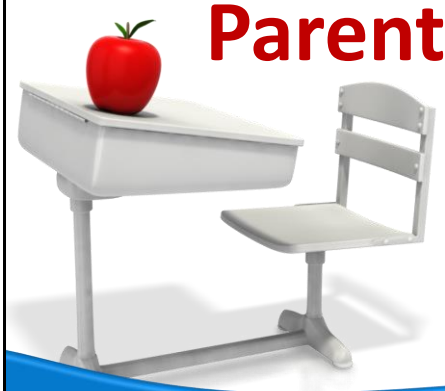
Connecting Academics & Parents



Academic seminars to sharpen skills and build understanding in

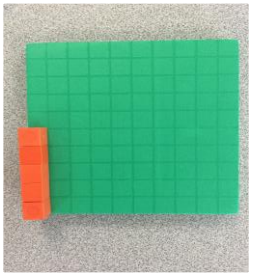
MATHEMATICS: 4th grade

Relating Fractions to Decimals

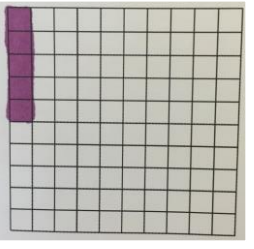
Do you agree or disagree with the following equation?

$$0.05 = 50/100$$

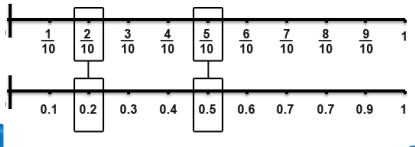
Use a model and or words to support your answer.



Building a model: Base-ten blocks can be used to model the relationship between fractions and decimals. Students begin this unit with prior knowledge that will allow them to make this connection.



Drawing a model using Base-ten paper: Similarly to constructing a model using base-ten blocks, students may choose to use base-ten paper and shade in to show their representation.



Number lines: Through this unit, students will using a number line to show their understanding of the relationship between fractions and decimals.

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Mathematics Florida Standards Focus

Grade 4

MAFS.4.NF.3.6

Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.52 as 52/100; describe a length as 0.52 meters; locate 0.52 on a number line diagram.

Learning Progression: Relating Fractions to Decimals

4th Grade MAFS.4.NBT.1.1

Recognize that a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

4th Grade MAFS.4.NF.3.6

Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.52 as 52/100; describe a length as 0.52 on a number line diagram.

What's the Error?

1. $\frac{8}{100}$ 8.100

2. $\frac{4}{10}$ 4.1

3. $\frac{20}{100}$ 20.00

The student does not understand how to rewrite the fraction as a decimal. The student writes each decimal in the form numerator/denominator (e.g., 8/100 as 8.100)

What's the Error?

$\frac{8}{100}$ 0.8

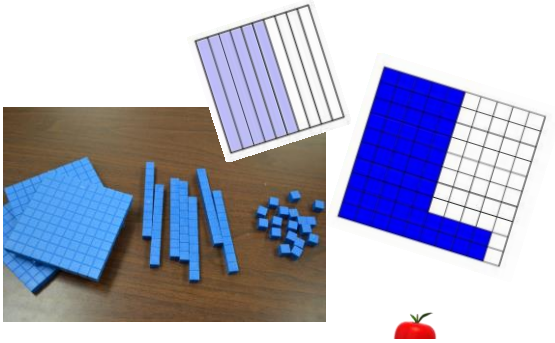
$\frac{20}{100}$ 0.002

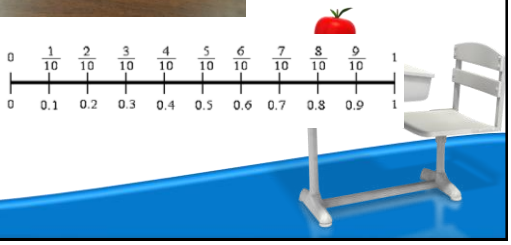
The student does not have a understanding of the hundredths place. In the first example, the student placed the numerator directly after the decimal instead of in the hundredths place. In the second example, the student shows some understanding of the connection between decimals and fractions. They included two zeros after the decimal, possibly because there are two zeros in the denominator.

