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# Lesson 1 UNDERSTAND INTEGERS

## LESSON OBJECTIVES

Students will:

- Use integers to describe real-life situations.
- Understand and determine absolute value of an integer.
- Compare and order integers with and without a number line.

## RELATED AUSTRALIAN CURRICULUM CONTENT DESCRIPTIONS

See page 26 to cross-reference this lesson with aligned Australian Curriculum content descriptions

## PREREQUISITES

Students should be able to:

- Compare and order whole numbers.
- Locate whole numbers on a number line.

## VOCABULARY

### PAGE 4

- **whole numbers:** the set of numbers 0, 1, 2, 3, ...
- **integers:** the set of whole numbers and their opposites. ..., -3, -2, -1, 0, 1, 2, 3, ...
- **opposites:** numbers that are the same distance from 0 on a number line, such as 3 and -3
- **positive integers:** integers to the right of zero on the number line. They are shown using a positive sign (+) or no sign.
- **negative integers:** integers to the left of zero on the number line. They are shown using a negative sign (-).
- **absolute value:** the distance of a number from zero on the number line

### PAGE 6

- **compare:** to determine if one number is greater than, less than or equal to another number
- **order:** to arrange three or more numbers in order from smallest to largest or largest to smallest

## MATHS BACKGROUND

In this lesson, students will be introduced to the class of numbers called integers, which includes 0, the counting numbers 1, 2, 3, 4, ... and the opposites of the counting numbers, -1, -2, -3, -4; and so on. Ordering negative numbers can be confusing, but students can usually understand that 25 degrees below zero is colder than 2 degrees below zero, so context is key in this lesson. When using signed numbers to represent temperatures or elevations above or below sea level, students may find a vertical number line to be helpful.

The absolute value of a number  $x$  is the distance the number is from 0 on a number line. Because absolute value is a distance the absolute value of a number is always *non-negative*.



### Interactive Whiteboard

#### Visualise integers

Go to the *IWB lessons* to bring parts one and two to life. Use features such as manipulable number lines to deepen students' understanding of integers.



### Download

<http://iwb.camsandstams.com.au>

## Modelled Instruction

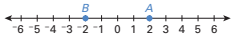
**Lesson 1 UNDERSTAND INTEGERS**  
PART ONE: Learn about integers

**How can you represent numbers less than zero?**

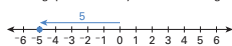
**Explore**  
Recall that **whole numbers** are the set of numbers 0, 1, 2, 3, ...  
You and a friend are playing a quiz-show game. A correct answer wins 5 points. A wrong answer loses 5 points.  
If you answer the first question incorrectly and lose 5 points, what is your score?

Score	
You	Friend
?	0

**Think**  
**Integers** are the set of whole numbers and their opposites.  
..., -3, -2, -1, 0, 1, 2, 3, ...  
**Opposites** are pairs of numbers that are the same distance from zero on a number line.  
How far is point A from 0? 2  
How far is point B from 0? 2  
What is the opposite of 2? -2  
What is the opposite of -2? 2



**Connect**  
**Positive integers** can represent gains, or increasing quantities. They are shown using a positive sign (+) or no sign (2).  
**Negative integers** can represent losses, or decreasing quantities. They are shown using a negative sign (-).  
Zero is neither positive nor negative.  
So if you lose 5 points, your score is -5.  
The **absolute value** of a number is how far the number is from zero. The absolute value of -5 is 5.



Score	
You	Friend
-5	0

**Let's Talk**  
Read the definition of "opposite." Discuss what you think the opposite of zero is.

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## Guided Instruction

Understand integers

**Think It Through**

Fill in the blanks as you solve the problem.

Read each statement.

What integer can be written to represent each value? Are the two integers opposites?


- The temperature is 6° below zero.
- I earned \$12 babysitting.

■ The temperature is 6° below zero.  
How far from zero is this temperature? 6  
Is this temperature a positive integer or a negative integer? negative  
What integer represents this value? -6

■ I earned \$12 babysitting.  
How far from zero is this amount of money? 12  
Is this amount of money a positive integer or a negative integer? positive  
What integer represents this value? 12 or +12

■ Draw each integer on the number line.

**Solution:** The temperature 6° below zero is represented by the integer -6. I earned \$12 babysitting is represented by the integer 12 or +12.  
Are the two integers opposites? no



**Your Turn** Now, use what you know to solve this problem.

1. Avery drives to City A, which is 45 m below sea level. Then she drives to City B, which is 22 m above sea level. What integers can be used to represent these statements? Which city is closer to sea level? Explain.

