EXTENSIONS IN MATHEMATICS SERIES

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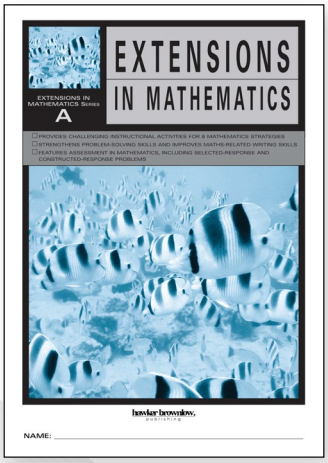
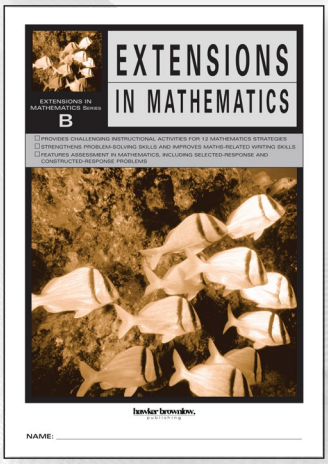
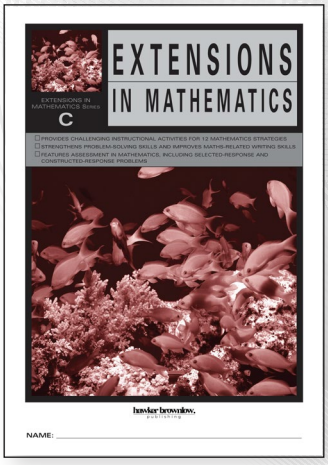
Suitable for year levels 2 to 9
Primary and Middle Years

Diagnose:	Teach:	Apply:	Reinforcement:
CAMS	**STAMS**	**Extensions**	**Focus on Maths**







With step-by-step instruction and thorough practice, support students as they develop into strategic, thoughtful and confident thinkers with Extensions in Mathematics. Students are guided in applying the strategies used by successful thinkers and then fill in graphic organisers as they learn how each strategy connects to ideas and information in numeracy.

"Strengthen problem solving and maths writing skills using graphic organisers."

The skills offer a balance between computational fluency and conceptual understanding.

Lessons focus on one skill at a time, using one or more graphic organisers such as:

- Grids
- Pie Charts
- Flow Charts
- Tables
- Place Value Charts
- Number lines
- Venn diagrams
- Schedules, Calendars, Maps
- Spreadsheets
- ....and others

Lessons include six elements:

- Writing to explain solutions
- Problem Solving
- Graphic Organisers
- Number in context
- Assessment with embedded test preparation
- Challenge problems and class projects

The series covers the following 12 mathematics strategies:

- Building Number Sense
- Using Estimation
- Applying Addition
- Applying Subtraction
- Applying Multiplication
- Applying Division
- Converting Time and Money
- Working with Measurements
- Using Algebra
- Using Geometry
- Determining Probability and Averages
- Interpreting Graphs and Charts

Organise your Professional Development now! Visit www.hawkerbrownlow.com

How does Extensions in Maths help your students?

- Goes beyond basic instruction
- Provides practice in problem solving
- Graphic organisers help students sort through information
- Prepares students for a variety of assessment formats
- Challenges students to use higher order thinking abilities

