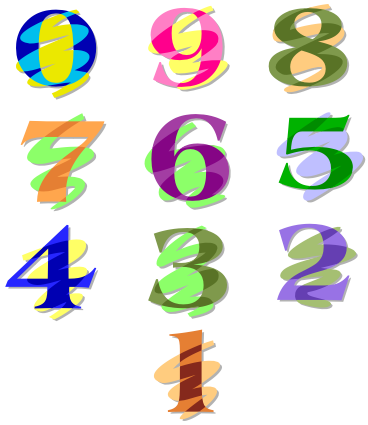
FOURTH GRADE
Number and Number Sense



In Step with Numbers

Reporting Category Number and Number Sense
Topic Identify place value and compare whole numbers using symbols
Primary SOL 4.1 The student will
a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions;
b) compare two whole numbers expressed through the millions, using symbols (>, <, or =).
Related SOL 3.1a, c

Materials

- Number cards (one set per pair of students)
- Game marker for each player
- Game board for "In Step with Numbers" (one per pair)

Vocabulary

ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, place value, digit, whole number, period, *units*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Introduce the activity by reviewing place values.
2. Put the number cards face down in a pile and have the players place their markers on "Start."
3. Player One picks a card from the top of the pile. The player then reads the directions beside the "step" that he or she is on. Player One *cannot* move to the next step if the directions are not followed, as agreed to by Player Two.
4. Player One concludes turn by placing the number card at the bottom of the pile.
5. Player Two follows the same steps as Player One.
6. The game continues until one of the players has successfully reached the top.

In Step With Numbers

Winner	
Step 9	If your number is less than 500,000, go down one step. If your number is greater than 500,00 move up one step.
Step 8	Read the number. If the 10,000s digit in your number is greater than the 100,000s digit, move up one step.
Step 7	Read the number. If the 1,000,000s digit is greater than the 10,000s digit, move up one step. If it is equal, do not move. If it is less than, move down one step.
Step 6	Read the number. If the 10,000s digit is less than the 1,000s digit, move up one step.
Step 5	Take two cards. Read the numbers. Tell which number is greater. If you are correct, move up one step. If you are incorrect, move down two steps.
Step 4	Read the number. If the 100,000s digit is less than the 1,000,000s digit, move down two steps. If it is equal, don't move. If it is greater than the 1,000,000s digit, move up one step.
Step 3	Read the number. If the number has a 5 in it, name its place. If the place has a value greater than 50,000, move up two steps. If the place has a value less than 500, move down one step.
Step 2	Read the number. If the 100,000s digit is greater than 5, move down one step. If it is 5, do not move. If it less than 5, move up two steps.
Step 1	Read your number. If you read it correctly, move up one step. If you read it incorrectly, move down two steps.
Start Stepping	Read the number. If the 1,000,000s digit is less than 5, move up one step. If the digit is greater than 5, move up two steps. If the digit is 5, don't move.

Number Cards

1,791,926	2,648,134
2,987,245	3,125,691
6,134,548	1,892,657
3,187,469	4,377,821
2,581,385	3,483,518
6,118,749	8,129,152

1,239,760	4,828,030
4,569,262	5,144,794
6,544,473	2,080,554
4,983,279	7,083,090
7,350,302	2,908,534
6,578,102	3,418,241

The Rocky Digits

Reporting Category Number and Number Sense
Topic Identify place value and compare whole numbers using symbols
Primary SOL 4.1 The student will
a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions;
b) compare two whole numbers expressed through the millions, using symbols (>, <, or =).
Related SOL 3.1a, c

Materials

- Digit cards (one set per group); game markers for each player (e.g., small stones)
- "The Rocky Digits" game board for each group
- Spinner board and spinner (e.g., pencil or paper clip) for each group

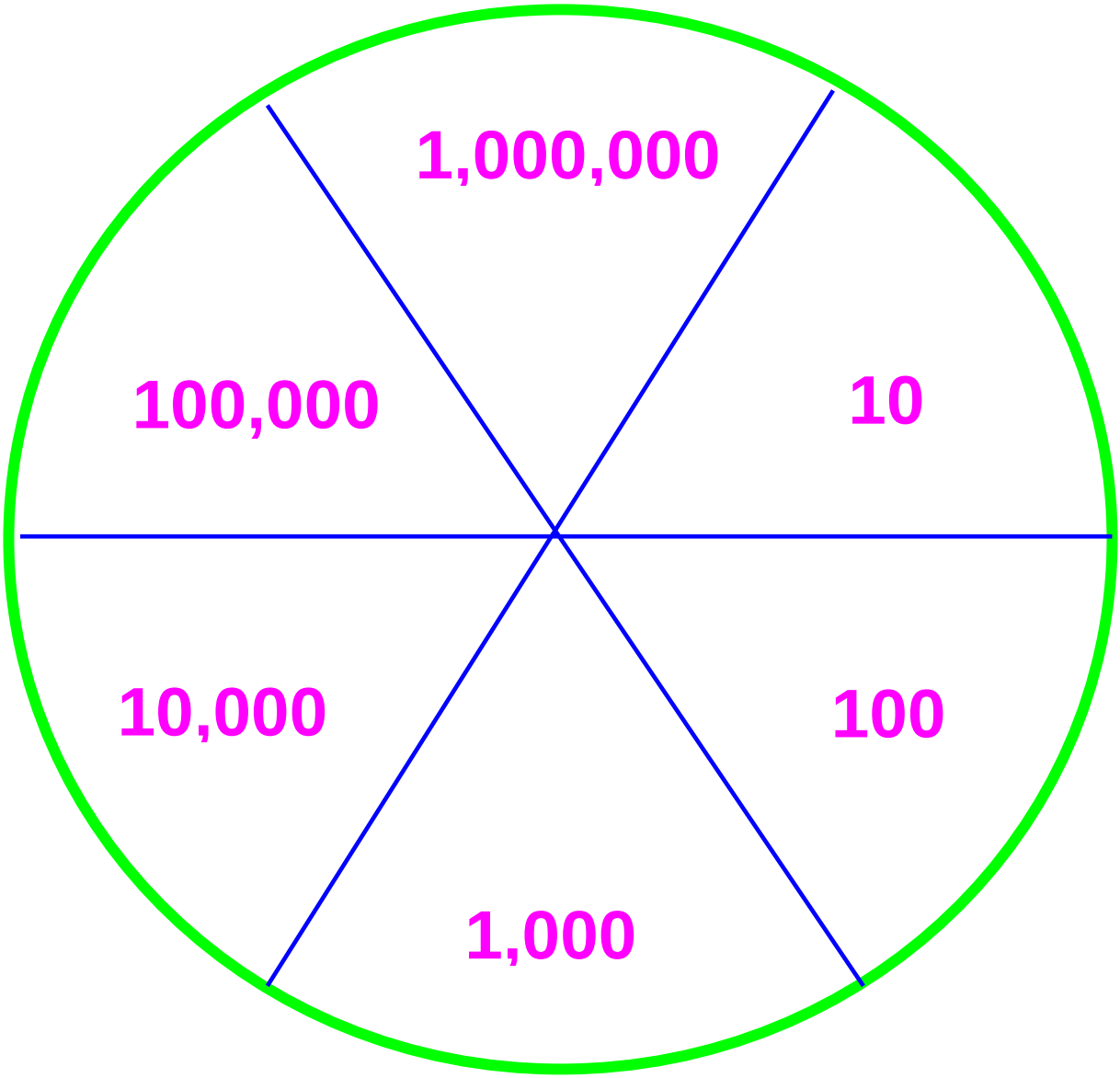
Vocabulary

ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, place value, digit, whole number, period, *units*

