Math 4 - Act. 10: Decoding Machine

Summary

This lesson is an introduction to variables and their uses. It does not require any prior knowledge of variables.

Materials

- Notebook paper
- Scotch tape
- Ruler

Intended Learning Outcomes

2. Become mathematical problem solvers.
3. Reason mathematically.

Instructional Procedures

Invitation to Learn

- Invite students to become FBI agents for the day. They are working with TOP SECRET tools that will enable them to decode and find the values of hidden messages and words.
- Group students in pairs to work on this activity.
- Cut notebook paper into two strips—one that is three inches wide and one that is five inches wide.
- Down the right side of the 5-inch strip of paper, write the numbers from 0-25.
- Down the left side of the 3-inch strip of paper, write the letters of the alphabet A-Z.
- Attach the ends of the number strip together with a piece of tape.
- Wrap the letter strip around the number wheel, matching the letters to the corresponding numbers–A to 0, B to 1, C to 2, and so on.
- Tape the ends of the letter strip together.

Instructional Procedures

- Begin by having students find the value of their first names, using the decoding machine (e.g., BOB is B=1, O=16, B=1, so 1 + 16 + 1 = 18). Use the leftover part of the notebook paper to record their data.
- Have the students find the value of their last names and ask the following questions: Which name has the greater value – your first or last name? What is the difference in the value of your first and last names?
- Now have the students find the values of various words and asking questions such as: “What is the three-letter word with the greatest value?” “Are the greatest values always associated with words that contain the most letters?” Create a hidden message that your class can decode and have them work with their partners to decode it.
- Challenge students to find words that are more than ten letters long with values that are less than the value of words having only three letters. Have them find words whose values are equal to 25, 36, or 100.

Curriculum Integration

Math/Science—Create a hidden message that your class can decode and have them work with their partners on decoding it. This could be one of your science questions or some math vocabulary.

Extensions

Possible Extensions/Adaptations

Extend this activity by changing the number strips so that A= 7. This will realign all the assigned values. You can also change the number strip by writing different values such as decimals or fractional numbers.

Homework & Family Connections

Have students create a message that a family member can decode and vice-versa.

Assessment Plan

Have students use their decoding machine to find the value of their spelling words. Encourage partners to create a message for each other to decode.

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