

MAPPS Childcare grades 2 & 3

MAPPS Session 1

Introduction to Fractions, Decimals, and Percents

Materials needed:

Snacks

Small soft ball (optional)

BLM Tangram Sheets 3 – 8

Tangram Pieces

Big chart paper or White board

Markers

Paper

Capture fractions sheets

Deck of fraction cards

Freaky Fraction sheets

Crayons

Pencils

Small soft ball (optional)

6:00 – 6:15	Set up the classroom. Place tangram sheets and pieces on the tables.
6:15 – 6:30	As the students enter have them work on solving the tangram puzzles. Encourage math language. When a student solves a puzzle ask them how they did it. When you

	ask the students questions like that, they reflect on their strategy and are able to share their ideas with their peers.
6:30 – 6:45	Once all the students have arrived, allow them time to work on the tangrams .Greet the students and introduce yourself. Have the students introduce themselves and share one interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.
6:45 – 7:15	Initiate a conversation with the students about fractions. Create a <u>KWL chart</u> regarding fractions. Guide the students to the concept of "part over whole". Give the students paper and pencil and have them create the KWL chart with you. Talk about when they have seen fractions, what people use fractions for, and how they might use fractions. Making the subject personal to the student will create better engagement and more intrinsic motivation to learn fractions.
7:15 – 7:30	Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.
7:30 – 8:00	Introduce the game <u>Capture Fractions</u> . Demonstrate how to play by modeling the strategy and using math language. Once the students understand how to play, have the students pair up and begin playing on their own. Have the students rotate partners. Provide the winners with prizes.
8:00 – 8:20	Introduce <u>Freaky Fractions</u> to the students. Allow the students to complete the problems on their own for a couple minutes, then allow them to compare and explain their answers. Once the students complete the freaky fractions worksheet, have them create their own fraction problems to solve with the class.
8:20 – 8:30	Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the

	students home, remind them to practice fractions and talk to their families about fractions!
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What if the material is not challenging enough or too challenging?

If the material is not appropriate for certain students, vary the level by manipulating the numbers they are working with. You can increase or decrease values as needed. Also, consider pairing up the students with others at varying levels. This method benefits all students. It provides an environment for the higher level students to teach and the lower level students the chance to have the material explained in a different manner.

What if the students are bored or have an elevated level of energy?

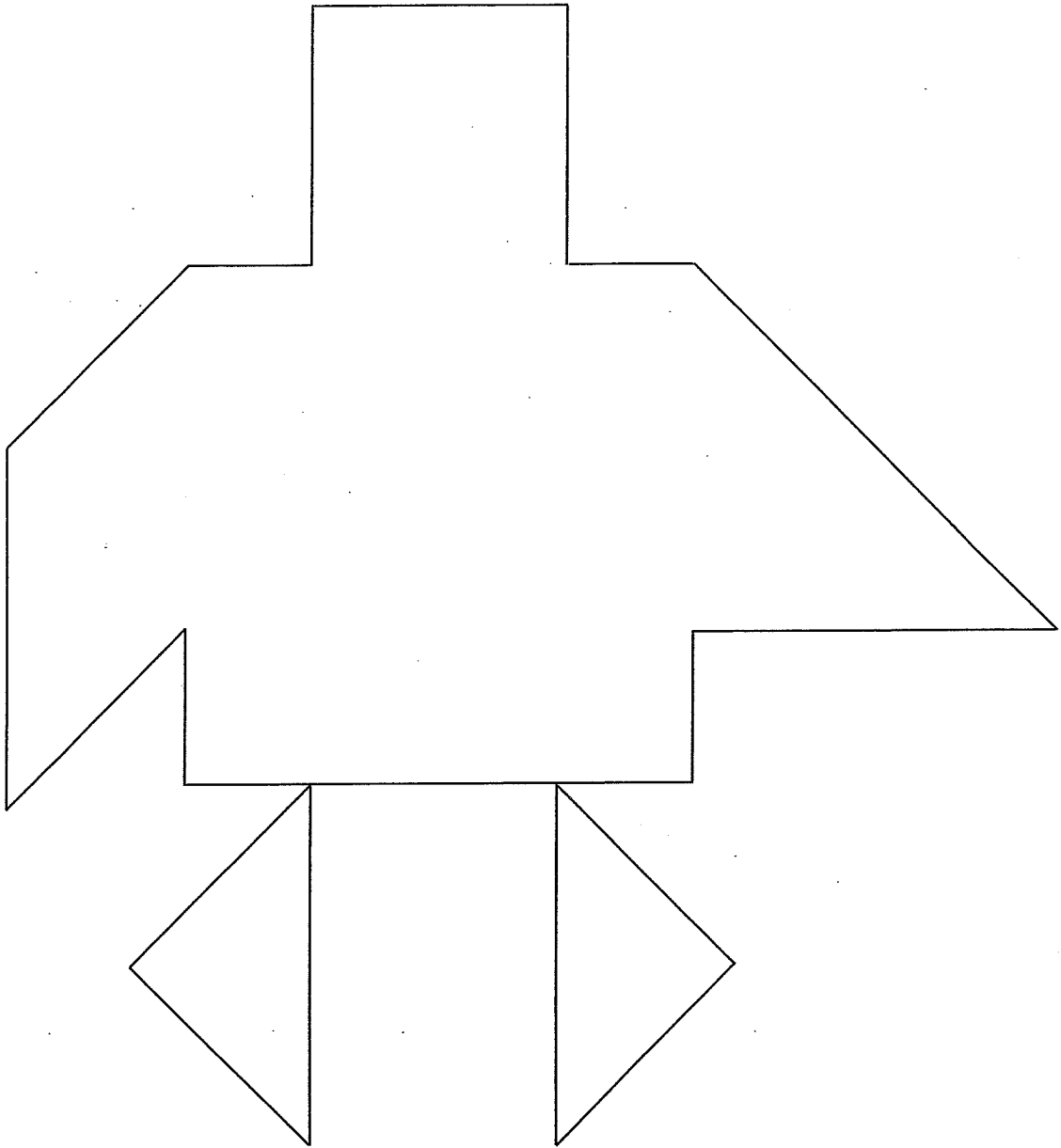
If the students seem bored or are acting hyper, provide a brain break. A brain break could include a quiet walk around the school looking for shapes that could make fractions. Another brain break could include tossing a ball softly back and forth counting by twos in the classroom. Also, talk to the students about everyday uses of math. Bringing relevance into their learning creates contextualization. If the students can personally relate to the topics, they will be more engaged. You can ask them if they have ever made cookies and had to measure the ingredients or counted the amount of days they have been in school. Pretty much everything we do pertains to math in some way!

Additional Brain Break Activities:

