

INTRODUCTION

What is the *FOCUS* series?

FOCUS is a mathematics-strategy practice series. Each student book in the series provides brief instruction and concentrated practice for students in one targeted Mathematics Strategy. *FOCUS* also allows students the opportunity for self-assessment of their performance. It allows teachers the opportunity to identify and assess a student's level of mastery.

Six Mathematics Strategies featured in the *FOCUS* series:

- Building Number Sense
- Using Estimation
- Using Algebra
- Using Geometry
- Determining Probability and Averages
- Interpreting Graphs and Charts

The *FOCUS* series spans eight year levels, from year one to year eight. The introductory passages in each lesson are written at or below year level, allowing students to focus on the mathematics without struggling with the reading.

Book	Reading Level
Book A	at or below year one readability
Book B	at or below year two readability
Book C	at or below year three readability
Book D	at or below year four readability
Book E	at or below year five readability
Book F	at or below year six readability
Book G	at or below year seven readability
Book H	at or below year eight readability

What is Using Algebra, the Mathematics Strategy featured in this *FOCUS* book?

Algebra is the strand of mathematics that focuses on relationships among quantities and on the different ways to represent these relationships. One such representation uses numbers, symbols and variables. These elements can be combined to describe a mathematical situation. In the earlier years, students learn to use number sentences, which consist of numbers, symbols such as $+$, $-$, \times , \div , $=$ and variables that identify missing information. Variables are typically shown as blanks or boxes in years one and two. Beginning in year three, letter variables are introduced.

As they progress through the year levels, students learn about different kinds of representations of relationships. They write and solve equations, expressions and inequalities. Students learn to translate among different representations, such as equations, tables of values and graphs. These concepts lead to more comprehensive understanding of functions.

Patterns appear frequently in algebra problems. Some patterns appear as a list of sequentially ordered numbers. Other patterns appear as IN and OUT boxes or in tables. Students find missing elements and extend both number and geometric patterns. Patterns are one more way of representing relationships.

What is in each student book?

There are 48 student books in the *FOCUS* series. There is one student book for each of the six Mathematics Strategies, at each of the eight mathematics levels. Each student book contains:

- *To the Student*
This introduces the program and should be read and discussed with students to make sure they understand what they are to do in the book.
- *Table of Contents*
- *Learn About (Modelled Practice)*
These two pages provide basic instruction and modelling in the understanding and application of the Mathematics Strategy. The Learn About should be read and discussed with students to make sure they understand the Mathematics Strategy. Additional tips for helping students understand and use the Mathematics Strategy are included in the Mathematics Strategy Tips for the Teacher on pages 12–13 of this teacher guide.
- *Lesson Preview (Guided Practice)*
These two pages include a sample problem and two selected-response questions with explanations of why each of the eight answer choices is correct or not correct. The Lesson Preview should be read, worked through and discussed with students to make sure they understand how to answer strategy-based questions.
- *20 Lessons (Independent Practice)*
Each two-page lesson contains one passage, four strategy-based selected-response questions and one strategy-based constructed-response writing question.

Selected-response questions: In each lesson, students apply the Mathematics Strategy and then choose the correct answers for four selected-response (multiple-choice) strategy-based questions. You should model how to answer these kinds of questions using information on the Lesson Preview pages.

Constructed-response writing questions: In each lesson, students apply the Mathematics Strategy to solve a strategy-based question. You should model how to answer these kinds of questions by using one of the sample answers provided in the Answer Key.

- *Tracking Chart*
Students use this chart for noting their completion of and performance in each lesson.
- *Self-Assessments*
These five forms allow students the opportunity for self-assessment of their performance.
- *Answer Form*
Students may use this form to record their answers to the eighty selected-response questions and to indicate that they have answered each of the twenty constructed-response writing questions.

What is in each teacher guide?

There are 48 teacher guides in the *FOCUS* series, one for each student book. Each teacher guide contains:

- suggested instructions for using the *FOCUS* series effectively in the classroom
- Mathematics Strategy Tips for the Teacher, a facsimile of the Learn About on pages 2–3 of the student book, with tips for additional discussion related to understanding and using the Mathematics Strategy
- four reproducibles: three Teacher Assessments to be used for individual student assessment in the Mathematics Strategy and one Class or Group Performance Graph to be used for class or group assessment in the Mathematics Strategy
- summary of research that supports the *FOCUS* series
- a completed Answer Form for the eighty selected-response questions in the student book
- an Answer Key for the eighty selected-response questions, plus sample answers for the twenty constructed-response writing questions in the student book

How should I use the Mathematics Strategy Tips for the Teacher?

