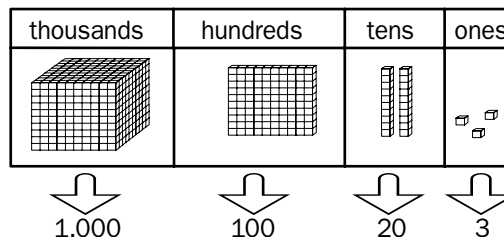


# Riddle Me This!

*The students match 4-digit numbers to their expanded form to answer a silly riddle.*

## Warm-up

1. Use base-10 blocks and a place value mat to do this warm-up. Call out the name of a 4-digit number, such as 1,123. Invite a student to come to the front of the class and use blocks to represent the number. Write the value of each place beneath each group of blocks, as shown here.
2. Using these place values, have students write the number in expanded form:  $1,000 + 100 + 20 + 3$ .
3. Repeat the activity several times using different 4-digit numbers.



## Introducing the Activity

1. Distribute a copy of the blackline master “Riddle Me This!” to each student. Have students cut out the 12 squares at the bottom of the page that contain the expanded form of a number and a word.
2. Now, read aloud the riddle at the top of the page. Tell students that they can find the answer to the riddle by matching each of the given numbers to its expanded form. Have them find the square that contains the expanded form of the first number, 2,526, and paste it into the box. They now have the first word of the answer to the riddle, “The”.
3. Have students work independently, or in pairs, to complete the activity. The words on the cutouts, when read from left to right, and from top to bottom, answer the riddle.

## Assessment Tip

Observe students as they complete the activity. Find out if they can:

- Recognize 4-digit numbers written in expanded form.

## Try this, too!

Play a fast-action game called “Winning Number!” with the whole class. To play the game, write a 4-digit number on a piece of paper and fold the paper in half. Tell students that you have a secret number, and that you will give them clues about each digit in the number to help them guess it correctly. For example, if your secret number is 1,448, you might give clues such as: the digit in the hundreds place is 4; the digit in the tens place is one less than 5; the digit in the thousands place is 1; the digit in the ones place is equal to the sum of the digits in the tens and hundreds places. Let students use pencil and paper to record the digits as each clue is given. The first person that thinks he or she knows the number should call out, “Winning Number!” and name the number. If it is not correct, the student must sit out the rest of the round. If you wish, the student who guesses the number correctly can choose the next secret number and make up the clues to help other students identify it.

### Students will need

- blackline master: “Riddle Me This!”—1 copy per student
- scissors
- paste

### Approximate Time

- 20 minutes

### Grouping

- individual or pairs of students

### NCTM Standards

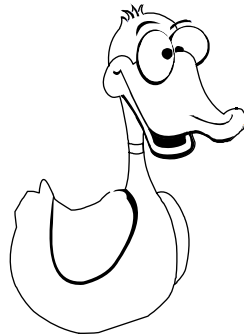
- Number & Operations
- Representation

Name \_\_\_\_\_

# Riddle Me This!

Why did Billy the Duck want to be a banker?

Paste the expanded form of each number into a box. Then, read the words to find the answer.



**2,526**

\_\_\_\_\_

**3, 159**

\_\_\_\_\_

**8,611**

\_\_\_\_\_

**1,799**

\_\_\_\_\_

**9,122**

\_\_\_\_\_

**7,227**

\_\_\_\_\_

**4,414**

\_\_\_\_\_

**6,763**

\_\_\_\_\_

**2,928**

\_\_\_\_\_

**9,298**

\_\_\_\_\_

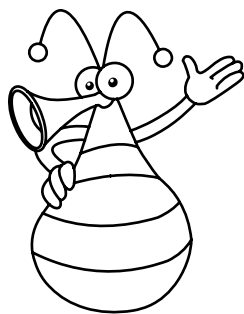
**6,401**

\_\_\_\_\_

**4,012**

\_\_\_\_\_

$1,000 + 700 + 90 + 9$ <b>a</b>	$3,000 + 100 + 50 + 9$ <b>duck</b>	$9,000 + 100 + 20 + 2$ <b>lot</b>	$7,000 + 200 + 20 + 7$ <b>of</b>
$4,000 + 10 + 2$ <b>bills</b>	$2,000 + 900 + 20 + 8$ <b>had</b>	$8,000 + 600 + 10 + 1$ <b>had</b>	$2,000 + 500 + 20 + 6$ <b>The</b>
$9,000 + 200 + 90 + 8$ <b>very</b>	$6,000 + 400 + 1$ <b>big</b>	$6,000 + 700 + 60 + 3$ <b>that</b>	$4,000 + 400 + 10 + 4$ <b>friends</b>