City A -45      City B 22  
Which city is closer to sea level? City B is closer  
to sea level because 22 is closer to zero than -45

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### AT A GLANCE

Students activate their background knowledge about whole numbers and then learn that integers consist of whole numbers and their opposites.

### STEP BY STEP

#### PAGE 4

- Introduce the **Question** at the top of the page.
- Have students study the game described in **Explore** and discuss the difference between a gain and a loss.
- Read **Think** with students. Emphasise that opposites describe the location of the number relative to zero.
- Discuss **Connect** with students. Help students see that zero separates the positive and negative numbers on a number line. Positive numbers are to the right and negative numbers are like a mirror image to the left.

**Tip:** When writing positive numbers on the board, write them both with and without the positive sign. This helps students connect that numbers written without symbols are positive.

- Organise students in pairs or groups for **Let's Talk** and monitor their discussions.

- Point out that there is only one zero, so the opposite of 0 is 0.

#### PAGE 5

- Read the **Think It Through** problem with students.
- Guide students as they solve the problem. Help them think about whether each situation describes something below zero or above zero.
- Help students see that the vertical number line relates to both thermometer readings and elevation.

**EAL/D Support:** Use hand motions to help students understand that positive numbers are to the right of (or above) zero and negative numbers are to the left of (or below) zero.

- Monitor students as they complete **Your Turn**. Then discuss the correct answer.

**Error Alert:** Suggest to students that they think of sea level as 0 on the number line.



### ADDITIONAL ACTIVITY

See **Hands-on Activity** (page 38).

## Modelled Instruction

**PART TWO:** Learn about comparing and ordering integers

**How can a number line help you compare and order integers?**

You can use a number line to **compare** two numbers and to **order** three or more numbers. On a number line, numbers are shown in order from smallest to largest, from left to right.

What is the order of the integers -8, -14, 16 and 10 from **largest** to **smallest**?

Look at the integers on a number line. Positive integers are to the right of zero, so they are all **larger** than negative integers.

Which is further from zero, 16 or 10? 16

Which is larger, 16 or 10? 16

So 16 is to the **right** of 10 on the number line.

Which is warmer, 16°C or 10°C?

Negative integers are to the left of zero, so they are all **less** than positive integers.

Which is closer to zero, -8 or -14? -8

Which is larger, -8 or -14? -8

Which is warmer, -8°C or -14°C?

So -8 is to the **right** of -14 on the number line.

The largest integer is furthest to the right, in the positive direction. The smallest integer is furthest to the left, in the negative direction. The numbers in order from largest to smallest are 16, 10, -8, -14.

If you know that the absolute value of  $x$  is more than the absolute value of  $y$ , can you be sure that  $x > y$ ?

## Guided Instruction

Understand integers

**Think It Through**

Fill in the blanks as you solve the problem.

The data below represent the low temperatures in degrees Celsius over a school week for a town in the Australian Alps.

Monday	Tuesday	Wednesday	Thursday	Friday
-3	2	4	-5	0

What are the temperatures in order from smallest to largest?

■ Negative numbers are always **less** than positive numbers and zero.

Which is further from zero, -3 or -5? -5

Compare -3 and -5:  $-3 > -5$

■ Positive numbers are always **larger** than negative numbers and zero.

Which is further from zero, 2 or 4? 4

Compare 2 and 4:  $2 < 4$

**Solution:** The temperatures in order from smallest to largest are -5, -3, 0, 2, 4

You can use symbols for less than and more than.

"-5 is less than 2"  
 $-5 < 2$

"0 is more than -7"  
 $0 > -7$

**Your Turn**

Now, use what you know to solve this problem.

2. The temperatures (in °C) of another town in the Australian Alps are shown below.

Monday	Tuesday	Wednesday	Thursday	Friday
12	-12	4	-8	0

Which day was warmest? Which day was coolest?

Monday was the warmest.

Tuesday was the coolest.

### AT A GLANCE

Students learn to compare and order integers with and without a number line.

### STEP BY STEP

#### PAGE 6

- Introduce the **Question** at the top of the page.
- Read **Explore** with students. Reinforce that numbers to the left are less than numbers to the right on a number line.