Last Man Standing Game

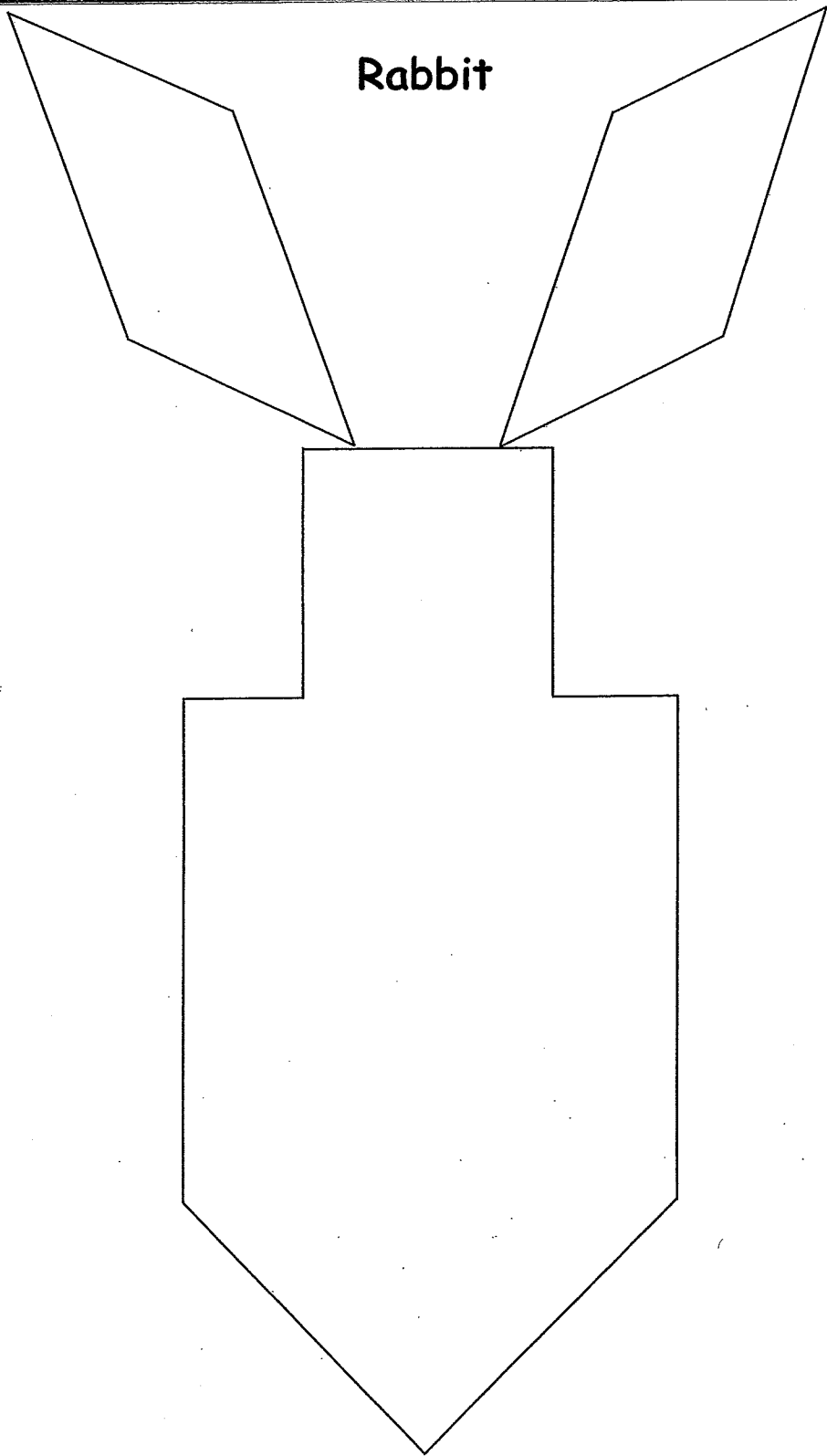
Tangram Pattern Sheet 1

Robot



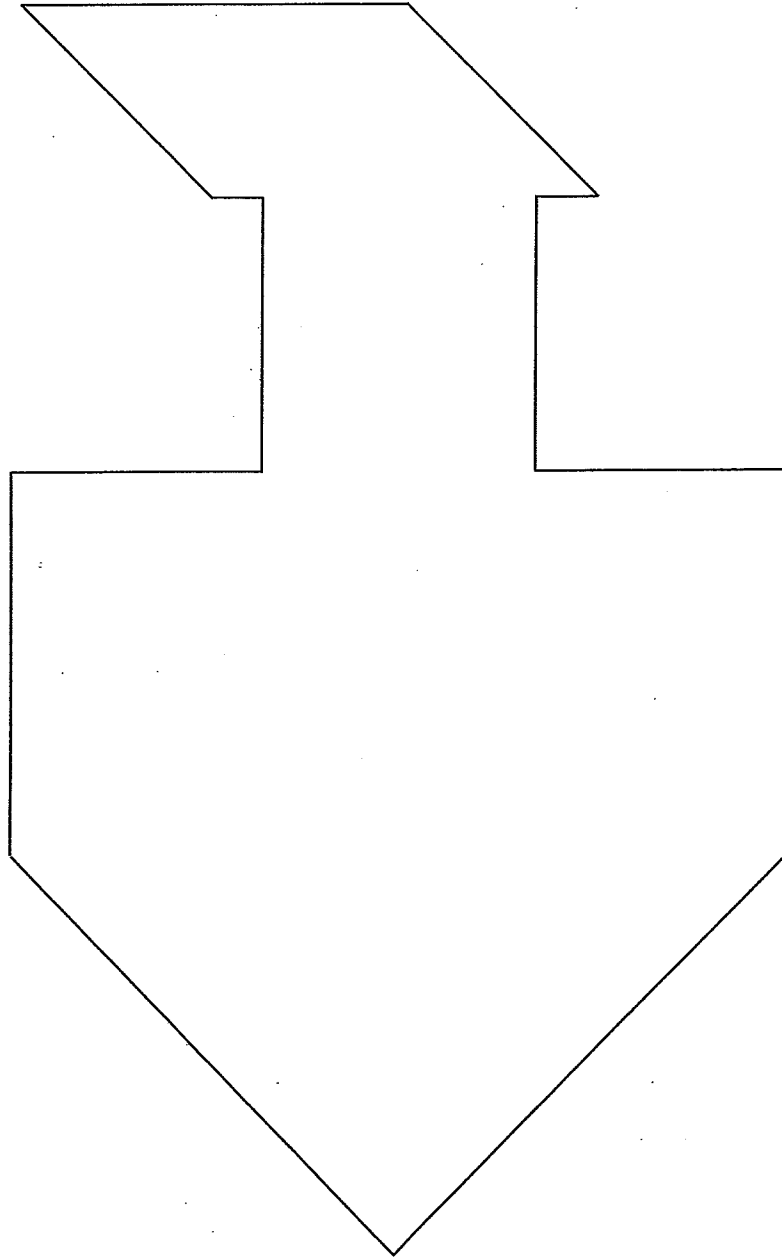
Tangram Pattern Sheet 2

Rabbit



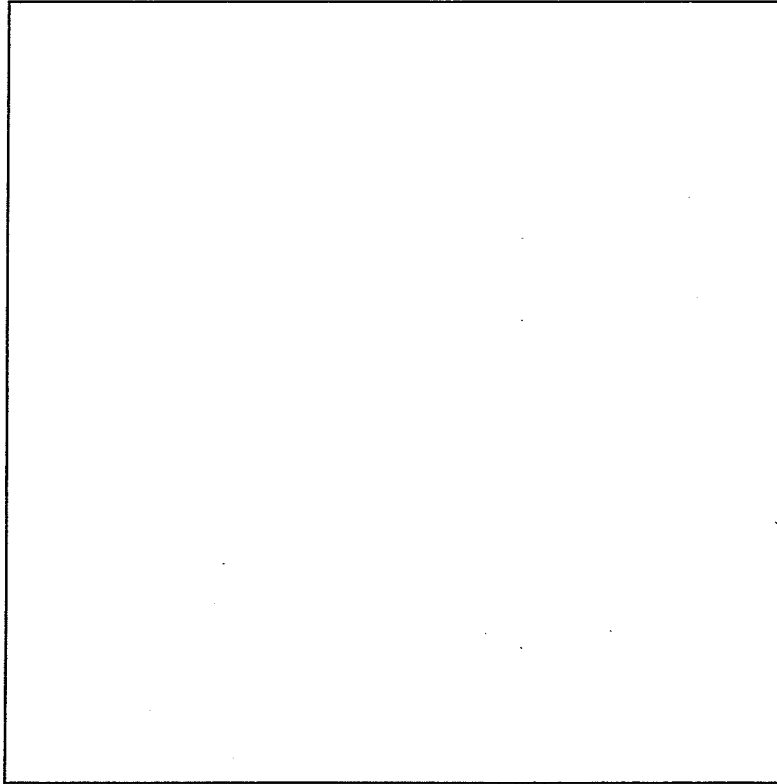
Tangram Pattern Sheet 3

Shovel



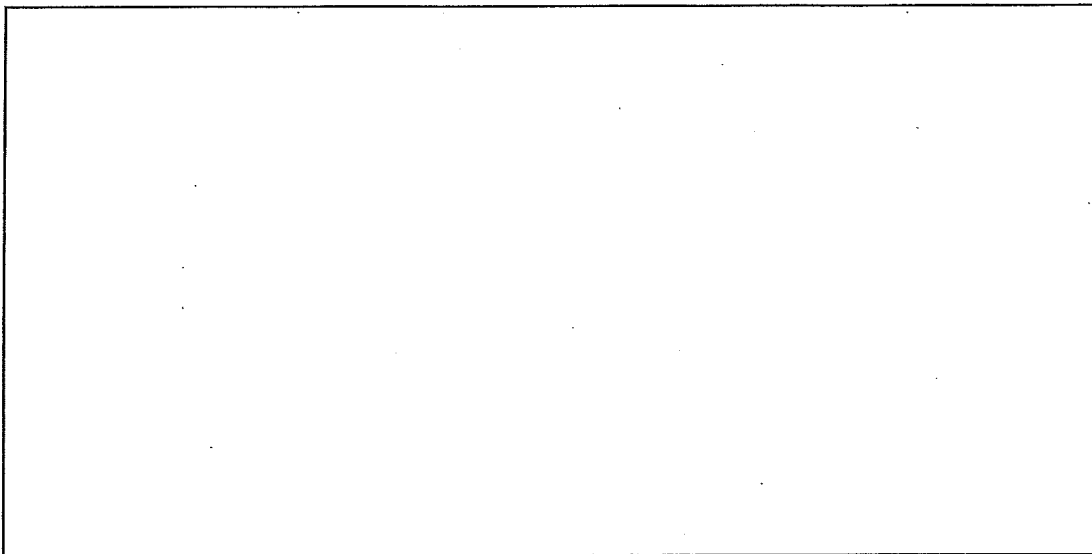
Tangram Pattern Sheet 4

Square



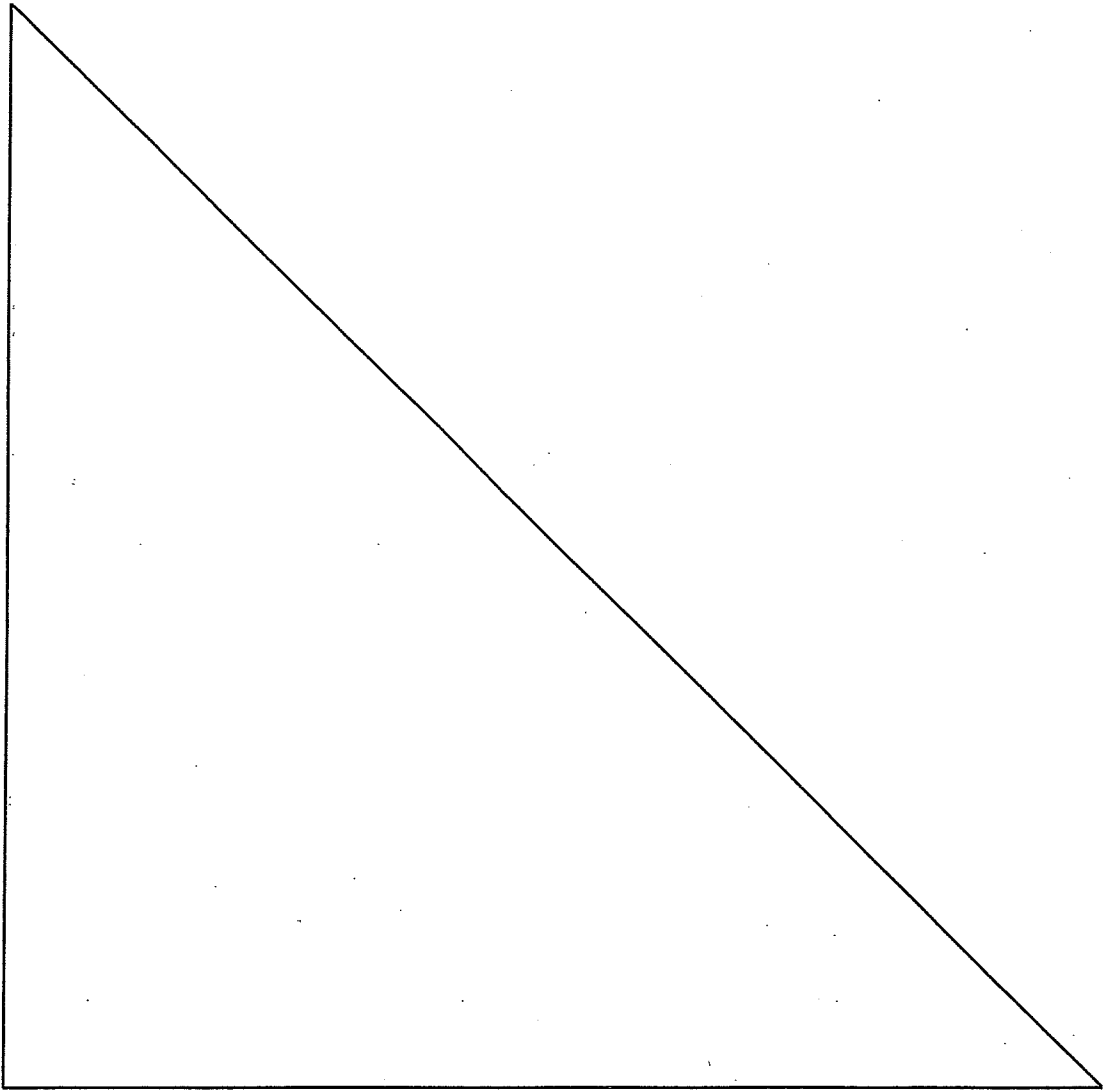
Tangram Pattern Sheet 5

Rectangle



Tangram Pattern Sheet 6

Triangle



How to Play Capture Fractions

Materials: Deck of Fraction Cards

Players: 2

How to Play:

1. Deal the cards evenly to each player. Players keep the cards face down in a pile.
 2. In each round players turn their top card face up at the same time. The player with the larger fraction takes both cards and puts them on the bottom of his or her own pile.
 3. If the cards show equivalent fractions, players turn over another card. The player with the larger fraction takes all four cards.
 4. The player with the most cards wins. The game can be stopped at any time.
-

Record the fractions turned over in two of your rounds.
Explain how you figured out who won.

Player 1 turned over _____. Player 2 turned over _____.
Who won the round? How do you know?

Player 1 turned over _____. Player 2 turned over _____.
Who won the round? How do you know?

Know

K

want to know

W

Learned

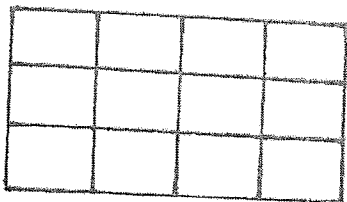
L

FREAKY FRACTIONS

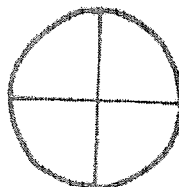


Directions:

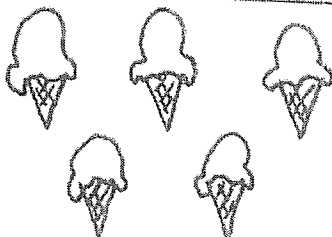
Color the parts or objects to illustrate the fractions.



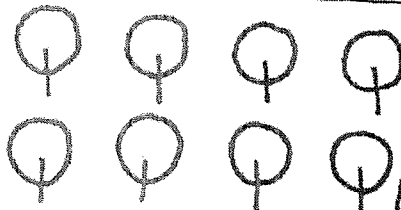
$$\frac{6}{12}$$



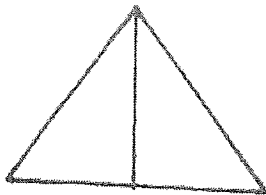
$$\frac{3}{4}$$



$$\frac{3}{5}$$



$$\frac{6}{8}$$



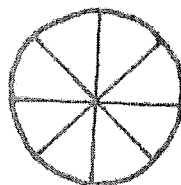
$$\frac{1}{2}$$



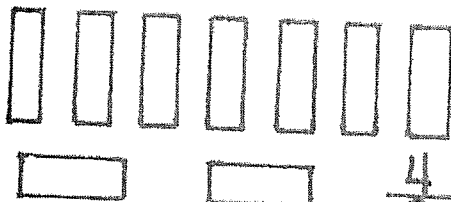
$$\frac{1}{3}$$



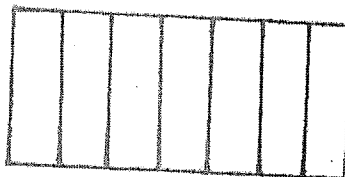
$$\frac{2}{3}$$



$$\frac{5}{8}$$



$$\frac{4}{9}$$



$$\frac{3}{7}$$

FREAKY FRACTIONS



Draw a square.
Shade $\frac{1}{4}$ of the square.

Draw a square.
Shade $\frac{4}{8}$ of the square.

Draw a circle.
Shade $\frac{1}{3}$ of the circle.

Draw a circle.
Shade $\frac{3}{6}$ of the circle.

Draw a rectangle.
Shade $\frac{2}{4}$ of the rectangle.

Draw a rectangle.
Shade $\frac{1}{7}$ of the rectangle.

Draw a circle.
Shade $\frac{1}{2}$ of the circle.

Draw a circle.
Shade $\frac{5}{8}$ of the circle.

Draw a square.
Shade $\frac{3}{4}$ of the square.

Draw a square.
Shade $\frac{6}{8}$ of the square.

Make your own Freaky Fraction activity sheet. Give it to a friend to complete. Be sure to give him an answer sheet to use to check his work.



MAPPS Childcare grades 2 & 3

MAPPS Session 2

Developing Fraction Concepts I

Materials needed:

Color tiles

BLM 12 Worksheet

Deck of fraction cards

Close to 100 directions

Close to 100 score sheet

Pencils

Snacks

Prizes (optional)

Crayons

Small soft ball (optional)

Construction paper

Glue

Scissors

6:00 – 6:15	Set up the classroom. Place color tile blocks on the tables.
6:15 – 6:30	As the students enter have them review session 1 concepts by using the color tile blocks to make fractions. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, allow for some time to finish reviewing. Greet the students and introduce yourself. Have the students introduce themselves and share one

	<p>interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.</p>
6:35 – 7:00	<p>Introduce the <u>BLM 12 Worksheet</u>. Demonstrate how to solve the problems by modeling the strategy and using math language. Allow the students to work together in finding the correct combinations. Once the students finish the worksheet, have them make up their own problems for their classmates to solve.</p>
7:00 – 7:30	<p>Transition the students to play <u>Close to 100</u>. Have the students find a partner. Once the students have found their partner, explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Once you believe the students understand how to play, allow them to start playing on their own. Have the students rotate partners. If possible, provide prizes for the winners.</p>
7:30 – 7:50	<p>Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.</p>
7:50 – 8:20	<p>Have the students clean up their snack and put the brain break activities away. Introduce the students to the <u>Fraction Creature</u> project. Demonstrate or show an example of what the students will be doing. Guide them in being creative and figuring out the amount of fractions in their creature. Use and encourage math language.</p>
8:20 – 8:30	<p>Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions!</p>

What if the material is not challenging enough or too challenging?

If the material is not appropriate for certain students, vary the level by manipulating the numbers they are working with. You can increase or decrease values as needed. Also, consider pairing up the students with others at varying levels. This method benefits all students. It provides an environment for the higher level students to teach and the lower level students the chance to have the material explained in a different manner.

