

4

Apply Data Management

Strand

Data Management

Student Text Pages

196–263

Suggested Timing

10 min

Related Resources

BLM A-4 Presentation Checklist

Key Terms

descriptive statistics
inferential statistics
measurement bias
net worth
non-response bias
per capita
percent change
percentile
percentile rank
real value
response bias
sampling bias
statistical bias
statistical index
weighted mean

Chapter Curriculum Specific Expectations

Applying Data Management

In this chapter, students will

DM2.01 recognize and interpret common statistical terms (e.g., percentile, quartile) and expressions (e.g., accurate 19 times out of 20) used in the media (e.g., television, Internet, radio, newspapers)

DM2.02 describe examples of indices used by the media (e.g., consumer price index, S&P/TSX composite index, new housing price index) and solve problems by interpreting and using indices (e.g., by using the consumer price index to calculate the annual inflation rate)

DM2.03 interpret statistics presented in the media (e.g., the UN's finding that 2% of the world's population has more than half the world's wealth, whereas half the world's population has only 1% of the world's wealth), and explain how the media, the advertising industry, and others (e.g., marketers, pollsters) use and misuse statistics (e.g., as represented in graphs) to promote a certain point of view (e.g., by making a general statement based on a weak correlation or an assumed cause-and-effect relationship; by starting the vertical scale on a graph at a value other than zero; by making statements using general population statistics without reference to data specific to minority groups)

DM2.04 assess the validity of conclusions presented in the media by examining sources of data, including Internet sources (i.e., to determine whether they are authoritative, reliable, unbiased, and current), methods of data collection, and possible sources of bias (e.g., sampling bias, non-response bias, a bias in a survey question), and by questioning the analysis of the data (e.g., whether there is any indication of the sample size in the analysis) and conclusions drawn from the data (e.g., whether any assumptions are made about cause and effect)

DM2.05 gather, interpret, and describe information about applications of data management in occupations, and about college programs that explore these applications

Teaching Suggestions

Chapter Opener

- Have students read the chapter opener. As a class, discuss the interpretation and critical analysis of statistics in the media.
- Ask students if they recognize any of the key terms.

Career Profile

Have students discuss what they know about a career as a marketer. As an extension to the discussion, have students research this career and other careers that are related to data management, and present their findings to the class. You may wish to use **BLM A-4 Presentation Checklist** to assess students' presentations.

Using their research, have students discuss:

- The tasks of a marketer.
- The type of education and training needed for this career.
- Other careers that use data management.
- The differences in the training and education required for a similar career.

You may wish to have students include their research in their Portfolios.

Chapter 4 Planning Chart

Section Suggested Timing	Student Text Page(s)	Teacher's Resource Blackline Masters	Assessment	Tools
Chapter 4 Opener • 10 min	196–197		• BLM A-4 Presentation Checklist	
Prerequisite Skills • 80 min	198–199	• BLM 4-1 Prerequisite Skills Practice	• BLM 4-2 Prerequisite Skills Self-Assessment Checklist	• scientific calculators
4.1 Statistical Measures • 80 min	200–213	• BLM 4-3 Section 4.1 Statistical Measures	• BLM 4-4 Section 4.1 Achievement Check Rubric	• scientific calculators <i>Optional</i> • TI-Nspire™ CAS graphing calculators
4.2 Statistical Indices • 80 min	214–225	• BLM 4-5 Section 4.2 Statistical Indices		• scientific calculators
4.3 Interpret Statistics in the Media • 80 min	226–235	• BLM 4-6 Section 4.3 Interpret Statistics in Media		• scientific calculators
4.4 Statistical Bias • 80 min	236–243	• BLM 4-7 Section 4.4 Statistical Bias	• BLM 4-8 Section 4.4 Achievement Check Rubric	• scientific calculators
4.5 Critical Analysis • 80–160 min	244–255	• BLM 4-9 Section 4.5 Critical Analysis		• short newspaper or magazine article • scientific calculators • computers with Internet access
Chapter 4 Review • 80 min	256–257	• BLM 4-10 Chapter 4 Literacy • BLM 4-11 Chapter 4 Review		• scientific calculators
Chapter 4 Practice Test • 80 min	258–259		• BLM A-11 Group Work Assessment Recording Sheet • BLM A-12 Group Work Assessment General Scoring Rubric • BLM 4-12 Chapter 4 Practice Test • BLM 4-13 Chapter 4 Test	• scientific calculators
Chapter 4 Problem Wrap-Up • 40 min	259		• BLM 4-14 Chapter 4 Problem Wrap-Up Rubric	• scientific calculators
Chapters 3 and 4 Review • 80 min	260–261		• BLM A-13 Self-Assessment Recording Sheet • BLM A-14 Self-Assessment Checklist	• scientific calculators
Chapter 4 Task • 80 min	262–263		• BLM 4-15 Chapter 4 Task Rubric	• computers with Internet access