**EAL/D Support:** Write words “larger” and “largest” on the board. Discuss how we use “larger” when comparing two numbers and “largest” when comparing three or more numbers.

- Read **Think** with students. Pause so students can read aloud the shaded numbers and words.
- Tell students to study the number line in **Connect**. Test their understanding by having them place their finger on different integers as you call them out.

- Organise students in pairs or groups for **Let’s Talk** and monitor their discussions.
- Be sure students understand that the larger number is not always further from zero. For example, 2 is larger than -8, yet -8 is further from zero.

#### PAGE 7

- Read the **Think It Through** problem with students.
- Guide students as they solve the problem. Pause for students to fill in missing information. Then discuss each response.

**Tip:** Have students create a number line from -10 to +10 to help them place and order integers.

- Monitor students as they complete **Your Turn**. Then discuss the correct answer.

**Error Alert:** Students may think that zero is the least number. Remind them that negative numbers are less than zero.



### ADDITIONAL ACTIVITY

See **Reteaching Activity** (page 38).

## Modelled Practice

**PART THREE: Choose the right answer**

Solve the problem. Then read why each answer choice is correct or not correct.

**Solve**

Some friends are playing a game in which they throw a ball into a bucket. A player wins a point when the ball goes into the bucket and loses a point when the ball misses the bucket.

The table shows the players' scores at the end of the game.

Player	Final score
Player 1	-2
Player 2	0
Player 3	4
Player 4	-7

Which list shows the scores in order from *smallest* to *largest*?

- A -7, -2, 0, 4
- B 0, -2, 4, -7
- C -2, -7, 0, 4
- D 4, 0, -2, -7

Player	Final score
Player 1	-2
Player 2	0
Player 3	4
Player 4	-7

**Check**

Check whether you chose the correct answer.

Negative numbers are always less than positive numbers and zero. The smallest number is -7 because it is furthest from zero than -2.

So far, the numbers in order from smallest to largest are -7, -2.

Zero is larger than all negative numbers but less than all positive numbers.

So far, the numbers in order from smallest to largest are -7, -2, 0.

The last number is 4.

The numbers in order from smallest to largest are -7, -2, 0, 4.

So, the correct answer is **B**.

Why are the other answer choices not correct?

<input type="radio"/> A 0, -2, 4, -7	The numbers are ordered by distance from zero instead of by value.
<input type="radio"/> C -2, -7, 0, 4	The first number should be -7 because it is smallest; it is furthest from 0 in the negative direction.
<input type="radio"/> D 4, 0, -2, -7	These numbers are ordered from largest to smallest.

## Guided Practice

Understand integers

**Your Turn** Solve each problem. Use the hints to avoid mistakes.

- Positive numbers are always larger than negative numbers.
- Zero is larger than negative numbers but less than positive numbers.

3. Charlie is choosing integers to represent different situations. Which situation can be represented by -13?

- A time spent on homework
- B distance that was travelled in a race
- C the number of metres above sea level
- D temperature below 0°C

4. The final game scores of four students are shown below.

Student	A	B	C	D
Scores	0	-50	100	-75

Which student has the lowest score?

- A Student A
- B Student B
- C Student C
- D Student D

5. Which value is the least?

- A 7
- B -7
- C 3
- D -3

6. The numbers below represent the average city temperatures in degrees Celsius.

-8, 10, -6, 0, 5

What are these temperatures in order from smallest to largest?

- A -8, -6, 0, 5, 10
- B 10, 5, 0, -6, -8
- C -6, -8, 0, 5, 10
- D 0, 5, -6, 10, -8

### AT A GLANCE

Students reinforce their understanding of integers through solving a multiple-choice problem and analysing correct and incorrect answer choices.

### STEP BY STEP

#### PAGE 8

- Tell students that this page models finding the correct answer to a multiple-choice problem.
- Have students read the problem in **Solve** and choose the best answer. Remind students to check their maths.
- Examine **Check** with students. Discuss the correct and incorrect choices.

#### PAGE 9

- Monitor students as they complete **Your Turn**.
- Organise students in pairs or small groups and have them discuss why each answer choice is correct or not and what errors may have been made.
- Review the answers with the class.



### ADDITIONAL ACTIVITY

See **Vocabulary Activity** (page 38).