Modeling Fractions and Decimals

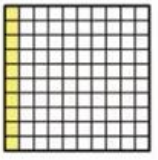
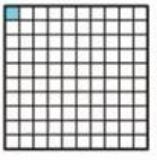
Use the available manipulatives to model the following fractions and decimals:

1. 3/10
2. 0.87
3. 5/100
4. 0.9





Relating Fractions and Decimals to Money

1 dollar	10 dimes = 1 dollar	100 pennies = 1 dollar
		
$1.00, or	1 dime = $\frac{1}{10}$, or 0.10 of a dollar	1 penny = $\frac{1}{100}$, or 0.01 of a dollar

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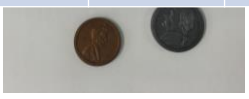
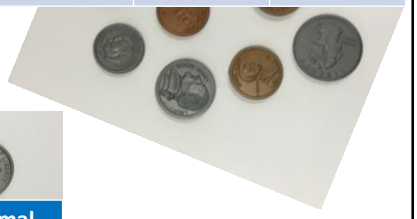
Represent the following as money, a fraction, and a decimal:

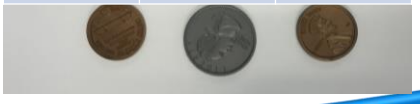
Money	Fraction	Decimal
$0.17 or 17¢	17/100	0.17



Money	Fraction	Decimal
$0.45 or 45¢	45/100	0.45



Money	Fraction	Decimal
$1.05 or 105¢	1 5/100	1.05



11

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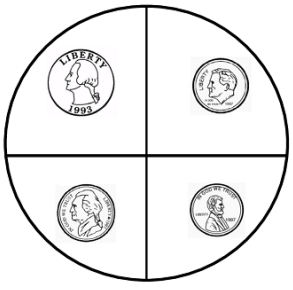
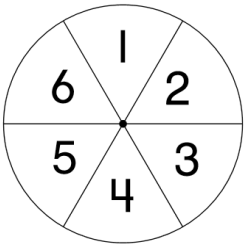
Take it Home and Try It!

Warning: Implementing this engaging activity will result in an increase in motivation and long-lasting learning.

DO TRY THIS AT HOME!



"Money, Fractions & Decimals"



12

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Relating Fractions and Decimals Online Resources:

- **"Fruit Splat":**

http://www.sheppardsoftware.com/mathgames/fractions/FractionsToDecimals.htm

- **"Puppy Chase":**

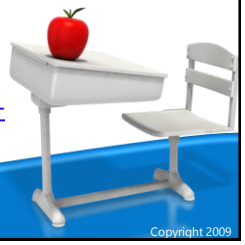
http://www.abcya.com/fractions_to_decimals.htm

- **"Converting Fractions to Decimals":**

http://www.mathplayground.com/fractions_convert.html

- **"Fractions, Decimals, and Percent Jeopardy:**

http://www.math-play.com/Fractions-Decimals-Percents-Jeopardy/fractions-decimals-percents-jeopardy.html



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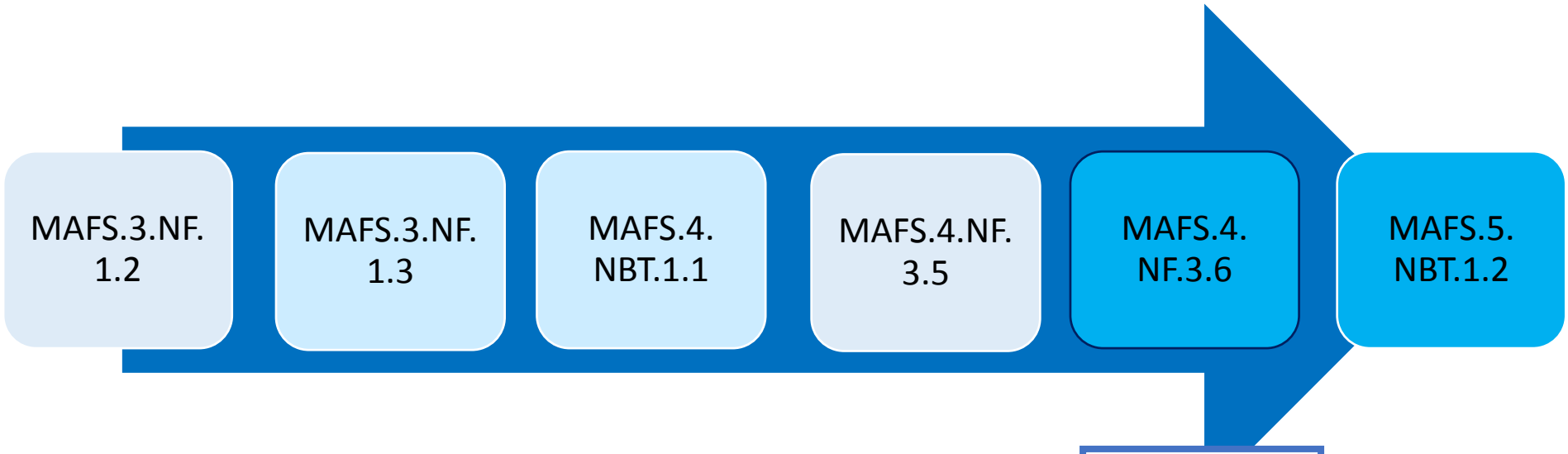
Relating Fractions to Decimals Progression



