Table of Contents

Acknowledgments

Product Development and Design by Chameleon Publishing Services
Illustrated by Leslie Alfred McGrath

Originally published in 2006 by Curriculum Associates

CURRICULUM ASSOCIATES®, INC.

Republished in Australia by

hawker brownlow. publishing

PO Box 40, Southland Centre, Vic 3192
Phone: (03) 8518 6600
Website: www.hawkerbrownlow.com
Email: orders@hawkerbrownlow.com

Printed in Australia

ISBN: 978 1 923142 83 1
Code: CA101169
1223
HBP edition

For the Teacher

About the Program

The ***Extensions in Mathematics Series, Books A–H,*** is a program that uses graphic organisers to teach mathematics strategies. Each lesson provides instruction for using a graphic organiser that facilitates the learning of the strategy. The program guides students to become logical maths thinkers who can break maths problems into steps in order to find solutions.

The goals of the program are

- to teach students how to understand maths concepts and solve problems through the use of graphic organisers.
- to move students from solving problems with the aid of graphic organisers to solving problems mathematically.
- to promote the use of graphic organisers as a way of understanding new maths concepts in the future and as a strategy for approaching difficult problems.

The program is geared to prepare students for the types of questions asked in standardised tests. Students practise short-response, extended-response and selected-response answer formats. They learn how to find solutions to problems and to write explanations of their solutions. To solve problems, they gather information from the context of reading selections.

In ***Extensions in Mathematics, Book H,*** students work with the following 12 mathematics strategies and related graphic organisers.

- Building Number Sense (place-value ladder, scientific-notation converter)
- Using Estimation (clock face, squares-and-roots line)
- Applying Addition (number line, separator)
- Applying Subtraction (separator, table)
- Applying Multiplication (addition box, scientific-notation W diagram)
- Applying Division (subtraction box, scientific-notation W diagram)
- Converting Time and Money (number line, flowchart)
- Working with Measurements (equivalency finder)
- Using Algebra (coordinate graph, flowchart)
- Using Geometry (diagram of parallel lines and a transversal, right-angled triangle)
- Determining Probability and Averages (line graph, table)
- Interpreting Graphs and Charts (scatter plot, spreadsheet)

Contents of the Student Book

The Student Book contains 12 ten-page strategy lessons and one five-page review lesson.

STRATEGY LESSONS

Learn About the Strategy

- *Thinking about the strategy:* Students read about the strategy and a subskill, and are presented with a problem. A completed graphic organiser is introduced as a means for solving the problem. Students study the graphic organiser and the solution.
- *Studying the problem:* Students read a passage that presents a strategy-based problem. Margin notes guide students to find the information they need to solve the problem.
- *Studying the solution:* Students learn the purpose of the specific graphic organiser. They are given the completed organiser, which provides the solution to the problem presented in 'Studying the problem.'
- *Understanding the solution:* An explanation of the procedural steps to solving the problem provides a model for students' own analyses. Students refer to this model when writing their own explanations later in the lesson. The solution to the problem is provided.

Solve a Problem

- *Studying the problem:* Students read a passage that presents a strategy-based problem.
- *Finding the solution:* Students complete a graphic organiser to solve the problem presented in 'Studying the problem.'
- *Explaining the solution:* Students re-read a model for explaining a solution. They then write their own explanation of how they solved the problem on the preceding page.
- *Applying the solution:* Students answer questions about their completed graphic organiser and do related problems.

Learn More About the Strategy

- *Thinking about the strategy:* Students read about another aspect of the strategy and are presented with a new problem and a new graphic organiser. Students study the completed graphic organiser and the solution to the problem.
- *Understanding the solution:* Students read a model explanation of the solution to the preceding problem. Margin notes highlight each step in solving the problem.

Solve a Problem

- *Finding the solution:* Students read a problem that relates to the strategy. They complete a graphic organiser to solve the problem and write their solution.
- *Explaining the solution:* Students write their own explanation of how they solved the preceding problem.

Numbers in Context

Students read a passage, paying special attention to the presentation of numbers in the passage. On the facing page, students complete graphic organisers to answer two questions, one for each aspect of the strategy presented in the lesson. Both questions require a short-response answer. Students then explain their solution to either of the preceding questions.

Check Your Understanding

Students answer eight selected-response questions, one short-response question and one extended-response question. Students may choose to use the lesson's graphic organisers to complete questions 9 and 10.

Extend Your Learning

Students are given two extension activities to do independently or with others. The second activity is cross-curricular.

REVIEW LESSON

The review lesson consists of six Numbers-in-Context passages, each followed by selected-response and short-answer questions. At the end of the lesson, students choose two questions and write explanations of their solutions. All 12 strategies are assessed.

Contents of the Teacher Guide

This Teacher Guide includes

- a chart showing a suggested schedule. The general recommendation is one week per strategy lesson.
- 12 teaching lessons to help you 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 questions in the review.
- reproducible sheets with the graphic organisers (both scaffolded and blank) that are in the Student Book.
- a reproducible Self-assessment sheet for students to use after completing each lesson. Its purpose is to increase students' awareness of their own learning and help them set goals for improvement.
- a reproducible Teacher Assessment sheet for you to use for each student.
- reproducible Answer Forms for students to use. Distribute copies of the Answer Forms if you prefer to have students practise using a separate answer sheet like the one in standardised tests, rather than to have them record their answers on the Check Your Understanding and review lesson pages in the Student Book. For the last item on those pages, students will need separate paper to write their responses.
- Answer Keys, completed Answer Forms, for you to check students' answers.