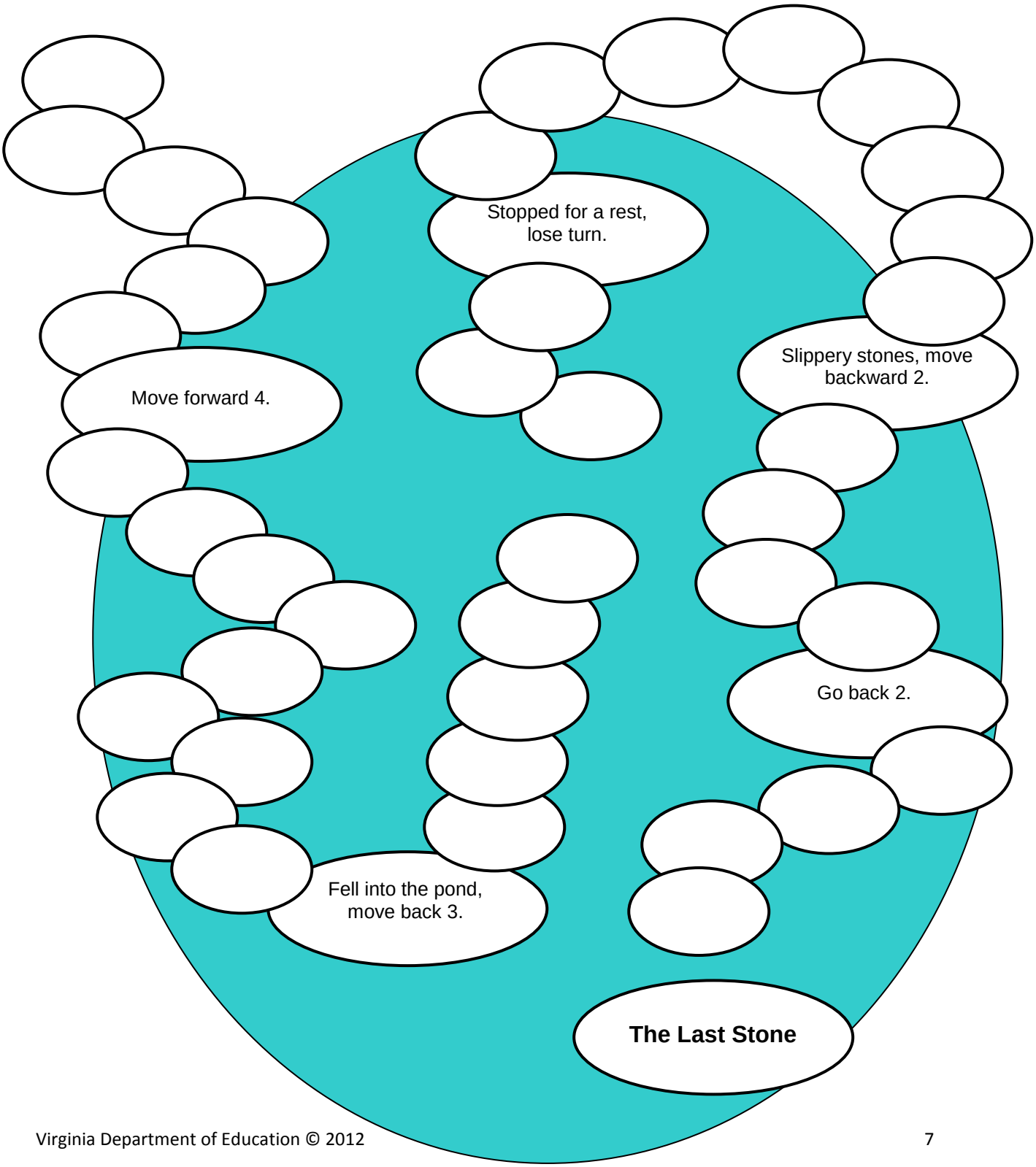
Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Introduce this activity by reviewing place values.
2. Have students cut out the attached digit cards, and place the cards face down in a pile.
3. Instruct all players to place their markers on "Start."
4. Players should take turns picking the top card from the pile and then spinning the spinner.
5. When the spinner stops, the player should name the number on the card that corresponds with the place value where the spinner landed. After other students have agreed with the player's answer, the player will move his or her marker that many spaces (i.e., the number in the named digit place) ahead on the game board. If the number on the card does not contain the place value on the spinner, the player loses a turn.
6. Players who land on spaces with directions must follow those directions.
7. The winner is the first person to reach the finish.

Spinner



The Rocky Digits



Digit Cards

1,673,126	1,408,234
2,327,245	1,308,601
731,518	292,567
1,202,469	1,021,321
3,105,304	473,518
708,246	123,152

2,101,921	1,247,317
815,384	583,561
2,008,773	964,232
524,789	3,106,528
815,437	756,243
4,569,262	100,744

1,239,761	8,280,310
6,544,473	2,080,554
2,183,270	7,883,090
3,350,302	402,004
530,182	1,208,241
2,183,270	7,883,090

Rounding Match

Reporting Category Number and Number Sense
Topic Identify place value, compare, using symbols, and round whole numbers
Primary SOL 4.1 The student will
a) identify (orally and in writing) the place value for each digit in a whole number expressed through millions;
b) compare two whole numbers expressed through millions, using symbols (>, <, or =); and
c) round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.
Related SOL: 3.1a, b, c

Materials

- A deck of "Rounding Match" cards per student or pair (copy the cards on cardstock and store in a baggie)

Vocabulary

ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, place value, rounding, digit, whole number, period, units

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Make sets of the "Rounding Match" card deck.
2. Have students, individually or in pairs, separate the cards into two piles. One pile will be cards that contain numbers with an underlined digit; the second pile will be numbers that end in zeros.
3. Have students place these two piles face up on their desks, making sure not to mix the two piles.
4. Students will take turns collecting rounding matches. Player One chooses a card from the "underlined" pile. The student must name the place with the underlined digit. The underlined digit indicates the place to which the number will be rounded.
5. Player One looks through the other pile to find the "rounding match" for the number chosen from pile one. If Player Two agrees with the "rounding match," then Player One gets to keep the match. Players take turns until all cards have matches.
6. The player with the most "rounding matches" is the winner.

