Fraction Decimal Challenge

Introduction

In this activity, students explore the meaning and purpose of equivalent fractions. They also practice writing fractions that meet a given criteria.

Grades 6-8

NCTM Number and Operations Standards

- Compute fluently and make reasonable estimates
- Select appropriate methods and tools for computing with fractions and decimals from among mental computation, estimation, calculators or computers, and paper and pencil, depending on the situation, and apply the selected methods

Files/Materials Needed

Equivalent Fraction.act

PART (1) EQUIVALENT FRACTIONS

1

a. Launch TI-Navigator™ on the computer and start the session.

b. Have each student log into NavNet and then exit to the home screen.

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a. Tell students to think of a number between 1 and 10 and have them type it in on the home screen.

b. Take a **Screen Capture** of the class. If you haven't prompted them, most students will have typed in a whole number. Ask them why they think no one, or very few, typed in a decimal or fraction.

c. You could also prompt students to type in their favorite number and then reveal that your favorite number is $\frac{1}{7}$, because it has a lucky 7 and it never ends.

3

a. Tell students to find a fraction that equals 0.25 and use **Screen Capture** to review the results.

b. Keep track of these results by writing them on the board.

c. Here's where the challenge begins. Ask students to find a different, but equivalent, fraction. Take individual screen shots as students find new fractions.

d. Challenge the class to find additional equivalent fractions. Keep this up until you have a good series of fractions.

e. Ask questions like these to assess their understanding of equivalent fractions:
- *How could all these numbers represent the same value?*
- *Tell a story that would require you to use one number, such as $\frac{3}{12}$ rather than another, such as $\frac{1}{4}$. (e.g. I dropped a dozen eggs and broke 3 of them; I have 4 people in my family and 1of them is a boy.)*
- *How many equivalent fractions can you write for a given number?*
- *What method do you use to find an equivalent fraction?*

f. Use this dialog to develop a clear method for writing equivalent fractions.

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PART 2 GREATER THAN OR LESS THAN

4

a. Now have students find a fraction that is greater than 0 but less than 0.25.

b. Use **Screen Capture** to view their results.

c. Ask students what strategies they used to find the number.

d. Challenge students to find fractions that adhere to other conditions such as:

- *Find a fraction that is greater than 1.*
- *Find a fraction in simplest form that has a denominator of 10 and is less than 0.5.*
- *Find a positive fraction consisting of negative numbers.*
- *Who can find the fraction that is closest to 1 without being equal or greater than 1?*

EXTENSION

5

a. If students need additional help understanding equivalent fractions, load the activity settings file *Equivalent Fraction.act.* This sets up Activity Center so students can fill in a rectangle that is divided up into 12 sections.

b. Start the activity and instruct students to fill in $\frac{4}{12}$ of the rectangle and send their results into Activity Center.

c. From the diagram, students should see that other fractions can also be used to represent the same region. Launch **Quick Poll** (with *Open Response*) and ask students to type in an equivalent fraction using the b/c key.

d. Repeat this activity for other fractions such as $\frac{3}{12}$ or $\frac{7}{12}$. Students should recognize that some fractions can be reduced while others are already in simplest form.

e. You can also modify this activity by clicking **Configure** and changing the dimensions of the rectangle accordingly. Make sure you clear the activity data before starting the next activity.