SAMPLE LESSONS BOOKLET LEVEL D

TOPICS COVERED: BUILDING NUMBER SENSE, USING GEOMETRY, USING ESTIMATION, DETERMINING PROBABILITY AND AVERAGES, USING ALGEBRA, INTERPRETING GRAPHS AND CHARTS

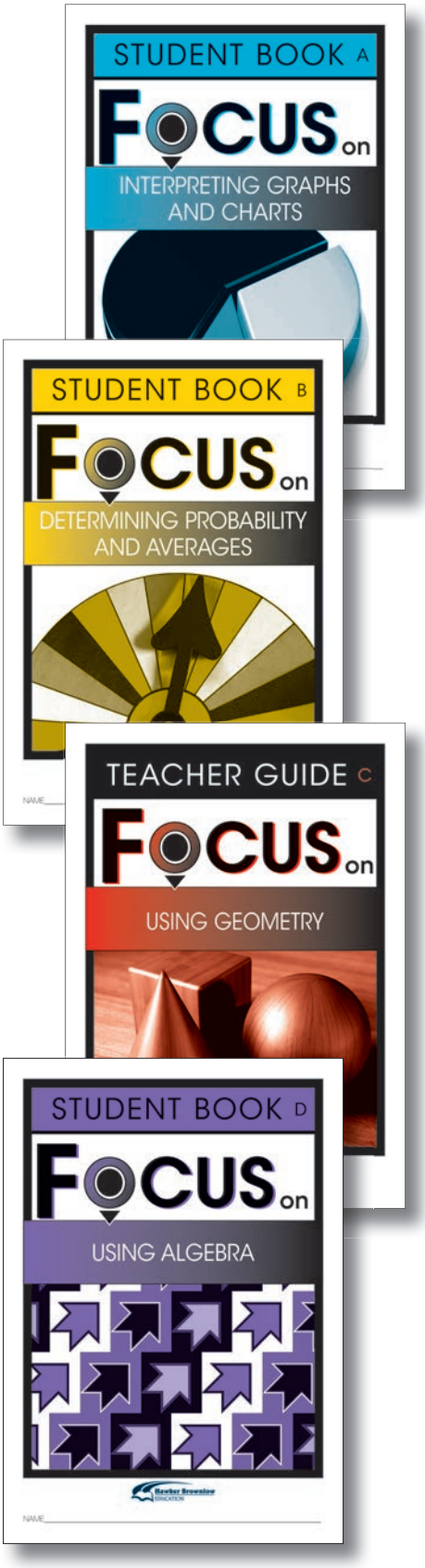
NEW!

FOCUS on Mathematics Series

Hawker Brownlow EDUCATION

Raise understanding and achievement in maths

FOCUS on Mathematics is a maths-strategy practice series that aids all students, including struggling students, to achieve mathematical success. Mastery of core maths strategies is a difficult task to fulfil because students must learn to identify and apply abstract maths concepts and strategies. The *FOCUS on Mathematics* series makes maths mastery attainable by providing semi-concrete tools for students to use in identifying more complex maths strategies. With repeated practice and exposure, students become confident in their ability to use strategies to solve maths problems. The *FOCUS on Mathematics* series is based in well-researched teaching and learning strategies, which means that teachers will engage their students with an educationally sound mathematics practice program.



The FOCUS on Mathematics series covers:

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

From Research to Application:

The *FOCUS on Mathematics* series provides repeated and focused practice of key maths strategies in the context of word problems. With more than 800 word problems in the series, students gain multiple opportunities to practise core maths concepts and strategies.

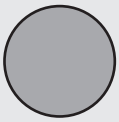
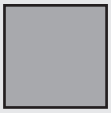
Each Student Book features:

- Learn About – overview with instruction and modelling
- Preview – guided practice with scaffolding, plus sample questions with correct and incorrect responses for discussion
- 20 independent practice lessons
- 5 self-assessments

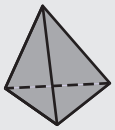
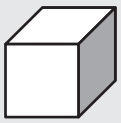
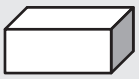
Learn About

Using Geometry: Plane Figures and Solid Figures

Plane figures are flat. Five kinds of plane figures are shown here.

