

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 Geometry, the Mathematics Strategy featured in this *FOCUS* book?

Geometry involves the mathematical study of figures, lines and angles. Students begin their work with geometry by learning to identify common plane figures and solid figures. Most plane figures are polygons. Polygons are identified by their number of sides and angles, and solid figures are identified by their number of faces and edges and the shape of the faces. In the early years, students learn to identify polygons that have lines of symmetry. As students progress through the year levels, they learn to calculate the sum of a polygon's angle measures. They also learn to count the number of visible faces on a solid figure or a group of solid figures.

Students calculate various measures for plane figures and solid figures. They learn to calculate the perimeter, circumference and area of plane figures. Starting in year five, students learn to calculate the volume of solid figures such as rectangular prisms, cylinders and spheres. The figures and the calculations increase in complexity as students move through the year levels.

In years seven and eight, students use the Pythagorean theorem to find missing side lengths on right-angle triangles. They also learn about the relationships between the angles formed by two parallel lines and a transversal. Students use their knowledge of supplementary angles, corresponding angles and vertical angles to identify missing angle measures and to solve problems.

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.

What is the correction procedure?

For the best results, correct each lesson orally with students immediately following its completion. You may correct the lessons with the students individually or as a class or group. Allow approximately 30 minutes for students to read the passage and answer the five questions. Allow 15 minutes for correction and discussion.

For the selected-response questions, read the correct responses. Discuss why the correct answer choices are correct and why the remaining answer choices are not correct, as modelled on page 5 of the Lesson Preview in the student book. Explain to students any content or concepts that they may not fully understand. Allow time for students to share their strategies for answering the questions.

For the constructed-response question, invite students to read their responses. Discuss why various responses are correct or not correct. A correct student response will be similar in content and scope to the sample answer provided in the Answer Key. You might choose to read the sample answer to the students.

You may decide to correct and discuss lessons after students have completed each group of five lessons, instead of after each lesson.

After the whole class or group of students has completed each group of five lessons, allot about 25 minutes of class time for discussion of all the lessons.

What is the Tracking Chart, and how is it used?

The Tracking Chart on page 47 of each student book allows students to track completion of and performance in each lesson in the book. Students record the date they have completed each lesson and then, after their work has been corrected, they record the number of questions that they answered correctly out of the five questions in the lesson. You should check to make sure that students accurately correct their answers and record their information.

The chart is grouped in sections of five lessons (Lessons 1–5, 6–10, 11–15 and 16–20). After students have finished each group of five lessons, they complete a Self-Assessment, which helps them assess their performance and set goals.

What forms of assessment are featured in the *FOCUS* series, and how are they used?

In addition to problems with strategy-based questions, *FOCUS* also contains student Self-Assessments and Teacher Assessments.

Self-Assessments

Students become more successful in mathematics after they have assessed their own performance against known standards. Some difficulties that students experience can be best revealed through self-assessment. This is especially important if the difficulties have been previously unknown to the teacher. Self-assessment enables students to focus on the process of performance as well as on end results. Student self-assessments are a valuable tool for students, and they help the teacher gain insight into each student's measure of performance.

Teacher Assessments

You complete the Teacher Assessments after students have completed groups of lessons and their work has been corrected. The purpose of teacher assessment is to let you track and graph students' performance in the *FOCUS* book so that you can move each student forward or provide remediation before moving a student forward.

Teacher Assessment 1

(reproducible on page 14 of teacher guide)

Teacher Assessment 1, like the student Tracking Chart, is grouped in four sections of five lessons each. Group 1 spans Lessons 1–5, Group 2 spans Lessons 6–10, Group 3 spans Lessons 11–15 and Group 4 spans Lessons 16–20. After students have finished each group of five lessons and their work has been corrected, use the information from the Tracking Chart to fill in the corresponding section of Teacher Assessment 1.

For each lesson in a group, record the total number of correct responses out of 5 possible correct responses, in ratio form. For example, if a student answered 3 out of 5 questions correctly, the ratio would be $3/5$. Then record the percentage of correct responses in the lesson. In each lesson, each correct response is worth 20%. For example, a student with 3 correct responses would have $3 \times 20\%$, or 60% correct responses.