These pages contain a facsimile of the Learn About on pages 2–3 of the student book, along with extended information about the Mathematics Strategy, which you can use as a basis for in-depth discussion to make sure students understand the strategy and how to use it.

Where do students record their answers?

Students should fill in their answers to the selected-response questions on the Answer Form on page 53 of the student book. If students use the Answer Form, they may detach it from the book. Alternatively, students may fill in the correct answers directly on the student book page.

Students should write their answers to the constructed-response questions directly on the lines provided in the student book. Students who use the Answer Form for the selected-response questions should fill in the circle on the Answer Form to show that they have answered the constructed-response question, which is the fifth question in each lesson.

Teacher Assessment 1

(See Teacher Assessment 1 on page 6 of this teacher guide.)

Student's Name: _____ Teacher's Name: _____

Group 1: Lessons 1–5	Number Correct Responses	Percentage Correct Responses
Lesson 1	/5	%
Lesson 2	/5	%
Lesson 3	/5	%
Lesson 4	/5	%
Lesson 5	/5	%
Group 1 Total	/25	%

Group 2: Lessons 6–10	Number Correct Responses	Percentage Correct Responses
Lesson 6	/5	%
Lesson 7	/5	%
Lesson 8	/5	%
Lesson 9	/5	%
Lesson 10	/5	%
Group 2 Total	/25	%

Group 3: Lessons 11–15	Number Correct Responses	Percentage Correct Responses
Lesson 11	/5	%
Lesson 12	/5	%
Lesson 13	/5	%
Lesson 14	/5	%
Lesson 15	/5	%
Group 3 Total	/25	%

Group 4: Lessons 16–20	Number Correct Responses	Percentage Correct Responses
Lesson 16	/5	%
Lesson 17	/5	%
Lesson 18	/5	%
Lesson 19	/5	%
Lesson 20	/5	%
Group 4 Total	/25	%

Whole Book Total	Number Correct Responses /100	Percentage Correct Responses %

ANSWER KEY (continued)

Lesson 8 (page 20)

1. B 2. C 3. D 4. D

5. Solution: Linda collected 153 stamps this year.

Sample Explanation: *First, I wrote a number sentence.*

$$104 + \square = 257$$

Then I solved the number sentence.

$$104 + 153 = 257$$

$$\square = 153$$

Lesson 9 (page 22)

1. C 2. B 3. A 4. D

5. Solution: There are 45 centimetres of snow left on the ground.

Sample Explanation: *First, I wrote a number sentence.*

$$60 - 15 = \square$$

Then I solved the number sentence.

$$60 - 15 = 45$$

$$\square = 45$$

Lesson 10 (page 24)

1. C 2. D 3. A 4. A

5. Solution: There were 4 people missing.

Sample Explanation: *First, I wrote a number sentence.*

$$25 + \square = 29$$

Then I solved the number sentence.

$$25 + 4 = 29$$

$$\square = 4$$

Lesson 11 (page 26)

1. B 2. D 3. A 4. A

5. Solution: The pattern is add 5. Josh would win 20 games after 4 hours.

Sample Explanation: *I looked at the table.*

The pattern is add 5.

$$5 + 5 = 10$$

$$10 + 5 = 15$$

$$15 + 5 = 20$$

Lesson 12 (page 28)

1. B 2. D 3. D 4. C

5. Solution: Liz collected 13 more postcards than her father did.

Sample Explanation: *First, I wrote a number sentence.*

$$56 - 43 = \square$$

Then I solved the number sentence.

$$56 - 43 = 13$$

$$\square = 13$$

Lesson 13 (page 30)

1. B 2. B 3. C 4. B

5. Solution: The bushwalk took 119 minutes.

Sample Explanation: *I looked at the table.*

The pattern is add 17. I continued the pattern.

$$17 + 17 = 34$$

$$34 + 17 = 51$$

$$51 + 17 = 68$$

$$68 + 17 = 85$$

$$85 + 17 = 102$$

$$102 + 17 = 119$$

Lesson 14 (page 32)

1. D 2. C 3. A 4. C

5. Solution: They used 44 blocks in all.

Sample Explanation: *First, I wrote a number sentence.*

$$12 + 24 + 8 = \square$$

Then I solved the number sentence.

$$12 + 24 + 8 = 44$$

$$\square = 44$$

Lesson 15 (page 34)

1. C 2. B 3. B 4. B

5. Solution: The next three trains will be green, blue and red.

Sample Explanation: *I looked at the colours of the trains. The pattern is red, blue, green, blue, red blue, green, blue, etc. I continued this pattern for the next three trains.*