What if the students are bored or have an elevated level of energy?

If the students seem bored or are acting hyper, provide a brain break. A brain break could include a quiet walk around the school looking for shapes that could make fractions. Another brain break could include tossing a ball softly back and forth counting by twos in the classroom. Also, talk to the students about everyday uses of math. Bringing relevance into their learning creates contextualization. If the students can personally relate to the topics, they will be more engaged. You can ask them if they have ever made cookies and had to measure the ingredients or counted the amount of days they have been in school. Pretty much everything we do pertains to math in some way!

Color Tile Mysteries

Find a collection of color tiles to fit each description below.

The symbol " $\frac{?}{?}$ " means "the mystery amount."



- | | | | | |
|----|----------------------|----------------------|----------------------|---------------------|
| 1. | $\frac{3}{8}$ red | $\frac{1}{4}$ blue | $\frac{?}{?}$ green | |
| 2. | $\frac{1}{12}$ green | $\frac{5}{6}$ yellow | $\frac{?}{?}$ blue | |
| 3. | $\frac{3}{16}$ blue | $\frac{1}{4}$ green | $\frac{1}{8}$ yellow | $\frac{?}{?}$ red |
| 4. | $\frac{1}{6}$ green | $\frac{1}{3}$ red | $\frac{?}{?}$ blue | |
| 5. | $\frac{1}{9}$ yellow | $\frac{1}{18}$ blue | $\frac{1}{2}$ red | $\frac{?}{?}$ green |
| 6. | $\frac{1}{4}$ yellow | $\frac{2}{3}$ blue | $\frac{?}{?}$ green | |
| 7. | $\frac{1}{5}$ red | $\frac{1}{3}$ blue | $\frac{2}{5}$ yellow | $\frac{?}{?}$ green |
| 8. | $\frac{1}{4}$ green | $\frac{1}{3}$ yellow | $\frac{1}{6}$ red | $\frac{?}{?}$ blue |

Materials

- One deck of Numeral Cards
- Close to 100 Score Sheet for each player

Players: 1, 2, or 3

How to Play

1. Deal out six Numeral Cards to each player.
2. Use any four cards to make two numbers. For example, a 6 and a 5 could make either 56 or 65. Wild Cards can be used as any numeral. Try to make numbers that, when added, give you a total close to 100.
3. Write these numbers and their total on the Close to 100 Score Sheet. For example: $42 + 56 = 98$.
4. Find your score. Your score is the difference between your total and 100. For example, if your total is 98, your score is 2. If your total is 105, your score is 5.
5. Put the cards you used in a discard pile. Keep the two cards you didn't use for the next round.
6. For the next round, deal four new cards to each player. Make more numbers that come close to 100. When you run out of cards, mix up the discard pile and use those cards again.
7. Five rounds make one game. Total your scores for the five rounds. Lowest score wins!

Scoring Variation

Write the score with minus and plus signs to show the direction of your total away from 100. For example: If your total is 98, your score is -2 . If your total is 105, your score is $+5$. The total of these two scores would be $+3$. Your goal is to get a total score for five rounds that is close to 0.

Close to 100 Score Sheet

Name _____

GAME 1	Score
Round 1: _____ _____ + _____ _____ = _____	_____
Round 2: _____ _____ + _____ _____ = _____	_____
Round 3: _____ _____ + _____ _____ = _____	_____
Round 4: _____ _____ + _____ _____ = _____	_____
Round 5: _____ _____ + _____ _____ = _____	_____
TOTAL SCORE	_____

Name _____

GAME 2	Score
Round 1: _____ _____ + _____ _____ = _____	_____
Round 2: _____ _____ + _____ _____ = _____	_____
Round 3: _____ _____ + _____ _____ = _____	_____
Round 4: _____ _____ + _____ _____ = _____	_____
Round 5: _____ _____ + _____ _____ = _____	_____
TOTAL SCORE	_____

$$\frac{2}{14}$$

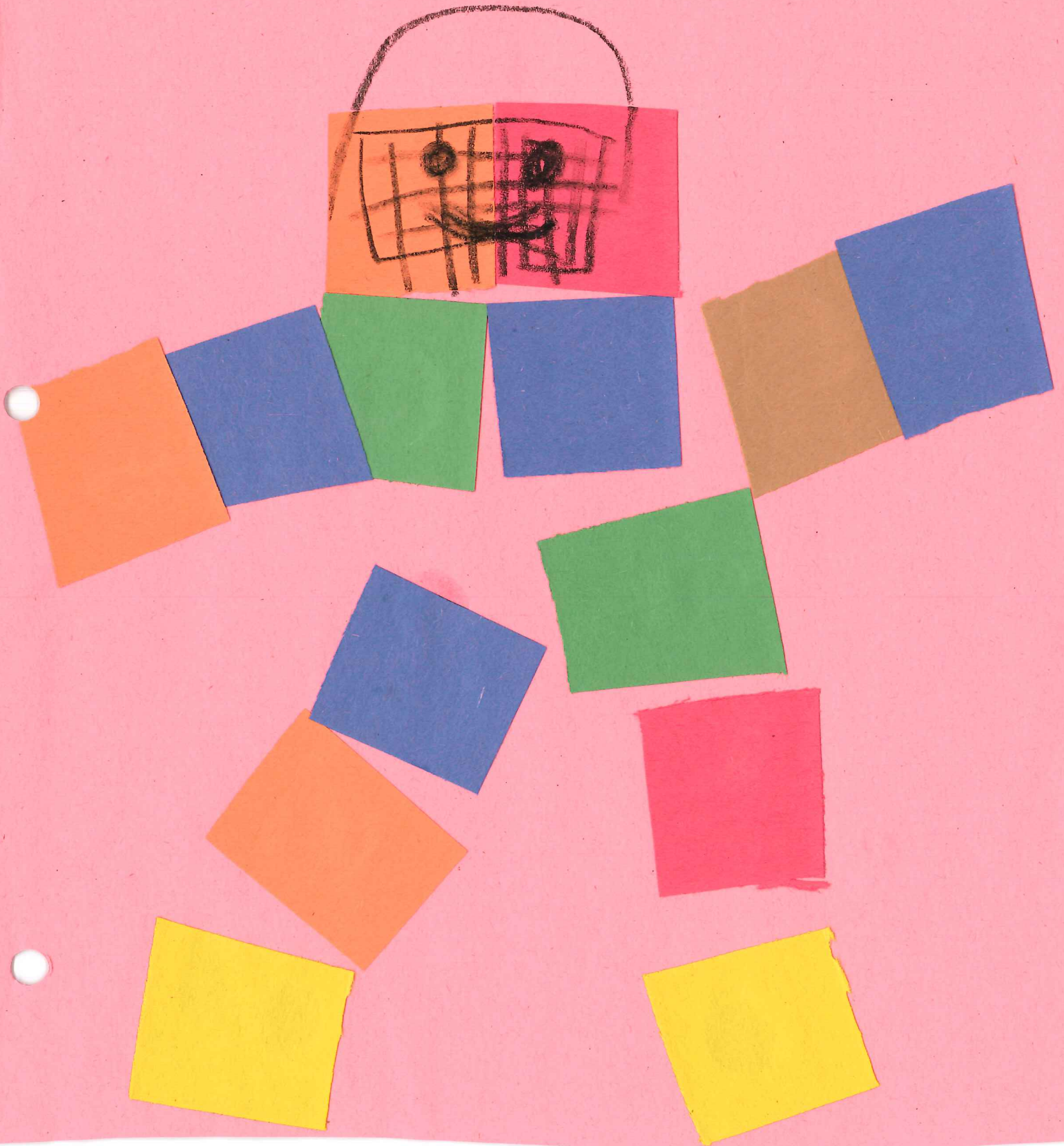
$$\frac{1}{14}$$

$$\frac{2}{14}$$

$$\frac{4}{14}$$

$$\frac{3}{14}$$

$$\frac{2}{14}$$



MAPPS Childcare grades 2 & 3

MAPPS Session 3

Developing Fraction Concepts II

Materials needed:

Pattern Blocks

BLM 16 Worksheet

Pencils

Roll Around the Clock directions

Roll Around the Clock game sheet

Dice

Fraction Track directions

Fraction Track game boards

Fraction cards

Snacks

Prizes (optional)

Crayons

Small soft ball (optional)

6:00 – 6:15	Set up the classroom. Place pattern blocks on the tables.
6:15 – 6:30	As the students enter have them review session 2 concepts by using the pattern blocks to make fractions. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, allow for some time to finish reviewing. Greet the students and introduce yourself. Have the students introduce themselves and share one

	<p>interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.</p>
6:35 – 7:00	<p>Introduce the <u>BLM 16 Worksheet</u>. Demonstrate how to solve the problems by modeling the strategy and using math language. Allow the students to work together in finding the correct combinations. Once the students finish the worksheet, have them make up their own problems for their classmates to solve.</p>
7:00 – 7:30	<p>Transition the students to play <u>Roll Around the Clock</u>. Have the students find a partner. Once the students have found their partner, explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Once you believe the students understand how to play, allow them to start playing on their own. Have the students rotate partners. If possible, provide prizes for the winners.</p>
7:30 – 7:50	<p>Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.</p>
7:50 – 8:20	<p>Have the students clean up their snack and put the brain break activities away. Introduce the students to the <u>Fraction Track Game</u>. Have the students find a partner. Once the students have found their partner, explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Once you believe the students understand how to play, allow them to start playing on their own. Have the students rotate partners. If possible, provide prizes for the winners.</p>
8:20 – 8:30	<p>Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions!</p>

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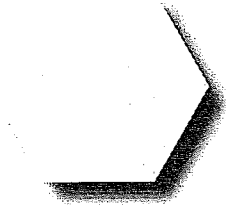
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Session 3 Childcare

Sharing Cookies



Let the yellow hexagon stand for the unit (a cookie). Each time cookies are shared, they must be shared equally. Act out each situation described below. Look for patterns or generalizations that come from this experience.

How much does each person get if:

1. One cookie is shared with three people.
2. One cookie is shared with six people.
3. Three cookies are shared with two people.
4. Four cookies are shared with six people.
5. Two cookies are shared with four people.
6. Five cookies are shared with three people.
7. Seven cookies are shared with six people.
8. Eight cookies are shared with three people.
9. Some people shared some cookies. Each person got $1\frac{2}{3}$ cookies. How many cookies were shared and how many people shared them? Find more than one way!

Activity

Roll Around the Clock Game

Teach students how to play Roll Around the Clock. Read the directions and play the game once yourself first. Students play with a partner or in groups of three. Two pairs can also play together. Each group needs two prepared fraction cubes, preferably in different colors. The fractions on one cube should be one-half and less: $\frac{1}{12}$, $\frac{1}{6}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{5}{12}$, and $\frac{1}{2}$. On the second cube, they are one-half and greater: $\frac{1}{2}$, $\frac{7}{12}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, and $\frac{11}{12}$. Students might also have their completed Student Sheet 11, Clock Fractions, to use for reference.

The object of the game is to roll fractions that sum to 1. To find the sum of the fractions rolled, some students may find it helpful to move a game piece, such as a button, around a copy of the Large Clock Face; make these materials available only as needed.

Players take turns. On a turn, a player may take one, two, three, or more rolls (of a single cube). For each roll, the player chooses which cube to roll. For example, a player might first choose to roll the cube with the larger fractions. Then, depending on the result, that player might (1) roll the cube with smaller fractions, (2) roll the larger fractions again, or (3) not roll at all.

If a player takes a second roll, the player may stop there, or take a third roll with either cube. The goal for each turn is to come as close as possible to 1, adding the results of all rolls. This is similar to the game of Twenty-One, but in Roll Around the Clock, players do not lose when they exceed the goal number of 1.