Chapter 4 Blackline Masters Checklist

	Title	Purpose
Chapter 1 Opener		
	BLM A-4	Presentation Checklist Assessment
Prerequisite Skills		
	BLM 4-1	Prerequisite Skills Practice
	BLM 4-2	Prerequisite Skills Self-Assessment Checklist Self-Assessment
4.1 Statistical Measures		
	BLM 4-3	Section 4.1 Statistical Measures Practice
	BLM 4-4	Section 4.1 Achievement Check Rubric Assessment
4.2 Statistical Indices		
	BLM 4-5	Section 4.2 Statistical Indices Practice
4.3 Interpret Statistics in the Media		
	BLM 4-6	Section 4.3 Interpret Statistics in the Media Practice
4.4 Statistical Bias		
	BLM 4-7	Section 4.4 Statistical Bias Practice
	BLM 4-8	Section 4.4 Achievement Check Rubric Assessment
4.5 Critical Analysis		
	BLM 4-9	Section 4.5 Critical Analysis Assessment
Chapter 4 Review		
	BLM 4-10	Chapter 4 Literacy Student Support
	BLM 4-11	Chapter 4 Review Review
Chapter 4 Practice Test		
	BLM A-11	Group Work Assessment Recording Sheet Assessment
	BLM A-12	Group Work Assessment General Scoring Rubric Assessment
	BLM 4-12	Chapter 4 Practice Test Diagnostic Assessment
	BLM 4-13	Chapter 4 Test Summative Assessment
Chapter 4 Problem Wrap-Up		
	BLM 4-14	Chapter 4 Problem Wrap-Up Rubric Summative Assessment
Chapter 3 and 4 Review		
	BLM A-13	Self-Assessment Recording Sheet Assessment
	BLM A-14	Self-Assessment Checklist Assessment
Chapter 4 Task		
	BLM 4-15	Chapter 4 Task Rubric Summative Assessment
	BLM 4-16	Chapter 4 BLM Answers

Prerequisite Skills

Student Text Pages

198–199

Suggested Timing

80 min

Tools

- scientific calculators

Related Resources

BLM 4-1 Prerequisite Skills
BLM 4-2 Prerequisite Skills
Self-Assessment Checklist

Common Errors

- Some students may be confused about the appropriate operation to use when working with percents.

R_x Have students set up the proportion

$$\frac{\text{part}}{\text{whole}} = \frac{\text{percent}}{100}$$

and cross multiply as appropriate.

Accommodations

Language—allow students to work with a partner. Have them provide some responses orally to check for comprehension.

Motor—allow students extra time. Assist students with recording calculations.

Teaching Suggestions

- You may wish to use a placemat activity for Measures of Central Tendency.
- All BLMs referred to throughout this chapter can be found on the *Foundations for College Mathematics 12: Teacher's Resource CD ROM*.

Assessment

- Assess student readiness to proceed by informal observation as students are working on the questions. A formal test is inappropriate since this material is not part of the grade 12 curriculum for this chapter.
- Student self-assessment is also an effective technique; students can place a checkmark beside topics in the Prerequisite Skills sections for which they feel confident with the necessary skills. Use **BLM 4-2 Prerequisite Skills Self-Assessment Checklist** as a self-assessment for students.
- Remedial action can be taken in small groups or with a whole-class skills review.

Extra Practice

- Use **BLM 4-1 Prerequisite Skills** for extra practice or remediation.

Chapter Problem

- The Chapter Problem is introduced on page 199. Have students discuss the environmental statistics they see in the media. You may wish to have students complete the Chapter Problem revisits that occur throughout the chapter. These questions are designed to help students move toward the Chapter 4 Problem Wrap-Up on page 259.
- Alternatively, you may wish to assign the Chapter Problem questions and Chapter Problem Wrap-Up when students have completed the chapter, as part of a summative assessment.