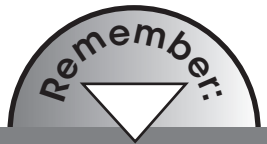
Plane Figures				
Circle	Triangle	Square	Rectangle	Pentagon
				
0 sides 0 angles	3 sides 3 angles	4 equal sides 4 right angles	2 pairs of equal sides 4 right angles	5 sides 5 angles

Solid figures are *not* flat. The sides on a solid figure are called **faces.** Two faces meet at an **edge.**

Solid Figures					
Triangular Pyramid	Sphere	Cylinder	Cube	Rectangular Prism	Triangular Prism
					
4 faces 6 edges	0 faces 0 edges	2 faces 0 edges	6 square faces 12 edges	6 faces 12 edges	5 faces 9 edges

Name the figures shown. Which is a plane figure? Which is a solid figure?

The figures are a **pentagon** and a **cylinder.** The pentagon is a plane figure. The cylinder is a solid figure.



Plane figures are flat. **Solid figures** are *not* flat. The sides on a solid figure are called **faces.** Two faces meet at an **edge.**

Learn About

Using Geometry: Perimeter a

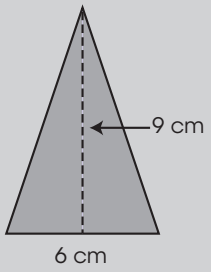
The distance around a figure is called the
The perimeter of a figure is found by addi
of the figure's sides.

5 + 5 + 3 + 3 + 3 + 3 = 22 cm.

Area is the amount of space covered by a plane figure. The formulas in the table are used to find the area of a triangle, a square and a rectangle.

Triangle	Area = $\frac{1}{2}$ × base × height
Square	Area = length × width
Rectangle	Area = length × width

Rena drew this triangle in maths class. What is the area of the triangle?



This triangle's base is 6 centimetres. It has a height of 9 centimetres.

Area = $\frac{1}{2}$ × base × height
= $\frac{1}{2}$ × 6 × 9
= $\frac{1}{2}$ × 54
= 27 cm^2

The triangle's area is **27 square centimetres.**

Remember:

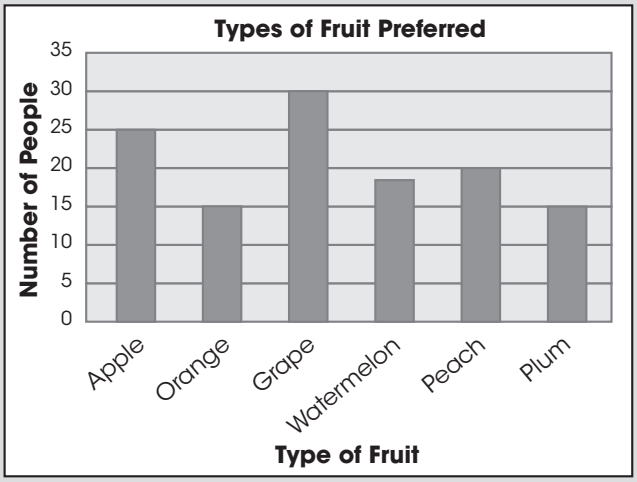
The distance around a figure is called the perimeter. The perimeter of a figure is found by adding the lengths of the figure's sides. Area is the amount of space covered by a plane figure.

Lesson Preview

Read these sample problems.

Interpreting Graphs and Charts

Mark and Martine surveyed random people to find which type of fruit they preferred. Mark made the bar graph showing how many people preferred each type of fruit. Martine made a chart showing the ages of the people surveyed.



Age	Number of People
9 or younger	𝍸
10–14	𝍸
15–19	𝍸 𝍸
20–24	𝍸 𝍸
25–29	𝍸 𝍸
30–34	𝍸 𝍸 𝍸
35–39	𝍸 𝍸 𝍸 𝍸
40–44	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
45–49	𝍸 𝍸
50–54	𝍸 𝍸
55–59	𝍸
60 or older	𝍸

