Picture Perfect

STRAND: Number and Number Sense

STRAND CONCEPT: Rational Number Equivalencies

SOL 4.3d, 5.2a, 6.2a

Remediation Plan Summary

Using hundreds grids, student develop an understanding about equivalent rational numbers.

Common Misconceptions

Some students struggle with the idea that a fraction, decimal and percent can represent the same value.

Materials

Chart paper
Newspapers
Colored markers
Grid handout
Colored pencils

Introductory Activity

- Make three charts with the headings "Real-Life Uses of Fractions," "Real-Life Uses of Decimals," and "Real-Life Uses of Percents." Divide the students into three groups, and assign one group to each chart. Give each group a set of newspapers and markers, and ask the group to search through the newspapers to find at least five examples to write on their chart.
- Display the completed charts in the front of the room, and conduct a class discussion comparing the ways fractions, decimals, and percents are alike and different when they are used in real-life.
- Write the fraction, decimal, and percent equivalents of one-half on the board. Ask the students in what way these three numbers are the same. (Answer: They are equal or equivalent representations.) Explain that even though the three numbers are equal, in certain real-life uses, we may use one or two forms but not the other(s). For example, we say $\frac{1}{2}$ inch, not 50% of an inch. Sale prices are listed as 25% off or $\frac{1}{4}$ off, not 0.25 off. We say a baseball player has a batting average of 0.325, not 13/40.

Plan for Instruction

- Give each student a copy of the 6 hundred grid handout. Explain that each of the six squares represents a whole divided into 100 equal parts. Have students discuss with a partner what each small square represents. Most students will be able to say 0.01 and

$\frac{1}{100}$. If 1% is not mentioned, ask, *"If the whole square represents 100%, what percent is represented by one small square?"*

- Under the first square, have students write the fraction, decimal and percent and shade in one small square.
- In the second square, ask students to shade 10 blocks in a row and discuss with a partner how to represent it with a fraction, decimal and percent. Some students will struggle to simplify $\frac{10}{100}$ to $\frac{1}{10}$, make sure to have a class discussion on how these two fractions are equivalent.
- Repeat this procedure for the next squares, having students shade 25 blocks again encourage a discussion on how $\frac{25}{100}$ can also be written as one-fourth. If no one shaded a 5 by 5 square to show each fourth, include this visual after students report their findings so the students can visually see why 0.25 is equivalent to one fourth.
- With a partner and the next two grids, have students shade 50 and 75 squares and write the fraction, decimal and percent each one.
- For the final square, have student choose how many to shade and write the equivalent forms.
- Have a class discussion at the end about, how in all 6 squares, the fraction, decimal and percent represented the same amount.
- Distribute copies of the "Picture Perfect" worksheet and colored pencils, and have students complete the worksheet individually.

Pulling It All Together (Reflection)

Prove that $\frac{1}{5}$, 20% and 0.2 are all equivalent.

Note: The following pages are intended for classroom use for students as a visual aid to learning.

Grids
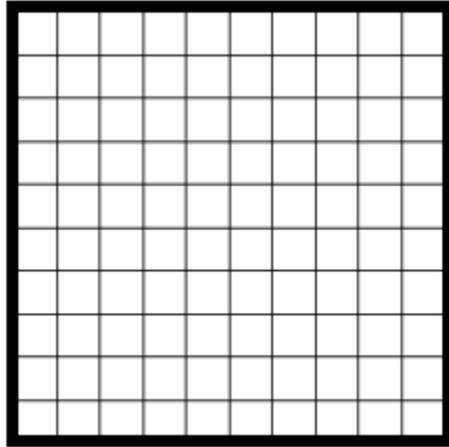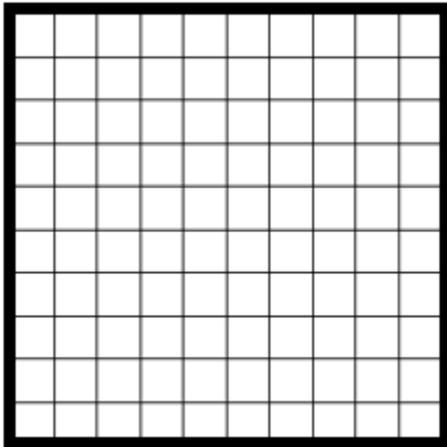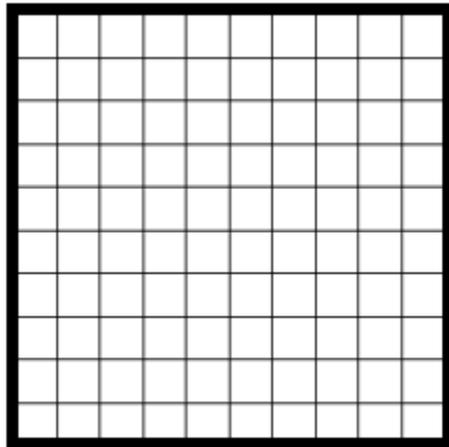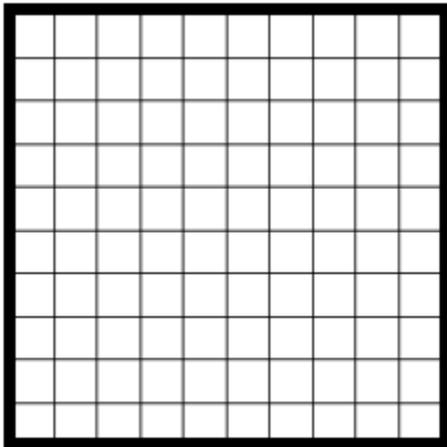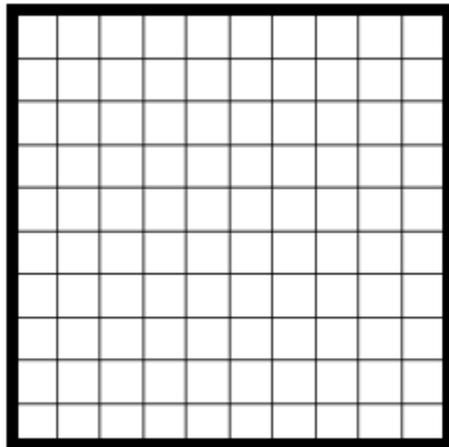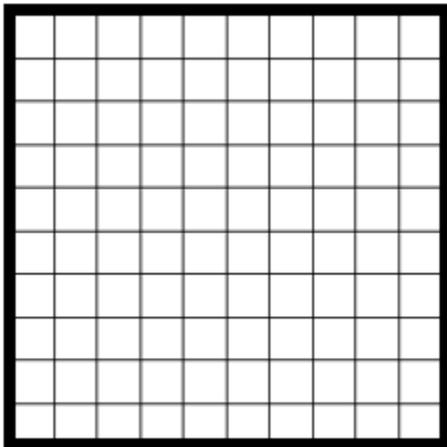
Picture Perfect

Use three different colored pencils to create a design in the Hundreds Square below by coloring individual blocks one of the three different colors. You must color at least 75% of your square. Once your design is finished, complete the information below.

Color 1: _____   Percent: _____   Fraction: _____   Decimal: _____

Color 2: _____   Percent: _____   Fraction: _____   Decimal: _____

Color 3: _____   Percent: _____   Fraction: _____   Decimal: _____

Total Colored: Percent: _____   Fraction: _____   Decimal: _____