Sticky Note Math

Summary

Students will use sticky notes to learn about fractions.

Main Core Tie

Mathematics Grade 6

Strand: THE NUMBER SYSTEM (6.NS) Standard 6.NS.1

Materials

- 3" x 3" Post-it® notes
- 1 1/2" x 2" Post-it® notes
- Various sizes of rectangular-shaped paper
- Rulers and yardsticks
- Scissors

Background for Teachers

This activity works best when students have a familiarity with division, even if only with whole numbers. Students should know such terms as *divisor*, the number by which another number is divided; dividend, a number that is divided by another number (divisor); and quotient, the answer to a division problem.

Having already learned operations with fractions, such as addition, subtraction, and multiplication, students should also understand the difference between the *numerator* (top number) and the *denominator* (bottom number). The line between the two means *divided by*. Therefore, the numerator represents the dividend, and the denominator

represents the divisor, or the bottom number divides the top number.

Finally, a concept used in fractional division is *multiplicative inverse*, or the *reciprocal*. The product of a fraction and its multiplicative inverse equals one (e.g., 3/4 x 4/3 = 1).

Intended Learning Outcomes

2. Become mathematical problem solvers.
4. Communicate mathematically.

Instructional Procedures

Invitation to Learn

Give each pair of students a Post-it® note. Ask the class a series of questions, such as:

- What, if anything, do Post-it® notes have to do with math?
- How might a Post-it® note be used to demonstrate a mathematical idea?
- In what way(s) can Post-it® notes be used to represent operations of fractions?

Notice the questions get more specific.

List responses on the board. Explain and discuss how math is "all around us," even in the form of Post-it® notes.

Instructional Procedures

- Show students a piece of 8 1/2" x 11" piece of paper. Ask, "How many 3" x 3" Post-it® notes would be needed to fit the width of the piece of paper?" Elicit responses from someone who has solved the problem. (2 5/6)
- Model the process by taking the 3" x 3" Post-it® notes and carefully placing them along the 8 1/2" edge of the paper. Carefully cut the overlapping part of the Post-it® note. Measure the

remaining part, which should be close to 5/6 of 3" or 2 1/2". Measure the cut segment, which should be 1/2".

Note: To understand the concept of 5/6 of 3, ask the students to take the 1/2" amount they cut off and, using their ruler, determine how many 1/2" segments would be in 3". There should be 6. Since they have cut off one of those 6 segments, there are only 5 left, or 5/6 of the original 3". That means there are 2 full Post-it® notes and 5/6 of a third one that fit within the 8 1/2" side of the paper.

Perform the same procedure with the 11" side of the piece of paper by dividing 11 by 3. Then place the 3" x 3" Post-it® notes along the 11" edge, again trimming and measuring as above. Add the fractions together to get the total number of Post-it® notes to measure the length and width.

Do the same procedure with the 1 1/2" x 2" Post-it® notes for both dimensions. Make sure students select either the 1 1/2" side or the 2" side to measure with.

Explain the process mathematically, using traditional division, show how many 3" x 3" Post-it® notes would fit by dividing 8 1/2" by 3, like this: 8 1/2 Ã· 3, which is the same as

After modeling the above, pass out two different sizes of rectangular paper to groups of students, depending on class size.

Have students determine mathematically how many of each kind of sticky notes it would take to cover both dimensions (length and width). After doing the math, students request the number of Post-it® notes they need and cover their paper. Cut the fractional part of the Post-it® by measuring it first.

Display the students' work and discuss strategies and steps for finding the answer.

Extensions

Students can use what they've learned about fractions, division, multiplication, and measurement to apply this process to a real world situation, such as hanging wallpaper. Give students the height and width measurements of a wall to determine how much wallpaper is needed. Using the concept of area, students determine how much wallpaper is needed to cover the wall.

Have students write, using sequencing, the steps of the process for this activity. They can write the steps on sticky notes and place them on the board or a wall.

Ensure that tactile and kinesthetic learners have the opportunity to place the Post-it® notes and cut the overlapping parts.

Family Connections

Encourage students to try this activity at home with family members, making sure they use the mathematical operations learned for division and multiplication of fractions.

Instruct students to find three items at home, square or rectangular in nature, to measure with Post-it® notes. Share the results with the class.

Assessment Plan

Observation of students at they complete the Post-it® note activity. Do they understand how to divide and multiply fractions both mathematically and graphically?

Bibliography

Research Basis

Weisenberg, R.C. (1997). Appropriate technology for the classroom--using "Post-it® Notes" as an active learning tool. *Journal of College Science Teaching*. 26(5), 339-44.

This article addresses the use of Post-it® notes as effective teaching tools. It lists activities using Post-it® notes, such as modeling, concept mapping, and constructivist group activities.

Widmer, C. & Sheffield, L. (1998). Modeling mathematics concepts: using physical, calculator, and computer models to teach area and perimeter. *Learning and Leading with Technology*. 25(5) 32-35. This article examines ways middle school students use simple problems to gain a deeper understanding of mathematical concepts. It demonstrates the use of sample area and perimeter problems.

Authors

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