### Answer Analysis

3.  A Thought time spent can be less than zero.  
 B Thought distance ran can be less than zero.  
 C Thought above sea level can be less than zero.  
 D Temperatures below 0°C are negative.
4.  A Thought that zero is always the lowest score.  
 B Chose a negative number only.  
 C Chose the largest score rather than the lowest.  
 D The lowest score is the negative number furthest from zero.
5.  A Chose the largest value instead of least.  
 B This is least because all other values are larger.  
 C Chose a positive value.  
 D Chose a number containing a negative sign.
6.  A The smallest number is the furthest left.  
 B Ordered from largest to smallest.  
 C Reversed negative numbers.  
 D Thought zero is the smallest number.

## Modelled Practice

**PART FOUR: Write the best answer**

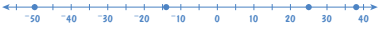
Study the model. It is a good example of a written answer.

**Student model**

A business report shows the amount of money a business has made (earnings) at the end of different weeks. What are these integers in order from largest to smallest?

Show each step. Then explain how you found the solution.

	Earnings (\$)
Week 1	25
Week 2	-50
Week 3	38
Week 4	-14



The positive numbers are 25 and 38. 38 is further from zero on the number line than 25, so  $38 > 25$ .

The negative numbers are -50 and -14. -14 is closer to zero on the number line than -50, so  $-14 > -50$ .

**Solution:** The integers in order from largest to smallest are 38, 25, -14, -50.

**Explanation:**

Positive numbers are always larger than negative numbers, so I compare the positive numbers first. 38 is further from zero on the number line than 25, so 38 is larger than 25. Next I compare the negative numbers. This is different because the number closest to the zero is the larger number. Because -14 is closer to zero than -50, I know that -14 is larger than -50. The integers in order from largest to smallest are 38, 25, -14, -50.

**Show**

**Explain**

The student shows each step.

The student correctly answers the question asked.

The student gives important details about how to compare integers.

The student uses the maths words *positive*, *negative*, *compare*, *integers* and *order*.

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## Guided Practice

Understand integers

**Your Turn** Solve the problem. Use what you learned from the model.

7. The table shows each student's score at the end of a question-and-answer game.

	Player A	Player B	Player C	Player D	Player E
Final score	-18	-10	4	-7	12

What are these scores in order from largest to smallest? Show each step. Then explain how you found the solution.

**CHECKLIST**

Did you ...

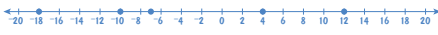
show each step?

answer the question asked?

give important details?

use maths words?

Draw a number line and show the points.



The positive numbers are 4 and 12. The number 12 is further from zero than 4.

The negative numbers are -18, -10 and -7. The number -7 is closer to zero than -10 and -18 are. The number -10 is closer to zero than -18 is.

**Solution:** The integers in order from largest to smallest are 12, 4, -7, -10, -18.

**Explanation:**

Because positive numbers are larger than negative numbers, I start by comparing the positive numbers. 12 is further from zero on the number line than 4, so 12 is larger than 4. Next I order the negative numbers. The negative numbers are -18, -10 and -7. The integer closest to zero on the number line is -7, then -10, then -18. So the numbers in order from largest to smallest are 12, 4, -7, -10, -18.

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### AT A GLANCE

Students study a model answer to an extended-response problem.

### STEP BY STEP

#### PAGE 10

- Tell students that this page models building the solution to a problem one step at a time and writing to explain the solution.
- Have students read the problem in **Show**. Discuss how the comparison of positive and negative numbers separately leads to the solution.

**Tip:** Explain that a number line is not necessary to order numbers if the distance from zero is considered, but that a number line can be very helpful for checking and explaining your thinking.

- Read **Explain** with students. Have students circle the maths words in the explanation.
- Direct students' attention to the notes in the right margin. Tell students that this model would receive a high score for the reasons described in these notes.

#### PAGE 11

- Monitor students as they complete **Your Turn**.
- Encourage students to follow the **Checklist** to write the best answer.
- Have students discuss their work with a partner. Then discuss the correct answer as a class.

### Answer and Explanation

7. See the sample answer. This answer shows all of the steps taken to solve the problem, including a step-by-step comparison. The solution answers the question. The explanation provides important details about how the problem was solved and uses the maths words *positive*, *negative*, *compare*, *number line*, *order*, *largest*, *smallest* and *integer*.



#### ADDITIONAL ACTIVITY

See **Real-World Connection** (page 38).



#### ADDITIONAL ACTIVITY

See **School-Home Connection** (page 38).