Form of Graphic Organisers

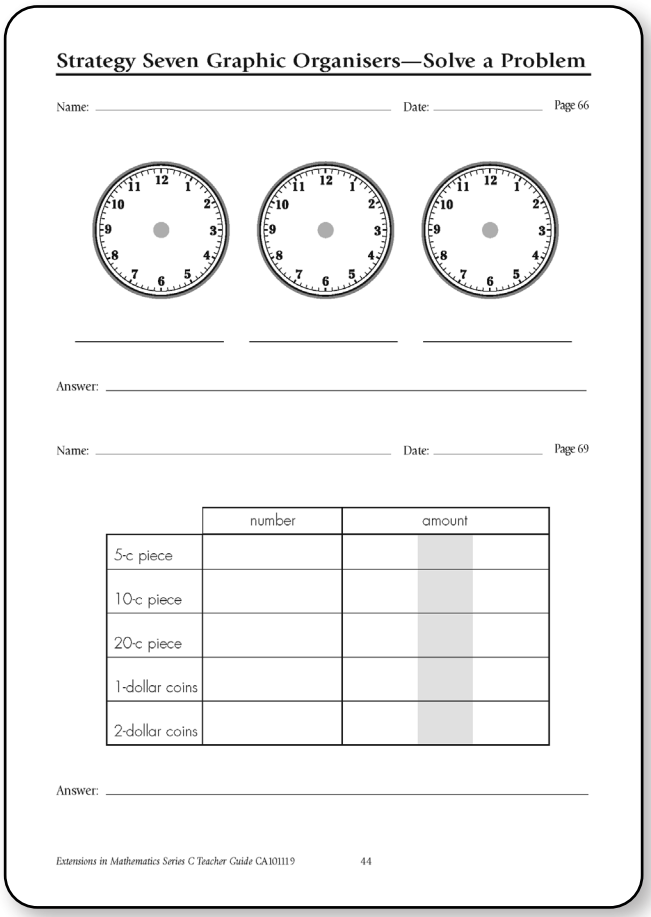
- Grid
- Table
- Flowchart
- Money table
- Estimation table
- Conversion table
- Place-value chart
- Function machine
- Fraction strip
- Dot paper
- Multiplication pyramid
- Pie Chart
- Pictograph
- Timetable
- Bar graph
- Calendar
- Stem and leaf plot
- Schedule

Solve The Problem

- Studying the problem
- Finding the solution
- Explaining the solution
- Applying the solution

Learn About the Strategy

- Thinking about the strategy
- Studying the problem
- Studying the solution
- Understanding the solution



Strategy Seven Graphic Organisers—Solve a Problem

Name: _____ Date: _____ Page 66

Answer: _____

Name: _____ Date: _____ Page 69

	number	amount
5-c piece		
10-c piece		
20-c piece		
1-dollar coins		
2-dollar coins		

Answer: _____

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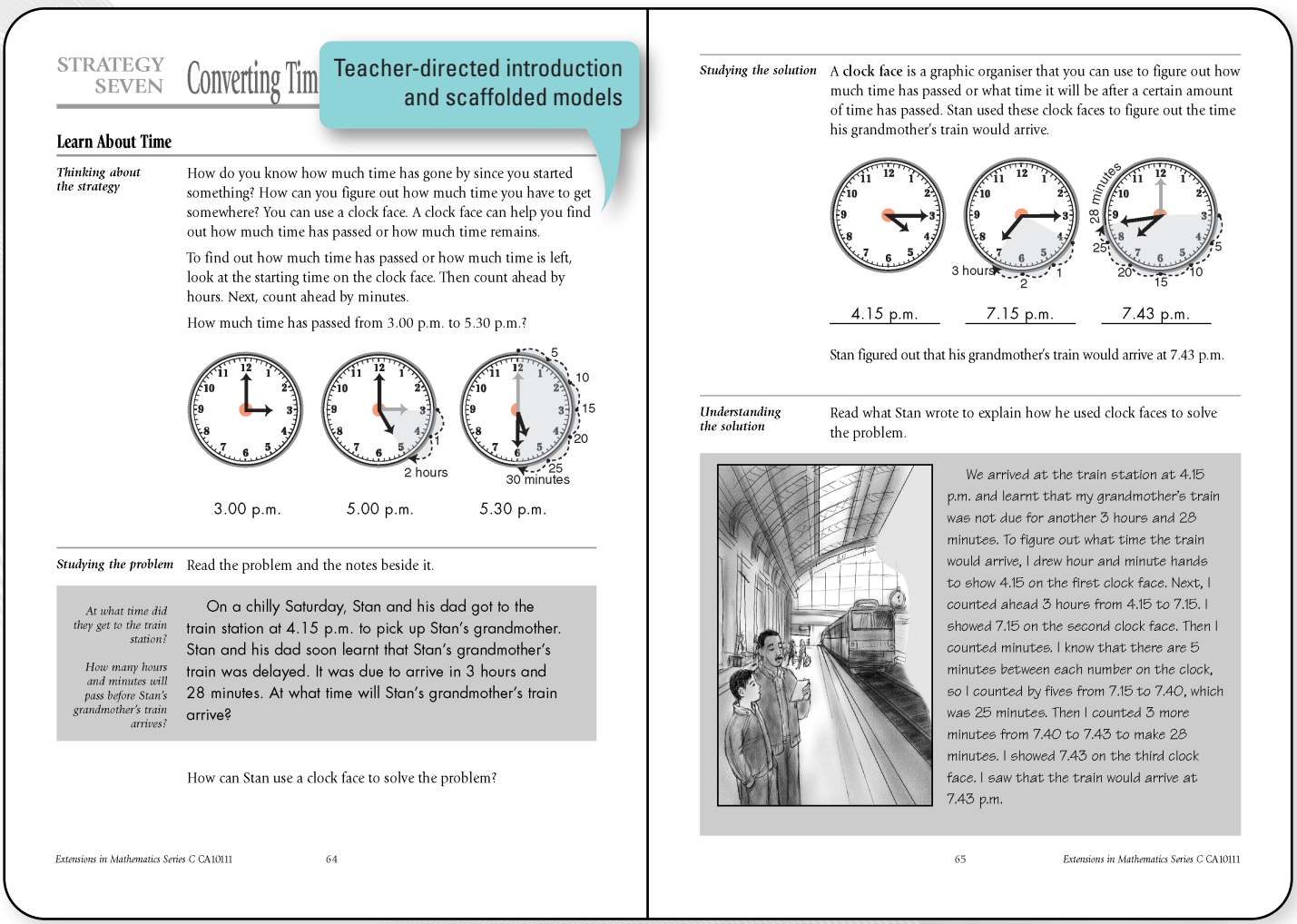


