

8

Compound Interest

Strand

Personal Finance

Student Text Pages

418–457

Suggested Timing

10–15 min

Related Resources

BLM A-4 Presentation Checklist

Key Terms

amount
compounding period
compound interest
creditor
discount
future value
growth factor
present value
principal
simple interest

Curriculum Expectations

Solving Problems Involving Compound Interest

In this chapter students will:

PF1.01 determine, through investigation using technology, the compound interest for a given investment, using repeated calculations of simple interest, and compare, using a table of values and graphs, the simple and compound interest earned for a given principal (i.e., investment) and a fixed interest rate over time

PF1.02 determine, through investigation (e.g., using spreadsheets and graphs), and describe the relationship between compound interest and exponential growth

PF1.03 solve problems, using a scientific calculator, that involve the calculation of the amount, A , (also referred to as future value, FV), and the principal, P (also referred to as present value, PV), using the compound interest formula $A = P(1 + i)^n$ [or $FV = PV(1 + i)^n$]

PF1.04 calculate the total interest earned on an investment or paid on a loan by determining the difference between the amount and the principal [e.g., $I = A - P$ (or $I = FV - PV$)]

PF1.05 solve problems, using a TVM Solver in a graphing calculator or on a website, that involve the calculation of the interest rate per compounding period, i , or the number of compounding periods, n , in the compound interest formula $A = P(1 + i)^n$ [or $FV = PV(1 + i)^n$]

PF1.06 determine, through investigation using technology (e.g., a TVM Solver in a graphing calculator or on a website), the effect on the future value of a compound interest investment or loan of changing the total length of time, the interest rate, or the compounding period

Teaching Suggestions

Chapter Opener

- Ask students what they know about financial planning. Discuss the duties of a financial planner—to help people with financial issues through proper planning. Some financial planners may suggest their clients invest in GICs, term deposits, mutual funds, and/or stocks and bonds.
- Review some of the key terms with students. Which terms are they familiar with? There are many new terms that are specific to certain contexts. Class discussions around the specific contexts will help.
- Ensure students understand that the skills they will learn in this chapter will help them make good financial decisions both personally and professionally.

Additional information and teaching materials for this chapter are available on the McGraw-Hill Ryerson Web-site at www.mcgrawhill.ca/books/foundations11. You will need your password to access this material.

Career Profile

Have students discuss what they know about a financial planning career. As an extension, have students research this career and other similar careers, 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 each student discuss:

- The duties of a financial planner.
- What type of education and training are needed for this career.
- Similar careers.
- The differences in the training and education required for the similar career.

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

For more career resources for your students, see the McGraw-Hill Ryerson Web-site at www.mcgrawhill.ca/books/foundations11.

Chapter 8 Planning Chart

Section Suggested Timing	Student Text Page(s)	Teacher's Resource Blackline Masters	Assessment	Tools
Chapter 8 Opener • 10–15	418–419		• BLM A-4 Presentation Checklist	
Prerequisite Skills • 80 min	420–421	• BLM 8-1 Prerequisite Skills	• BLM 8-2 Prerequisite Skills Self-Assessment Checklist	• calculators • TVM Solver
8.1 Simple and Compound Interest • 80 min	422–429	• BLM 8-3 Section 8.1 Simple and Compound Interest • BLM T-1 Microsoft® <i>Excel</i>		• computers with spreadsheet software • TVM Solver
8.2 Compound Interest • 80 min	430–435	• BLM 8-4 Section 8.2 Compound Interest • BLM 8-6 Section 8.2 Literacy Connect	• BLM 8-5 Section 8.2 Achievement Check Rubric • BLM A-18 Opinion Piece Checklist	• calculators
8.3 Present Value • 80 min	436–441	• BLM 8-7 Section 8.3 Present Value	• BLM A-9 Communication General Scoring Rubric	• calculators
8.5 Effects of Changing Conditions on Investments and Loans • 80 min	446–453	• BLM 8-9 Section 8.5 Effects of Changing Conditions on Investments and Loans	• BLM 8-10 Section 8.5 Achievement Check Rubric • BLM A-9 Communication General Scoring Rubric	• graphing calculators
Chapter 8 Review • 80–160 min	454–455	• BLM 8-11 Chapter 8 Review		• TVM Solver
Chapter 8 Practice Test • 80 min	456–457		• BLM 8-12 Chapter 8 Practice Test • BLM 8-13 Chapter 8 Test	
Chapter 8 Problem Wrap-Up • 40 min	457		• BLM 8-14 Chapter 8 Problem Wrap-Up Rubric	