Understand a fraction as a number on the number line; represent fractions on a number line diagram.

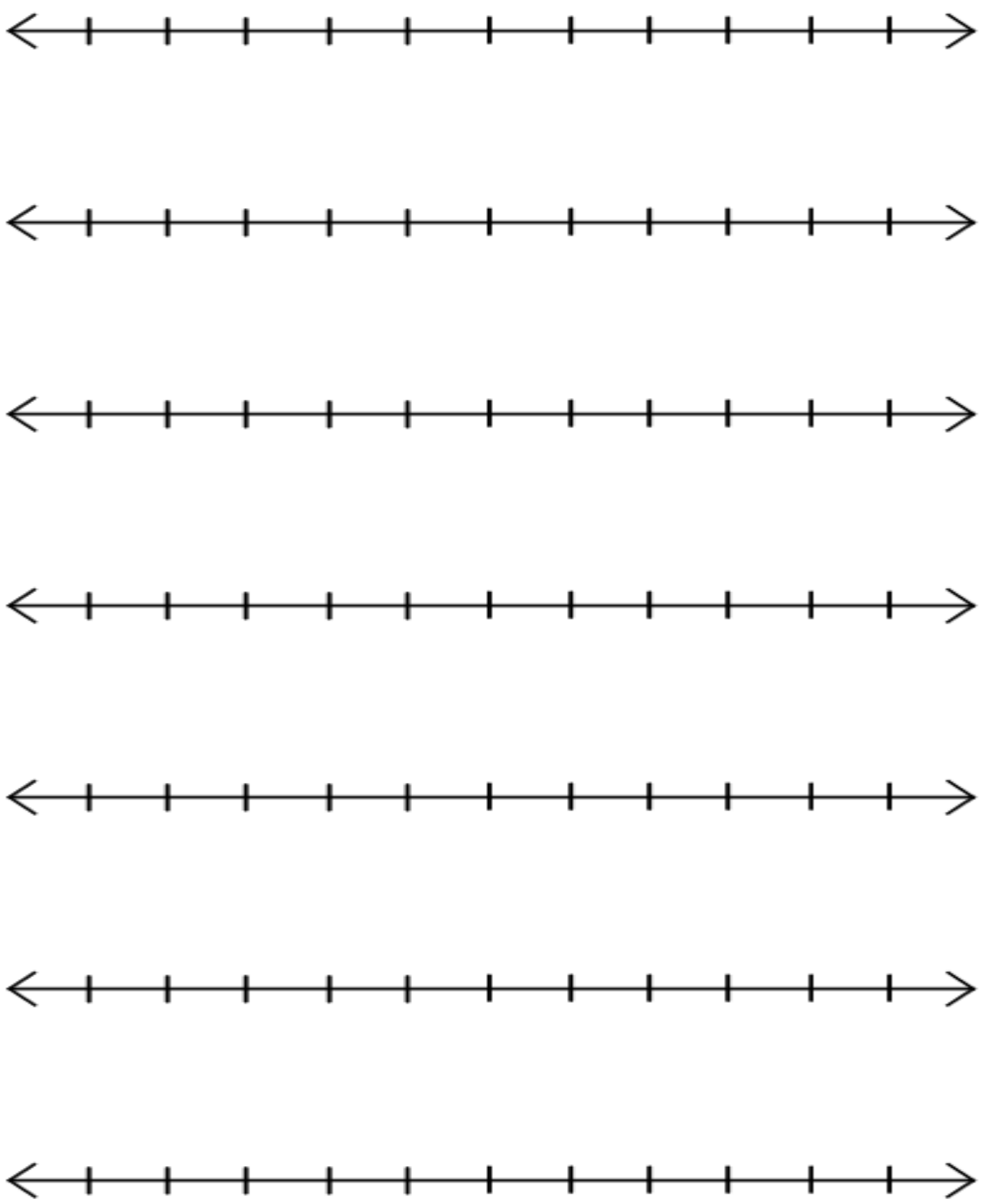
Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