# Grand Winner

**Students use number cubes to play a game, and compare 4-digit numbers using  $<$ ,  $>$ , or  $=$  signs.**

## Getting Ready

1. Organize students into pairs and give 1 copy of the “Grand Winner” blackline master to each pair. Have the players in each pair write their names on the “Grand Winner” game sheet.
2. Now, give each pair of students a number cube. Tell them that they are each going to roll the cube four times to form two 4-digit numbers. Then they are going to compare the two numbers.
3. Direct students’ attention to the example on the game sheet. Four cubes show the digits 2, 3, 4, and 5 that form the number 2,345. The other four cubes show the digits 4, 2, 1, and 5 that form the number 4,215. Because 2,345 on the left, is less than 4,215 on the right, a ring is drawn around the “is less than” sign ( $<$ ).

## How to Play

1. The first player in each pair rolls the number cube four times. The number that turns up each time makes up one of the digits of a 4-digit number, starting in the thousands place. After each roll, the player records the digit on the game sheet. When all four digits are in place, the other player takes a turn.
2. After players have recorded their numbers, they compare them and draw a ring around one of the three signs that lies between them. The player who has the greater number wins the round. (Put a check mark next to the player’s name to keep track.)
3. After completing all of the problems, the player who has won the most rounds is the “grand winner.”

**Variation:** After a student rolls a number cube, allow him or her to decide which box (place) they want to put the digit into. One word of caution: a player may not change the order of the digits once each has been recorded.

## Assessment Tip

Observe students as they play the game. Find out if they can:

- Use inequality or equality symbols to express the relationship between two 4-digit numbers.

## Try this, too!

Students can practice comparing and ordering 4-digit numbers by creating and reading secret messages. Give each student 5 blank index cards and a paper bag. Have each student write a different 4-digit number on each card. Next, have students arrange their cards in order from left to right, starting with the card that has the least 4-digit number written on it. Ask each student to think of a 5-word secret message, and have them write one word of their message on each card, putting the first word on the first card, the second word on the second card, and so on. Tell students to put their 5 cards into the bag, shake it up, and swap bags with another student. Students decode the secret message inside each bag by ordering the numbers correctly. Let students trade bags until every student has decoded several messages.

### Students will need

- blackline master: “Grand Winner”— 1 copy per student
- 1 number cube per pair

### Approximate Time

- 30 minutes

### Grouping

- pairs of students

### NCTM Standards

- Number & Operations
- Problem Solving
- Reasoning & Proof

Name \_\_\_\_\_

# Grand Winner

Roll a number cube. Write a 4-digit number using the digits. Compare the numbers and draw a ring around the correct sign.

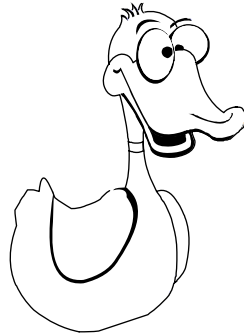
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<b>2</b>	<b>3</b>	<b>4</b>	<b>3</b>	=	<b>4</b>	<b>2</b>	<b>1</b>	<b>5</b>

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# Riddle Me This!: Answer Key

Why did Billy the Duck want to be a banker?

Paste the expanded form of each number into a box. Then, read the words to find the answer.



**2,526**  
 $2,000 + 500 + 20 + 6$   
**The**

**3,159**  
 $3,000 + 100 + 50 + 9$   
**duck**

**8,611**  
 $2,000 + 900 + 20 + 8$   
**had**

**1,799**  
 $1,000 + 700 + 90 + 9$   
**a**

**9,122**  
 $9,000 + 100 + 20 + 2$   
**lot**

**7,227**  
 $7,000 + 200 + 20 + 7$   
**of**

**4,414**  
 $4,000 + 400 + 10 + 4$   
**friends**

**6,763**  
 $6,000 + 700 + 60 + 3$   
**that**

**2,928**  
 $8,000 + 600 + 10 + 1$   
**had**

**9,298**  
 $9,000 + 200 + 90 + 8$   
**very**

**6,401**  
 $6,000 + 400 + 1$   
**big**

**4,012**  
 $4,000 + 10 + 2$   
**bills**