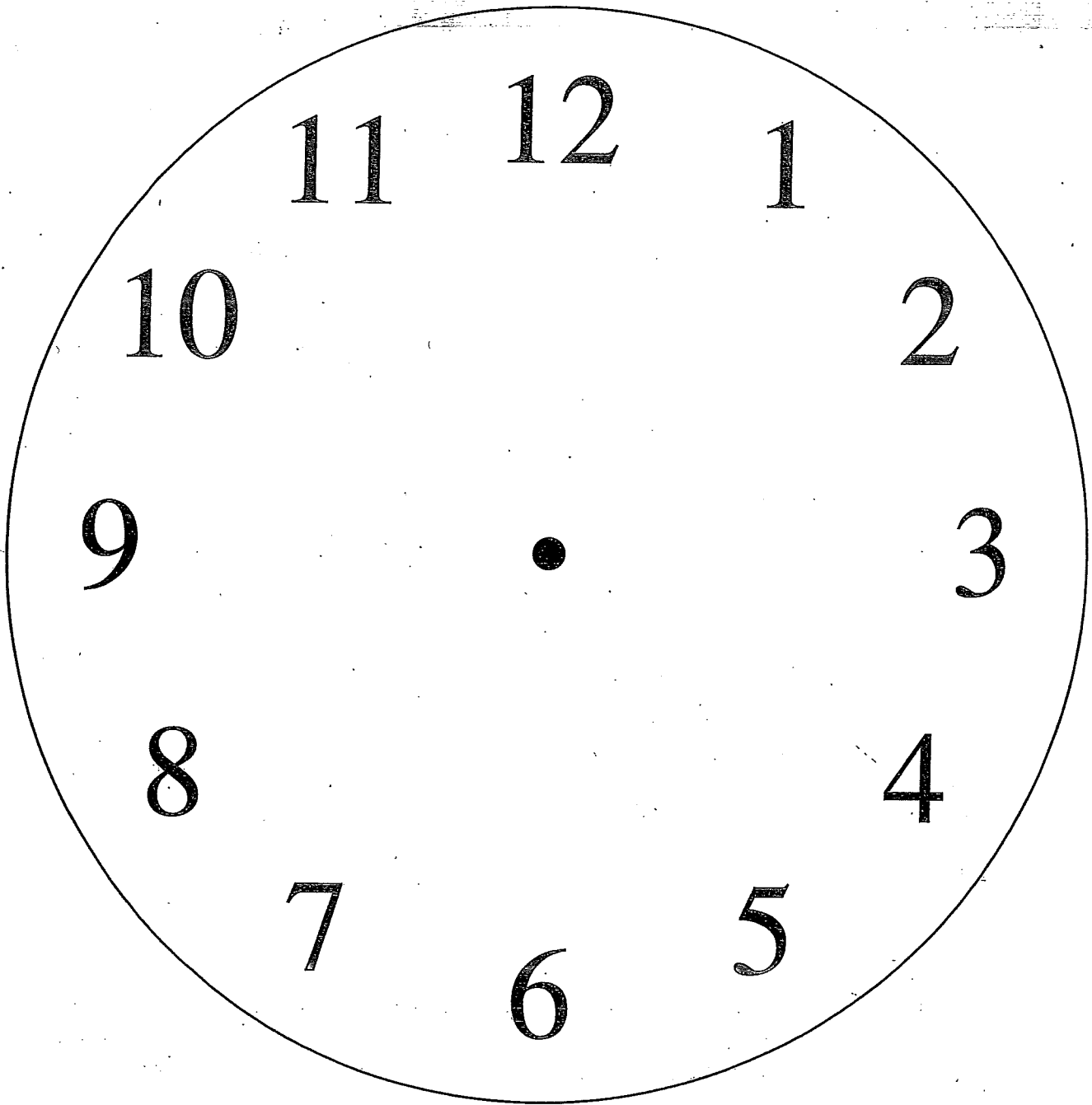
On a sheet of paper, students record the fractions they roll in the form of an equation. For example, a player who rolls $\frac{1}{3}$ and $\frac{3}{4}$ would record it this way:

$$\frac{1}{3} + \frac{3}{4} = 1\frac{1}{12}$$

Each player takes a turn. At the end of one round (one turn each), the player who has the sum closest to 1 scores a point. In case of a tie, both players score a point. After several rounds, the player with the highest score wins.

To introduce the game, demonstrate at the overhead. Write the fractions that appear on each cube, and ask the class which cube they would roll first. Roll that cube and write down your result. Ask students whether you should roll again and, if so, which cube. If you roll again, add the result to the first fraction (writing this as an equation). Continue until students suggest ending your turn. Students then find the sum. Ask a volunteer to explain or demonstrate how to add the fractions in the equation using the clock face.

LARGE CLOCK FACE



How to Play the Fraction Track Game

Materials: Fraction Cards, Fraction Track Gameboard
20 chips (or other small objects)

Players: 2–3, or 2 pairs

Playing to 1 (Introductory game)

1. Remove the percent cards and the 18 cards greater than 1 (such as $\frac{3}{2}$) from the deck. Fold under the right half of the Fraction Track Gameboard—only fractions from 0 to 1 should show.
2. Place seven chips on the gameboard, one on each track, at any fraction point less than $\frac{3}{4}$. Mix the cards and place the deck facedown.
3. Players take turns drawing the top card and moving a chip (or chips) to total the amount shown. You can move on one track or on several. For example, if the card is $\frac{3}{5}$, you can move $\frac{3}{5}$ on the fifths line, or $\frac{6}{10}$ on the tenths line, or a combination of moves on two or more lines, such as $\frac{1}{2}$ and $\frac{1}{10}$, or $\frac{1}{5}$ and $\frac{4}{10}$, or $\frac{1}{3}$, $\frac{1}{6}$, and $\frac{1}{10}$. The fraction on the card is the total that you move chips; it does not indicate points to land on.
4. The goal is to move chips so they land exactly on the number 1. When you land on 1, you win the chip. When a chip is won, place a new chip at 0 on the same track so the next player has a chip on every track. (This happens only when a player has completed a turn. You may not wrap around and keep going on the same track within a turn.)

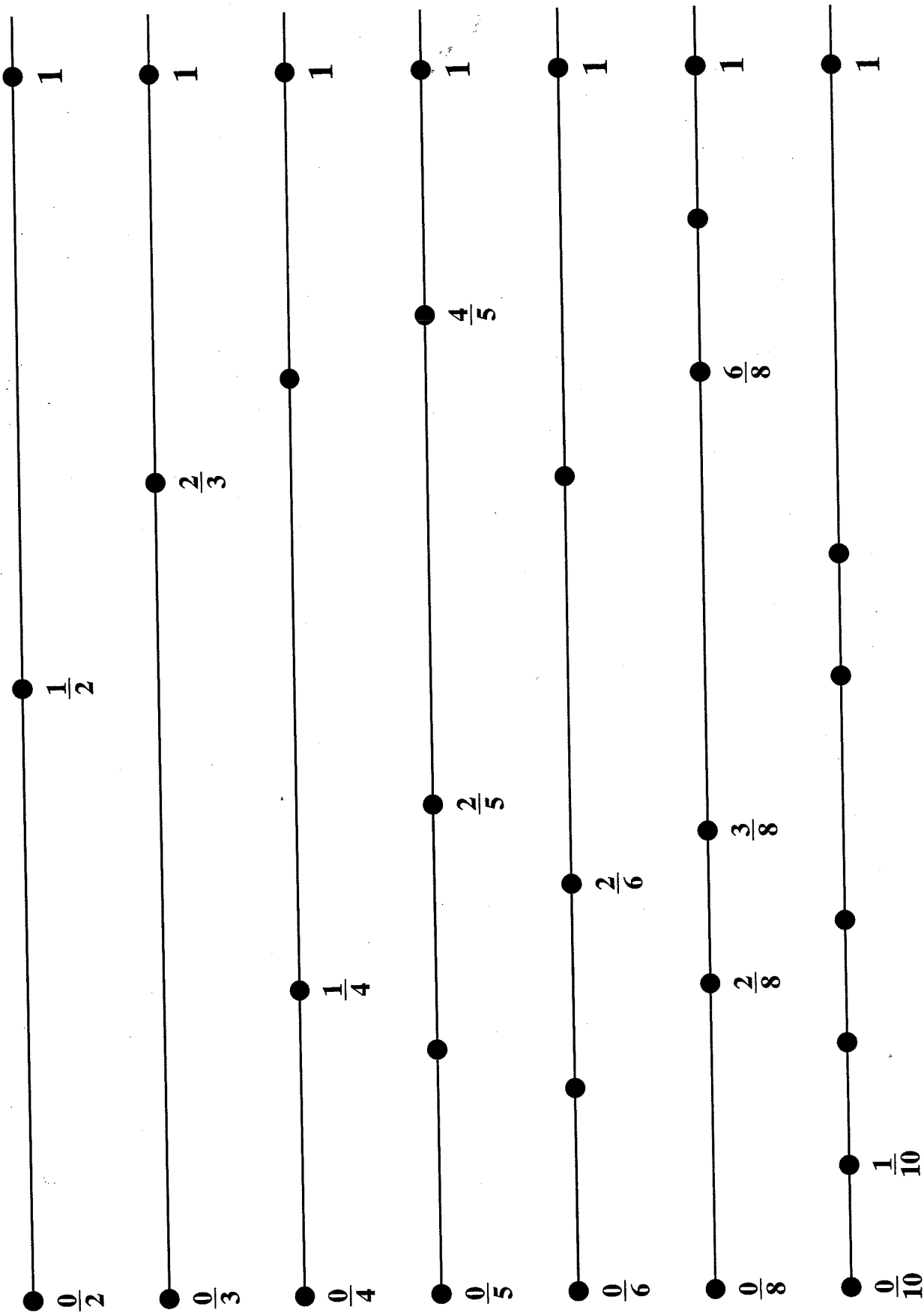
Playing to 2 (Regular game)

The rules are the same as the introductory version, except:

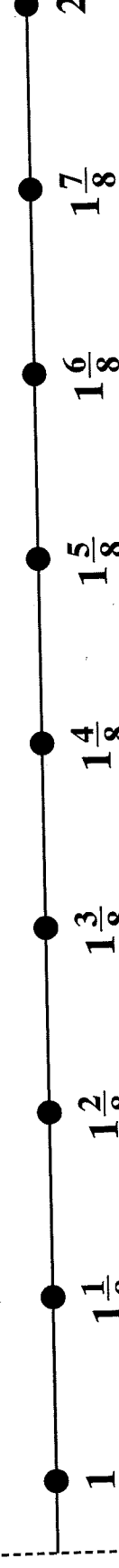
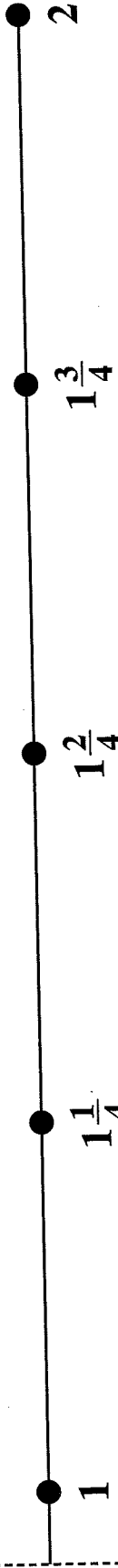
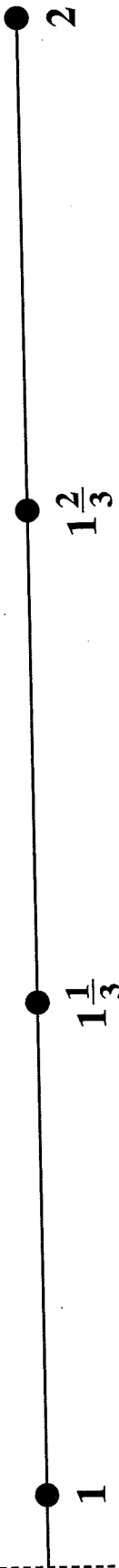
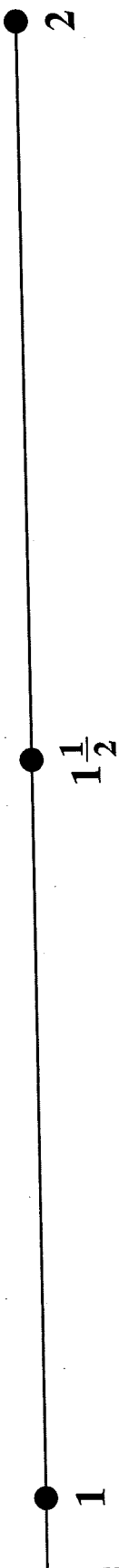
1. Use all the Fraction Cards and the entire Fraction Track Gameboard.
2. The seven chips may be placed on any fractions less than $\frac{3}{2}$.
3. The goal is to move chips so they land exactly on the number 2.

FRACTION TRACK GAMEBOARD, SHEET 1

Tape together with Sheet 2 to make continuous tracks from 0 to 2. Overlap at the 1 dots.



FRACTION TRACK GAMEBOARD, SHEET 2



Cut here

Cut here

$\frac{1}{2}$ ♦	$\frac{1}{3}$ ♦	$\frac{2}{3}$ ♦	$\frac{1}{4}$ ♦
$\frac{3}{4}$ ♦	$\frac{1}{5}$ ♦	$\frac{2}{5}$ ♦	$\frac{3}{5}$ ♦
$\frac{4}{5}$ ♦	$\frac{1}{6}$ ♦	$\frac{5}{6}$ ♦	$\frac{1}{8}$ ♦
$\frac{3}{8}$ ♦	$\frac{5}{8}$ ♦	$\frac{7}{8}$ ♦	$\frac{1}{10}$ ♦
$\frac{3}{10}$ ♦	$\frac{7}{10}$ ♦	$\frac{9}{10}$ ♦	50% ♦

10% ♦	90% ♦	$\frac{2}{2}$	$\frac{3}{2}$
$\frac{3}{3}$	$\frac{4}{3}$	$\frac{2}{4}$	$\frac{4}{4}$
$\frac{5}{4}$	$\frac{6}{4}$	$\frac{5}{5}$	$\frac{6}{5}$
$\frac{7}{5}$	$\frac{2}{6}$	$\frac{3}{6}$	$\frac{4}{6}$
$\frac{6}{6}$	$\frac{7}{6}$	$\frac{8}{6}$	$\frac{9}{6}$

FRACTION CARDS (page 3 of 3)

$\frac{2}{8}$	$\frac{4}{8}$	$\frac{6}{8}$	$\frac{8}{8}$
$\frac{9}{8}$	$\frac{10}{8}$	$\frac{11}{8}$	$\frac{12}{8}$
$\frac{2}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{6}{10}$
$\frac{8}{10}$	$\frac{10}{10}$	$\frac{11}{10}$	$\frac{12}{10}$
$\frac{13}{10}$	$\frac{14}{10}$	$\frac{15}{10}$	$\frac{1}{1}$

MAPPS Childcare grades 2 & 3

MAPPS Session 4

Developing Fraction Concepts III

Materials needed:

Pattern Blocks

Fraction Fish directions

Deck of fraction cards

In-Between directions

Fraction cards (Diamond cards only)

Percent equivalent strips

Snacks

Prizes (optional)

Smaller to Larger directions

Decimal cards (Set A & B)

Crayons

Small soft ball (optional)

6:00 – 6:15	Set up the classroom. Place pattern blocks on the tables.
6:15 – 6:30	As the students enter have them review session 3 concepts by using the pattern blocks to make fractions. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, put the pattern blocks away (with the help of the students). Greet the students and introduce yourself. Have the students introduce themselves and share one interesting thing about them. Then, give the

	<p>students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.</p>
6:35 – 7:00	<p>Introduce the <u>Fraction Fish</u> game. Demonstrate how to play the game by modeling the strategy and math language. Once you believe the students understand how to play, allow them to start a game on their own. If possible, provide prizes for the winners.</p>
7:00 – 7:30	<p>Transition the students to play <u>In-Between</u>. Have the students find a partner. Once the students have found their partner, explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Show the students the percent equivalent strips to use as a reference for the game. Once you believe the students understand how to play, allow them to start playing on their own. If possible, provide prizes for the winners.</p>
7:30 – 7:50	<p>Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.</p>
7:50 – 8:20	<p>Have the students clean up their snack and put the brain break activities away. Introduce the students to the game <u>Smaller to Larger</u>. Divide the students into groups of 2, 3, or 4. Explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Once the students understand how to play, allow them to start on their own. If possible provide prize for the winners.</p>
8:20 – 8:30	<p>Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions!</p>

What if the material is not challenging enough or too challenging?