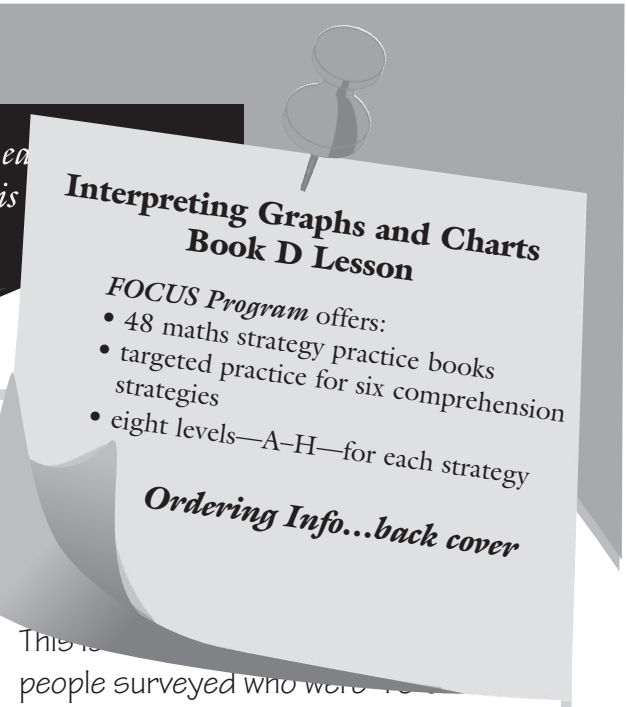
1. How many people surveyed preferred watermelon?

Ⓐ 10 people
Ⓑ 15 people
Ⓒ 18 people
Ⓓ 20 people

2. How many people surveyed were 19 or younger?

Ⓐ 16 people
Ⓑ 14 people
Ⓒ 12 people
Ⓓ 8 people

Look at the answer choices for ea
Read why each answer choice is
not correct.



1. How many people surveyed preferred watermelon?

Ⓐ 10 people

This is not correct. The bar for watermelon lines up with a number between 15 and 20. So, 10 cannot be correct.

Ⓑ 15 people

This is not correct. The bar for watermelon lines up with a number between 15 and 20. It is higher than the line for 15.

● 18 people

This is correct. The bar for watermelon lines up with a number between 15 and 20. It is closer to 20 than to 15, so 18 is reasonable.

Ⓓ 20 people

This is not correct. The bar for watermelon lines up with a number between 15 and 20, but it is below the line for 20.

2. H

This is
people surveyed who were 19 or younger is equal to the sum of the number of people 9 or younger, 10–14 and 15–19.
3 + 5 + 8 = 16 people.

Ⓑ 14 people

This is not correct. The number of people surveyed who were 19 or younger is equal to the sum of the number of people 9 or younger, 10–14 and 15–19.
3 + 5 + 8 = 16 people, not 14.

Ⓒ 12 people

This is not correct. The number of people surveyed who were 19 or younger is equal to the sum of the number of people 9 or younger, 10–14 and 15–19.
3 + 5 + 8 = 16 people, not 12.

Ⓓ 8 people

This is not correct. The number of people surveyed who were 19 or younger is equal to the sum of the number of people 9 or younger, 10–14 and 15–19.
3 + 5 + 8 = 16 people, not 8.

Lesson 12

Read the passage.
Then do Numbers 1–5.

Battle of the Bands

Mia plays the flute in her school band. The band is getting ready for a competition. Over 50 school bands will compete. The bands will perform in an outdoor park. Mia's family is going to the competition. They will cheer for Mia and her schoolmates.

1. The first four bands that performed had 48, 62, 55 and 91 members. What is the average number of members in the four bands?

Ⓐ 52 members
Ⓑ 58 members
Ⓒ 64 members
Ⓓ 72 members

2. Each band must play a march, a modern song and a show tune. Mia's band knows three marches, six modern songs and four show tunes. How many combinations of marches, modern songs and show tunes can the band director choose from?

Ⓐ 13 combinations
Ⓑ 18 combinations
Ⓒ 48 combinations
Ⓓ 72 combinations

3. In Mia's band, eight students play the flute, four students play the trumpet and six students play drums. The band director writes the names of these eighteen students on pieces of paper and places them in a box. The director pulls a name out of the box. What is the probability that the name of the student is a drummer?

Ⓐ $\frac{1}{6}$

Ⓑ $\frac{6}{18}$

Ⓒ $\frac{6}{12}$

Ⓓ $\frac{6}{6}$

4. The … before the con… The… $2\frac{1}{2}$ wa… av… p…

Ⓒ 2_2

Ⓓ 2 hours

5. In Mia's school band, there are 12 year five students, 18 year six students, 16 year seven students and 10 year eight students. The name of each band member is written on a card and placed in a bag. The director then pulls a name. What is the probability that the name selected will *not* be in year seven? Show your work in the space below. Remember to check your solution.

Write your solution.

_____

_____

Explain how you found your solution.