Rounding Match Cards

536,780	540,000
5,638,321	5,600,000
8,042	8,000
54,906	50,000
15,387	20,000
13,097	10,000
54,682	55,000
9,302	9,000
483,102	500,000
2,473,361	2,500,000

740,678	700,000
4,971	5,000
1,743	1,700
8,416	8,420
5,132,630	5,130,000
804,234	800,000
8,416	8,400
3,761	3,800
2,560,954	2,600,000
1,754,231	1,800,000

2,8<u>6</u>2,641	2,860,000
7<u>5</u>6,910	760,000
2,3<u>8</u>7,105	2,390,000
2,8<u>2</u>2,716	2,820,000
36<u>7</u>,098	367,000
2,3<u>4</u>5,011	2,350,000
1<u>3</u>3,947	130,000
6,01<u>2</u>,509	6,013,000
5,<u>0</u>97,432	5,100,000

Brownies

Reporting Category Number and Number Sense
Topic Compare and order fractions and mixed numbers
Primary SOL 4.2 The student will
b) compare and order fractions and mixed numbers.

Related SOL 3.3c

Materials

- A large sheet of paper with the title "Brownies" (one per student)
- Seven "brownies" (e.g., pieces of brown construction paper) per student

Vocabulary

fraction, *mixed number*, *half*, *halves*, *fourths*, *eighths*, *whole*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Tell students that they are going to solve a "brownie" problem.
2. Give each student the large sheet of paper with the title, "Brownies," and ask them to draw a table (e.g., a rectangle) that seats four people.
3. Tell students that the four people around the table will need to share seven brownies.
4. Show students that the "brownies" are the seven pieces of brown construction paper, which are to be used to demonstrate how to share the brownies fairly.
5. Students may fold or draw on the construction-paper brownies to solve the brownie-sharing problem. Remind students that using a pencil to show their work is a good strategy. Students also should include their steps for sharing the brownies. Ask questions like:
    - How did you "cut" your brownies?
    - What is a fraction?
    - How do you know that each person got a "fair share"?
6. Have students discuss their discoveries with each other and with the class.
7. Have students compare strategies and restate a classmate's strategy in their own words.

Paper Bag Fractions

Reporting Category Number and Number Sense
Topic Compare and order fractions and mixed numbers and represent equivalent fractions
Primary SOL 4.2 The student will
a) compare and order fractions and mixed numbers;
b) represent equivalent fractions.

Materials:

- One "Paper Bag Fraction" game board per pair (teachers can also create their boards)
- 20 to 25 counters to use as markers; one paper bag per pair; one set of fraction bars (student made or purchased). *Note:* The fraction bars are *not* the plastic pieces but rather the strips that are shaded to show an indicated fraction. It may be helpful to have students make their own fraction strips prior to playing the game. This task can be done by cutting 28 strips that are 1 x 6 for every student (using 9 x 12 or 12 x 18 paper makes it easier). Have students measure and shade their fraction bars as follows (students may color the bars as they choose):
    - One unit bar, no divisions
    - Two bars divided into two parts (3"). Shade one whole entirely, then $\frac{1}{2}$.
    - Three bars divided into thirds (2"). Shade one whole entirely, then $\frac{1}{3}$, then $\frac{2}{3}$.
    - Four bars divided into fourths (1.5"). Shade one whole entirely, then $\frac{1}{4}, \frac{2}{4}, \frac{3}{4}$.
    - Six bars divided into sixths (1"). Shade one whole entirely, then $\frac{1}{6}, \frac{2}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$.
    - Twelve bars divided into twelfths (0.5"). Shade one whole entirely, then $\frac{1}{12}, \frac{2}{12}, \frac{3}{12}, \frac{4}{12}, \frac{5}{12}, \frac{6}{12}, \frac{7}{12}, \frac{8}{12}, \frac{9}{12}, \frac{10}{12}, \frac{11}{12}$.

Vocabulary

fraction, *numerator*, *denominator*, *half*, *thirds*, *fourths*, *fifths*, *sixths*, *eighths*, *tenths*, *twelfths*, *greater than*, *less than*, *equal to*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Give partners a "Paper Bag Fraction" game board and one paper bag filled with the set of fraction bars. Place a container of counters and markers in the center of the table for students to share.

2. The object of the game is to cover five fractions in a row—horizontally, vertically, or diagonally. Each player will take a turn choosing a fraction bar from the paper bag, naming the fraction, and marking one fraction on the game board. After each turn, the player should return the fraction bar to the bag. The next player will choose a fraction bar from the bag and mark one answer on the game board, returning the fraction bar to the paper bag.
3. A strategy for the opponent is to block the other player from placing five counters in a row.
4. The first player to cover five fractions in a row wins.

Variations:

- Allow students to cover an equivalent fraction for the fraction bar that has been taken from the paper bag.

Paper Bag Fraction Game Board

$\frac{1}{4}$	$\frac{3}{4}$	$\frac{2}{3}$	$\frac{1}{12}$	$\frac{3}{6}$
$\frac{1}{2}$	$\frac{5}{12}$	$\frac{1}{3}$	$\frac{2}{4}$	$\frac{2}{6}$
$\frac{4}{4}$	$\frac{2}{6}$	$\frac{4}{6}$	$\frac{3}{3}$	$\frac{3}{12}$
$\frac{10}{12}$	$\frac{2}{2}$	$\frac{8}{12}$	$\frac{5}{6}$	$\frac{4}{12}$
$\frac{7}{12}$	$\frac{4}{8}$	$\frac{9}{12}$	$\frac{1}{6}$	$\frac{11}{12}$

To Be Half, or Not to Be Half…That Is the Comparison

Reporting Category	Number and Number Sense
Topic	Compare and order fractions and mixed numbers, represent equivalent fractions, and identify the division statement
Primary SOL	4.2 The student will a) compare and order fractions and mixed numbers; b) represent equivalent fractions; and c) identify the division statement that represents a fraction.
Related SOL	3.3c

Materials:

- One set of fraction cards per student
- Color tiles or fraction circles
- Fraction sorting mat
- Scissors

Vocabulary

fraction, *numerator*, *denominator*, *halves*, *thirds*, *fourths*, *fifths*, *sixths*, *eighths, tenths*, *twelfths, greater than*, *less than*, *equal to*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

This activity helps students become familiar with fractions, using concrete models to determine if a fractional part of a whole is less than $\frac{1}{2}$, equal to $\frac{1}{2}$, or greater than $\frac{1}{2}$.