STRATEGY SEVEN Converting Tim

Teacher-directed introduction and scaffolded models

Learn About Time

Thinking about the strategy

How do you know how much time has gone by since you started something? How can you figure out how much time you have to get somewhere? You can use a clock face. A clock face can help you find out how much time has passed or how much time remains.

To find out how much time has passed or how much time is left, look at the starting time on the clock face. Then count ahead by hours. Next, count ahead by minutes.

How much time has passed from 3.00 p.m. to 5.30 p.m.?

2 hours

30 minutes

3.00 p.m. 5.00 p.m. 5.30 p.m.

Studying the problem

Read the problem and the notes beside it.

At what time did they get to the train station?

How many hours and minutes will pass before Stan's grandmother's train arrives?

On a chilly Saturday, Stan and his dad got to the train station at 4.15 p.m. to pick up Stan's grandmother. Stan and his dad soon learnt that Stan's grandmother's train was delayed. It was due to arrive in 3 hours and 28 minutes. At what time will Stan's grandmother's train arrive?

How can Stan use a clock face to solve the problem?

Studying the solution

A **clock face** is a graphic organiser that you can use to figure out how much time has passed or what time it will be after a certain amount of time has passed. Stan used these clock faces to figure out the time his grandmother's train would arrive.

3 hours

28 minutes

4.15 p.m. 7.15 p.m. 7.43 p.m.

Stan figured out that his grandmother's train would arrive at 7.43 p.m.

Understanding the solution

Read what Stan wrote to explain how he used clock faces to solve the problem.

We arrived at the train station at 4.15 p.m. and learnt that my grandmother's train was not due for another 3 hours and 28 minutes. To figure out what time the train would arrive, I drew hour and minute hands to show 4.15 on the first clock face. Next, I counted ahead 3 hours from 4.15 to 7.15. I showed 7.15 on the second clock face. Then I counted minutes. I know that there are 5 minutes between each number on the clock, so I counted by fives from 7.15 to 7.40, which was 25 minutes. Then I counted 3 more minutes from 7.40 to 7.43 to make 28 minutes. I showed 7.43 on the third clock face. I saw that the train would arrive at 7.43 p.m.