If the material is not appropriate for certain students, vary the level by manipulating the numbers they are working with. You can increase or decrease values as needed. Also, consider pairing up the students with others at varying levels. This method benefits all students. It provides an environment for the higher level students to teach and the lower level students the chance to have the material explained in a different manner.

What if the students are bored or have an elevated level of energy?

If the students seem bored or are acting hyper, provide a brain break. A brain break could include a quiet walk around the school looking for shapes that could make fractions. Another brain break could include tossing a ball softly back and forth counting by twos in the classroom. Also, talk to the students about everyday uses of math. Bringing relevance into their learning creates contextualization. If the students can personally relate to the topics, they will be more engaged. You can ask them if they have ever made cookies and had to measure the ingredients or counted the amount of days they have been in school. Pretty much everything we do pertains to math in some way!

HOW TO PLAY FRACTION FISH

Materials

Deck of Fraction Cards

Players: 2 or more

How to Play

1. Deal out 7 fraction cards to each player. The remaining fraction cards are placed in a deck in the center of the table.
2. Play proceeds around the circle. The object is to get cards from other players by matching a fraction card in their hands with one in your hand. Cards match if they are equivalent fractions (stand for the same amount).
So, $\frac{2}{4}$ matches $\frac{1}{2}$, and $\frac{2}{3}$ matches $\frac{4}{6}$.
3. Each player in turn asks another player if he or she has an equivalent for a fraction, for example, $\frac{2}{4}$. If the second player has any fraction card worth the same amount, the first player gets that card and puts both cards in a “captured fish” pile. If the second player has more than one matching card, the first player gets all of them. If the second player has no matching cards, the first player has to “Fish!”—pick the top card in the face-down pile and add it to his or her hand. If this card results in a match, the player can, on the next turn, put the matching cards in the “captured fish” pile. In addition, the player may ask another player for a different match.
4. The game ends when a player has no more cards or when there are no more matches. In either case, the winner is the person with the most cards in his or her “captured fish” pile.

DECIMAL CARDS, SET B

0.025 twenty-five thousandths	0.075 seventy-five thousandths	0.125 one hundred twenty-five thousandths	0.175 one hundred seventy-five thousandths
0.225 two hundred twenty-five thousandths	0.275 two hundred seventy-five thousandths	0.325 three hundred twenty-five thousandths	0.375 three hundred seventy-five thousandths
0.425 four hundred twenty-five thousandths	0.475 four hundred seventy-five thousandths	0.525 five hundred twenty-five thousandths	0.575 five hundred seventy-five thousandths
0.625 six hundred twenty-five thousandths	0.675 six hundred seventy-five thousandths	0.725 seven hundred twenty-five thousandths	0.775 seven hundred seventy-five thousandths
0.825 eight hundred twenty-five thousandths	0.875 eight hundred seventy-five thousandths	0.925 nine hundred twenty-five thousandths	0.975 nine hundred seventy-five thousandths

FRACTIONS FOR FRACTION CARDS

$\frac{8}{4}$	$\frac{4}{2}$	$\frac{12}{12}$	$\frac{5}{3}$	$\frac{6}{3}$	$\frac{5}{8}$
$\frac{9}{4}$	$\frac{9}{6}$	$2\frac{1}{2}$	$\frac{10}{8}$	$1\frac{1}{3}$	$1\frac{3}{4}$
$1\frac{1}{2}$	$\frac{8}{3}$	$\frac{5}{2}$	$\frac{0}{2}$	$1\frac{2}{3}$	$\frac{2}{5}$
$\frac{3}{8}$	$\frac{0}{4}$	$\frac{7}{4}$	$\frac{4}{10}$	$\frac{8}{8}$	$\frac{0}{3}$
$\frac{4}{5}$	$\frac{4}{8}$	$\frac{4}{12}$	$\frac{5}{4}$	$\frac{6}{12}$	$\frac{1}{8}$
$\frac{0}{12}$	$\frac{6}{8}$	$\frac{6}{9}$	$\frac{2}{12}$	$\frac{8}{12}$	$\frac{2}{8}$
$\frac{7}{8}$	$1\frac{1}{4}$	$\frac{3}{12}$	$\frac{9}{12}$	$\frac{1}{2}$	$\frac{2}{3}$
$\frac{2}{4}$	$\frac{1}{6}$	$\frac{5}{6}$	$\frac{2}{2}$	$\frac{3}{3}$	$\frac{3}{4}$
$\frac{2}{6}$	$\frac{6}{6}$	$\frac{3}{2}$	$\frac{4}{3}$	$\frac{4}{4}$	$\frac{3}{6}$
$\frac{8}{6}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{6}{4}$	$\frac{4}{6}$	$\frac{1}{5}$

BLANK WHOLELS FOR FRACTION CARDS

How to Play the In-Between Game

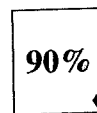
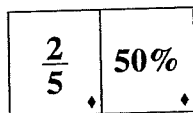
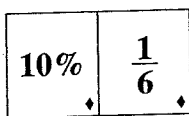
Materials: Fraction Cards—diamond (♦) cards only, Completed Percent Equivalents Strip (for reference only)

Players: 2

- Place the 10%, 50%, and 90% cards on the table (see picture).
- Mix the Fraction Cards. Deal six to each player.
- Players take turns placing a card so it touches another card. You may place a card to the right of 10%, on either side of 50%, to the left of 90%, or on top of any percent. As you play a card, state the fraction and its percent equivalent.

For example, if you place the $\frac{1}{6}$ card to the right of 10%, you would say, "One-sixth is $16\frac{2}{3}\%$."

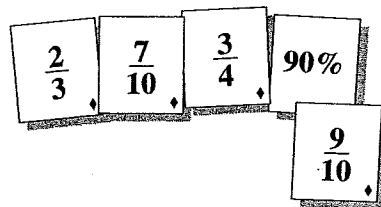
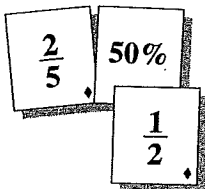
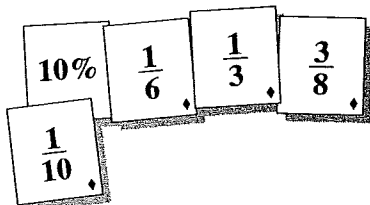
- Cards must be placed in increasing order, from left to right.



A card may *not* be placed between two cards that are touching.

In this example, the $\frac{1}{8}$ card may *not* be placed between the $\frac{1}{6}$ and the 10% cards. So, you can't place it in this round.

- Your goal is to place as many cards as you can. The round is over when neither player can place any more cards. Your score is the number of cards left in your hand.



At the end of a round, the table might look like this:

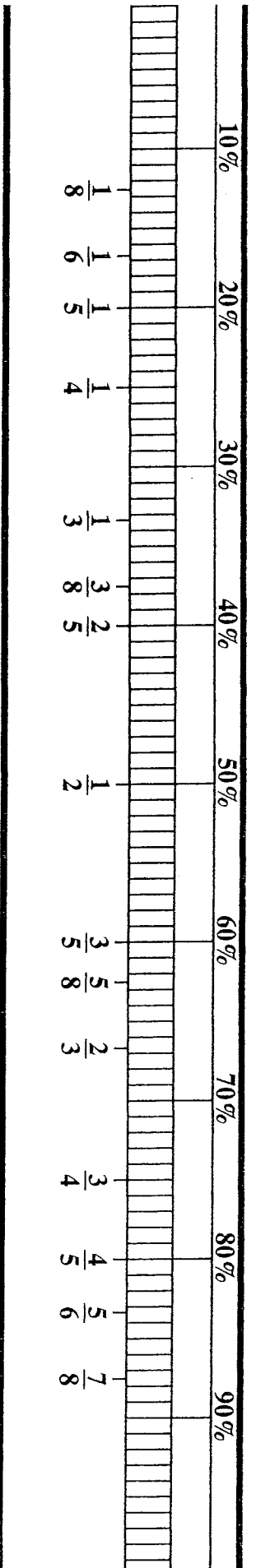
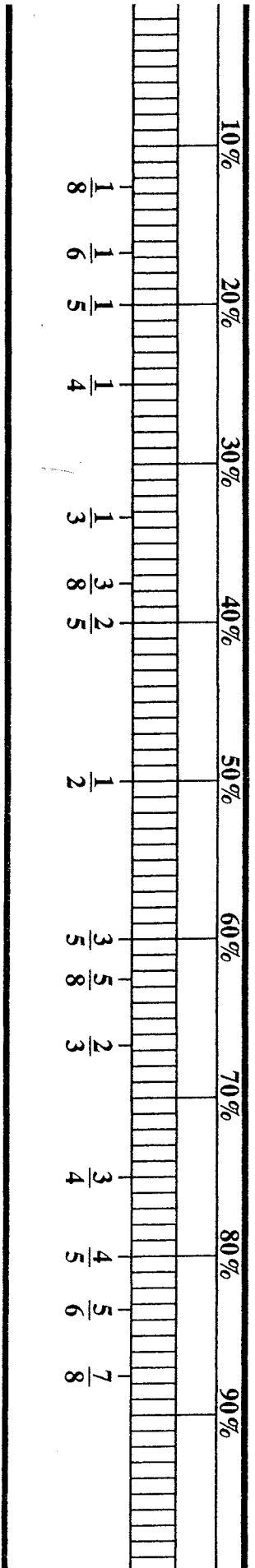
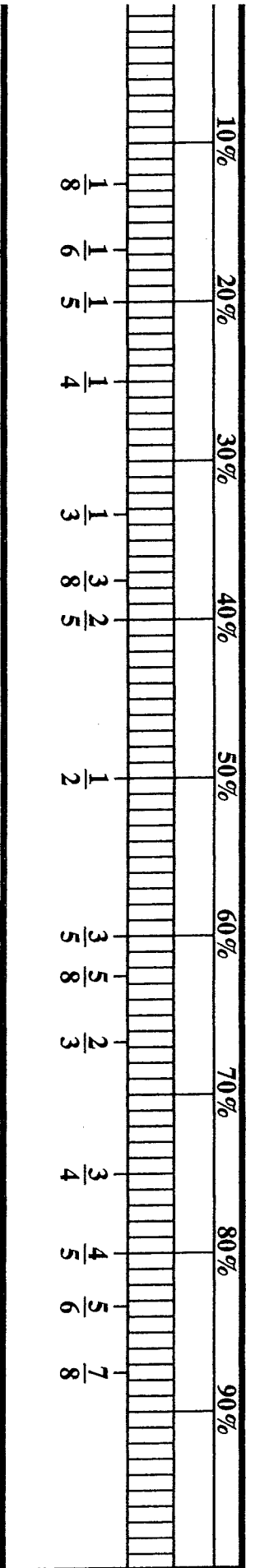
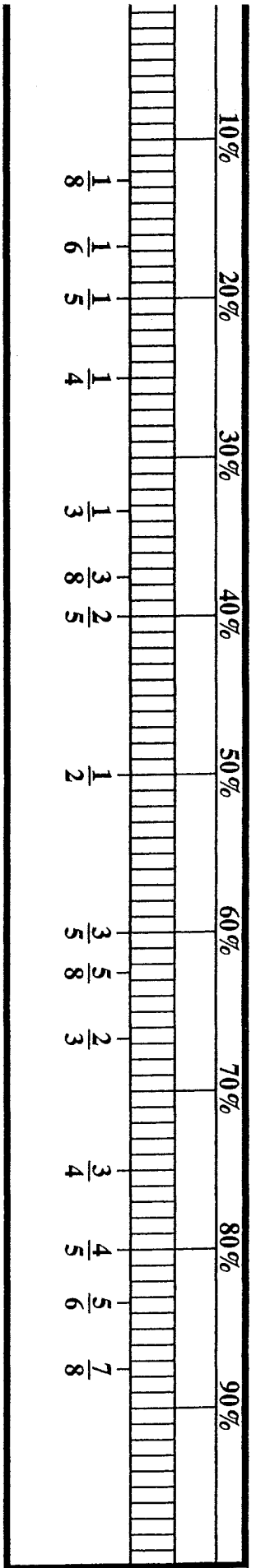
Player 1 could not place $\frac{1}{8}$ and $\frac{4}{5}$ and so has a score of 2.

Player 2 used all six cards and so has a score of 0.

- At the end of five rounds, the player with the lowest score wins.

Cut out four strips along heavy black lines. Each group uses one to check their own strips.

COMPLETED PERCENT EQUIVALENTS STRIPS



How to Play Smaller to Larger

Materials: Decimal Cards, Sets A and B. For 3 or 4 players, mix together two complete decks.