Recognize that a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

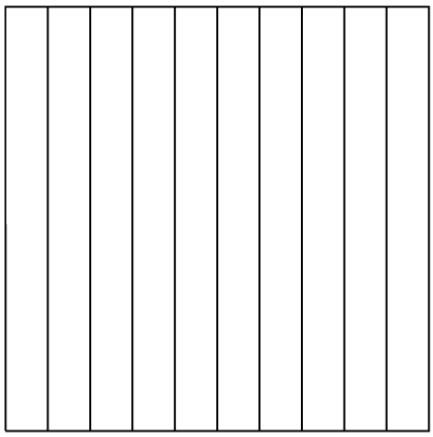
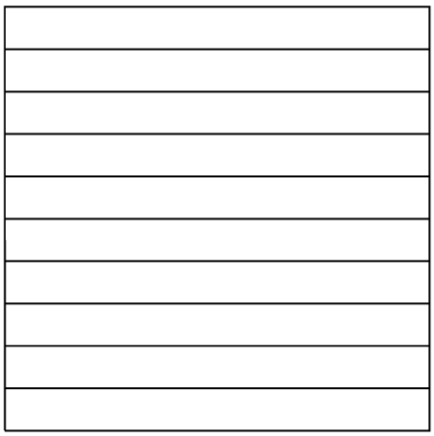
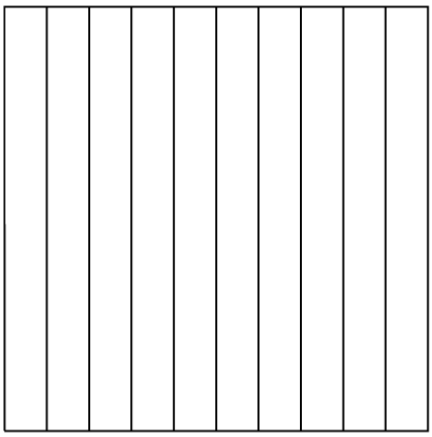
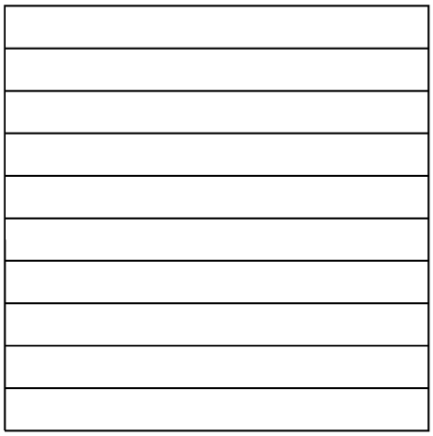
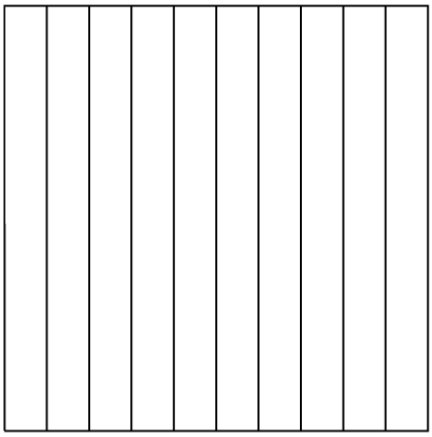
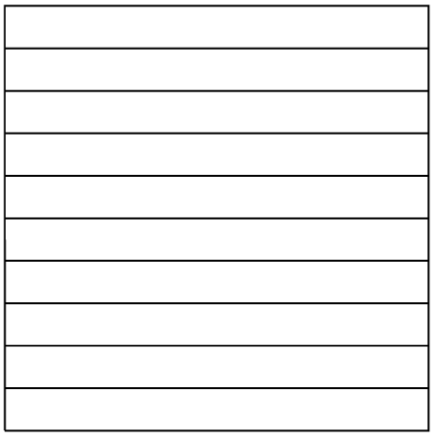
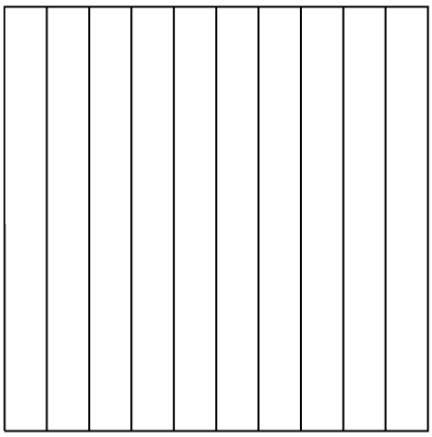
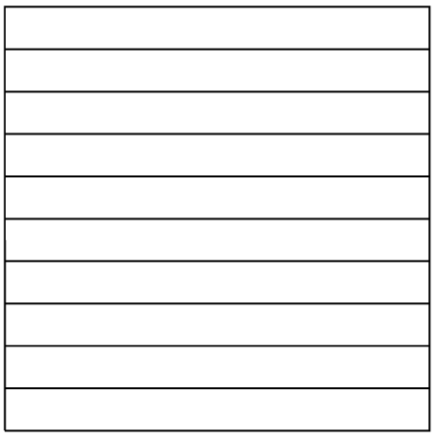
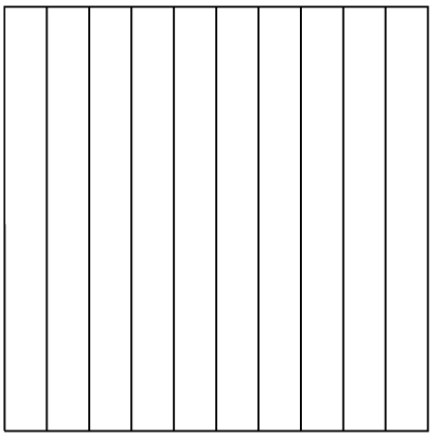
Express a fraction with a denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.

Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.52 as 52/100; describe a length as 0.52 meters; locate 0.52 on a number line diagram.

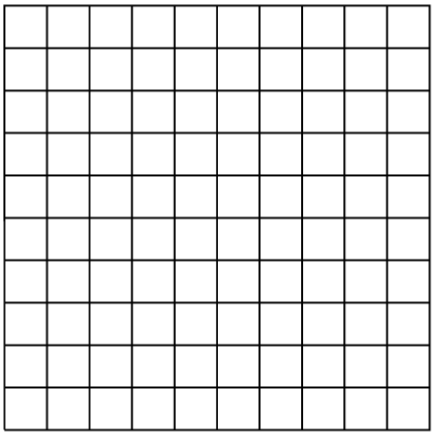
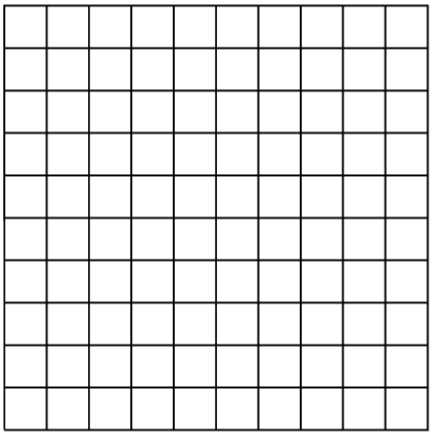
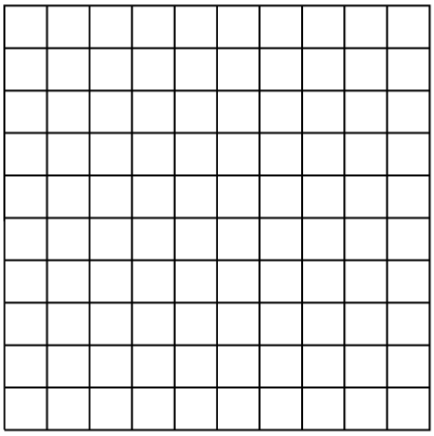