Chapter 8 Blackline Masters Checklist

	Title		Purpose
Chapter 8 Opener			
	BLM A-4	Presentation Checklist	Assessment
Prerequisite Skills			
	BLM 8-1	Prerequisite Skills	Practice
	BLM 8-2	Prerequisite Skills Self-Assessment Checklist	Self-Assessment
8.1 Simple and Compound Interest			
	BLM 8-3	Section 8.1 Simple and Compound Interest	Practice
8.2 Compound Interest			
	BLM 8-4	Section 8.2 Compound Interest	Practice
	BLM 8-5	Section 8.2 Achievement Check Rubric	Assessment
	BLM 8-6	Section 8.2 Literacy Connect	Literacy
	BLM A-18	Opinion Piece Checklist	Literacy
8.3 Present Value			
	BLM 8-7	Section 8.3 Present Value	Practice
	BLM A-9	Communication General Scoring Rubric	Assessment
8.4 The TVM Solver			
	BLM 8-8	Section 8.4 The TVM Solver	Practice
8.5 Effects of Changing Conditions on Investments and Loans			
	BLM 8-9	Section 8.5 Effects of Changing Conditions of Investments and Loans	Practice
	BLM 8-10	Section 8.5 Achievement Check Rubric	Assessment
	BLM A-9	Communication General Scoring Rubric	Assessment
Chapter 8 Review			
	BLM 8-11	Chapter 8 Review	Review
Chapter 8 Practice Test			
	BLM 8-12	Chapter 8 Practice Test	Diagnostic Assessment
	BLM 8-13	Chapter 8 Test	Summative Assessment
Chapter 8 Problem Wrap-Up			
	BLM 8-14	Chapter 8 Problem Wrap-Up Rubric	Summative Assessment

Prerequisite Skills

Student Text Pages

420–421

Suggested Timing

80 min

Tools

- calculators
- TVM Solver

Related Resources

BLM 8-1 Prerequisite Skills
BLM 8-2 Prerequisite Skills
Self-Assessment Checklist

Common Errors

- Some students may have forgotten the order of operations.
- R_x Have students review the meaning of BEDMAS and have them evaluate simple expressions, such as $3 + 4 \times 5$.
- Some students may have forgotten the meaning of negative exponents.
- R_x Have students review section 7.2 Zero and Negative Exponents.

Accommodations

Memory—encourage the use of index cards with calculator key stroke sequences for multi-step calculations

Visual—provide a handout with **questions 8 and 9** in chart form

Motor—provide a calculator with large buttons

Teaching Suggestions

- As each section is encountered, you may wish to provide a short example or do the first part with them. Have students work through the exercise. Stronger students may only need to do a few parts of each question. Students who are having difficulty may benefit from the additional practice of completing all the questions.
- All BLMs referred to throughout this chapter can be found on the *Foundations for College Mathematics 11 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 11 curriculum for this chapter.
- Student self-assessment is also an effective technique; students can place a checkmark beside topics in the Prerequisite Skills in which they feel confident with the necessary skills. Use **BLM 8-2 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 9-1 Prerequisite Skills** for extra practice or remediation.

Chapter Problem

- The Chapter Problem is introduced on page 421. Have students discuss their understanding of the topic. 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 9 Problem Wrap-Up on page 457.
- 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.