PRACTICE TASK: HOOKED ON SOLUTIONS!

STANDARDS FOR MATHEMATICAL CONTENT

MCC3.OA.8 Solve two‐step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity.

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 should understand math concepts addition and subtraction and multiplications relationship to addition.

ESSENTIAL QUESTIONS

- How can multiple math operations be used to solve real world problems?
- How can we use patterns to solve problems?
- Why is it important to understand that more than one math operation may be needed to solve a problem?

MATERIALS

Unifix cubes, or any counting manipulative
Bingo cards
Dry-erase boards
Index cards

GROUPING

Individual, partner

TASK DESCRIPTION, DEVELOPMENT, & DISCUSSION

In this task, students will word problems to match given equations.

Comments

The teacher will begin by **scaffolding the lesson** using a Bingo game. Distribute a card to each student. There are 6 different versions of the card. Thus, you should have multiple winners at once. The teacher will call out each product on the 3 X 3 card in the form of a story problem to further build the student's understanding of multiplication with real life. She will reinforce to them that multiplication is repeated addition. If they get stuck, use this strategy to figure out the product. The nine factors on the cards are: 36, 20, 18, 28, 35, 16, 21, 24, and 30. The teacher will call out problems for the above products as follows. A task sheet is included.

There are 5 cars.

Each car has 4 tires.

How many tires do they have in all?

The teacher will create a story problem for each product until a winner has been established. While playing, the teacher will use this time to have open discussions about how answers were derived and what strategies they used.

The teacher will then give each student some type of counting manipulative. She will have them create on their desk arrays to compliment the story problems she calls out which will be similar to the aforementioned problems used in the game. However, she will add another sentence which will involve another math operation.

Ex.1

There are 5 cars.

Each car has 4 tires.

3 of the tires are flat.

How many tires are not flat?

Question:

What type of math is being presented now? How would that equation be written? ***(5 x 4) - 3= X***

The teacher would have the students create arrays and subtract or add manipulatives to solve the equation. Along with that, the students would write the equation for the story problem on a dry erase board and hold the board in the air when the teacher instructs them to do so. This will be done so the teacher can check understanding and all students are engaged. The teacher would give the students more practice problems to build their contextual understanding.

Student Task:

The teacher will break the students into groups of two. The students will be given five index cards. Each index card will have a different equation similar to the ones they had practiced. However, this time, they must work with a partner and create a story problem to match each equation. The teacher should prepare the equations to include an unknown (variable) in different parts of the equation. For example, ***a*** x 12 = 36. After completion of the work, the teacher will collect the index cards and redistribute them to other students and have them solve

their classmates' problems. The more opportunities students are given, the more effective the lesson.

FORMATIVE ASSESSMENT QUESTIONS

- Why is it important to not see math as a single operation?
- What is the relationship between word problems and equations?
- What happens if the equations are not solved in the correct order?

DIFFERENTIATION

Extension

- This lesson can be extended by allowing students to model, using arrays, similar problems with two-digit numbers.

Intervention

- This lesson could be taught in small groups so that more hands-on instruction can be given as needed. Also, during the task, the students could continue to use manipulatives to help create the word problems or even draw a picture.

HOOKED ON SOLUTIONS Bingo Cards!

36	24	20
30	*Free Space*	35
18	16	28

20	28	18
30	*Free Space*	36
16	24	35

24	35	18
36	*Free Space*	28
30	16	20

30	20	24
16	*Free Space*	18
28	36	35

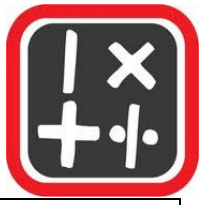
30	36	28
18	*Free Space*	24
35	16	20

28	35	30
20	*Free Space*	36
16	18	24

Word Problem Suggestions During Instruction

36-There are four kids. Each kid has 9 marbles. How many marbles is that?
20-The gardener has 4 gardens. Each garden has 5 rose bushes. How many rose bushes are there?
18- Six police officers were patrolling the city. Each one captured 3 bad guys. How many bad guys did they capture?
28- Seven kids were buying ice cream. They each have four quarters. How many quarters do they have?
35-There were 5 doctors. Each doctor had 7 patients. How many patients is that?
16- The pet shop had eight dogs. Each dog has 2 puppies. How many puppies will they have to sell?
21- There were three teachers. Each teacher had 7 boys each in their class. How many boys were in all three classes?
24- Three buckets were under an apple tree. Each one could hold 8 apples. What is the largest number of apples that the buckets can hold?

2-Step Word Problem Suggestions



There were 5 parents at the park. Each parent had 3 kids. 6 of the kids were boys. How many were girls?
The coach had 6 baskets. Each basket contained 7 balls. 12 of them were footballs. How many were not footballs?
Mary, Luke, Mark, and Isaiah went fishing. They each caught 8 fish. When they got home, their mom had purchased 10 from the local supermarket. How many fish do they have?
There are 7 fire stations in the city. Each fire station has 5 firemen. During the week, the city hired 8 more. How many firemen do they have in all?
There were nine students and they each have a pencil box. 7 pencils are inside each one. 28 of the pencils are sharpened. How many are not sharpened?