SHOW WHAT YOU KNOW

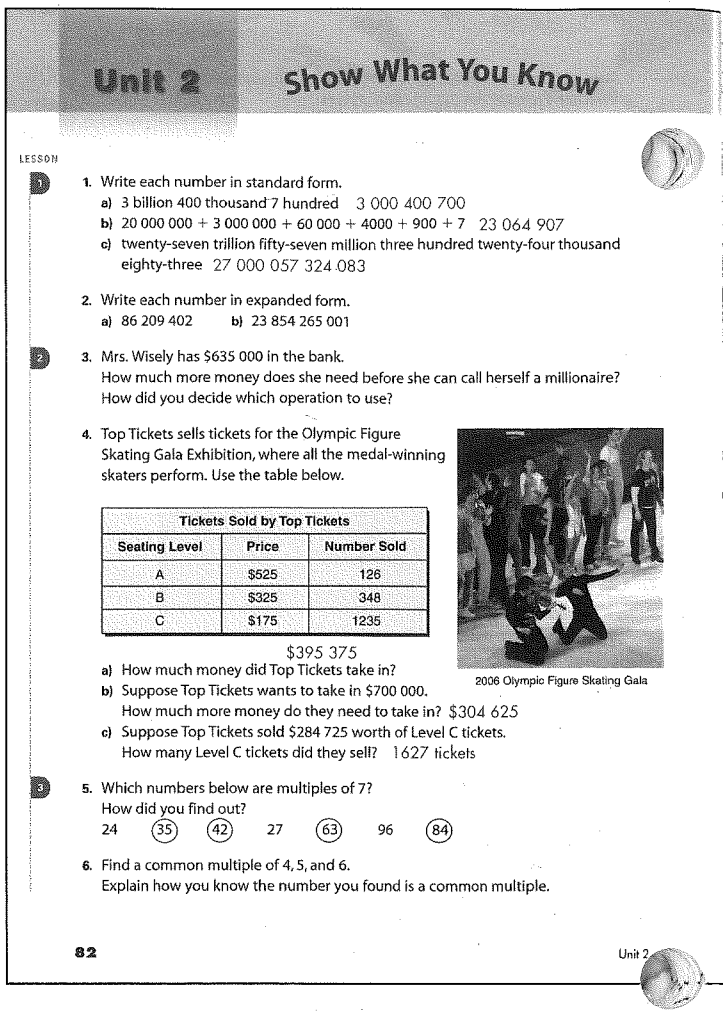
LESSON ORGANIZER

40–50 min

Student Materials

- calculators
- Integer Number Lines (Master 2.7)

Assessment: Master 2.1 Unit Rubric: Understanding Number; Master 2.4 Unit Summary: Understanding Number



Unit 2 Show What You Know

LESSON

1. Write each number in standard form.
   a) 3 billion 400 thousand 7 hundred 3 000 400 700
   b) 20 000 000 + 3 000 000 + 60 000 + 4000 + 900 + 7 23 064 907
   c) twenty-seven trillion fifty-seven million three hundred twenty-four thousand eighty-three 27 000 057 324 083

2. Write each number in expanded form.
   a) 86 209 402 b) 23 854 265 001

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3. Mrs. Wisely has $635 000 in the bank.
   How much more money does she need before she can call herself a millionaire?
   How did you decide which operation to use?

4. Top Tickets sells tickets for the Olympic Figure Skating Gala Exhibition, where all the medal-winning skaters perform. Use the table below.

Tickets Sold by Top Tickets		
Seating Level	Price	Number Sold
A	$525	126
B	$325	348
C	$175	1235

$395 375

2006 Olympic Figure Skating Gala

   a) How much money did Top Tickets take in?
   b) Suppose Top Tickets wants to take in $700 000.
   How much more money do they need to take in? $304 625
   c) Suppose Top Tickets sold $284 725 worth of Level C tickets.
   How many Level C tickets did they sell? 1627 tickets

3

5. Which numbers below are multiples of 7?
   How did you find out?
   24 (35) (42) 27 (63) 96 (84)

6. Find a common multiple of 4, 5, and 6.
   Explain how you know the number you found is a common multiple.

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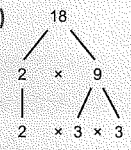
Sample Solutions