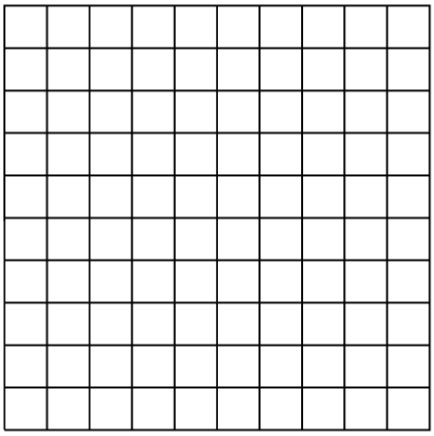
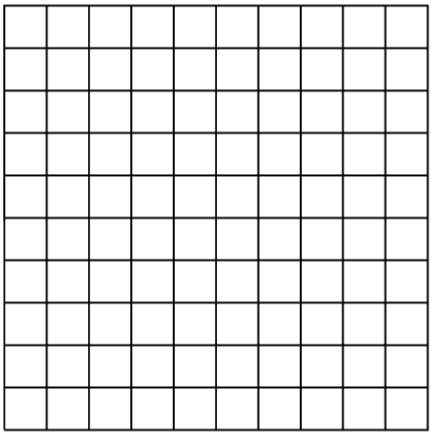
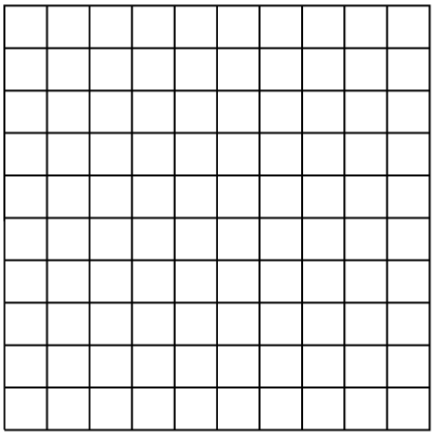
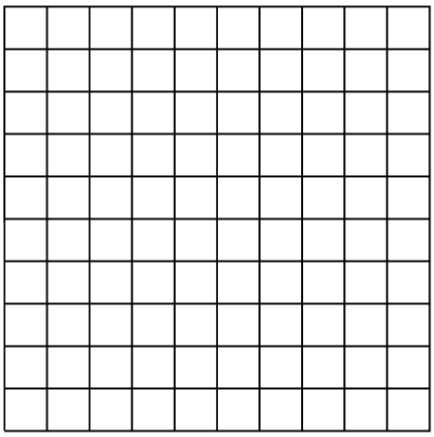
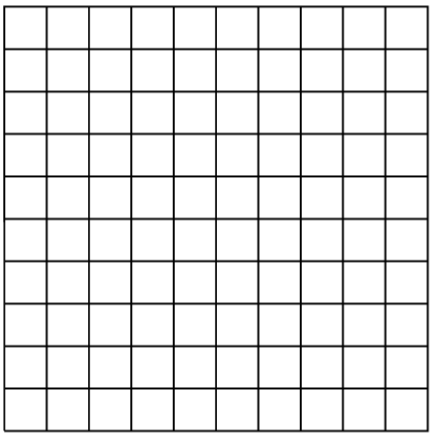
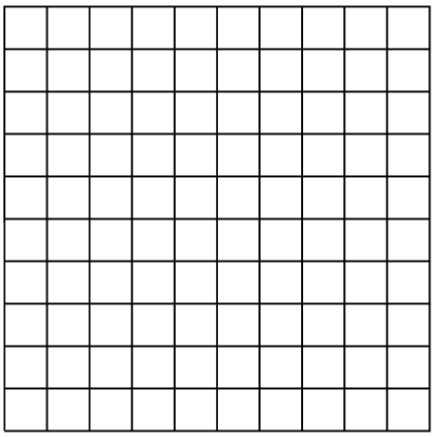
Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.