_____

_____

_____

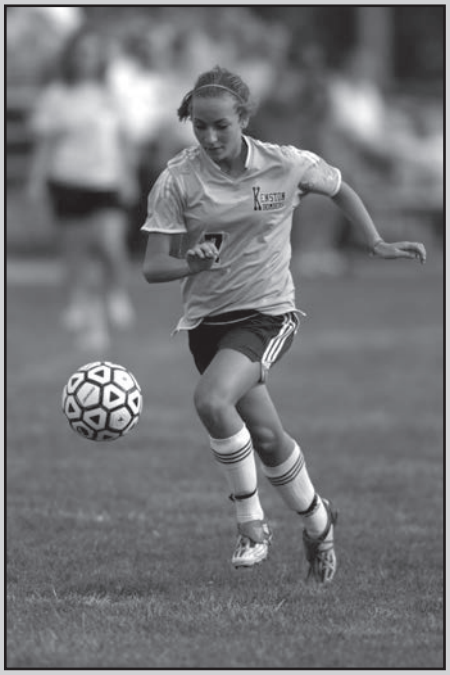
_____

Lesson 9

Read the passage.
Then do Numbers 1–5.

A Winning Season

Becky, Deni and Mel all play for the Hawks soccer team. The team has won 14 games this season. The girls have one more game left to play for the championship. If the Hawks win the game, the players will receive the winning trophy. The girls have been practising extra hard to win the championship.



1. One group of numbers below contains the numbers that appear on the shirts of four Hawks players. The number on each of the shirts is a multiple of 9. Which group contains these four numbers?

Ⓐ 19, 39, 29, 9
Ⓑ 45, 26, 9, 81
Ⓒ 27, 90, 19, 63
Ⓓ 54, 18, 72, 36

2. During one practice, the coach put the 18 players on the team into 6 equal groups. Which equation can help you find the number of players in each group?

Ⓐ $6 \times 18 = p$
Ⓑ $18 = p \times 6$
Ⓒ $p = 18 - 6$
Ⓓ $18 + 6 = p$

3. **The missing number in the pattern below is the same as the age of the oldest player in the Hawks team. What is that number?**

$21\frac{1}{2}$, 19, $16\frac{1}{2}$, 14, ___

Ⓐ $13\frac{1}{2}$

Ⓑ 12

Ⓒ $11\frac{1}{2}$

Ⓓ 11

4. **A t**
Ha
sea
sec
ga
ar
f

Ⓑ 7[illegible]

Ⓒ 87 people

Ⓓ 89 people

5. **During the season, Becky scored 4 more goals than Mel. Mel scored 1 less goal than Deni. Deni scored 12 goals. How many goals did the girls score in all? Write equations with boxes or letters as unknowns. Show your work in the space below. Remember to check your solution.**

Write your solution.

_____

_____

Explain how you found your solution.

_____

_____

_____

_____

Lesson 17

Read the passage.
Then do Numbers 1–5.

Seven Continents

Wendy is learning about the continents. She has learned many facts. There are seven continents. Asia is the largest continent and has the most people. Africa has the most countries. Antarctica is larger than Europe, but hardly any people live there. Australia is the smallest continent. It is the only continent that is an island. Wendy would like to visit South America one day.

1. The area of North America is 24,256,000 square kilometres. What is the area of North America rounded to the nearest ten thousand?

Ⓐ 20,000,000 square kilometres
Ⓑ 24,000,000 square kilometres
Ⓒ 24,256,000 square kilometres
Ⓓ 24,260,000 square kilometres

2. The area of Africa, rounded to the nearest million, is about 30,000,000 square kilometres. Which of the following numbers, when rounded to the nearest million, is 30,000,000?

Ⓐ 30,065,000
Ⓑ 30,589,113
Ⓒ 30,702,900
Ⓓ 30,955,400

3. **The area of Antarctica is 13,209,000 square kilometres. The area of Europe is 9,938,000 square kilometres. Estimate the difference in the areas of Antarctica and Europe to the nearest million square kilometres.**

   Ⓐ Antarctica is about 1,000,000 square kilometres larger than Europe.
   Ⓑ Antarctica is about 2,000,000 square kilometres larger than Europe.
   Ⓒ Antarctica is about 3,000,000 square kilometres larger than Europe.
   Ⓓ Antarctica is about 4,000,000 square kilometres larger than Europe.