Players: 2, 3, or 4

1. Each player draws a 3-by-3 grid for a game mat, with spaces large enough for Decimal Cards to fit inside.
2. Mix the deck and place it face down between the players.
3. Players take turns. On your turn, draw the top card from the pile and decide where to place it on your game mat. The numbers must be in increasing order, from left to right in each row and from top to bottom in each column.
4. If you draw a card that you cannot place because of the numbers already on your game mat, you must keep the card in a pile and lose your turn.

Example:

Suppose after six turns your game mat looks like this. You draw 0.15 and it can't be played because 0.375 is already in the lowest place on the board. Put the 0.15 card in your pile of cards that could not be played.

0.375 three hundred seventy-five thousandths	0.475 four hundred seventy-five thousandths	
	0.55 fifty-five hundredths	0.6 six tenths
0.75 seventy-five hundredths	0.825 eight hundred twenty-five thousandths	

5. If you are unsure which of two numbers is larger, discuss them with other players.
6. The game is over when each player has filled all nine spaces.
7. The winner is the player who has the fewest cards that could not be played.

MAPPS Childcare grades 2 & 3

MAPPS Session 5

Developing Decimal Concepts

Materials needed:

Fraction coloring pages

Snacks

Crayons

Small soft ball (optional)

Fill Two directions

Decimal Cards (Set A)

Grid Paper

BLM 30 Worksheets

Pencils

Hershey Candy Bars

Hershey Challenge Worksheets

Sandwich Bags

6:00 – 6:15	Set up the classroom. Place decimal coloring sheets on the tables along with crayons.
6:15 – 6:30	As the students enter have them review session 4 concepts by coloring the correct squares on the worksheet. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, put the coloring pages and crayons away (with the help of the students). Greet the students and introduce yourself.

	<p>Have the students introduce themselves and share one interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.</p>
6:35 – 7:00	<p>Introduce the students to the game <u>Fill Two</u>. Demonstrate how to play by modeling the strategy and using math language. Once the student understand how to play have the students pair up and begin playing on their own. If possible, provide a prize for the winner.</p>
7:00 – 7:30	<p>Transition the students to work on the <u>BLM 30 worksheet</u>. There are three math problems on the worksheet that the students should be able to solve. Have the students work alone for a few minutes then have them compare answers and help each other. When the students finish this worksheet, you can create or have the students create similar problems for the class to solve.</p>
7:30 – 7:50	<p>Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.</p>
7:50 – 8:20	<p>Have the students clean up their snack and put the brain break activities away. Introduce the students to the <u>Hershey Bar Challenge</u>. Pass out the Hershey Bar Challenge worksheet. Explain the activity to the students. Make sure the students understand the challenge by reviewing and asking the student to explain what they are doing. Once you think the students understand the challenge you can remind them that they are NOT to eat the candy bar. The candy bar may be eaten later, after the challenge is complete. Repeat this many times so they understand. Once they understand that they are not eat the candy bar, you can pass them out. You will also have to pass out pencils and crayons. Begin the challenge. You may have to help</p>

	many of the students. Make sure you do each question as a group. Work together!!
8:20 – 8:30	Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions!

What if the material is not challenging enough or too challenging?

If the material is not appropriate for certain students, vary the level by manipulating the numbers they are working with. You can increase or decrease values as needed. Also, consider pairing up the students with others at varying levels. This method benefits all students. It provides an environment for the higher level students to teach and the lower level students the chance to have the material explained in a different manner.

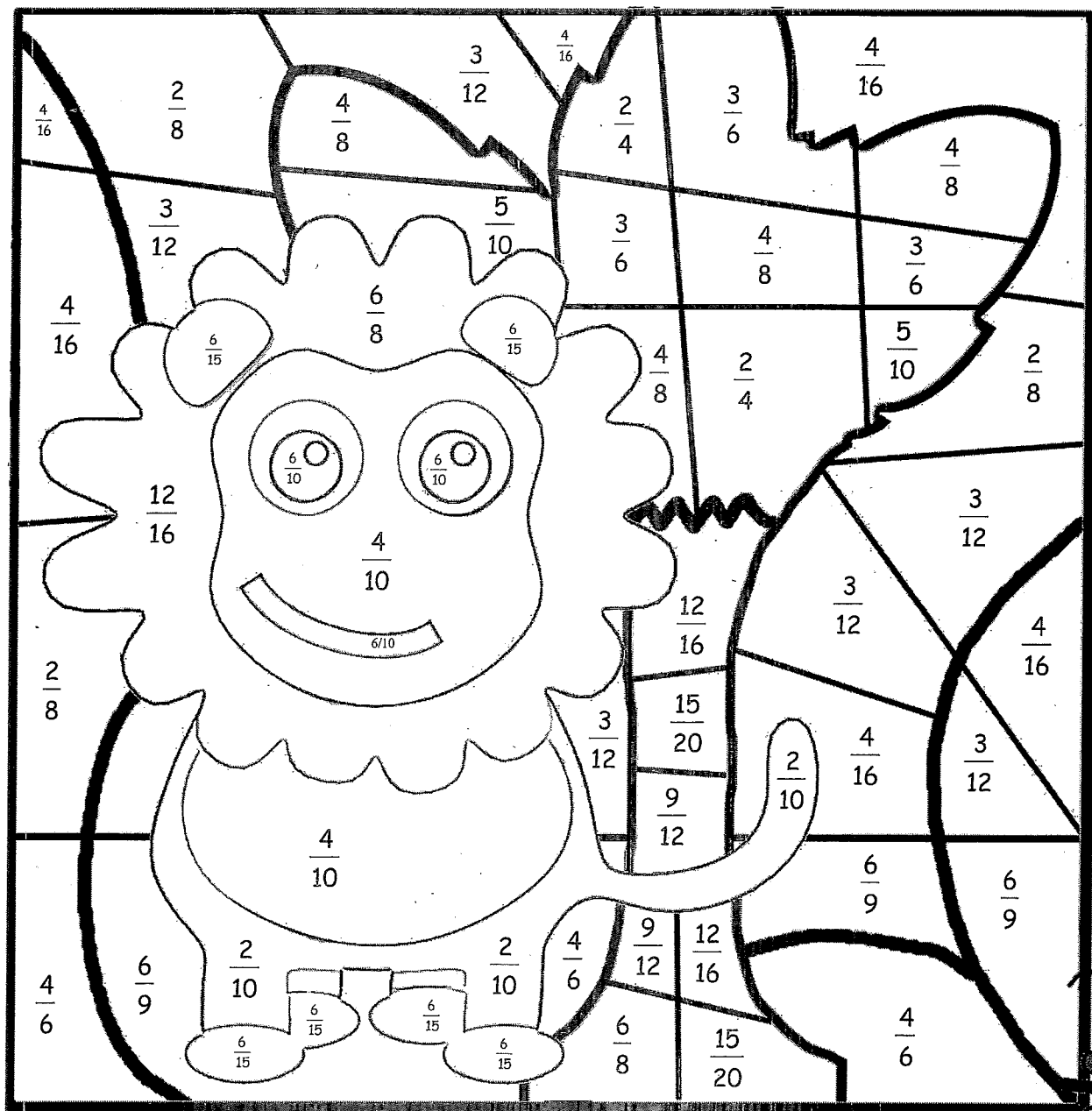
What if the students are bored or have an elevated level of energy?

If the students seem bored or are acting hyper, provide a brain break. A brain break could include a quiet walk around the school looking for shapes that could make fractions. Another brain break could include tossing a ball softly back and forth counting by twos in the classroom. Also, talk to the students about everyday uses of math. Bringing relevance into their learning creates contextualization. If the students can personally relate to the topics, they will be more engaged. You can ask them if they have ever made cookies and had to measure the ingredients or counted the amount of days they have been in school. Pretty much everything we do pertains to math in some way!

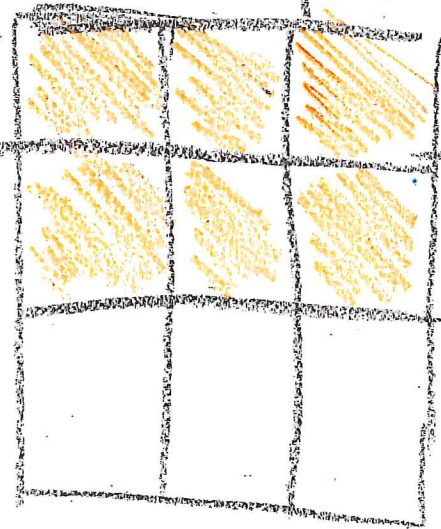
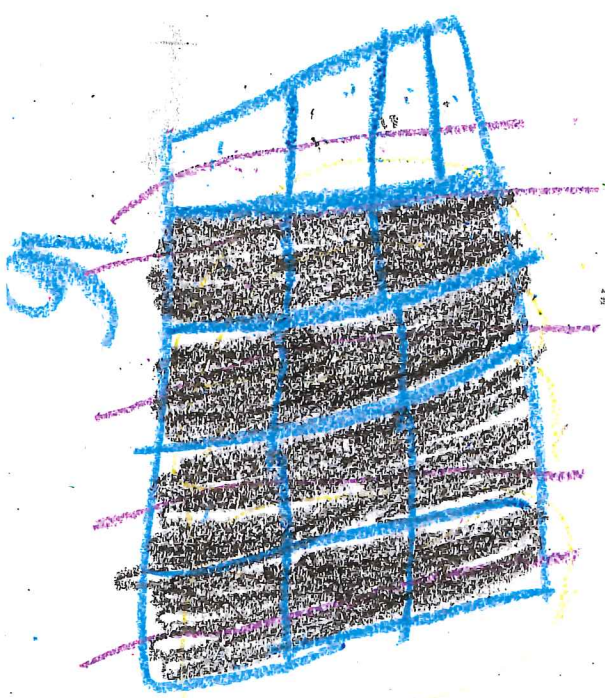
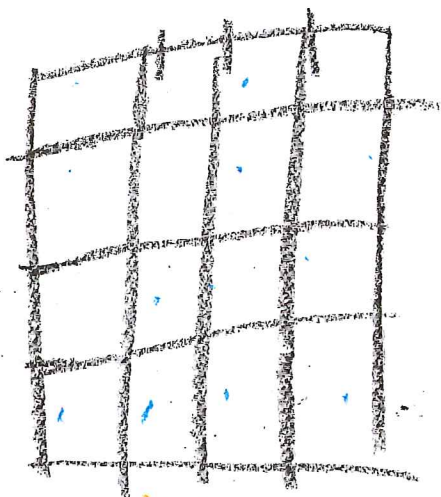
Color by Fraction – Equivalent Fractions

$$\frac{3}{6} = \frac{1}{2}$$

- Color all fractions that are equivalent to $\frac{1}{2}$ dark green
- Color all fractions that are equivalent to $\frac{2}{3}$ light green
- Color all fractions that are equivalent to $\frac{1}{4}$ blue
- Color all fractions that are equivalent to $\frac{3}{4}$ brown
- Color all fractions that are equivalent to $\frac{1}{5}$ orange
- Color all fractions that are equivalent to $\frac{2}{5}$ tan
- Color all fractions that are equivalent to $\frac{3}{5}$ black



$$\frac{1}{3}$$

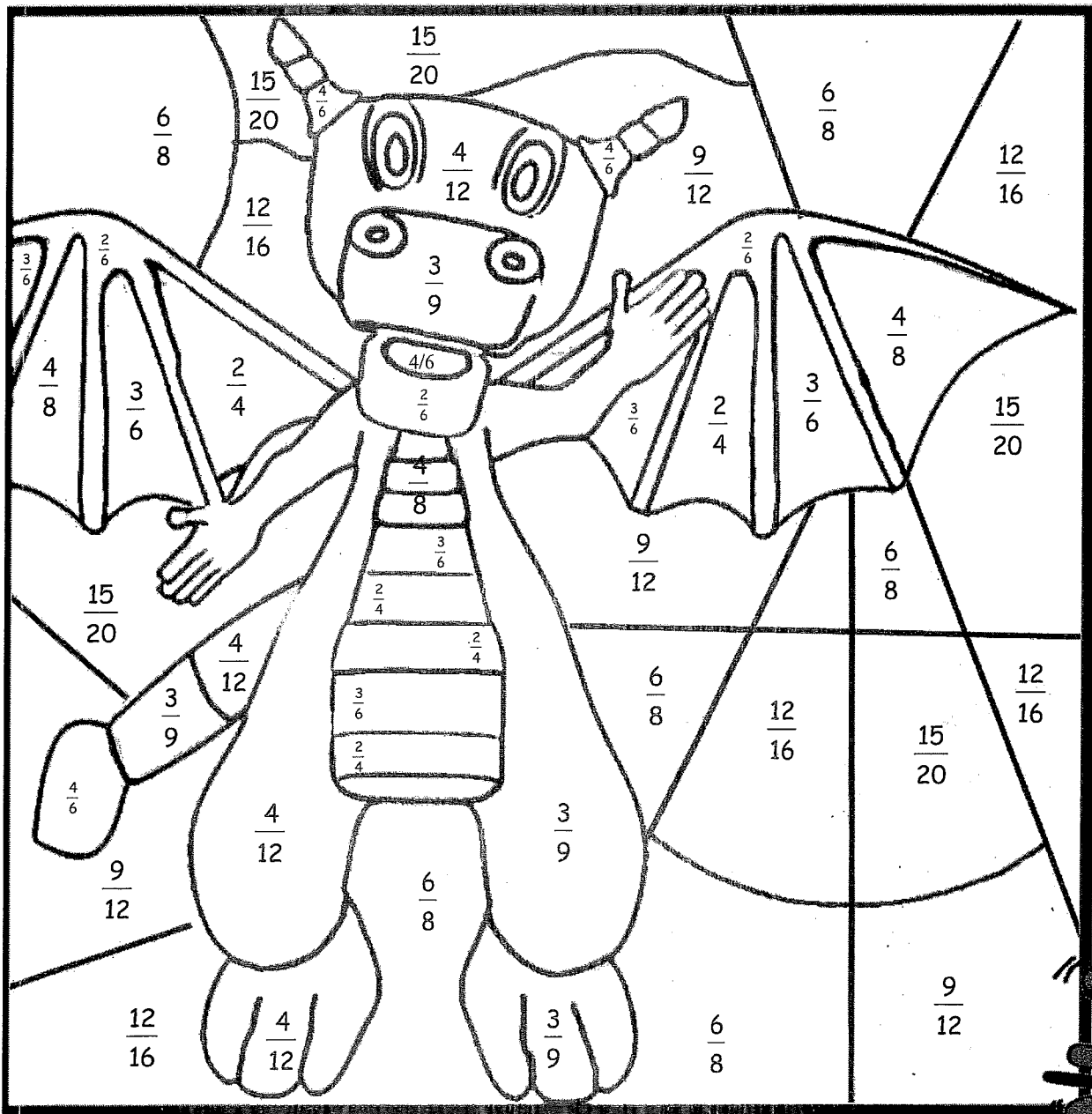


4
 5
 0/9
 win
 20

Color by Fraction – Equivalent Fractions

$$\frac{3}{6} = \frac{1}{2}$$

Color all fractions that are equivalent to $\frac{1}{2}$ yellow
Color all fractions that are equivalent to $\frac{1}{3}$ green
Color all fractions that are equivalent to $\frac{2}{3}$ red
Color all fractions that are equivalent to $\frac{3}{4}$ blue