Decimal Models

Decimal Models

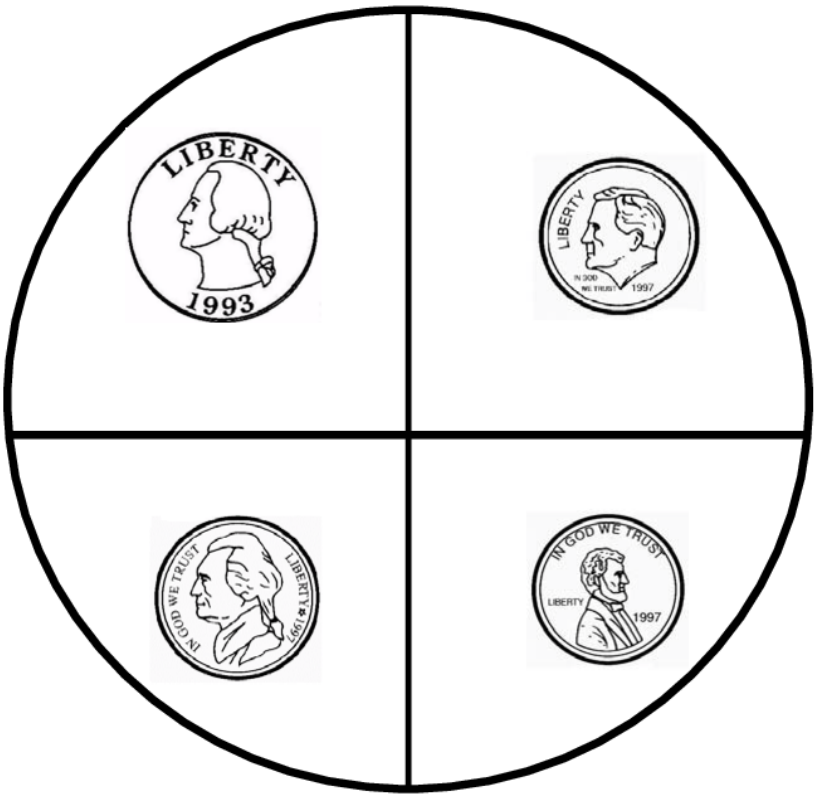
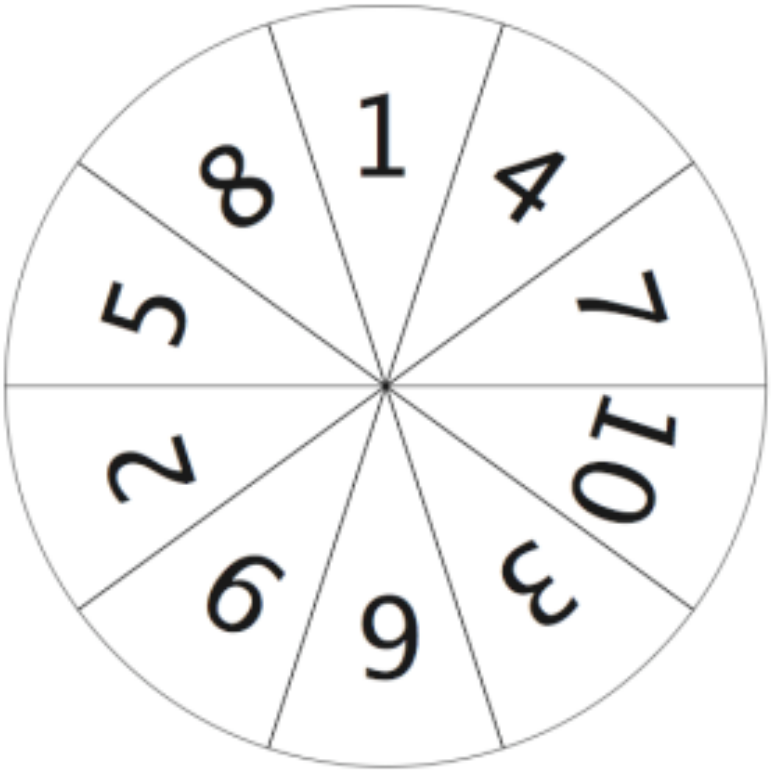










Fractions, Decimals & Money!

Directions:

- Spin each spinner once.
- One will tell you which coin to use and the other will tell you how many coins you have.
- Represent the amount in your chart as money, a fraction and a decimal.
- Keep a running total in the final column.
- First player to reach $50.00 wins!

Money	Fraction	Decimal	Total

Coin and Number Spinners

Directions: To use the spinner, place a paper clip in the center of the circle. Then hold the pencil vertically inside the paper clip, with the point on the center of the spinner. Keeping the pencil in place, spin the paper clip.