1. Direct students to cut the fraction cards apart and shuffle them.
2. Use the fraction sorting mat labeled with three sections: "Less than $\frac{1}{2}$", "Equal to $\frac{1}{2}$", and "Greater than $\frac{1}{2}$".
3. Have students place the fraction cards face down in a stack.
4. Ask students to place the color tiles, fraction circles, or other concrete fraction manipulative near the two players.
5. Ask students to take one whole and one $\frac{1}{2}$ manipulative and place above the game board to use as a benchmark.
6. Player One will take a fraction card from the top of the deck and determine if the fraction is "less than $\frac{1}{2}$", "equal to $\frac{1}{2}$", or "greater than $\frac{1}{2}$," and then place the fraction card in the appropriate section of the sorting mat. To prove that the card is in the

correct place, Player One will need to use the manipulatives to build a model of the fraction and compare it to a model of $\frac{1}{2}$. If the other player agrees, Player One will earn one point. If Player One has placed the fraction card in the wrong section of the mat, he or she will not earn a point.

7. Player Two will now have a turn, following the same steps as Player One.
8. Repeat this activity with thirds, sixths and eighths. Each time, have students relate the division statement to the fraction (e.g.; $\frac{1}{6}$ is the same as 1 ÷ 6).

Fraction Cards

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{2}{4}$
$\frac{3}{4}$	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{3}{5}$	$\frac{4}{5}$
$\frac{1}{6}$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{4}{6}$	$\frac{5}{6}$
$\frac{1}{8}$	$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$
$\frac{6}{8}$	$\frac{7}{8}$	$\frac{1}{10}$	$\frac{2}{10}$	$\frac{3}{10}$

$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$	$\frac{7}{10}$	$\frac{8}{10}$
$\frac{1}{12}$	$\frac{2}{12}$	$\frac{3}{12}$	$\frac{4}{12}$	$\frac{5}{12}$
$\frac{6}{12}$	$\frac{7}{12}$	$\frac{8}{12}$	$\frac{9}{12}$	$\frac{10}{12}$
$\frac{1}{7}$	$\frac{2}{7}$	$\frac{3}{7}$	$\frac{4}{7}$	$\frac{5}{7}$

Fraction Sorting Mat

Less than ½	Equal to ½	Greater than ½

Model Match

Reporting Category Number and Number Sense
Topic Read, write, represent, and identify decimals
Primary SOL 4.3 The student will
a) read, write, represent, and identify decimals expressed through thousandths.

Materials

- Recording sheets
- Copy of model cards
- Decimal cards

Vocabulary

tenths, *hundredths*, *thousandths*, *word form*, *model*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Each individual or group should receive a set of model cards, written-form cards, and standard-form cards. (It is helpful if you pre-cut and prepare cards for students.)
2. Students may work individually or in groups to match the written form of a decimal to the standard form and the model card of each decimal.
3. Once students have matched the three cards for each decimal, they should record their matches on the recording sheet provided.
4. You can use the sample decimal recording sheet to demonstrate how you would like students to record their work. For the picture column, have students draw a model of the decimal like the one found on the matching model card, or use Base-10 blocks.

Variations:

- Have students distribute the cards among the members of their group and then play "Go Fish". Students are to find the matches representing the three forms of the decimal.

DECIMALS SAMPLE RECORDING SHEET

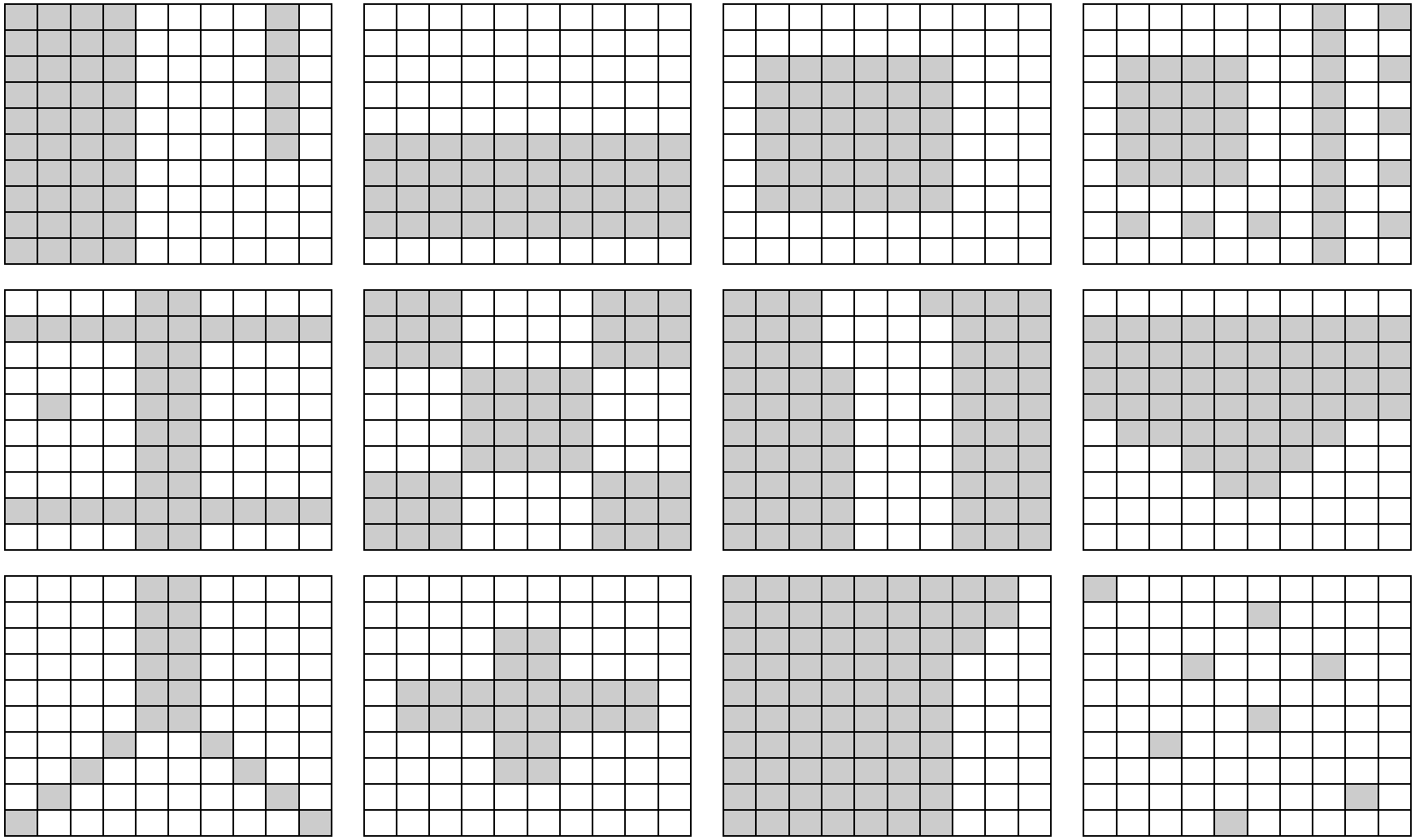
WORD FORM	STANDARD FORM	PICTURE
sixteen hundredths		
	0.06	
	0.25	
Thirty-four hundredths		