4. **The**
   rou
   is 1
   Wh
   wh
   th

5. **North America has an area of 24,256,000 square kilometres. The area of Australia is 7,687,000 square kilometres. Mia says that North America is about three times larger than Australia. Round the numbers to the nearest million. Do you agree with her? Why or why not? Show your work in the space below. Remember to check your solution.**

Write your solution.

_____

_____

Explain how you found your solution.

_____

_____

_____

_____

Lesson 6

Read the passage.
Then do Numbers 1–5.

Sydney Harbour Bridge

Thousands of people visit the Sydney Harbour Bridge each year. Visitors can climb 200 steps to reach the top of the bridge. If they wish they can then climb all the way along the top of the arch to the other side of the bridge! After reaching the top, adventurers enjoy a bird's-eye view of Sydney and its beautiful harbour.

1. The Sydney Harbour Bridge was completed on 19 January 1932. What is the value of the 1 in 1932?

Ⓐ 100
Ⓑ 1000
Ⓒ 10,000
Ⓓ 100,000

2. The bridge weighs 52,800 tonnes. What is the word form of the number 52,800?

Ⓐ Five thousand and fifty four
Ⓑ Five thousand, two hundred and eighty
Ⓒ Fifty-two thousand and eighty
Ⓓ Fifty-two thousand, eight hundred

3. **272,000 litres of paint were used to paint the Sydney Harbour Bridge. What is the place value of the first 2 in 272,000?**

   Ⓐ hundreds
   Ⓑ ten thousands
   Ⓒ hundred thousands
   Ⓓ millions

4. **One** **six thousand, fou** **cro** **one** **for**

   Ⓐ

   + 9

5. **In 1932 the cost of building the bridge was $9,431,144. What is the sum of the digits in the hundreds place, the ten thousands place and the millions place of this number? Show your work in the space below. Remember to check your solution.**

Write your solution.

_____

_____

Explain how you found your solution.

_____

_____

_____

_____

Lesson 14

Read the passage.
Then do Numbers 1–5.

First Day of School

Mr Wilson is getting his classroom ready for the first day of school. He arranged the desks in neat rows. He placed a stack of books on each desk. Then he decorated the room with posters. He wants his students to feel welcome when they enter their new classroom tomorrow.

1. Mr Wilson taped a map of the world to a classroom wall. The map is a square that is two metres long and three metres wide. How much of the wall does the map cover?

Ⓐ 4 square metres
Ⓑ 5 square metres
Ⓒ 6 square metres
Ⓓ 10 square metres

2. Mr Wilson taped a poster across the front of the classroom. The rectangular poster is 1.5 metres long and 2 metres wide. What is the distance around the outer edges of the poster?

Ⓐ 3 metres
Ⓑ 3.5 metres
Ⓒ 6 metres
Ⓓ 7 metres

3. **On a noticeboard, Mr Wilson pinned a square piece of paper with 8-centimetre sides. He also pinned a triangular piece of paper with a height of 8 centimetres and a base of 10 centimetres. How much of the noticeboard was covered by the two plane figures?**

Ⓐ 100 square centimetres
Ⓑ 104 square centimetres
Ⓒ 120 square centimetres
Ⓓ 144 square centimetres

4. **Mr**
met
Ho
cov
Ⓐ
Ⓑ
(

5. **There are two noticeboards in Mr Wilson's classroom. One board is a square with sides that are 2 metres long. The other board is a rectangle that is 2 metres long by 1 metre wide. Mr Wilson wants to put the same decorative border around the boards. How many metres of border does he need? Show your work in the space below. Remember to check your solution.**

Write your solution.

_____

_____

Explain how you found your solution.

_____

_____

_____

_____

FOCUS on Mathematics Series

FOCUS on Mathematics Series Management Software

- Windows VistaTM Ultimate, Business or Home – Pentium III 800MHz or faster with 512 MB RAM; 40 MB free hard disk space
- Windows XP (Service Pack 2) – Pentium III 500MHz or faster with 256 MB RAM; 40 MB free hard disk space.
- Macintosh – OS X 10.5; PowerPCTM G4 (867MHz+), PowerPC G5, or Intel-based Mac; 512 MB of RAM; 40 RAM free hard disk space.
- Macintosh – OS X 10.4.8: PowerPCTM G3, G4, G5 or Intel-based Mac; 256 MB of Ram; 40 MB free hard disk space.

