

The Power of ONE!

Summary

Activities using manipulatives help students equivalency in fractions.

Materials

- [Egg Carton Fraction](#)
- [Equivalent ONES](#)
- [Magic Box](#)

Additional Resources

Books

Painless Fractions, by Akyece B. Cummings; ISBN 10:0-7641-3439-6

Articles

Hecht, Steven Alan. (1998.) Toward an Information-Processing Account of Individual Differences in Fraction Skills. *Journal of Educational Psychology*. 90. 545-59.

Background for Teachers

Students should be familiar and comfortable with the concept of what a fraction is and easily recognize and name fractions from halves to twelfths. Students should be able to name equivalent fractions.

Intended Learning Outcomes

1. Develop a positive learning attitude toward mathematics.
2. Become effective problem solvers by selecting appropriate methods, employing a variety of strategies, and exploring alternative approaches to solve problems.

Instructional Procedures

Invitation to Learn

Have you ever wanted to be #1? How did you feel when you were #1? Did you feel pretty powerful? Pretty cool? Pretty Smart? Number ONE is the most powerful number! It can transform or morph into an infinite number of forms of itself. To morph or transform it must be in the "Magic Box". (The magic box is a rectangle divided in the middle with a fraction bar.) This is kind of like Clark Kent went into a phone booth (a magic box) and came out as another form of himself ----Superman!

POWER of ONE Skit--Brave teachers of Math will come dressed in some superhero costume of their choice to represent the powerful #ONE! It would be great to have a large box (e.g., one you could fit into that would open and shut). On the outside of the box draw a fraction bar. Prepare ahead of time fraction posters that are equivalent to ONE (e.g., $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$, $\frac{5}{5}$ etc). ONE transforms himself or morphs into the superhero he is needed to be at any moment for any problem. Watch as he appears in his secret identity to save the day for adding or subtracting fractions! Appear with the fractions that are equal to ONE hung around your neck. Ham it up---the kids will love it and they will remember it!

Instructional Procedures

Do Superhero Power of ONE skit. Include a costume if possible and your Magic Box (phone booth) to transform into other form of the number one.

Give each student the *Magic Box* worksheet. Discuss that any fraction that is written in the Magic Box must be equal to ONE and therefore it will have the same numerator and denominator.

Discuss and demonstrate with pattern blocks, fraction strips, etc. that when a fraction is multiplied by another fraction that equals ONE, the original fraction's value does not change; it is

just renamed.

Point out that when you multiply using the *Magic Box* and a form of ONE, you are always being fair and just to all fractions because you do the same thing to the numerator that you do to the denominator. Everyone has been treated fairly and numerators and denominators have been multiplied (or divided) by the same number.

Do several examples with manipulatives all together, in small groups, and then have students do problems on their own.

Place 12 objects on every student's desk. Ask them to show you $\frac{1}{2}$? How do you know this $\frac{1}{2}$? Use your hand to cover $\frac{1}{2}$. Now cover $\frac{2}{2}$. What is another name for $\frac{2}{2}$?

Separate your objects into thirds. How do you know they are separated into thirds? Cover $\frac{1}{3}$ of the objects. Now cover $\frac{2}{3}$ of the objects. Now cover $\frac{3}{3}$. Count and show me $\frac{1}{3}$, $\frac{2}{3}$, $\frac{3}{3}$.

What is another name for $\frac{3}{3}$?

Repeat with fourths, & sixths. What is another name for $\frac{4}{4}$? What is another name for $\frac{6}{6}$?

Review with *Equivalent ONES* worksheet.

Extensions

Curriculum Extensions/Adaptations/ Integration

Have advanced learners teach struggling students the concepts.

For learners with special needs, have them draw a super hero ONE of their own to remind them about changing fractions to equivalent fractions using the Magic Box and the Power of ONE.

Compare and contrast with how things transform or change in science (e.g., rocks change from sedimentary to metamorphic, to igneous, etc). Have students brainstorm other things in nature and in life that are powerful because of their ability to change.

Family Connections

Have students teach their parents or a sibling about the Power of ONE. Give extra credit for those that do this. If a student can teach the concept to someone else, then they truly understand. Have them make up their own problems to work with parents. Have parents sign and return the note for credit.

Have students work with someone in their family to use the Power of ONE in a real life situation (e.g., recipes and fractions). Write about it in their journal and share with the class.

Assessment Plan

Do a cooperative learning assessment. After having been taught the concept, have students assess their learning through journal writing. Ask them to write a brief description of what they have done. Have them describe how the activities with the manipulatives and the idea of one being a powerful number changed their perception of finding equivalent fractions.

One way of getting students to think about the material they have learned is to have them write their own test. Ask them to imagine that they are the teacher. Instruct them as to exactly what topics need to be covered (e.g., Why is one a powerful number). Explain and give examples of how one changes itself to different forms. You may want to require that the test include one problem-solving situation, a reasoning question, or other requirement. Ask students to solve their own problems.

Bibliography

Research Basis

Furner, J. M., & Duffy, M. L., (2001). Equity For All Students in the New Millennium: Disabling Math Anxiety

Research by Jackson & Leffingwell (1999) has shown that only 7% of Americans have had positive experiences with math from kindergarten through college. Similarly, Burns (1998) has contended that

2/3 of US adults fear and loathe math. Whether it is 93% or 2/3 of Americans who have negative math experiences, a problem clearly exists.

As teachers of mathematics, we need to make the learning engaging, fun and varied. We need to individualize the learning and the assessing to best meet the needs of each student in our class.

Authors

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