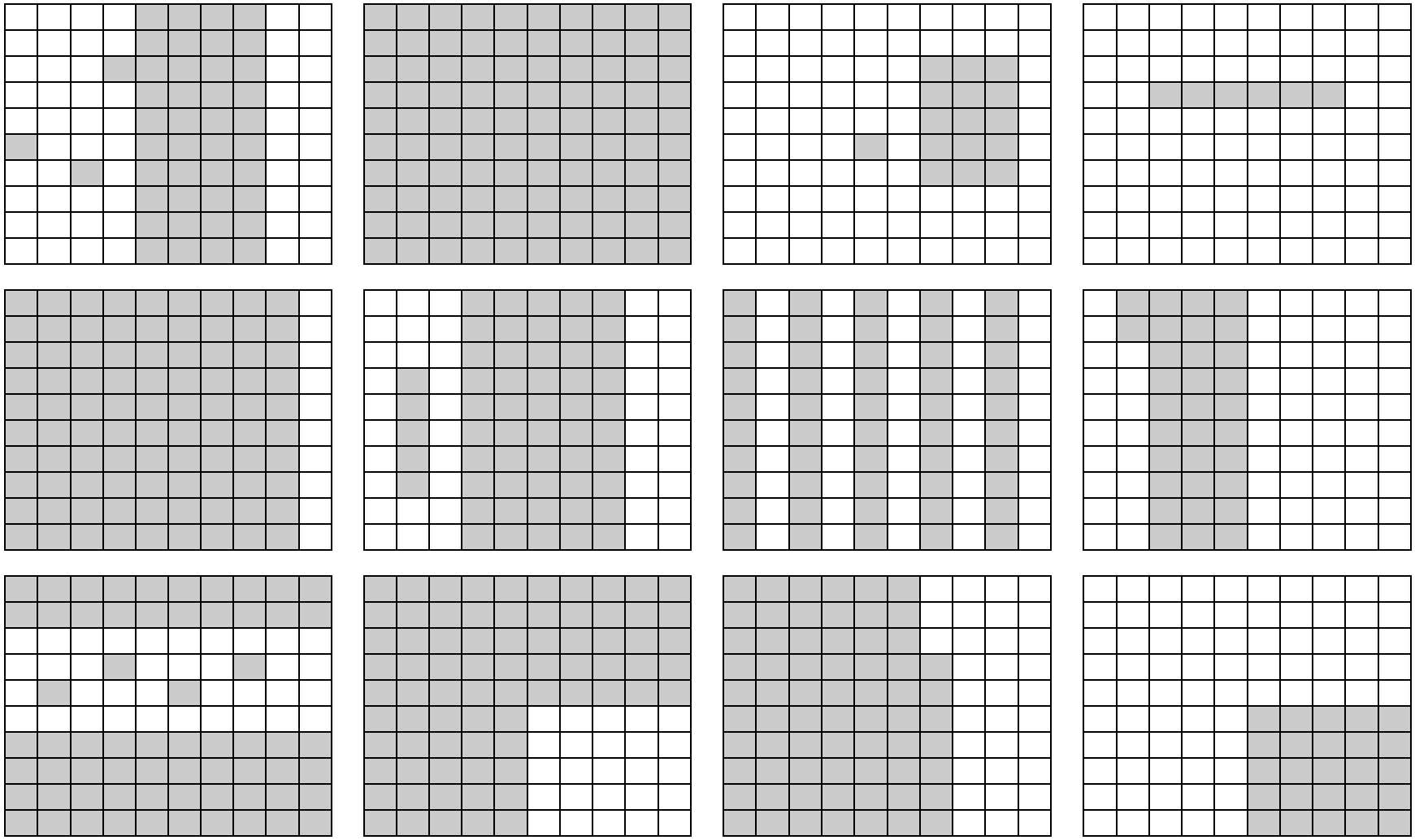
Name_____

DECIMALS RECORDING SHEET

WORD FORM	STANDARD FORM	PICTURE

Model Cards





Standard-Form Cards

0.56	0.68	0.52	0.53
0.4	0.06	0.43	0.96
0.34	0.64	1	0.16
0.2	0.08	0.32	0.75
0.24	0.55	0.67	0.25
0.75	0.5	0.36	0.37

fifty-six hundredths	sixty-eight hundredths	fifty-two hundredths	fifty-three hundredths
four tenths	six hundredths	forty-three hundredths	ninety-six hundredths
thirty-four hundredths	sixty-four hundredths	one whole	sixteen hundredths
two tenths	eight hundredths	thirty-two hundredths	seventy-five hundredths
twenty-four hundredths	fifty-five hundredths	sixty-seven hundredths	twenty-five hundredths
seventy-five hundredths	five tenths	thirty-six hundredths	thirty-seven hundredths

Decimal War

Reporting Category Number and Number Sense
Topic Read, write, represent, and identify decimals
Primary SOL 4.3 The student will
a) read, write, represent, and identify decimals expressed through thousandths.

Materials

- Game board
- Number cards (four sets)
- Game pieces
- Pen/marker
- Number cube or spinner

Vocabulary

tenths, *hundredths*, *thousandths*, *compare*, *greater than*, *less than*, *equal* to

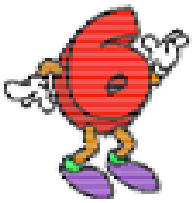
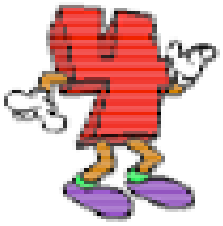
Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Explain to students that the object of the "Decimal War" game is to create a decimal number larger than your opponent's.
2. Using the number cards provided, each player will draw a card. The player that draws the larger number will go first. (Players should put their cards back in the deck and shuffle the number cards before play begins.)
3. Player One draws a card from the top of the deck, shows the card to Player Two, and records the number in one of the decimal place columns on the recording sheet. (The player should *not* allow the opponent to see which decimal place was chosen.) Once the player decides on a decimal place, the number cannot be moved.
4. Player Two then draws a card, shows it to Player One, and records the number in a decimal place column on the recording sheet. (Again, the opponent should not be allowed to see which decimal place was chosen.) Once the player decides on a decimal place, the number cannot be moved.
5. Repeat steps 3 and 4 until the row on the recording sheet is filled and a number has been created.
6. Players compare numbers, and the one with the larger number rolls the (or spins the spinner) and moves his or her game piece on the game board.
7. Players move to the next row on the recording sheet and repeat steps 3 number cube through 6 until one player crosses the finish line, winning the game.

