use the data table, “Voter turnout by age group at federal elections, 2011–2021,” to determine the percentage point change and percent change for different periods. Choose the years you want to compare, and write your results in the table.

$y = \text{year}$

Change in Voter Turnout by Age Group				
Age group	From _____ to _____		From _____ to _____	
	Percentage point change $y_2 - y_1$	Percent change (%) $[(y_2 - y_1) \div y_1] \times 100$	Percentage point change $y_2 - y_1$	Percent change (%) $[(y_2 - y_1) \div y_1] \times 100$
18 to 24 years				
25 to 34 years				
35 to 44 years				
45 to 54 years				
55 to 64 years				
65 to 74 years				
75 years and over				
All ages				

Example 1:

Percentage point change from 2011 to 2015

$$y_1 = 38.8$$

$$y_2 = 57.1$$

$$y_2 - y_1$$

$$57.1 - 38.8$$

$$+18.3$$

Example 2:

Percent change (%) from 2015 to 2019

$$y_1 = 57.1$$

$$y_2 = 53.9$$

$$[(y_2 - y_1) \div y_1] \times 100$$

$$[(53.9 - 57.1) \div 57.1] \times 100$$

$$(-3.2 \div 57.1) \times 100$$

$$-5.6\%$$

✕ Exit card

1. What is interesting or important to you about the data on youth voting?
Explain your thinking.
 2. Make a prediction about an election 10 years from now. Do you think voting among 18-to-24-year-olds will increase, decrease or stay the same? Explain your thinking.
-

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Explain your thinking.
2. Make a prediction about an election 10 years from now. Do you think voting among 18-to-24-year-olds will increase, decrease or stay the same? Explain your thinking.

x Elections Canada Civic Education Assessment Rubric

Task: Elections by the Numbers

Student name: _____ Group: _____

	Absent / Incomplete	Level 1 (Below expectations)	Level 2 (Approaches expectations)	Level 3 (Meets expectations)	Level 4 (Exceeds expectations)
Understanding Content (e.g., ideas, opinions, concepts, relationships among facts)		Demonstrates limited understanding of content	Demonstrates some understanding of content	Demonstrates considerable understanding of content	Demonstrates thorough understanding of content
Understanding Context(s) (e.g., relationship of content to big ideas, such as “fairness,” “democracy,” and “inclusion vs. exclusion;” themes; frameworks)		Demonstrates limited understanding of context(s)	Demonstrates some understanding of context(s)	Demonstrates considerable understanding of context(s)	Demonstrates thorough understanding of context(s)
Applying Critical Thinking Skills (e.g., analyzing, evaluating, inferring, interpreting, revising, refining, reviewing, reflecting, forming conclusions, detecting bias, synthesizing)		Uses critical thinking skills with limited effectiveness	Uses critical thinking skills with some effectiveness	Uses critical thinking skills with considerable effectiveness	Uses critical thinking skills with a high degree of effectiveness
Using Collaborative Group Learning Skills (e.g., communication skills, questioning, active listening, problem solving, focus on task, level of engagement, teamwork)		Shows communication skills and collaborative group learning skills with limited effectiveness	Shows communication skills and collaborative group learning skills with some effectiveness	Shows communication skills and collaborative group learning skills with considerable effectiveness	Shows communication skills and collaborative group learning skills with a high degree of effectiveness
Demonstrating Civic Disposition (e.g., respects diversity of opinion, recognizes that rights come with responsibilities, considers what is good for society as a whole)		Expresses few civic dispositions	Expresses some civic dispositions	Expresses many civic dispositions	Expresses a considerable number and range of civic dispositions

Comments:

Learn more

If you and your students enjoyed this lesson, we encourage you to use Elections Canada's other educational resources. These cross-curricular materials can be taught in a variety of subjects. Find the right fit for your class using our online Curriculum Connections tool (electionsanddemocracy.ca/curriculum-connections).

All resources are available in English and French, and there are versions for language learners.

Visit electionsanddemocracy.ca to browse our complete list, download or order. You can also contact us using the information beside.

Contact us

To share comments or ask questions, or if some of your kit components are missing, write or call us:

Email: education@elections.ca

Telephone: 1-800-463-6868

TTY: 1-800-361-8935

Fax: 1-888-524-1444

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Notes:



