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Cover design by Eva Ming Ling Kam

Originally published by Curriculum Associates, Inc.
Republished in Australia by

HAWKER BROWNLOW
EDUCATION

P.O. Box 580, Moorabbin,
Victoria 3189, Australia
Phone: (03) 9555 1344 Fax: (03) 9553 4538
Toll Free Ph: 1800 33 4603 Fax: 1800 15 0445
Website: http://www.hbe.com.au
Email: orders@hbe.com.au

Printed in Australia

Code: CA84170
0804

National Library of Australia Cataloguing-in-Publication entry:

Forest, Robert G.
Strategies to achieve mathematics success (STAMS). Book 5.

ISBN 1 74101 189 2.

1. Mathematics – Textbooks. I. Title.

510

PART ONE: Learn about number sense

Study the place-value chart that John made. As you study, think about the place value of each digit and how commas can help you read and understand large numbers.

millions (1,000,000)	hundred thousands (100,000)	ten thousands (10,000)	thousands (1000)	hundreds (100)	tens (10)	ones (1)
3,	2	7	4,	6	9	5

The number 3,274,695 is written as three million, two hundred seventy-four thousand, six hundred and ninety-five.
The number 3,274,695 has seven digits.
The number 3,274,695 has 3 millions, 2 hundred thousands, 7 ten thousands, 4 thousands, 6 hundreds, 9 tens and 5 ones.
The number can be shown as 3,000,000 + 200,000 + 70,000 + 4000 + 600 + 90 + 5 and as $3(10^6) + 2(10^5) + 7(10^4) + 4(10^3) + 6(10^2) + 9(10) + 5(1)$.

Look at some other numbers and how they can be written.
The number 1,632,957,040 is written as one billion, six hundred and thirty-two million, nine hundred and fifty-seven thousand and forty.
The number 5308 has 5 thousands, 3 hundreds, 0 tens and 8 ones.
The number 60,429 can be shown as 60,000 + 400 + 20 + 9 and as $6(10^4) + 4(10^2) + 2(10) + 9(1)$.
The number 7,821,000,000 is 7821 million.

You use **number sense** when you think about the place value of each digit in a number.

- Each digit in a number has a place value, such as ones, tens, hundreds or thousands. The value of a digit depends on its place in a number.
- A comma separates groups of three digits in large numbers. Look at the placement of any commas when trying to determine the value of digits in large numbers.
- A number may be written in digits or in words.

John made another place-value chart. Study the number that John wrote in his chart. Think about each digit and its place value. Then do numbers 1 to 4.

millions (1,000,000)	hundred thousands (100,000)	ten thousands (10,000)	thousands (1000)	hundreds (100)	tens (10)	ones (1)
2,	9	3	6,	7	0	8

1. What is the value of the 6 in John's number?

Ⓐ 60,000
Ⓑ 6000
Ⓒ 600,000
Ⓓ 60

2. What is the value of the 2 in John's number?

Ⓐ 2,000,000
Ⓑ 200,000
Ⓒ 20,000
Ⓓ 20,000,000

3. What is the place value of the 9 in John's number?

Ⓐ 9 thousands
Ⓑ 9 millions
Ⓒ 90 thousands
Ⓓ 9 hundred thousands

4. Which of these is equal to the value of the 3 in John's number?

Ⓐ $3(10^6)$
Ⓑ $3^2 \times 1000$
Ⓒ $3(10^4)$
Ⓓ 3×10^3

Work with a partner.

Talk about your answers to questions 1–4. Explain why you chose the answers you did.

PART TWO: Check your understanding

Remember: You use number sense when you think about the place value of each digit in a number.

- Each digit in a number has a place value, such as ones, tens, hundreds or thousands. The value of a digit depends on its place in a number.
- A comma separates groups of three digits in large numbers. Look at the placement of any commas when trying to determine the value of digits in large numbers.
- A number may be written in digits or in words.

Solve this problem. As you work, ask yourself, 'What does the position of a digit in a number tell me about its place value?'.

5. John's class is learning about whales. A blue whale can weigh as much as 120,000 kilograms. What is the value of the 2 in 120,000?

Ⓐ two hundred thousand
Ⓑ two thousand
Ⓒ twenty thousand
Ⓓ two hundred

Solve another problem. As you work, ask yourself, 'What do any commas tell me about the value of a digit in a large number?'.

6. Last year, John's family went on an overseas trip to Canada. Canada covers an area of 6,159,449 square kilometres. Which of these is *not* equal to the value of the 6 in 6,159,449?

Ⓐ $6(10^6)$
Ⓑ 6,000,000
Ⓒ $(3 \times 2)10^6$
Ⓓ $6^4 \times 100$

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

5. John's class is learning about whales. A blue whale can weigh as much as 120,000 kilograms. What is the value of the 2 in 120,000?

Ⓐ two hundred thousand

This answer is not correct because the 2 is not in the hundred thousands place.

Ⓑ two thousand

This answer is not correct because the 2 is not in the thousands place.

● twenty thousand

This answer is correct because the 2 is in the ten thousands place, and so has a value of twenty thousand.

Ⓓ two hundred

This answer is not correct because the 2 is not in the hundreds place.

6. Last year, John's family went on an overseas trip to Canada. Canada covers an area of 6,159,449 square kilometres. Which of these is *not* equal to the value of the 6 in 6,159,449?

Ⓐ $6(10^6)$

This answer is not correct because it equals 6 × 1,000,000, which equals 6,000,000.

Ⓑ 6,000,000

This answer is not correct because it has the same value as the 6 in 6,159,449.

Ⓒ $(3 \times 2)10^5$

This answer is not correct because it equals 6 × 1,000,000, which equals 6,000,000.

● $6^4 \times 100$

This answer is correct because it equals 1296 × 100 or 129,600, which does not equal 6,000,000.

PART THREE: Learn more about number sense

You use number sense to understand numbers that represent parts of a whole.

- Fractions, decimals and percentages can be used to show parts of a whole. The numbers in the chart below are all equal to the same amount.

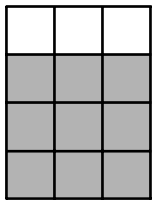
Fraction	Decimal	Percentage
$\frac{1}{4}(1 \div 4)$	0.25	25%

- An improper fraction is equal to more than a whole. The numbers in the chart below are all equal in value.

Improper Fraction	Mixed Number	Decimal
$\frac{15}{4}$ $(15 \div 4)$	$3\frac{3}{4}$	3.75

John enjoys collecting and comparing facts and statistics about his favourite football team, the Red Dogs. Do numbers 7 to 10.

7. John's chart shows how many games the Red Dogs played in 3 months. The shaded boxes represent the fraction of games the team won. What fraction did they lose?

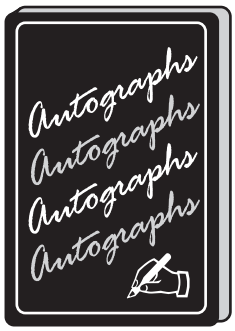


Ⓐ $\frac{1}{2}$
Ⓑ $\frac{3}{4}$
Ⓒ $\frac{1}{4}$
Ⓓ $\frac{1}{9}$

8. Use the chart in number 7. What percentage of games did the Red Dogs win?

Ⓐ 50%
Ⓑ 75%
Ⓒ 33%
Ⓓ 25%

9. John wants autographs of some of the Red Dogs players. The ticks show the autographs he has. What fraction of autographs does he still need?



Ⓐ $\frac{3}{4}$
Ⓑ $\frac{2}{4}$
Ⓒ $\frac{1}{4}$
Ⓓ $\frac{2}{3}$

10. John ate half of a pizza at the last Red Dogs game. The whole pizza had 10 slices. Which of these is *not* equal to the amount of pizza that John ate?

Ⓐ 0.5
Ⓑ $\frac{1}{2}$
Ⓒ 50%
Ⓓ 0.10