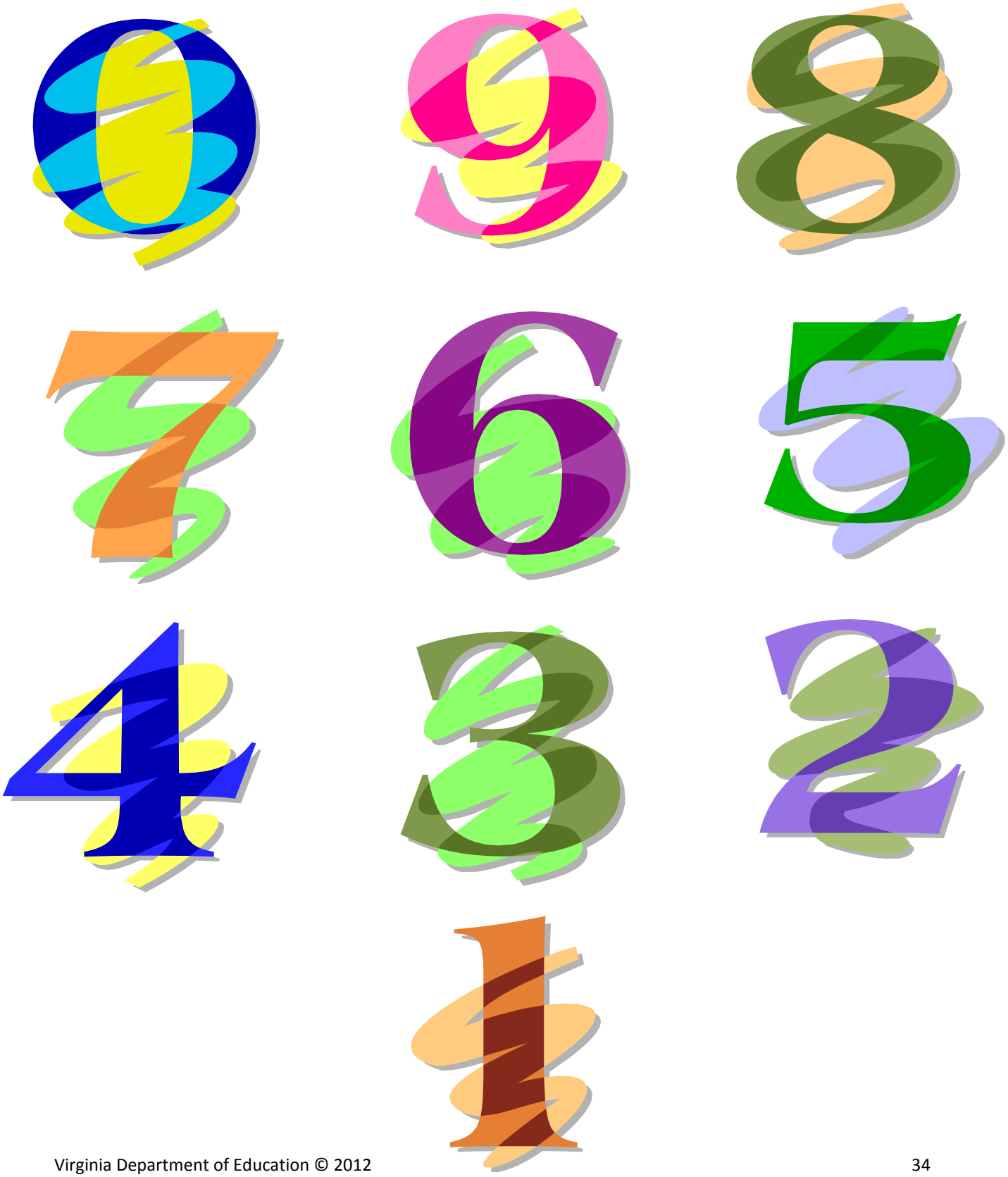
Decimal Place Value Chart

ONES	TENTHS	HUNDREDTHS	THOUSANDTHS

Decimal War

START		**Go Back 1 Space**		
				Go Forward 2 Spaces
Move Forward **2 Spaces**		**FINISH**		
				
Lose a Turn				**Go Back 3 Spaces**

Number Cards



Memory Place Value: Decimal Match

Reporting Category Number and Number Sense
Topic Read, write, represent, identify, and round decimals
Primary SOL 4.3 The student will
a) read, write, represent, and identify decimals expressed through thousandths;
b) round decimals to the nearest whole number, tenth, and hundredth.

Materials

- Memory game cards
- Number cube
- Recording sheet

Vocabulary

tenths, *hundredths*, *thousandths*, *round*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Place all of the memory cards face down on a playing surface.
2. Each student will roll the number cube once. The student with the highest roll will go first.
3. The first player will turn over two cards in an attempt to find a match.
4. If the player has a match, he or she will record the match on the recording sheet and play passes to the next student who will try to find a match.
5. If the player does not have a match, play passes to the next student who will try to find a match.
6. The game is over once all of the cards have been matched. The player with the most decimal matches wins the game.

Variations:

- Ask students to order the decimals on their recording sheets from least to greatest.
- Have students round the decimals to the nearest place. (Underline one digit on the cards prior to students playing the game.)

Memory Cards

3.817	Three and eight hundred seventeen thousandths
0.092	Ninety-two thousandths
4.201	Four and two hundred one thousandths
0.386	Three hundred eighty-six thousandths

0.374	Three hundred seventy-four thousandths
0.306	Three hundred six thousandths
8.92	Eight and ninety-two hundredths
1.503	One and five hundred three thousandths

0.738	Seven hundred thirty-eight thousandths
0.902	Nine hundred two thousandths
0.064	Sixty-four thousandths
0.433	Four hundred thirty-three thousandths

0.203	Two hundred three thousandths
0.418	Four hundred eighteen thousandths
0.359	Three hundred fifty-nine thousandths
0.794	Seven hundred ninety-four thousandths

0.14	Fourteen hundredths
0.85	Eighty-five hundredths
0.725	Seven hundred twenty-five thousandths
0.87	Eighty-seven hundredths

Name: _____

Memory Place Value Game Recording Sheet

Standard Form	Word Form	Rounded Decimal

What's My Number?

Reporting Category	Number and Number Sense
Topic	Read, write, represent, identify, and round decimals Compare and order decimals and write the decimal and fraction equivalents
Primary SOL	4.3 The student will a) read, write, represent, and identify decimals expressed through thousandths; b) round decimals to the nearest whole number, tenth, and hundredth; c) compare and order decimals; and d) given a model, write the decimal and fraction equivalents.

Materials

- Set of "secret" decimal numbers on index cards (to be created by instructor, with decimals ranging from 0.01 to 10.0)

Vocabulary

tenths, *hundredths*, *thousandths*, *fractions*, *decimals*, *rounding*, *greater than*, *less than*, *equivalent*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Model an example of the activity by asking a student to choose a "secret" decimal card. *(For demonstration purposes, share the secret number with the participating student—0.75.)*
2. Ask the student "yes" or "no" questions to obtain clues about the secret decimal number. For example: "Is this number decimal less than one? Do the digits in this decimal total 12? Does this number have a five in the hundredths place? Is this number equivalent to $\frac{3}{4}$?"
3. Group or pair students and give *one* student in the group an index card with a secret decimal number.
4. Other students in the group will try to guess the secret number. If the guess is incorrect, the student with the card will tell the others whether the secret number is greater or less than the number guessed. Students will continue to ask "yes" or "no" questions until they correctly guess the secret decimal number.