## Independent Practice

### PART FIVE: Prepare for a test



As you solve comparing and ordering problems, you may want to:

- compare positive numbers and negative integers separately when ordering integers.
- think about how far from zero each integer is.

Solve each problem.

8. Which equation is true?

- Ⓐ  $0 < -3$
- Ⓑ  $0 > 3$
- Ⓒ  $3 > 0$
- Ⓓ  $-3 > 0$

9. The temperatures of several towns are shown below.

	Town W	Town X	Town Y	Town Z
Temperature (°C)	8	0	-2	-4

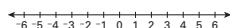
Which statement is true?

- Ⓐ Town W is colder than Town Z.
- Ⓑ Town X is colder than Town Z.
- Ⓒ Town X is colder than Town Y.
- Ⓓ Town Z is colder than Town Y.

10. Which number is the opposite of 12?

- Ⓐ -12
- Ⓑ 12
- Ⓒ 0
- Ⓓ 21

11. Bridget is comparing numbers on a number line.



Which inequality is true?

- Ⓐ  $-5 > 5$
- Ⓑ  $-5 > -6$
- Ⓒ  $-5 > 0$
- Ⓓ  $-5 > -4$

12. Which integer is less than -1?

- Ⓐ 0
- Ⓑ -1
- Ⓒ -2
- Ⓓ 1

12

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## Independent Practice

Understand integers

13. The elevation above sea level for several cities is shown.

	City A	City B	City C	City D
Elevation (metres)	78	-172	-45	105

Which elevation is further from sea level?

- Ⓐ City A
- Ⓑ City B
- Ⓒ City C
- Ⓓ City D

14. A baker is keeping track of the number of cupcakes made and sold during each day at the bakery. On the first four days, he writes:

9, -2, 0, -7

What are the integers in order from smallest to largest?

\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

In this order, do these numbers appear on a number line from left to right, or right to left?

\_\_\_\_\_

15. A scientist is collecting data about the temperature in degrees Celsius of a certain substance. The data are: -15, -23, 7, 15, -18 and 0. What are these data in order from largest to smallest?



The positive numbers are 7 and 15. The number 15 is further from zero than the number 7 is. The negative numbers are -15, -23, and -18. The number -15 is closer to zero than -18 and -23 are. The number -18 is closer to zero than -23 is.

Show each step. Then explain how you found the solution.

**Solution:** The integers in order from largest to smallest are 15, 7, 0, -15, -18, -23.

**Explanation:**

Because positive integers are always larger than zero and negative integers, I will order those first. The positive numbers are 7 and 15. Because 15 is further from zero on a number line than 7 is, 15 is larger. I know that zero is larger than any negative number, so the numbers in order so far are 15, 7, 0. To order the negative numbers, I compare their distance from zero on the number line. The negative number closest to zero is -15, then -18, then -23. So the integers in order from largest to smallest are 15, 7, 0, -15, -18, -23.

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## AT A GLANCE

Students practise comparing and ordering integers to solve problems that might appear on a mathematics test.

## STEP BY STEP

### PAGES 12–13

- Tell students that they will practise writing, ordering and comparing integers.
- Point out the tips at the top of page 12. Explain to students that these tips will help them answer the problems correctly.
- You may wish to have students review the hints for avoiding mistakes on page 9 as well.
- Tell students to complete problems 8–15 on pages 12 and 13. Encourage students to check their answers.
- Discuss the correct responses as a class.

## Answers and Explanations

- Ⓒ 3 is larger than zero.
- Ⓓ When comparing negative temperatures, the coldest temperature is the negative number that is furthest from zero on the number line.
- Ⓐ A number and its opposite are the same distance from zero on the number line.
- Ⓑ Because -5 is closer to zero on the number line, it is larger than -6.
- Ⓒ Because -2 is further from zero on the number line, it is less than -1.
- Ⓑ The number -172 is the number furthest from zero in either the positive or negative direction.

(continued on page 37)

(continued from page 36)

14. Because the smallest numbers are needed first, the first step can involve comparing the negative numbers. The integer  $-7$  is further from 0 in the negative direction on the number line, so it is less than  $-2$ . The number 0 is between the negative and positive numbers.
15. See the sample answer. This answer shows all of the steps the student took to solve the problem, including a step-by-step procedure and a diagram to show the student's thinking. The solution answers the question. The explanation provides important details about how the student solved the problem and uses the maths words *positive integers*, *negative integers*, *order*, *number line*, *largest*, *smallest* and *compare*.