2. a) 80 000 000 + 6 000 000 + 200 000 + 9000 + 400 + 2
   b) 20 000 000 000 + 3 000 000 000 + 800 000 000 + 50 000 000 + 4 000 000 + 200 000 + 60 000 + 5000 + 1
3. She needs $365 000 more.
   I used subtraction because I had to find the difference between $1 000 000 and $635 000.
5. I counted by 7s to find the numbers that are multiples of 7.
6. A common multiple of 4, 5, and 6 is 60.
   I know it is a common multiple because you say 60 when you count by 4s, by 5s, and by 6s.
7. The numbers in parts a, b, and c are composite because they have more than two factors. The number in part d is prime because it has only two factors — 1 and itself.
8. 2 is prime. It has only two factors — 1 and 2.
9. a) 1, 2, 4, 13, 26, 52; prime: 2, 13; composite: 4, 26, 52
   b) 1, 2, 4, 7, 14, 28; prime: 2, 7; composite: 4, 14, 28
   c) 1, 3, 7, 9, 21, 63; prime: 3, 7; composite: 9, 21, 63
   d) 1, 2, 4, 19, 38, 76; prime: 2, 19; composite: 4, 38, 76

11. a)



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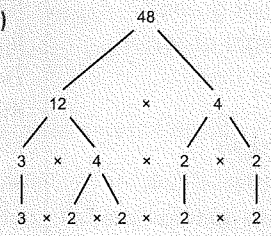

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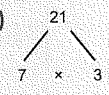

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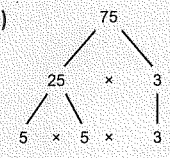


7. Tell if each number is prime or composite. How do you know?
   a) 18 composite b) 21 composite c) 48 composite d) 37 prime

8. Only one prime number is even.
   Which number is it? How do you know it is a prime number?
   2

9. List all the factors of each number.
   Sort the factors into prime numbers and composite numbers.
   a) 52 b) 28 c) 63 d) 76

10. Find the common factors of each pair of numbers.
    a) 16, 32 1, 2, 4, 8, 16 b) 18, 27 1, 3, 9 c) 30, 75 1, 3, 5, 15

11. Draw a factor tree to find the factors of each number that are prime.
    a) 18 b) 48 c) 21 d) 75

12. Evaluate each expression.
    a) $35 - 16 \div 4$ 31 b) $8 \times (6 + 4)$ 80 c) $86 - 9 \times 9$ 5

13. Evaluate each expression.
    a) $16\,974 - (18 \times 45)$ 16 164 b) $8537 + 4825 \div 25$ 8730

14. Draw a number line. Mark each integer on the line.
    How did you know where to place each integer?
    +3, −5, +1, −2, 0

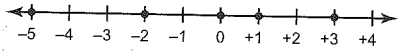
15. Use an integer to represent each situation.
    a) Sandha skated backward 100 m. −100
    b) Karl earned $140 mowing lawns. +140
    c) The temperature in Alida, SK, was 12°C below zero. −12
    d) The elevator went up 7 floors. +7

16. Use a number line.
    Order the integers in each set from least to greatest.
    a) +4, −3, −2, +1, −4 −4, −3, −2, +1, +4
    b) +8, +5, 0, −5, −17 −17, −5, 0, +5, +8
    c) +10, −9, +8, −7, +6 −9, −7, +6, +8, +10

UNIT 2 Learning Goals

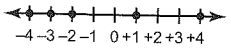
- ☑ use place value to represent whole numbers greater than one million
- ☑ solve problems involving large numbers, using technology
- ☑ determine multiples and factors of numbers less than 100
- ☑ solve problems involving multiples
- ☑ identify composite and prime numbers
- ☑ apply the order of operations to solve multi-step problems, with or without technology
- ☑ demonstrate an understanding of integers

14.



Zero goes at the centre of the line. Positive numbers go to the right of zero. Negative numbers go to the left of zero.

16. a)



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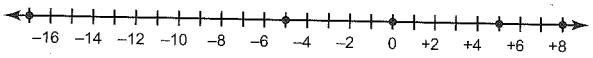

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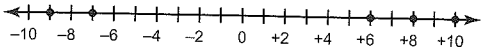

ASSESSMENT FOR LEARNING

What to Look For

Conceptual Understanding

✔ **Questions 1 and 2:** Students understand that the value of a digit is determined by its position in the number.

✔ **Questions 7 and 8:** Students can determine whether a number is prime or composite.

Procedural Knowledge

✔ **Questions 5 and 6:** Students can find multiples and common multiples.

✔ **Questions 9–11:** Students can find factors, common factors, and factors that are prime.

✔ **Questions 12 and 13:** Students can apply the order of operations to evaluate expressions.

✔ **Question 16:** Students can order integers.

Problem-Solving Skills

✔ **Questions 3 and 4:** Students solve problems involving large numbers, using technology.