Variations:

- Use a fraction or decimal as the secret number.

Decimal Board Activities

Reporting Category Number and Number Sense
Topic Compare and order decimals and write the decimal and fraction equivalents
Primary SOL 4.3 The student will
c) compare and order decimals; and
d) given a model, write the decimal and fraction equivalents.

Materials

- Decimal board
- Chips or crayons
- Paper and pencil

Vocabulary

tenths, *hundredths*, *thousandths*, *greater than*, *less than*, *equal to*, *compare*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Provide each student with a decimal board and chips or crayons to cover answers on their decimal board.
2. Using the provided question lists, ask students to determine the answer, and then cover the corresponding decimal on their decimal board.
3. Play continues until students discover a hidden picture after covering the appropriate decimal numbers. Check for accuracy.

Note: Four sets of questions are included for use with the decimal boards. However, there are many other sets of questions that you may come up with for the decimal boards.

NAME_____

DECIMAL BOARD

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.2
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.3
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.5
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.6
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.7
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.8
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.9
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0

Game Questions for Decimal Board 1

1. What is two hundredths less than thirty-five hundredths? **0.33**
2. What is four hundredths less than forty-seven hundredths? **0.43**
3. What is three hundredths less than six tenths? **0.57**
4. What is two hundredths less than two tenths? **0.18**
5. What is four hundredths less than fifty-eight hundredths? **0.54**
6. What is two hundredths less than forty-nine hundredths? **0.47**
7. What is two hundredths less than twenty-seven hundredths? **0.25**
8. What is one hundredth less than fifteen hundredths? **0.14**
9. What is three hundredths less than twenty-five hundredths? **0.22**
10. What is one hundredth less than fifty-four hundredths? **0.53**
11. What is two hundredths less than fifty-eight hundredths? **0.56**
12. What is seven hundredths less than two tenths? **0.13**
13. What is three hundredths less than nineteen hundredths? **0.16**
14. What is five hundredths less than six tenths? **0.55**
15. What is two hundredths less than thirty-nine hundredths? **0.37**
16. What is one hundredth less than twenty-nine hundredths? **0.28**
17. What is three hundredths less than two tenths? **0.17**
18. What is four hundredths less than sixteen hundredths? **0.12**

Decimal Board 1 Key

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.2
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.3
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.5
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.6
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.7
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.8
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.9
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0

Game Questions for Decimal Board 2

Use your decimal board to help you extend or complete the pattern. Place a chip or color the next decimal number in the pattern.

1. 0.05, 0.1, _____
2. 0.27, 0.36, 0.45, _____
3. 0.1, 0.08, 0.06, _____
4. 0.5, 0.45, 0.4, _____
5. 0.2, 0.4, _____
6. 0.45, 0.35, _____
7. 0.14, 0.16, 0.18, 0.2, _____
8. 0.3, 0.33, 0.35, 0.38, 0.4, 0.43, _____
9. 0.12, 0.16, 0.2, 0.24, _____
10. 0.59, 0.58, 0.57, _____
11. 0.01, 0.04, 0.07, 0.1, _____
12. 0.22, 0.29, 0.36, _____
13. 0.47, 0.37, 0.27, _____
14. 0.02, 0.12, 0.22, _____
15. 0.09, 0.11, 0.18, 0.2, 0.27, 0.29, 0.36, _____
16. 0.5, 0.49, 0.48, _____

Decimal Board 2 Key

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.2
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.3
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.5
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.6
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.7
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.8
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.9
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0

Game Questions for Decimal Board 3

1. Which is less 0.01 or 0.02?
2. Which is more 0.09 or 0.1?
3. Which is more 0.11 or 0.12?
4. Which is more 0.01 or 0.09?
5. Which is more 0.23 or 0.22?
6. Which is less 0.18 or 0.81?
7. Which is less 0.34 or 0.43?
8. Which is less 0.27 or 0.28?
9. Which is more 0.45 or 0.35?
10. Which is less 0.36 or 0.62?
11. Which is less 0.54 or 0.60?
12. Which is more 0.56 or 0.46?
13. Which is less 0.63 or 0.65?
14. Which is more 0.67 or 0.66?
15. Which is more 0.37 or 0.72?
16. Which is more 0.77 or 0.78?
17. Which is less 0.89 or 0.79?
18. Which is less 0.91 or 0.81?
19. Which is less 0.91 or 1.0?
20. Which is less 1.0 or 2.0?

Decimal Board 3 Key

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.2
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.3
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.5
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.6
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.7
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.8
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.9
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0

Questions for Decimal Board 4

Round each problem to the nearest hundredth:

1. 0.234 (0.23)
2. 0.274 (0.27)
3. 0.453 (0.45)
4. 0.571 (0.57)
5. 0.633 (0.63)
6. 0.750 (0.75)
7. 0.154 (0.15)
8. 0.235 (0.24)
9. 0.430 (0.43)
10. 0.438 (0.44)
11. 0.247 (0.25)
12. 0.256 (0.26)
13. 0.669 (0.67)
14. 0.553 (0.55)
15. 0.345 (0.35)
16. 0.635 (0.64)
17. 0.468 (0.47)
18. 0.333 (0.33)
19. 0.457 (0.46)
20. 0.661 (0.66)
21. 0.652 (0.65)

Decimal Board 4 Key

0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.1
0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.2
0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.3
0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.4
0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.5
0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.6
0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.7
0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.8
0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.9
0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.0

Fraction/Decimal Combo

Reporting Category Number and Number Sense
Topic Write the decimal and fraction equivalents
Primary SOL 4.3 The student will
d) given a model, write the decimal and fraction equivalents.

Materials

- 20 index cards for each group
- Pencils
- Paper
- List of fractions

Vocabulary

equivalent, *fraction*, *decimal*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Give 20 index cards to each group of students.
2. Provide students with a list of fractions and equivalent decimals.
3. Have each group write one fraction per card on the first 10 cards.
4. Next, have the groups write decimals, one per card, on the remaining 10 cards. The decimals must be equivalent to the fractions written on the first 10 cards (see example below).

Example:

$\frac{1}{4}$
0.25

5. Instruct groups to exchange cards with another group. When you say, "go," the groups must sort the cards from least to greatest using the fractions. Then they must put the equivalent decimal card under each fraction. The first group to correctly complete the task is the winner.

