

# Number Nesting Map

Track where rational numbers belong.

**GRADE 7 • TEKS 7.2**

**7.2** "Number and operations. The student applies mathematical process standards to represent and use rational numbers in a variety of forms..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## NESTED NUMBER SETS

Use this nested-set map: Natural  $\subset$  Whole  $\subset$  Integers  $\subset$  Rational. Natural numbers start at 1, whole numbers include 0, integers also include negative whole numbers, and rational numbers can be written as a fraction  $a/b$ , where  $b$  is not 0.

## WORKED EXAMPLE

Use the nesting map. Write every set that contains -14.

1. -14 is negative, so it is not natural or whole.
2. -14 is an integer.
3. Every integer is rational because  $-14 = -14/1$ .

**Answer: Integers; rational numbers**

## PRACTICE 6 problems

- 1** Use the nesting map. What is the smallest set that contains 23?

**ANSWER** \_\_\_\_\_

- 2** Use the nesting map. What is the smallest set that contains 0?

**ANSWER** \_\_\_\_\_

- 3** Use the nesting map. What is the smallest set that contains -9?

**ANSWER** \_\_\_\_\_

- 4** Use the nesting map. What is the smallest set that contains  $5/8$ ?

**ANSWER** \_\_\_\_\_

- 5** Use the nesting map. What is the smallest set that contains -3.5?

**ANSWER** \_\_\_\_\_

- 6** Write every set in the nesting map that contains 12.

**ANSWER** \_\_\_\_\_

## APPLY IT Show your work

- 1** During an online game, Kai loses 6 points in one round. The score change is -6. Which sets in the nesting map contain -6?

WORK SPACE

ANSWER \_\_\_\_\_

- 2** Leah has finished  $\frac{3}{4}$  of a video-editing project. What is the smallest set in the nesting map that contains  $\frac{3}{4}$ ?

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

Four numbers are placed on the nesting map: -15, 0, 4, and  $-\frac{3}{4}$ . How many of the four numbers belong in each set: natural numbers, whole numbers, integers, and rational numbers?

WORK SPACE AND ANSWER

## PART 1 • PRACTICE

| # | PROBLEM                                                                     | ANSWER                                                            |
|---|-----------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1 | Use the nesting map. What is the smallest set that contains 23?             | <b>Natural numbers</b>                                            |
| 2 | Use the nesting map. What is the smallest set that contains 0?              | <b>Whole numbers</b>                                              |
| 3 | Use the nesting map. What is the smallest set that contains -9?             | <b>Integers</b>                                                   |
| 4 | Use the nesting map. What is the smallest set that contains $\frac{5}{8}$ ? | <b>Rational numbers</b>                                           |
| 5 | Use the nesting map. What is the smallest set that contains -3.5?           | <b>Rational numbers</b>                                           |
| 6 | Write every set in the nesting map that contains 12.                        | <b>Natural numbers; whole numbers; integers; rational numbers</b> |

## PART 2 • APPLY IT

1. **Integers; rational numbers** -6 is negative, so it is not natural or whole. It is an integer, and every integer is rational.
2. **Rational numbers**  $\frac{3}{4}$  is a fraction, so it is rational. It is not a whole number or an integer.

## CHALLENGE

**Natural numbers: 1; whole numbers: 2; integers: 3; rational numbers: 4**

Accept standard set symbols N, W, Z, and Q if they are clearly matched to the correct set names. For items asking for every set, require all containing sets in the nesting map.