$$\frac{1}{3}$$

How to Play Fill Two

Materials: One deck of Decimal Cards, Set A

Grids: 1 sheet per player

Crayons or markers (two or more colors) for each player

Players: 2

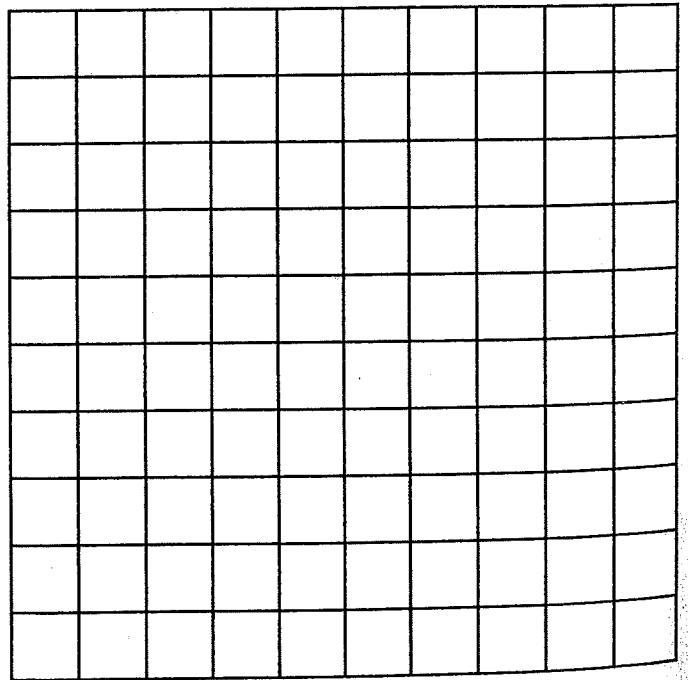
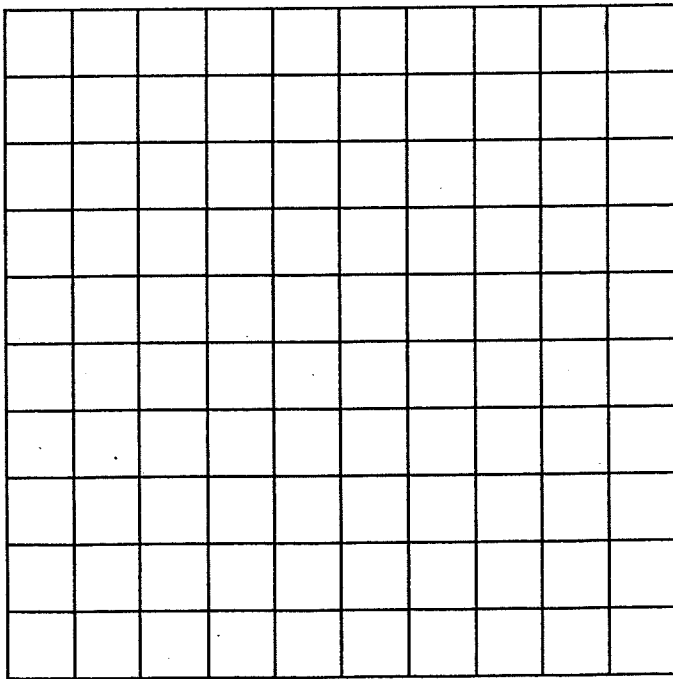
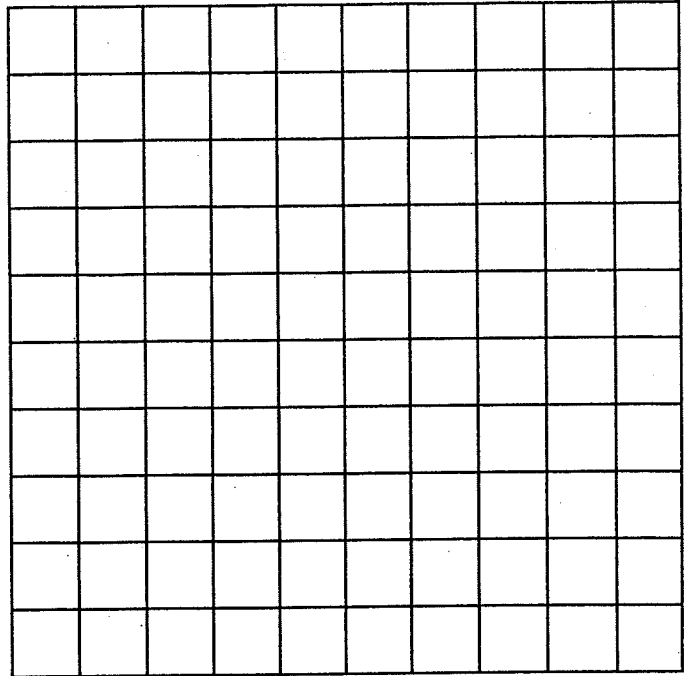
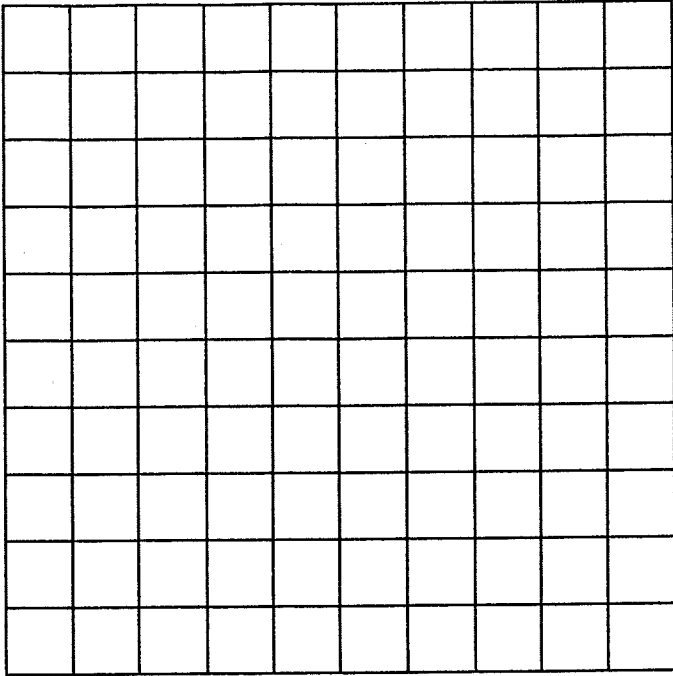
1. Mix the cards and turn the deck face down. Turn over the top four cards and place them face up in a row. After one of the four cards has been picked, replace it with the top card from the deck.
2. The goal is to shade in two of your grids as completely as possible.
3. Players take turns. On your turn, choose one of the face up cards, color in that amount on either grid, and write the decimal below the grid. You may never color in an amount that would more than fill a grid, and you may not split an amount to color in parts of two grids.
4. Change colors for each turn so that you can see the different decimals. As you write the decimal below the grid, use plus (+) signs between the decimals, making an equation that will show the total colored in on that grid.
5. If all cards showing are greater than the spaces left on your grids, you lose your turn until a card that you can use is turned up.
6. The game is over when neither player can choose a card. Players then find the total colored in on each grid and add them. The winner is the player whose final sum is closest to 2.

Variation: Fill Four

The rules for this game are the same as for Fill Two, except:

1. Use Decimal Cards Set A and Set B.
2. Each player fills four grids during a game. On a turn, you may color in the amount on any grid that has enough room.
3. The winner is the player whose final sum is closest to 4.

GRIDS

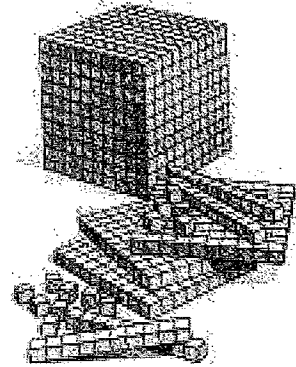


DECIMAL CARDS, SET A

0.1 one-tenth	0.2 two-tenths	0.3 three-tenths	0.4 four-tenths
0.5 five-tenths	0.6 six-tenths	0.7 seven-tenths	0.8 eight-tenths
0.9 nine-tenths	0.05 five-hundredths	0.15 fifteen-hundredths	0.25 twenty-five hundredths
0.35 thirty-five hundredths	0.45 forty-five hundredths	0.55 fifty-five hundredths	0.65 sixty-five hundredths
0.75 seventy-five hundredths	0.85 eighty-five hundredths	0.95 ninety-five hundredths	

Decimal Problems I

Look at the student work shown below.
Explain and correct their errors using a number strip,
base ten blocks, money or a picture.



1. Addition Error:

$$\begin{array}{r} 3.1 \\ +1.63 \\ \hline 1.94 \end{array}$$

2. Notation Error:

two and 3 hundredths is written 2.3

3. Comparison Error:

0.15 is larger than 0.8

Hershey Fractions Sheet

Name: _____

Before you open the candy bar estimate how many pieces make up the whole.

Estimate: _____

Actual: _____

Break the Hershey bar so each piece is on its own.

Put them together as if they were all connected again.

Take away 1 piece.

What fraction of the candy bar did you take away? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Put them back.

Take away 4 pieces.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Put them back.

Take away 5 pieces.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Put them back.

Take away 8 pieces.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Put them back.

Take away 9 pieces.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Take away another piece.

What fraction of the candy bar did you take away now (always include the pieces taken away before)? _____

Is there another fraction that means the same thing? _____

MAPPS Childcare grades 2 & 3

MAPPS Session 6

Connecting Fractions to Decimals

Materials needed:

Decimal coloring pages

Snacks

Crayons

Small soft ball (optional)

Smaller to Larger Directions

Decimal Cards (Set A & B)

BLM 37 Worksheets

Pencils

Plain white computer paper

6:00 – 6:15	Set up the classroom. Place decimal coloring sheets on the tables along with crayons.
6:15 – 6:30	As the students enter have them review session 5 concepts by coloring the correct squares on the worksheet. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, put the coloring pages and crayons away (with the help of the students). Greet the students and introduce yourself. Have the students introduce themselves and share one interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do.

	Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.
6:35 – 7:00	Introduce the students to the game <u>Smaller to Larger</u> . Divide the students into groups of 2, 3, or 4. Explain the rules of the game. Demonstrate how to play by modeling the strategy and using math language. Once the students understand how to play, allow them to start on their own. If possible provide prize for the winners.
7:00 – 7:30	Transition the students to work on the <u>BLM 37 worksheet</u> . This worksheet consists of decimal numbers that have created a maze. The students move forward through the maze to a higher decimal number. Have the students work alone for a few minutes, then have them compare answers and help each other. When the students finish this worksheet, you can create or have the students create similar problems for the class to solve.
7:30 – 7:50	Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.
7:50 – 8:20	Have the students clean up their snack and put the brain break activities away. Transition the students into creating a <u>fraction book</u> . Provide the students with 6 sheets of white typing paper, pencils and crayons. Demonstrate how the students should fold the paper. Work as a team in creating the fraction book. The cover should have the definition of a fraction. Discuss the definition with the students. Ask them how they would define a fraction. After the discussion is over, The concept of “part over whole” should be on the cover as well as “equal parts”. Continue building the fraction book as a team. Allow the students to use whatever shapes they choose to create a visual of the fraction. Encourage math language.

8:20 – 8:30

Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions and decimals!

What if the material is not challenging enough or too challenging?