Suggested Fractions and Equivalent Decimals

Fractions	Decimals
$\frac{2}{2}$	1.0
$\frac{1}{2}$	0.50
$\frac{1}{4}$	0.25
$\frac{3}{4}$	0.75
$\frac{1}{5}$	0.20
$\frac{2}{5}$	0.40
$\frac{3}{5}$	0.60
$\frac{4}{5}$	0.80
$\frac{1}{8}$	0.125
$\frac{3}{8}$	0.375
$\frac{5}{8}$	0.625
$\frac{7}{8}$	0.875
$\frac{1}{10}$	0.10
$\frac{3}{10}$	0.30
$\frac{7}{10}$	0.70
$\frac{9}{10}$	0.09

Decimal Spokes

Reporting Category	Number and Number Sense
Topic	Read, write, represent, identify, and round decimals; Compare and order decimals and write the decimal and fraction equivalents
Primary SOL	4.3 The student will a) read, write, represent, and identify decimals expressed through thousandths; b) round decimals to the nearest whole number, tenth, and hundredth; c) compare and order decimals; and d) given a model, write the decimal and fraction equivalents.

Materials

- Game board
- Number or dot cube or spinner
- Game cards
- Game pieces

Vocabulary

tenths, *hundredths*, *thousandths*, *round*, *compare*, *greater than*, *less than*, *equal to*

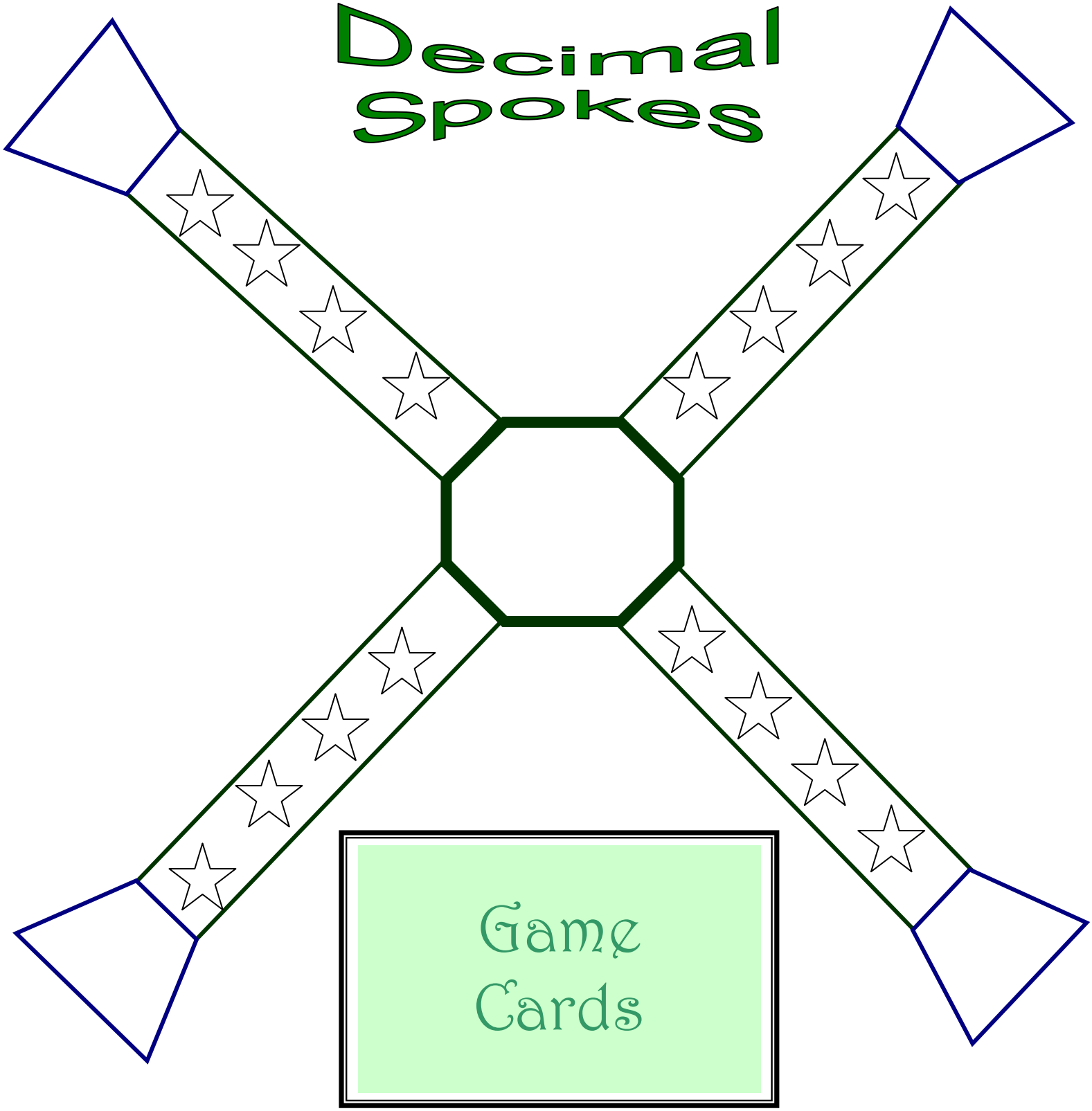
Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Instruct students that the object of this activity is to move one's game piece across the game board spokes, through the center to another spoke, and back to the original starting point by reading, identifying, rounding, and comparing decimals correctly.
2. Each student in the pair or group of four will roll the number or dot cube (or spin the spinner) once, to determine who will go first.
3. Instruct the first player to choose a card and read the number or answer the question aloud. If the other players agree that the answer is correct, the first player rolls (or spins the spinner) and moves that many spaces. If the player provided an incorrect answer, that player may not roll the number or dot cube (or spin the spinner), and must stay in place.
4. Players may share a space with only one other team member. If a third player lands on the same space, that player must redo the roll or spin.
5. The first player back to his or her spoke wins the game.
6. Additional blank cards are included if you wish to make game cards.

Decimal Spokes Game Cards

Read the following number: 29.513	Read the following number: 0.84	Read the following number: 4.761
Read the following number: 73.804	Read the following number: 0.053	Read the following number: 0.107
Round 0.528 to the nearest hundredth.	Round 0.782 to the nearest hundredth.	Round 9.625 to the nearest hundredth.

Round 3.501 to the nearest tenth.	Round 21.94 to the nearest tenth.	Round 6.826 to the nearest tenth.
< > = Which symbol completes the statement below: **0.927 __ 0.792**	**< > =** Which symbol completes the statement below: **6.250 __ 6.205**	**< > =** Which symbol completes the statement below: **0.216 __ 0.27**
< > = Which symbol completes the statement below: **0.48 __ 0.395**	**< > =** Which symbol completes the statement below: **8.72 __ 8.702**	**< > =** Which symbol completes the statement below: **0.73 __ 0.730**

< > = Which symbol completes the statement below: **0.936 __ 0.937**	**< > =** Which symbol completes the statement below: **0.082 __ 0.82**	**< > =** Which symbol completes the statement below: **0.7 __ 0.16**
< > = Which symbol completes the statement below: **0.058 __ 0.581**	**< > =** Which symbol completes the statement below: **0.41 __ 0.9**	**< > =** Which symbol completes the statement below: **0.731 __ 0.713**

Decimal Spokes