

Variable Machine

Lesson Plan

This lesson serves as an introduction to the idea of the use of a variable to represent a number. The children do not have any substantial experience with using variables and, because of their age, the concept is difficult for them.

MATERIALS:

For each child: A 3 cm. wide strip of lined paper—you will need 26 lines.

- A 5 cm. wide strip of lined paper—you will need 26 lines
- 2 strips of tape
- calculator
- scratch paper

GROUPING:

Groups of four children at tables

OBJECTIVE:

Children will be introduced to the use of a variable—a symbol that can stand for any number. They will make a “variable machine” that generates letters that can stand for various numbers to explore the value of words.

PROCEDURE:

1. Put the word VARIABLE on the board. Brainstorm possible definitions. Note connection between the word variable and “variety,” “various,” “varied,” etc.
2. Mathematicians define a variable as a symbol that can stand for any number.
3. Tell students that they are going to create a variable machine to discover the value of some familiar words.
4. Have them write the letters of the alphabet down the left side of the 3 cm. wide strip of paper.
5. Have them write the numbers from 0 to 25 down the right side of the 5 cm. strip of paper.
6. Have them attach the ends of each strip together to make two wheels. Wrap the letter strip around the number strip, matching the letters A-0, B-1, etc.
7. Using their variable machine, have students find the value of the first and last names of all the people in their group and add them together.
8. Ask: Which were more valuable, first or last names? Any patterns? Why?
9. Ask: Can you reconfigure your variable machine so that you can raise the score of the names in your group? Have them work on this problem. Collect the data.
10. Write the word BEAR on the board. Ask them to configure their variable machine so the word has the highest possible score. Compare groups' scores.
11. Have them find the lowest possible score for BEAR.
12. Ask: If I score the word BEAR with a 30, where is my machine set? Have them discuss in groups. If one group finishes early, have them make up a word and score it for the rest of the group.
13. CLOSING: Today you used letters to stand for a variety of numbers. What is a symbol called that can stand for a variety of numbers...