

# My Identity Is in My Pocket

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**Reporting Category** Patterns, Function, and Algebra

**Topic** Exploring properties

**Primary SOL** 3.20 The student will

- a) investigate the identity and the commutative properties for addition and multiplication; and
- b) identify examples of the identity and commutative properties for addition and multiplication.

**Related SOL** 3.4, 3.5

## Materials

- Index cards
- Large, class number line (see below)
- Adding Cards (attached)
- Example/Non-Example Cards for the Identity Property for Addition (attached)
- Example/Non-Example Mat (attached)

## Vocabulary

*addend, sum, property, identity, identity property*

## Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Note: Prior to undertaking this activity, prepare and hang a number line running around the room. Space numbers on the line so that each student can stand at “his/her number.”

1. Explain to students that they will be conducting a mathematical investigation. Give each student an index card on which is written a number that matches a number on the number line running around the room. Tell students that these numbers are their “Identity Numbers” and that they should put their cards safely in their pockets. Direct students to locate their Identity Numbers on the number line and go stand at them.
2. Ask each student to reveal his/her Identity Number, and then give him/her an Adding Card. Have the student state a number sentence by combining their Identity Number with their Adding Card number and stating the sum. Have students move along the number line to the sum, unless their Adding Card is “+ 0 =.” Record all the number sentences so that all students can see them.
3. Ask students to discuss why they needed to move on the number line and why some students did not move. Ask students whether their “Identity” changed or stayed the same, and have them explain why. Ask students to observe the number sentences on the board and decide, as a group, how these number sentences could be sorted as “examples” and “nonexamples.” Explain to students that the number sentences with “+ 0 =” demonstrate the *identity property for addition*. Explain the meaning of this term.
4. Put students into pairs, and give each pair a copy of the Example/Non-Example Mat and a set of Example/Non-Example Cards for the Identify Property for Addition. Have partners

sort the cards on the mats, thereby showing examples and nonexamples of the identity property for addition.

### Assessment

- **Questions**
  - How did you discover the identity property for addition?
  - What is an example of the identity property for addition? What is a nonexample? Why did you choose these?
- **Journal/Writing Prompts**
  - Explain why you think the word *identity* is used to describe this property.
  - Describe how you would create sorting cards for the identity property for addition.

### Extensions and Connections (for all students)

- Have students create example and nonexample cards for the identity property for addition. Then, have them exchange cards with partners and sort the cards into the correct columns on the Example/Non-Example mat. Have partners check for accuracy.

# Adding Cards

Copy the cards on cardstock, and cut out along the dotted lines.

$+ 0 =$	$+ 1 =$	$+ 2 =$
$+ 3 =$	$+ 0 =$	$+ 1 =$
$+ 0 =$	$+ 0 =$	$+ 2 =$
$+ 1 =$	$+ 2 =$	$+ 0 =$

## Example/Non-Example Mat

Example	Non-Example

## Example/Non-Example Cards for the Identity Property for Addition

Copy the cards on cardstock, and cut out along the dotted lines.

$3 + 0 = 3$	$5 + 3 = 8$	$5 - 1 = 4$	$0 + 0 = 0$
$8 + 0 = 8$	$3 + 1 = 4$	$4 - 2 = 2$	$1 + 0 = 1$
$18 + 0 = 18$	$8 + 4 = 12$	$4 + 2 = 6$	$9 + 0 = 9$
$15 + 0 = 15$	$7 + 3 = 10$	$8 - 2 = 6$	$4 + 0 = 4$