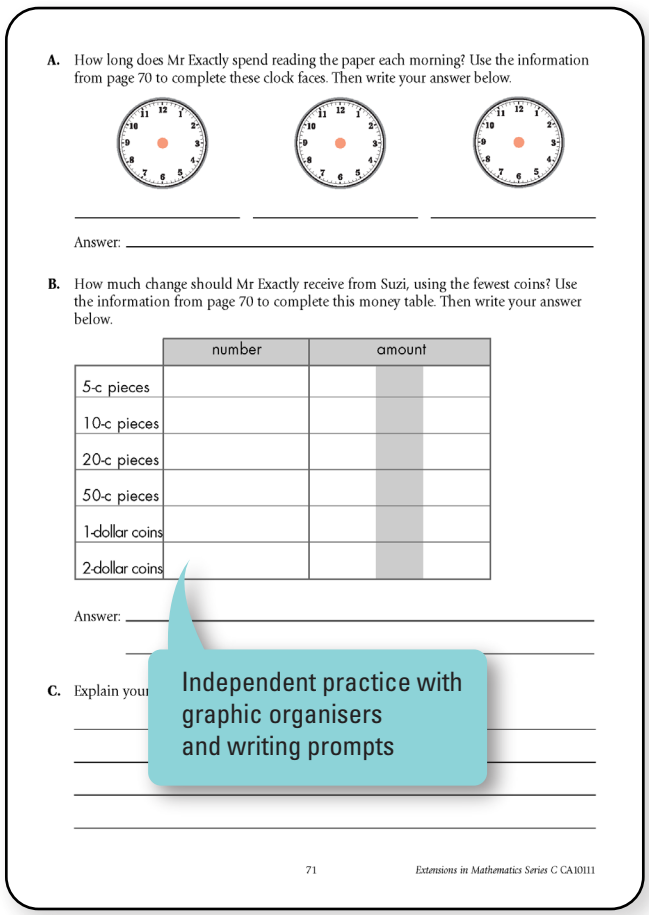
Lesson Format: Solve a problem

- Studying the problem
- Finding the solution
- Explaining the solution
- Applying the solution

Lesson includes Six Elements:

- Writing to explain
- Problem-solving
- Graphic organisers
- Numbers in context
- Assessment
- Challenge Problems and Class Projects

A final review assesses all 12 maths strategies



A. How long does Mr Exactly spend reading the paper each morning? Use the information from page 70 to complete these clock faces. Then write your answer below.

Answer: _____

B. How much change should Mr Exactly receive from Suzi, using the fewest coins? Use the information from page 70 to complete this money table. Then write your answer below.

	number	amount
5-c pieces		
10-c pieces		
20-c pieces		
50-c pieces		
1-dollar coins		
2-dollar coins		

Answer: _____

C. Explain your

Independent practice with graphic organisers and writing prompts

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Key Maths Strategies

- Building Number Sense
- Using Estimation (levels B–H)
- Applying Addition
- Applying Subtraction
- Applying Multiplication
- Applying Division (levels B–H)
- Converting Time and Money
- Working with Measurements
- Using Algebra (levels B–H)
- Using Geometry
- Determining Probability and Averages (levels B–H)
- Interpreting Graphs and Charts

Learn More About the Strategy

- Thinking about the strategy
- Understanding the solution

Check Your Understanding

Fill in the letter of the correct answers to questions 1–8.
Write your answers to questions 9 and 10.

1. One rainy Sunday, Benny and his mum played chess from 1.15 p.m. until 4.20 p.m. How long did they play chess?
Ⓐ 2 hours and 20 minutes
Ⓑ 3 hours and 35 minutes
Ⓒ 5 hours and 15 minutes
Ⓓ 3 hours and 5 minutes

2. Yan's class watched a movie about how oysters make pearls. The movie started at 11.06 a.m. and lasted 47 minutes. At what time did the movie end?
Ⓐ 11.43 a.m.
Ⓑ 11.53 a.m.
Ⓒ 11.41 a.m.
Ⓓ 11.50 a.m.

3. Nadia and her dad got on a train to Canberra at 2.19 p.m. They arrived 6 hours and 14 minutes later. At what time did they get to Canberra?
Ⓐ 8.33 p.m.
Ⓑ 6.15 p.m.
Ⓒ 7.32 p.m.
Ⓓ 8.00 p.m.

