CONSTRUCTING TASK: Armadillo Stories

STANDARDS FOR MATHEMATICAL CONTENT

MCC3.OA.8 Solve two-step problems involving the four operations, and identify and explain-patterns in arithmetic Solve two‐step word problems, using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

BACKGROUND KNOWLEDGE

Students need a good understanding of the components of a number sentence, the use of a symbol to represent what is being found, and how to translate between words and mathematical symbols.

ESSENTIAL QUESTIONS

- What math is involved in the study of Georgia animals?
- How can multiplication help us repeatedly add larger numbers?

MATERIALS

- "Armadillo Stories" recording sheet
- Manipulatives, if needed
- Research resources such as informational text and/or the internet

GROUPING

Individual/Partner Task

TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION

In this task, students will write and solve word problems and their accompanying number sentences using a given data set. They will also include symbol(s) in their number sentences.

Comments

Animals are usually highly motivating subjects for third graders to study. Be sure they note how science and mathematics are connected as they study Georgia animals and habitats throughout the school year.

As students solve their multiplication story problems, have them verbalize what each number in their number sentence represents. In the example on the recording sheet, the number sentence is 15 x 10 = 150 inches. Be sure students can explain that the 15 represents the length of the armadillo's tail in inches and the 10 represents the number of tails.

Task Directions

Students will follow the directions below from the "Armadillo Stories" recording sheet.

Armadillos are animals native to Georgia, and are they ever strange! Think about these armadillo facts:

- Armadillos live an average of 12 to 15 years.
- An armadillo can be as long as 59 inches.
- An armadillo's tail is about 15 inches long.
- An armadillo can jump nearly 5 feet straight into the air.
- The largest armadillos weigh 120 pounds.
- An armadillo mother has 4 identical armadillo babies every time she gives birth.

One non-mathematical fact, but an important one for curious students, is that armadillos carry leprosy. Discourage students from touching an armadillo if they encounter one. *http://www.nytimes.com/2011/04/28/health/28leprosy.html*

These armadillo facts can be used to write multiplication stories.

Example:

If the tails of 10 average armadillos were placed end to end, how long would they be?
One armadillo tail is 15 inches long.
There are 10 armadillos.
My number sentence is: 15 x 10 = ☐ inches.
The tails of ten armadillos put together would equal 150 inches.

Example:

Four armadillos weigh 480 pounds. How much does one armadillo weigh?
My number sentence is: 4 x ☐ = 480 pounds
4 x 120 = 480 pounds
Each armadillo weighs 120 pounds.

Write and solve three more multiplication stories about armadillos or another interesting Georgian animal.

FORMATIVE ASSESSMENT QUESTIONS

- What data did you use for your word problem?
- How did you decide what to include in your number sentences?
- Is there more than one correct way to write your number sentence? How do you know?
- How did you use a symbol in your number sentence? What does it represent?
- What does each part of the multiplication sentence represent in your story?
- How does multiplication help us represent ideas about the sizes of armadillos?

DIFFERENTIATION

Extension

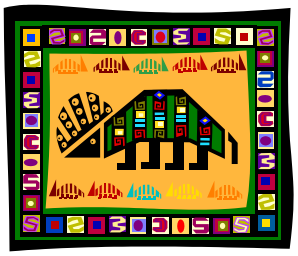
- Have students discuss and make a list of the ways that measurements are used in science. Have them construct a chart to show both the English and the metric (when applicable) measures of length and width, time, speed, and temperature.
- Encourage students to experiment with writing two step word problems.

Intervention

- Have students model their word problems (using different numbers) on the sample problem given or a problem that the teacher demonstrates.
- For kinesthetic learners, allow them to use math magnets or other manipulatives to set up their math sentences on a surface that is easily manipulated prior to recording the number sentence.

Name _____ Date _____

Armadillo Stories



Armadillos are native Georgia animals and are they ever strange! Think about these armadillo facts:

- Armadillos live an average of 12 to 15 years.
- An armadillo can be as long as 59 inches.
- An armadillo's tail is about 15 inches long.
- An armadillo can jump nearly 5 feet straight into the air.
- The largest armadillos weigh 120 pounds.
- An armadillo mother has 4 identical armadillo babies every time she gives birth.

These armadillo facts can be used to write multiplication stories.

Example:
If the tails of 4 average armadillos were placed end to end, how long would they be?

One armadillo tail is 15 inches long.
There are 4 armadillos.

My number sentence is: 15 x 4 = ☐ inches.
The tails of ten armadillos put together would equal 60 inches.

Example:
Four armadillos weigh 360 pounds. How much does one armadillo weigh?

My number sentence is: 4 x ☐ = 360 pounds
4 x 90 = 360 pounds
Each armadillo weighs 90 pounds.

Write and solve three more multiplication stories about armadillos or another interesting Georgian animal.