Additional Requirements:
Adobe Acrobat Reader required to view the ReadMe/Help file from within the software; also available as an HTML file on the Installation CD. Microsoft Excel required to export student records

CA11304 • $49.95

ORDER FORM

Building Number Sense

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11212	$30.00 (Pack of 5)		CA112129	$9.95	
B	2.0-2.9	CA11213	$30.00 (Pack of 5)		CA112139	$9.95	
C	3.0-3.9	CA11214	$30.00 (Pack of 5)		CA112149	$9.95	
D	4.0-4.9	CA11215	$30.00 (Pack of 5)		CA112159	$9.95	
E	5.0-5.9	CA11216	$30.00 (Pack of 5)		CA112169	$9.95	
F	6.0-6.9	CA11217	$30.00 (Pack of 5)		CA112179	$9.95	
G	7.0-7.9	CA11218	$30.00 (Pack of 5)		CA112189	$9.95	
H	8.0-8.9	CA11219	$30.00 (Pack of 5)		CA112199	$9.95	

Using Estimation

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11244	$30.00 (Pack of 5)		CA112449	$9.95	
B	2.0-2.9	CA11245	$30.00 (Pack of 5)		CA112459	$9.95	
C	3.0-3.9	CA11246	$30.00 (Pack of 5)		CA112469	$9.95	
D	4.0-4.9	CA11247	$30.00 (Pack of 5)		CA112479	$9.95	
E	5.0-5.9	CA11248	$30.00 (Pack of 5)		CA112489	$9.95	
F	6.0-6.9	CA11249	$30.00 (Pack of 5)		CA112499	$9.95	
G	7.0-7.9	CA11250	$30.00 (Pack of 5)		CA112509	$9.95	
H	8.0-8.9	CA11251	$30.00 (Pack of 5)		CA112519	$9.95	

Using Algebra

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11236	$30.00 (Pack of 5)		CA112369	$9.95	
B	2.0-2.9	CA11237	$30.00 (Pack of 5)		CA112379	$9.95	
C	3.0-3.9	CA11238	$30.00 (Pack of 5)		CA112389	$9.95	
D	4.0-4.9	CA11239	$30.00 (Pack of 5)		CA112399	$9.95	
E	5.0-5.9	CA11240	$30.00 (Pack of 5)		CA112409	$9.95	
F	6.0-6.9	CA11241	$30.00 (Pack of 5)		CA112419	$9.95	
G	7.0-7.9	CA11242	$30.00 (Pack of 5)		CA112429	$9.95	
H	8.0-8.9	CA11243	$30.00 (Pack of 5)		CA112439	$9.95	

Using Geometry

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11252	$30.00 (Pack of 5)		CA112529	$9.95	
B	2.0-2.9	CA11253	$30.00 (Pack of 5)		CA112539	$9.95	
C	3.0-3.9	CA11254	$30.00 (Pack of 5)		CA112549	$9.95	
D	4.0-4.9	CA11255	$30.00 (Pack of 5)		CA112559	$9.95	
E	5.0-5.9	CA11256	$30.00 (Pack of 5)		CA112569	$9.95	
F	6.0-6.9	CA11257	$30.00 (Pack of 5)		CA112579	$9.95	
G	7.0-7.9	CA11258	$30.00 (Pack of 5)		CA112589	$9.95	
H	8.0-8.9	CA11259	$30.00 (Pack of 5)		CA112599	$9.95	

Determining Probability and Averages

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11220	$30.00 (Pack of 5)		CA112209	$9.95	
B	2.0-2.9	CA11221	$30.00 (Pack of 5)		CA112219	$9.95	
C	3.0-3.9	CA11222	$30.00 (Pack of 5)		CA112229	$9.95	
D	4.0-4.9	CA11223	$30.00 (Pack of 5)		CA112239	$9.95	
E	5.0-5.9	CA11224	$30.00 (Pack of 5)		CA112249	$9.95	
F	6.0-6.9	CA11225	$30.00 (Pack of 5)		CA112259	$9.95	
G	7.0-7.9	CA11226	$30.00 (Pack of 5)		CA112269	$9.95	
H	8.0-8.9	CA11227	$30.00 (Pack of 5)		CA112279	$9.95	