4. The next day, Nadia and her dad went sightseeing. They began a tour at 12 noon and finished at 6.40 p.m. How long were they on the tour?
Ⓐ 5 hours and 40 minutes
Ⓑ 5 hours and 20 minutes
Ⓒ 6 hours and 40 minutes
Ⓓ 6 hours and 20 minutes

5. Mark used a 5-dollar note to pay for a kite-making kit that cost $3.05. Which coins show the change that he should have received?
Ⓐ 1 5-c piece, 1 10-c piece and 1 50-c piece
Ⓑ 1 5-c piece, 2 20-c pieces, 1 50-c piece and 1 1-dollar coin
Ⓒ 1 5-c piece, 1 10-c piece, 2 20-c pieces and 2 1-dollar coins
Ⓓ 3 5-c pieces, 2 20-c pieces, 1 50-c piece and 1 1-dollar coin

6. Cheree used a 5-dollar note to pay for wool and beads that cost $2.75. How much change should she get?
Ⓐ $3.35 Ⓒ $2.25
Ⓑ $2.20 Ⓓ $2.00

7. Shirley used a 5-dollar note to pay for a small bag of peanuts that cost $0.50 and a bottle of water that cost $0.95. How much change should she get?
Ⓐ $1.55
Ⓑ $4.00
Ⓒ $2.45
Ⓓ $3.55

8. Bruce used a 1-dollar coin to pay for two raffle tickets that cost $0.35 each. How much change should Bruce get?
Ⓐ $0.30

Selected-response items in test-taking format

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9. Mike and his dad got up at 4.05 a.m. to watch a meteor shower. They were able to see meteors until 6.09 a.m. Then the sun rose, and the sky got too light. How long did Mike and his dad spend watching the meteor shower before the sun came up?

_____

10. Louise used a 5-dollar note to pay for two train tickets that cost $1.35 each. What amount of change should Louise have received? What is the fewest number of coins that she could receive? Explain how you worked out your answer.

_____

Extension activities in every lesson

Extend Your Learning

- *School Supply Shop*
  Work with a group to set up a classroom shop that sells books, pencils, rulers, erasers and other items. Price everything under $5.00. Using play money, take turns shopping and making change.
- *Reading: Reading Log*
  Keep a weekly reading log. Choose a new book from the library, or re-read an old favourite. Each day, jot down the exact time you start reading and the exact time you stop reading. At the end of the week, work out how much time you spent reading that week.

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Extensions in Mathematics Series Order Form

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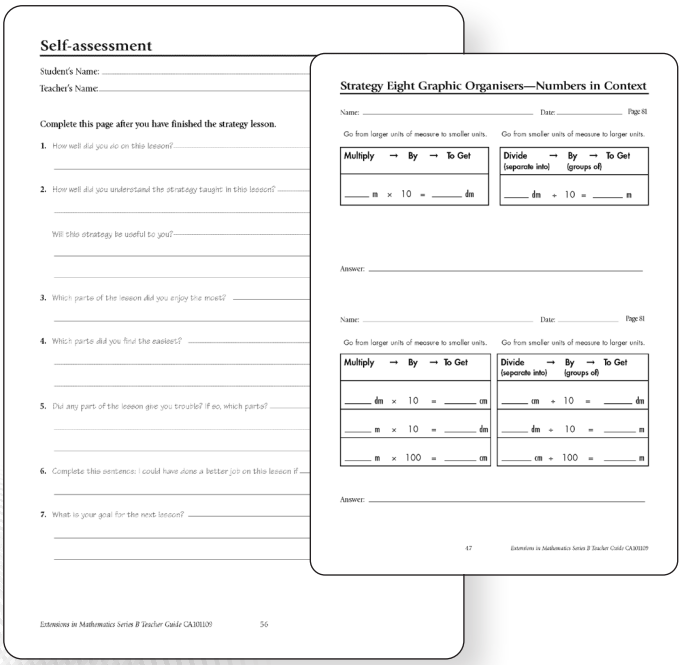
Teacher's Guide Includes:

- Suggested Schedule: The general recommendation is one week per strategy lesson.
- Eight teaching lessons to introduce each strategy and lead students through the ten-page strategy lesson in their Student Book. Suggestions are given for completing the graphic organisers. Solutions to the problems and sample explanations are provided for Solve a Problem. Answers are also provided for Check Your Understanding.
- Answers to the selected-response and short-answer questions in the practice lessons and the reviews.
- Reproducible graphic organisers and cloze-format explanations for Solve a Problem, Numbers in Context and Check Your Understanding activities.
- A reproducible Self-assessment sheet for students after they complete each lesson. Its purpose is to increase students' awareness of their own learning and help them set goals for improvement.



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