Special Quotients

USE WITH LESSON 3-9

ACCESS CONTENT

Objective Give quotients of zero when the number divided is zero, give a quotient of 1 when a number is divided by itself, and give the number divided as the quotient when dividing by 1.

Materials *(per student)* 10 counters; 10 paper cups

ESL Strategies ***Use before*** **LEARN** 5–10 MIN

Use Manipulatives ➢ Write 1×1 on the board. Have each student use the paper cups to model dividing 1 counter into 1 group. **How many counters do you use?** *(1)* **How many cups do you need?** *(1)* **How many counters are in each cup?** *(1)* **So, what is the answer to $1 \div 1$?** *(1)* Finish writing the number sentence to show $1 \div 1 = 1$. Repeat the procedure using $2 \div 1$, $3 \div 1$, $4 \div 1$, and so on through $10 \div 1$. Ask students to look for a pattern. *(Any number divided by 1 is that number.)* **You have just stated a rule of division.**

Write $2 \div 2$ on the board. Have each student model dividing 2 counters into 2 groups. Then finish writing the number sentence to show $2 \div 2 = 1$. Repeat the procedure using $3 \div 3$, $4 \div 4$, $5 \div 5$, and so on through 10×10. Ask students to look for a pattern. *(Any number divided by itself is 1.)* **This division rule works for all numbers except zero.**

Write $3 \div 0 = ?$ on the board. Ask a student to explain what this number sentence is asking. *(What is 3 divided by 0?)* Have students try to divide 3 counters into 0 groups. **Can you divide 3 counters into 0 groups?** *(No)* **Why not?** *(Sample answer: As long as you have any counters, you have one group.)* **You cannot divide any number by 0. This is another rule of division.**

Write $0 \div 5 = ?$ on the board. Ask a student to explain what this number sentence is asking. *(What is 0 divided by 5?)* Have students try to divide 0 counters into 5 groups. **Can you divide 0 counters into 5 groups?** *(No)* **Why not?** *(Sample answer: Because zero cannot be broken apart)* **If zero cannot be broken apart, then what is $0 \div 5$?** *(0)* **The last rule of division says that zero divided by any number (except 0) is 0.**

Multiplication and Division Stories

USE WITH LESSON 3-10

ACTIVATE PRIOR KNOWLEDGE/BUILD BACKGROUND

Objective Write stories using given multiplication and division facts.

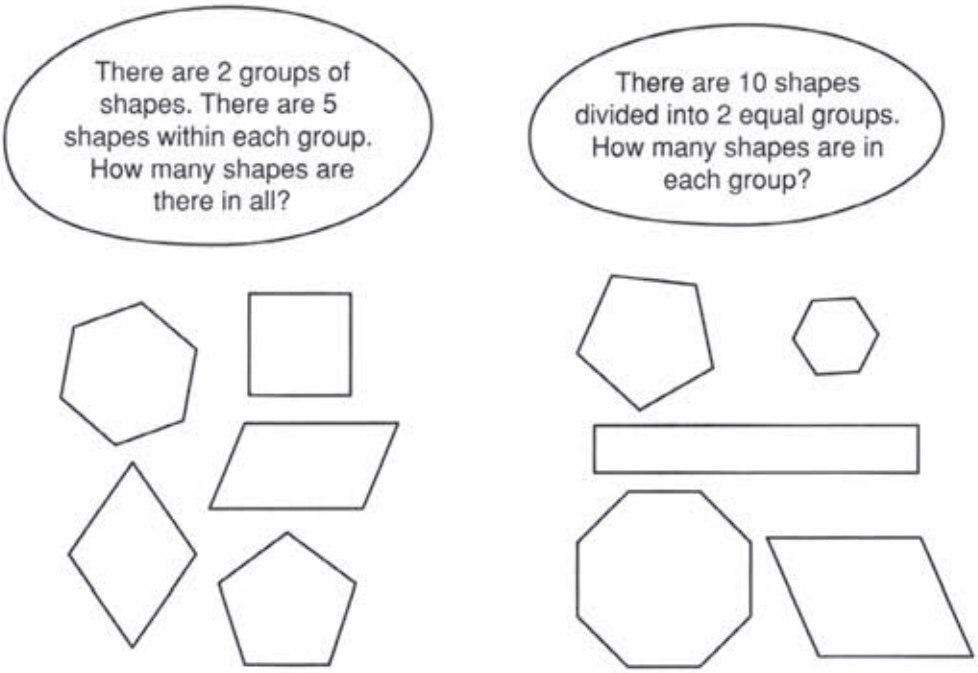
Materials *(per pair)* 30 Power Polygons (assorted shapes)

ESL Strategies ***Use before*** **CHECK** 15 MIN

Use Role Playing ➢ Assign students to groups of 3. If possible, group together English learners who share the same primary language. Model the activity with one group.

Have one student use Power Polygons to create a situation for related multiplication and division problems. Another student then tells and solves a multiplication story for those shapes. The third student tells and solves a division story for those shapes.

For example: Student 1 makes 2 groups of 5 shapes each. Student 2 says, "You made 2 groups of shapes. There are 5 shapes in each group. How many shapes are there in all? There are 10 shapes in all." Student 3 says, "There are 10 shapes divided into 2 equal groups. How many shapes are in each group? There are 5 shapes in each group."



Have students in each group switch roles so that each has a turn making groups, telling a multiplication story, and telling a division story.

Problem-Solving Skill: Multiple-Step Problems

USE WITH LESSON 3-11

ACTIVATE PRIOR KNOWLEDGE/BUILD BACKGROUND; ACCESS CONTENT

Objective Solve multiple-step word problems.

ESL Strategies ***Use before*** **LEARN** 10 MIN

Connect to Prior Knowledge of Math ➢ Write the following sentences on the board: "Bill went to the store. He bought three apples for $1.00 each. How much did he spend?" *($3.00)* **You are familiar with this type of problem. How would you solve it?** *(By multiplying $1.00 by 3)*

Now write the following sentences on the board as a separate problem: "Bill bought a quart of milk for $1.65 and a box of fruit bars for $2.49. How much