Interpreting Graphs and Charts

		Student Books			Teacher Guides		
Book	Year Level	Item #	Price (Pack of 5)	Qty	Item #	Price (each)	Qty
A	1.0-1.9	CA11228	$30.00 (Pack of 5)		CA112289	$9.95	
B	2.0-2.9	CA11229	$30.00 (Pack of 5)		CA112299	$9.95	
C	3.0-3.9	CA11230	$30.00 (Pack of 5)		CA112309	$9.95	
D	4.0-4.9	CA11231	$30.00 (Pack of 5)		CA112319	$9.95	
E	5.0-5.9	CA11232	$30.00 (Pack of 5)		CA112329	$9.95	
F	6.0-6.9	CA11233	$30.00 (Pack of 5)		CA112339	$9.95	
G	7.0-7.9	CA11234	$30.00 (Pack of 5)		CA112349	$9.95	
H	8.0-8.9	CA11235	$30.00 (Pack of 5)		CA112359	$9.95	

Focus Collection – SAVE 10%

YEAR/READING LEVEL COLLECTIONS INCLUDE:
One pack of 5 Student Books and 1 Teacher Guide for each of the six strategy titles in your chosen level (A–H) plus the Management Software. Total of 30 Student Books, 6 Teacher Guides and 1 Management Software CD-ROM: $260.00

An Example: Class Set A – If ordering Class Set A you would receive

- **Building Number Sense** – 5 x Student A Books + 1 x Teacher A Guide
- **Using Estimation** – 5 x Student A Books + 1 x Teacher A Guide
- **Using Algebra** – 5 x Student A Books + 1 x Teacher A Guide
- **Using Geometry** – 5 x Student A Books + 1 x Teacher A Guide
- **Determining Probability and Averages** – 5 x Student A Books + 1 x Teacher A Guide
- **Interpreting Graphs and Charts** – 5 x Student A Books + 1 x Teacher A Guide
- **Classroom Management Software CD-ROM** x 1

Collection	Item #	Price	Qty
Class Set A	CA11314	$260.00	
Class Set B	CA11315	$260.00	
Class Set C	CA11316	$260.00	
Class Set D	CA11317	$260.00	
Class Set E	CA11318	$260.00	
Class Set F	CA11319	$260.00	
Class Set G	CA11320	$260.00	
Class Set H	CA11321	$260.00	
Classroom Management Software	CA11304	$49.95	

Supporting Research Booklets

	Focus on Maths Research Booklet	**CAT032**	**F. O. C**

Terms of Trade
- Prices are quoted in Australian dollars ($AUD) and include GST
- All prices are subject to change without notice.
- For New Zealand customers, at the time of invoice, we will convert the amount into New Zealand dollars ($NZD) so that you can pay by cheque or credit card in New Zealand dollars ($NZD).
- Full money-back guarantee.
- We do realise it is difficult to order sight unseen. To assist you in your selection, please visit our website <www.hbe.com.au>. Go to 'Browse Books' and most titles will give you the option to view the first few pages of the book. Click 'View Contents' on your selected book page.
- We will supply our books on approval, and if they do not suit your requirements we will accept undamaged returns for full credit or refund. Posters are for firm sale only and will not be sent on approval. Please be aware that delivery and return postage is the responsibility of the customer.
- Freight costs are determined at Australia Post rates, with a minimum delivery charge of $9.50 within Australia and $15.00 for New Zealand for each order.
- Please provide your street address for delivery purposes.

Online 'On Account' ordering now available!
If you have a pre-existing account with Hawker Brownlow Education, you can now order online and pay using that account.

To Contact our Sales Rep
VIC contact reception on Toll Free on: 1800 334 603 or orders@hbe.com.au
NSW contact Judy Morrissey on 0414 424 160 or nsw1@hbe.com.au
QLD contact Karen Hofmann on 0439 889 190 or qld1@hbe.com.au

Name: _____
School/Institution: _____
Address: _____
State: _____ Postcode: _____
Phone B.H. (____) _____ A.H. (____) _____
Fax: (____) _____ Mobile: _____
Email: _____

❑ Yes, I would like to receive emails from Hawker Brownlow Education about future workshops, conferences and the latest publications.

Hawker Brownlow EDUCATION
P.O. Box 580, Moorabbin, Victoria 3189, Australia
Phone: +61 3 8558 2444 • Fax: +61 3 8558 2400
Toll-Free Phone: 1800 334 603 • Fax: 1800 150 445
Website: http://www.hbe.com.au
Email: orders@hbe.com.au ABN: 77 093 854 892

CAT017