## ASSESSMENT AND REMEDIATION

- Ask students to order the numbers  $-29$ ,  $-14$ ,  $35$ ,  $-40$  and  $0$  from smallest to largest. ( $-40$ ,  $-29$ ,  $-14$ ,  $0$ ,  $35$ )
- For students who are still struggling, use the chart below to guide remediation.
- After providing remediation, check students' understanding. Ask students to explain their thinking for ordering the integers  $0$ ,  $-57$ ,  $29$ ,  $-32$  and  $-2$  from smallest to largest. ( $-57$ ,  $-32$ ,  $-2$ ,  $0$ ,  $29$ )

If the error is . . .	Students may . . .	To remediate . . .
the negative integers are in reverse order	not be using distance from zero to determine order, <i>or</i>	Help students to understand that $-40$ is less than $-29$ by having them imagine a giant number line or a staircase going below ground where each step is numbered with negative numbers that tell how far below the zero level it is. Ask "Where would step $-250$ be?" Encourage them to think of what numbers such as $-1000$ or $-6500$ might mean.
	be confusing the placement of numbers on a number line.	Have students check each answer by sketching a number line and then placing the numbers correctly.
zero is not ordered correctly	not understand that zero is NOT the smallest number possible, <i>or</i>	Show students a thermometer and have them find $0^\circ$ . Then ask what happens when the temperature falls below $0^\circ$ .
	not be familiar with the location of zero on the number line.	Place a number line in the classroom that can be referred to by students. Call out different integers (including zero) and have students place a hand on the number at the correct position.
the numbers are in order without regard to sign	not recognise the meaning of the symbol in front of the number.	Encourage students to use a coloured pencil or other method to highlight the sign in front of the number. When ordering numbers, have students separate positive numbers from negative numbers before beginning to compare.



## ADDITIONAL ACTIVITY

For students who have mastered the skills in this lesson, see **Challenge Activity** (page 38).

## ADDITIONAL ACTIVITIES



### Hands-on Activity

Use individual integers to create a number line.

**Materials:** integers on cards or separate pieces of paper

Have students write the integers  $-10$  to  $+10$  on separate cards or pieces of paper. (There will be 21 cards including zero.) Have each student choose a card randomly and then place it in number-line order on the floor or other flat surface. (Use more or fewer integers as class size dictates.)

Give directions to individual students such as:

- Stand by the opposite of 3.
- Show me an integer whose absolute value is 5. (Point out that 5 and  $-5$  are possible.)
- Choose a number less than  $-4$ .
- Show why  $-4$  is less than  $-2$ . (Have students walk the distance to show  $-4$  is further from zero.)



### Reteaching Activity

Use number lines to compare integers.

**Materials:** blank number lines

Organise students in pairs and provide each pair with a blank number line. Provide pairs with a positive number and a negative number and have them create a number line using those integers and all integers in between. For example, students might create a number line from  $-20$  to 4.

Next, have students practise locating numbers as different integers are called out. Have students work with a partner so that one student will have a finger on  $-8$  and the other student will have a finger on  $-2$ . Then ask which integer is larger, which is further from zero, what are the opposites and so on.



### Vocabulary Activity

Play "Quiz Show" to reinforce terms.

**Materials:** index cards, textas

Divide students into two groups and provide each group with index cards and textas. As you read a vocabulary term aloud, the first contestant in each group writes a definition or draws a picture for the term. The two contestants raise their hands as soon as they have a response ready. The one with the first correct response earns a point for her team. Repeat with a new vocabulary term for each pair of contestants.



### Real-World Connection

Identify everyday examples of integers.

Brainstorm with students or allow them to search the internet, newspaper, magazines or other media to find examples of integers in real life. Point out that often a negative number will be described in words rather than using a negative symbol. For example, the business lost \$100 000 last quarter. The temperature dropped to  $25^{\circ}$  below zero.



### School-Home Connection

Inform families about integer concepts.

Give each student a copy of the School-Home Connection activity sheet for Lesson 1 (page 159) to share with the family. The activity in the letter has the family represent situations with integers.



### Challenge Activity

Compare and order integers quickly.

Have students create cards with integers from  $-10$  to  $+10$ . Have students choose four or five cards and then race to put them in order from smallest to largest. Students can race against each other or against the clock. Increase the challenge by having students include positive and negative decimal numbers, such as  $-2.3$  and  $-3.2$ .