Chapter 11 Review

Key Words

For #1 to #9, choose the letter representing the term that best matches each description.

1. an example is every tenth person in a line-up
2. privacy and cost are examples that affect data collection
3. an example is polling 2 students out of 100 students about who will win an election
4. an example is the first 30 people entering the gates at a football game
5. a sample in which all members of a population have an equal chance of being selected
6. any group selected from a population
7. the whole group of people being studied
8. an example is dividing the population into males and females and then randomly selecting a proportional number from each group
9. an example is a population invited to call in a response to a radio talk show

A convenience sample
B population
C influencing factors
D sample
E biased sample
F voluntary response sample
G random sample
H systematic sample
I stratified sample

11.1 Factors Affecting Data Collection, pages 414–421

10. For each situation, identify and describe any influencing factors that affect a survey.
   a) Ask the first 40 people entering a park office if they are willing to pay increased rates to help offset increased costs.
   b) Ask ten people selected at random in a grocery store if they like store-bought bread.

c) Ask 15 juice drinkers if they would support replacing the juice in the vending machine with bottled water.

11. Identify any factors that may influence data collection. Then, write an improved survey question.
   a)
   > Which do you prefer: chocolate cheesecake or strawberry cheesecake?

   b)
   > Everybody loves The Rockets, but who is your favourite rock group?

   c)
   > A recent survey shows that 45% of Internet users download music. What music did you download in the past month?

11.2 Collecting Data, pages 422–429

12. Identify the population for each situation. Then, describe how you would select a sample for each.
   a) the spending habits of teens in Canada
   b) the popularity of different kinds of music in your school
   c) the cost of gasoline in your community

13. For each situation, identify the type of sample. Identify any bias in each sample.
   a) The first 20 shoppers at the north entrance of a mall are surveyed.
   b) Youth conference delegates are divided into groups according to the western province or territory where they live. Then, 20 youths from each group are randomly selected.
   c) The area supervisor for a fast-food chain selects employees at one store location.

14. What type of sample do you recommend for each situation? Explain why.
   a) a survey of doctors, nurses, and hospital administrators to determine whether the hospital needs an additional wing
   b) a survey of customers to determine the favourite sundae topping

15. To check the spread of a disease among trees in a forest, a forester wants to inspect 10% of the trees. Identify each of the following types of samples the forester could use.
   a) Sample 10% of the trees closest to the logging road.
   b) Divide the forest into sections and randomly select 10% of the trees in each section.
   c) Give each tree a number. Randomly select a starting tree and then select every tenth tree after the starting number.

11.3 Probability in Society, pages 430–439

16. A biologist captures, tags, and releases 85 bull trout in a stream. A month later, she returns and captures 100 bull trout and notes that 28 of them have tags.
   a) Based on this result, predict how many bull trout fish are in the stream.
   b) What assumptions did you make?
   c) What could the biologist do differently to make the prediction more accurate?

Did You Know?
Bull trout, lake trout, and Arctic char belong to a subgroup of the salmon family. Bull trout that live in lakes can grow to more than 9 kg. Those that live in streams rarely grow to more than 2 kg.

Bull trout, Oldman River, Alberta

17. Nancy is running for treasurer on student council. She surveys 20 people in her class about who they will vote for. Based on her survey results, Nancy predicts that 75% of the 328 grade 9 students will vote for her.
   a) Is her prediction reasonable? Explain.
   b) Explain how she could ensure a more accurate prediction.

18. Students in two grade 9 classes in a school were asked what item they spend most money on. The results are posted here.

Item	Number of Students
Movies	11
Cell phone	13
Music	11
Clothes	6
Other	7

The students were divided into four groups and asked to make a prediction for all grade 9 students based on the results.

Group 1: Grade 9s like buying other items more than clothes.

Group 2: Cell phones are more important to grade 9s than any other form of entertainment.

Group 3: Of the 500 grade 9 students in the city, it is likely that 135 will have cell phones.

Group 4: It is likely that a grade 9 student will spend his or her money on either movies or music.

Explain why you agree or disagree with each prediction.

MathLinks 9, pages 444–445

Suggested Timing
40–50 minutes

Blackline Masters
BLM 11–6 Section 11.1 Extra Practice
BLM 11–8 Section 11.2 Extra Practice
BLM 11–10 Section 11.3 Extra Practice

Planning Notes

Allow students to work with a partner to complete #1 to 9, which review the Key Words. Have students work individually or in pairs to complete the remaining questions. Allow them to use a calculator for #16 to 18. Emphasize that you expect students to explain their reasoning for selecting samples, populations, and sampling methods.

If they encounter difficulties, provide an opportunity for students to discuss strategies with other students. Remind them to refer to their Foldable for the chapter, the modelled examples, and previously completed questions in the related sections of the student resource.

Consider having students make a list of the questions that they found difficult. They can then use the list to help them prepare for the practice test.

Meeting Student Needs

- Encourage students to use their Foldable and to add new notes if they wish.
- Encourage students to revisit the concept map, which provides an overview of concepts addressed throughout the chapter.
- Students who require more practice on a particular topic may refer to **BLM 11–6 Section 11.1 Extra Practice**, **BLM 11–8 Section 11.2 Extra Practice**, and **BLM 11–10 Section 11.3 Extra Practice**.

ELL

- Encourage students to work with a partner and discuss their responses.
- Students may have an understanding of the math concepts but answer questions incorrectly because they do not have a clear understanding of the language. It may be helpful to read the questions together and clarify the meaning of any vocabulary that is unclear.
- Consider assigning fewer questions. Emphasize the importance of reading questions carefully and taking the time needed to answer them.

Gifted and Enrichment

- Due to technology and the Internet, many people have access to information and the means to express their opinions. Have students discuss with a classmate the meaning of the term *governing by survey.*
- Some students may already be familiar with the skills handled in this review. To provide enrichment and extra challenge for gifted students, go to www.mathlinks9.ca and follow the links.

Common Errors

- Some students may be confused with the terms related to samples and sampling methods.

R_x Encourage students to refer to their Foldable and the concept map for clarification.

Assessment	Supporting Learning
Assessment *for* Learning	
Chapter 11 Review The Chapter 11 Review is an opportunity for students to assess themselves by completing selected questions in each section and checking their answers against the answers in the back of the student resource.	• Have students check the contents of the What I Need to Work On section of their Foldable and do at least one question related to each listed item. • Have students revisit any section that they are having difficulty with prior to working on the chapter test.