

3.2

Collect and Analyse Data

Student Text Pages

110–117

Suggested Timing

80–160 min

Related Resources

BLM 3-5 Section 3.2 Collect and Analyse Data

BLM 3-6 Section 3.2 Achievement Check Rubric

Link to Prerequisite Skills

Students do not need to complete any questions in the Prerequisite Skills prior to starting this section.

Warm-Up

1. Rachel is setting up a survey to collect information on the musical preference of students in her grade at her school.
 - a) What is the population for her survey?
 - b) What factors should Rachel consider before conducting her survey?
 - c) Should Rachel include a list of musical choices in her survey? Explain why or why not.

Warm-Up Answers

Answers may vary. Sample answers:

1.
 - a) Every student in her grade.
 - b) How to collect the data. If she can she survey everyone in her grade or if she needs to survey a sample.
 - c) Maybe. A list would allow her to quickly collect specific data but it would also limit the choice of responses that students have.

Teaching Suggestions

- This is another language intensive section. Students should take the time needed to fully express their thoughts in a full solution.

Warm-Up

- Write the Warm-Up questions on the board or on an overhead. Have students complete the questions independently. Then, discuss the solutions as a class.

Section Opener

- Start with a short discussion on mall surveys. Ask students if they feel harassed when asked to fill out a survey at the mall and discuss what students feel would be a better survey method. Have students ever modified where they were going to avoid speaking with a surveyor? If students do feel harassed, ask why they think a survey company uses this method of gathering information.

Investigate

- For Investigate 1, give students time to think of their survey question, exchange questions with a partner, and refine the question if needed.
- Discuss the concept of bias. Suggest that while there is no way to completely eliminate bias, surveyors can make every attempt to reduce the effects of bias in a survey.
- Investigate 2 requires access to the Internet. The Investigate can be given as a take home assignment so students can access Internet at home or in the library. Discuss the answers as a class.

- Discuss the concept of primary and secondary sources. Explain that Statistics Canada is an excellent secondary source, but that the Internet has many inaccurate secondary sources. Students must always judge the reliability of any secondary source they use. This can be tied in to entertainment magazines that report on celebrities and are later sued for slander because they used unreliable secondary sources.

Investigate Answers (pages 110–111)

Investigate 1

Answers may vary. Sample answers:

1. The population is all students in my school.
2. I will randomly select a sample from a list of all the students in my school.
3. “Do you buy your lunch or do you bring a lunch to school?”
6. I do not think my question will result in response bias.

Investigate 2

6. Answers may vary.
8. Advantages: sources are easy to find and may provide data that is difficult or expensive to obtain first-hand. Disadvantages: the data may not be exactly what you want and might be unreliable.

Examples

- Review each Example. All responses should be expanded on in a student discussion. Ask students to reflect on their survey question from Investigate 1. Were any of these biases part of their original question? Did they eliminate or reduce this bias in their final question?

Key Concepts

- Emphasize that primary sources are not better than secondary sources.

Discuss the Concepts

- Have students answer the questions using Think-Pair-Share. Give students time to express their answers and focus on the importance of fully expressing their ideas.

Discuss the Concepts Suggested Answers (page 113)

- D1. a)** The survey question is leading the residents to see the benefits of building the plant. Remove the leading statement.
- b)** The players are unlikely to answer the question honestly. Rephrase the survey to ask if the players have heard of their team mates using any banned substances.
- c)** The members are unlikely to approve of the construction, so their responses are likely to be biased. Survey everyone in the community, not just members of the golf course, to see what the whole community thinks of the project.
- D2.** Primary sources may be more difficult for some topics and easier for others. The same is true for secondary sources. If you want to gather information on all Canadians, you will likely use secondary sources. If you want to gather information on your classmates, you would likely use primary sources.

Practise (A)

- Encourage students to review the Examples before asking for assistance.
- Allow students to work in pairs and discuss their answers with their partner.
- For **question 3**, discuss as a class which ideas would reduce the bias the most.

Apply (B)

- The answers to many of these questions can be used as a starting point for a class debate.
- **Question 6** is a Literacy Connect. Students will need to do research to answer this question. You may wish to assign this question as a journal entry or to discuss the question as a class.
- **Question 11** links to the Chapter Problem. Take time to discuss how the problems the students identify can be addressed. Remind students to keep the solution to this question handy as the methods they used may help them with the Chapter Problem Wrap-Up.
- **Question 14** is an Achievement Check question. Brainstorm ideas on chart paper and ask students to summarize the points. **Part d)** might be better answered using secondary sources than conducting a survey. Research the election promises made by the current provincial government and compare the results to what the government has achieved in office. You may wish to use **BLM 3-6 Section 3.2 Achievement Check Rubric** to assist you in assessing your students.

Extend (C)

- Assign the Extend questions to students who are not being challenged by the questions in Apply. The Extend questions can be used as an assignment or class project.

Achievement Check Answers (page 117)

14. Survey questions may vary.

- a)** Send a questionnaire to random community members from a list obtained from city hall. “Should a new community centre be built? If so, where?”
“Where should a new community centre be built?”
- b)** Select a random sample of people in the city, some riding on public transit, some not.
“Do you use public transit? If so, what would you like to see improved? If not, would any improvements entice you to use transit?”
“How would you like to see public transit improved?”
- c)** Survey every student attending the school next year, since the number should be manageable.
“What courses would you like to take next year?”
“Check off 8 courses you would like to take next year.”
- d)** Select a random sample of people in the province.
“Do you think government has made good decisions and lived up to its platform promises?”
“Are you happy with the government’s policy making? Do you think they have followed their election platform?”

Accommodations

Memory—help develop a mnemonic for the four types of bias

Visual—provide a chart or graphic organizer for the four types of bias

Gifted and Enrichment—encourage students to prepare posters for the word wall with important definitions

Language—provide taped versions of problems so students may read along with the tape

Motor—provide a scribe to record answers to the exercises

Mathematical Process Expectations

Process Expectation	Questions
Problem Solving	5, 9, 10, 13, 14, 16
Reasoning and Proving	1–5, 7–14, 16
Reflecting	1–5, 7–14, 16
Selecting Tools and Computational Strategies	n/a
Connecting	10, 16
Representing	15
Communicating	1, 2, 5–16

Extra Practice

- You may wish to use **BLM 3-5 Section 3.2 Collect and Analyse Data** for remediation or extra practice.