

MATH

Can Take You Places

LESSON I

“Sentence Match”

by Julie Morris

CONCEPT AREA Equivalency

GRADE LEVEL 5

TIME ALLOTMENT 60 minutes

LESSON OVERVIEW Students will be able to match problem situations with equations.

LESSON ACTIVITIES OVERVIEW Students practice creating word problems and matching them with the proper algebraic number sentence.

LEARNING OBJECTIVES Students will be able to:

- Use equivalent equations for problem-solving situations.
- Apply problem-solving skills to real-life situations.

STANDARDS (TEKS) From the Texas Essential Knowledge and Skills for Math for grade 5:

Grade 5
5.4B, E, F

MEDIA COMPONENTS Video: *Math Can Take You Places #002 “Equivalency”*

MATERIALS

- Index cards
- Construction paper
- Pencils
- Markers

PREP FOR TEACHERS **Note:** The concept of **fact families** will be covered during this lesson. Students may need to review the concept prior to beginning the activities, especially if your class includes students who are acquiring English as a second language (ESL).

Write some example scenarios to use for demonstration purposes. Also, go through any problem-solving resources (for example, textbooks) to find some story problems to use in the introduction. Emphasize that each word problem can have possibly more than one number sentence that matches.

Additional sample word problems:

1. Sheila has 100 grapes. She wants all 20 students in her class to be able to taste them. How many grapes would students receive if she divided them evenly among her classmates? Answer: $100/20 = C$ or $C * 20 = 100$ ($C=5$)
2. David got a bicycle and \$200 in cash for his birthday. He used his money to buy a bicycle helmet for \$25, a t-shirt for \$17 and two video games for \$38 each. How

MATH

Can Take You Places

LESSON I

“Sentence Match”

by Julie Morris

much money does David have left after his shopping?

Answer: $M = 200 - (25 + 17) - (2 * 38)$ or $200 = M + (25 + 17) + (2 * 38)$ ($M = 82$)

3. Macy is trying to calculate her math test average. She has made a 91, a 98, an 87 and a 102. What is her math test average? Answer: $(91 + 98 + 87 + 102) / 4 = A$ or $(91 + 98 + 87 + 102) = A * 4$
4. Kevin is calculating how many seats there are in his school’s auditorium. There are 14 seats in each of the 33 rows. How many seats total are in the auditorium? Answer: $14 * 33 = S$ or $S / 33 = 14$ or $S / 14 = 33$

INTRODUCTORY ACTIVITY: SETTING THE STAGE Show students four equations that represent the same quantity. **THIS WAY YOU CAN REARRANGE THEM TO SHOW EQUIVALENCE.** Examine the equations one at a time and ask the students to develop a scenario that could match the equation. For example, “ $4 * 9 = N$ ” could match “Four kids have 9 pieces of candy each, so what is the total number of pieces of candy for all four kids?” Discuss using variables to represent the parts of an equation. In earlier grades, students had blanks or boxes in equations instead of unknowns.

Sample equivalent equations:

$$4 * 9 = N \quad 43 - N = 36 \quad N + 24 = 36 \quad 72 / 2 = N,$$
$$\text{so } 4 * 9 = 72 / 2 \quad 43 - 7 = 12 + 24$$

All of these equations have numbers or variables that represent 36 on both sides of the equals sign.

LEARNING ACTIVITIES Have the class work in groups to write problems to go with the four equations mentioned earlier. Keep these on a separate sheet of paper or index card for later use. In the meantime, observe students’ work to make sure the equations are correct and appropriate. Have them solve their problems by using a pictorial representation before they write or match the equations. It may be helpful to assign each member of the group a specific task (writer, proofreader or spokesperson). Have students rotate jobs. They may work in pairs.

CULMINATING ACTIVITY Use the KERA video, *Math Can Take You Places, #002 “Equivalency”* to show types of equations that can be used in calculating elapsed time. **Cue** video to approximately 19:224 when the teacher says, “We’ll go around and discuss the number sentences you all got.” Press **Play. Stop** after the teacher says, “... there are different ways to write this number sentence and still work the problems out.” Discuss how the equations in the video compare to the equations we created.

Switch the scenarios and equations with other groups. Have the students match the equations with the scenarios. Monitor for student understanding.

MATH

Can Take You Places

LESSON I

“Sentence Match”

by Julie Morris

CROSS-CURRICULAR EXTENSIONS Use historical or scientific scenarios for the story problems.
Use newspaper articles to create current event story problems.

REAL-WORLD CONNECTIONS Introduce the concept of Roman numerals. Let students create a “Roman Numeral” matching game with index cards. Write the numerals on one card and the equivalent numbers on another. Students can play the matching game individually or in groups.

ASSESSMENT Use the student-created materials to make a matching game. All the students have a card with a story problem or an equation. The object of the game is to find the cards’ matches. You may want to have the students look for their matches in rounds to avoid confusion.

STUDENT HANDOUTS None