When you have filled in all the lessons in a group, record the total number of correct responses out of 25 possible correct responses in the group, in ratio and percentage form. For the group total, each correct response is worth 4%.

When you have filled in all four groups of lessons, record the total number of correct responses out of 100 possible correct responses in the book, in ratio and percentage form. For the whole-book total, each correct response is worth 1%.

Assessment, Conferencing and Remediation

Use the information on Teacher Assessment 1 to determine each student's performance. A student scoring 100% correct responses in two or more groups of lessons may be ready to go on to another book in the *FOCUS* series. A student scoring 72% or fewer correct responses in one or more groups of lessons may be having difficulty. Set up a one-on-one conference. Use the student's Self-Assessment for that group of lessons as a base for discussion to determine the nature of the difficulty. Is the difficulty related to reading the passages, to understanding specific vocabulary or content, or to understanding how to apply the Mathematics Strategy?

If the student is having difficulty solving the problems, have the student return to the previous *FOCUS* book for that Mathematics Strategy before continuing in the current *FOCUS* book. For example, if the student is having difficulty solving a problem in a *FOCUS* Book C, have the student return to the corresponding *FOCUS* Book B before continuing with Book C. When the student returns to Book C, track the student's performance on a lesson-by-lesson basis.

If the student is having difficulty understanding content concepts in specific lessons, work through those problems with the student to determine the nature of the difficulty. Then provide clarification or instruction, as appropriate. You may wish to pair students who are having difficulty with students who are not having difficulty.

How should I use the **FOCUS** series in the classroom?

The **FOCUS** series can be used effectively in the classroom in several ways. Here is a suggestion for using the program in **whole class, large group, small group, paired** and **individual** formats.

To the Student

(inside front cover of the student book)

Read and discuss this with the whole class or large group to make sure students understand what they are to do in the book.

Learn About

(pages 2–3 of the student book)

Read the two pages of instruction in the Mathematics Strategy to the whole class or large group. Model using the Mathematics Strategy. Use information from the Mathematics Strategy Tips for the Teacher on pages 12–13 of this teacher guide to prompt additional in-depth discussion of the Mathematics Strategy, as appropriate. Make sure all students understand the features of the Mathematics Strategy and how to apply the Mathematics Strategy before they go on. The Learn About requires approximately 45 minutes.

Lesson Preview

(pages 4–5 of the student book)

Read the boxed directions to the whole class or large group. Emphasise what students should watch for as they read the problem. Have students read the problem individually. Guide the whole class or large group in answering the two selected-response questions. Then discuss why each answer choice is correct or not correct. Make sure all students understand how to answer the Mathematics Strategy questions before they go on. The Lesson Preview requires approximately 45 minutes.

Lessons

(pages 6–45 of the student book)

For each lesson, have students read the directions and the passage individually, in pairs or in small groups. Have students answer the selected-response questions and the constructed-response question individually, in pairs or in small groups.

Have students use the Tracking Chart on page 47 of the student book to note the date that they have finished each lesson. When the questions in all five lessons in a group have been corrected, have students note the number of correct responses for each lesson and then the number of correct responses for the whole group of lessons.

Each lesson, plus tracking, requires approximately 45 minutes. Allow students 30 minutes to read the passage and answer the questions, and allow 15 minutes to discuss the responses. Discuss the answers to the questions with the whole class or large group, or with pairs, small groups or individuals. (See **What is the correction procedure?** on page 4 of this teacher guide.)

Self-Assessment: When students have finished each group of five lessons, have them complete the appropriate Self-Assessment. When students have finished all twenty lessons, have them complete Self-Assessment 5. Each Self-Assessment requires approximately 20 minutes.

Discussion: When students have finished each group of five lessons, discuss their performance individually or in small groups. When students have finished all twenty lessons, discuss their performance individually or in small groups. Each discussion requires approximately 25 minutes.