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Name:

Date:

Unicorn

0.08	0.09	0.1	2/10	3/12	0.18	1/8	0.12	0.02	1/8	1/7	0.08	0.22	0.04	0.08	2/10	0.22	2/10	0.16
3/12	0.1	0.22	1/8	5/20	2/10	1/10	1/4	3/12	2/8	0.15	0.14	2/10	1/7	1/5	1/7	0.03	0.09	0.03
0.07	4/16	0.01	0.25	1/7	0.2	1/6	5/20	0.06	3/12	1/7	0.06	0.14	2/10	1/4	1/6	0.22	0.04	1/6
0.08	0.15	2/8	0.07	0.01	1/8	0.17	0.1	2/10	0.14	0.22	2/10	2/8	5/20	1/10	0.23	3/7	0.37	4/16
4/16	4/16	0.07	0.23	0.17	2/8	1/7	2/10	1/5	5/20	0.22	4/16	0.16	0.15	2/10	0.4		0.33	1/6
0.1	2/10	0.02	0.23	0.08	2/8	0.17	3/12	5/20	1/4	0.02	2/10	2/10	2/4	5/10		1/2	4/16	0.2
2/8	0.16	0.2	1/10	0.04	0.23	1/6	0.5	0.41	0.42	5/10	2/4	1/3			0.27	1/5	1/6	0.1
3/12	1/7	0.01	0.04	3/6	5/10	2/6	0.48	0.5	0.37	2/6				0.41	0.21	1/7	5/20	4/16
1/4	1/4	0.46	0.36	0.34	3/6	4/10	3/7	4/7	2/3	0.71			1/2	1/7	4/16	1/4	0.01	0.08
2/6	0.34	2/6	0.46	0.5	5/10	1/3	3/5	3/4	2/3	0.64	0.43	1/3	0.28	0.42	4/10	0.4	1/7	0.11
0.38	1/2	1/2	3/7	1/2	7/10	0.59	0.51	3/4	0.69	4/7	0.64	0.54	0.26	0.43	10/12	0.96	0.39	3/7
3/8	3/6	0.42	2/4	3/5	0.59	0.58	5/7	0.65			2/3	0.67	3/10	1/3	10/12	0.79	0.89	5/5
1/2	2/4	0.7	2/3	6/8	5/7	6/8	0.75	7/10		4/10	0.56	0.66	3/7	0.43	3/3	4/5	0.9	0.99
5/7	0.61	4/7	5/8	7/10	4/6	0.69	0.61	0.66	0.51	2/3	0.55	4/7	3/10	0.42	0.94	3/3	0.87	0.93
6/10	0.58	0.69	3/5	0.6	0.62	0.6	6/10	0.66	4/7	3/5	3/5	0.59	2/6	0.27	3/3	0.89	0.85	0.77
0.57	0.75	3/5	5/7	0.55	3/4	6/10	0.29	1/2	4/7	0.55	5/7	3/5	4/7	3/10	3/6	0.78	6/7	0.96
6/10	2/3	3/5	5/7	0.59	3/4	0.45	7/7	4/4	2/5	6/8	6/8	3/4	6/10	0.58	2/7	2/2	10/12	5/6
0.65	0.74	0.57	3/4	5/7	7/10	0.29	0.86	9/10	11/12	0.3	7/10	0.53	0.66	0.4	0.49	0.83	6/7	3/3
0.52	0.75	3/4	0.71	6/8	2/7	7/8	5/6	0.97	7/7	5/10	0.59	4/7	0.62	0.59	3/7	7/9	0.95	0.99
0.61	6/10	0.57	0.55	0.49	0.88	5/5	0.89	0.82	9/10	0.96	1/2	2/6	0.38	0.26	2/2	0.8	0.85	0.87

Key:

From 1% to 25%	Blue
From 26% to 50 %	Black
From 51% to 75%	Brown
From 76% to 100%	Green

*Blank squares are white

Name:

Date:

Camel

1/4	4/16	3/12	0.08	0.11	0.07	4/16	2/8	1/7	0.06	0.12	4/16	0.04	0.15	1/4	0.03	2/8	0.12	0.19
1/4	0.08	1/8	1/6	1/6	5/20	2/8	5/20	2/10	3/12	1/7	2/8	1/4	0.08	1/8	1/7	0.05	0.18	2/10
1/4	0.19	3/12	1/10	5/20	1/4	1/10	1/7	1/4	0.03	1/4	1/5	4/8	1/5	3/7	0.08	0.12	0.22	1/10
0.04	1/8	1/8	1/6	2/8	2/10	0.23	3/12	1/7	1/7	2/10	1/6	0.41	2/5	3/7	0.07	1/10	2/8	0.05
0.04	1/7	0.12	0.04	0.03	4/16	2/10	2/10	0.14	0.12	1/5	0.19	0.47	3/8		0.35	1/8	0.16	0.22
5/20	4/16	0.08	0.13	0.17	0.24	0.16	0.24	0.05	0.19	0.17	2/10	0.17	0.45	7/10	0.31	3/8	1/8	3/12
0.25	1/6	1/4	2/10	5/20	1/7	1/4	0.36	0.26	0.05	2/10	2/8	1/8	0.33	1/3	0.49	4/10	1/3	2/8
0.1	0.17	0.24	0.07	0.21	4/16	0.48	4/10	3/8	2/7	1/7	1/4	0.06	1/3	1/2	1/4	3/7	3/7	1/8
5/20	0.08	2/8	1/5	1/10	0.33	0.5	0.46	2/4	3/10	0.42	0.23	0.22	0.32	5/10	4/16	0.5	4/8	0.22
0.25	0.17	2/8	0.03	1/7	3/10	3/7	5/10	0.41	0.29	2/5	3/8	2/10	0.37	0.34	3/12	1/6	1/5	0.03
1/10	0.2	0.51	0.71	0.39	2/7	2/4	0.49	0.42	3/8	2/7	0.44	0.28	0.44	0.36	0.15	1/7	3/12	1/8
1/8	0.58	1/5	3/8	0.34	0.33	0.43	0.41	4/8	2/5	1/3	0.3	1/3	1/3	4/8	0.09	0.22	0.25	0.07
0.67	1/4	1/8	3/8	4/8	0.44	2/4	1/3	0.4	3/7	1/3	1/3	0.3	0.47	3/7	1/4	0.17	1/7	4/16
3/4	3/12	0.15	0.32	2/4	0.47	2/6	2/5	0.26	1/3	5/10	2/7	2/6	2/7	0.14	0.13	0.02	0.09	0.16
5/7	0.21	0.16	0.36	2/7	0.33	4/8	0.41	2/7	0.44	2/4	2/4	1/2	1/5	0.03	0.07	1/7	0.03	0.18
1/5	1/4	4/8	2/7	0.16	5/8	2/10	0.09	0.11	0.14	0.15	2/6	0.56	0.1	0.09	0.02	0.21	1/5	0.2
4/16	3/12	2/7	0.15	0.12	0.65	0.13	12/15	12/15	0.77	0.99	1/2	4/7	4/5	7/8	1/5	1/4	1/6	0.06
1/7	1/6	0.4	0.98	7/7	0.71	0.96	5/6	2/2	0.96	7/9	0.41	5/8	12/15	7/9	5/5	10/12	0.07	0.17
2/2	10/12	0.37	0.5	4/5	3/5	0.51	0.87	0.88	7/8	7/8	3/10	3/8	0.73	5/5	7/9	9/10	9/10	1/5
0.95	3/3	3/6	2/4	8/10	6/8	0.73	5/6	1	8/10	0.88	4/8	0.36	0.71	6/6	7/9	7/8	0.79	5/6

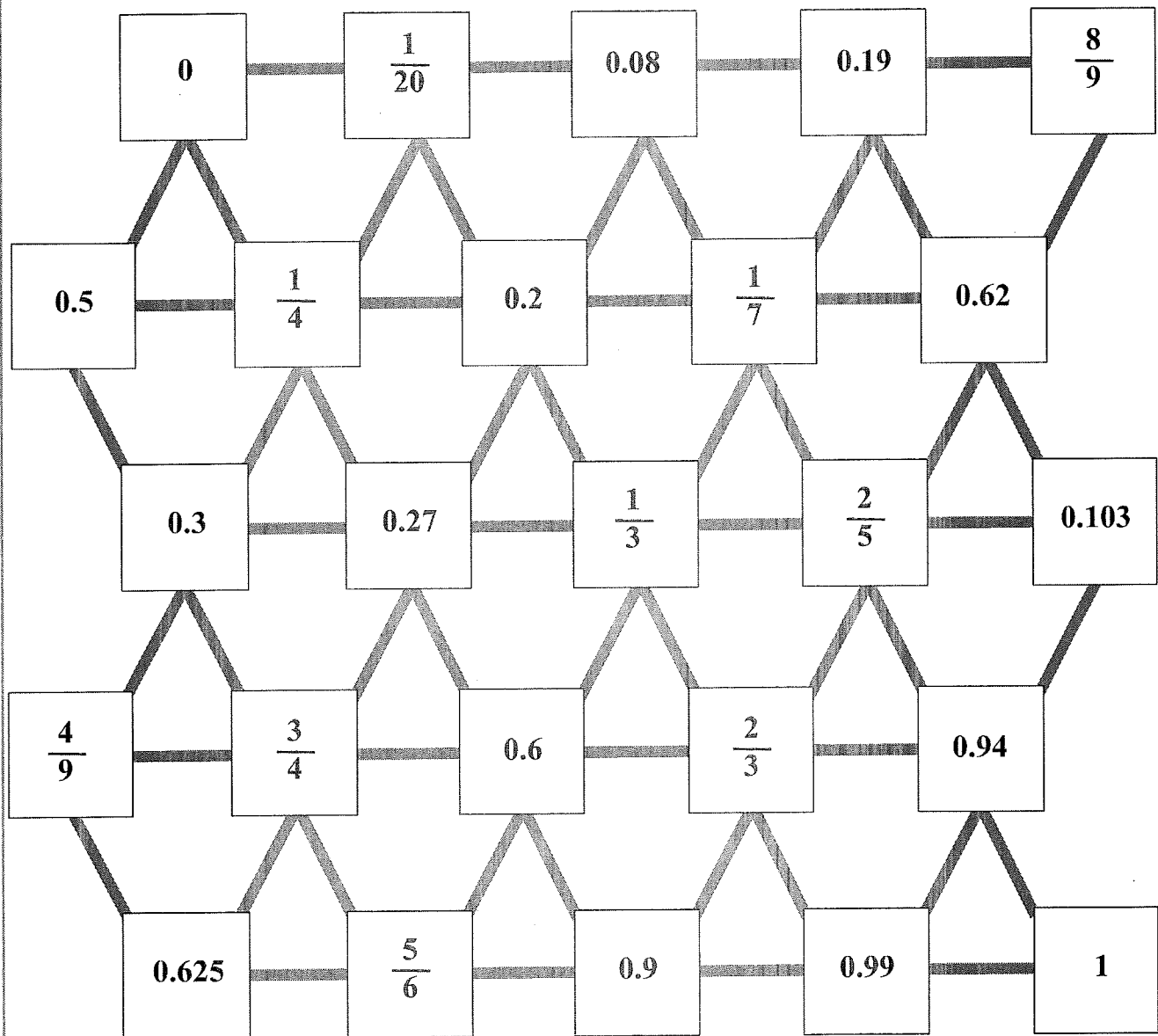
Key:

From 1% to 25%	Blue
From 26% to 50 %	Tan
From 51% to 75%	Brown
From 76% to 100%	Yellow

*Blank squares are white

Decimal Problems II

Find a path through the maze from zero to one. You must always move to a larger value. How many paths can you find? What is the longest path? The shortest path?



MAPPS Childcare grades 2 & 3

MAPPS Session 7

Developing Percent Concepts

Materials needed:

Fraction Books

Snacks

Crayons

Small soft ball (optional)

Fraction Fish directions

Deck of fraction cards

BLM 46 Worksheets

Color Tiles or Grid

Pencils

Practice Percents Sheets and directions

Smarties Candy

6:00 – 6:15	Set up the classroom. Place crayons on the tables.
6:15 – 6:30	As the students enter have them review session 6 concepts by finishing or adding to their fraction books. If the students are finished with their fraction books, guide a discussion about how their books look similar or different. Ask the students why they chose certain shapes to make fractions over other shapes. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, put the fraction books and crayons away (with the help of the students). Greet the

	<p>students and introduce yourself. Have the students introduce themselves and share one interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and when. Doing this creates a safe and comfortable learning environment.</p>
6:35 – 7:00	<p>Introduce the <u>Fraction Fish</u> game. Demonstrate how to play the game by modeling the strategy and math language. Once you believe the students understand how to play, allow them to start a game on their own. If possible, provide prizes for the winners.</p>
7:00 – 7:30	<p>Introduce the students to the activity <u>Practicing Percents</u>. Practicing Percents is an activity that involves using a colored candy such as Smarties. Demonstrate how to do the activity by modeling the strategy and using math language. Before passing out candy, pass out the directions and go through the worksheet together. Be sure the students understand the activity fully before handing the candy out. Remind the students that the candy will be used as a tool first, then they may eat it once the activity is done.</p>
7:30 – 7:50	<p>Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.</p>
7:50 – 8:20	<p>Have the students clean up their snack and put the brain break activities away. Transition the students to work on <u>BLM worksheet 46</u>. This worksheet consist of story problems. Have the students work alone for a few minutes then have them compare answers and help each other. When the students finish this worksheet, you can create or have the students create similar problems for the class to solve.</p>
8:20 – 8:30	<p>Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the</p>

	students home, remind them to practice fractions and talk to their families about fractions, decimals, and percents!
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HOW TO PLAY FRACTION FISH

Materials

Deck of Fraction Cards

Players: 2 or more

How to Play

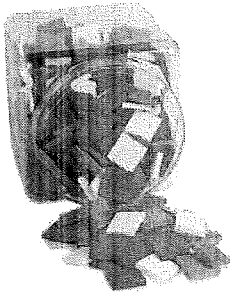
1. Deal out 7 fraction cards to each player. The remaining fraction cards are placed in a deck in the center of the table.
2. Play proceeds around the circle. The object is to get cards from other players by matching a fraction card in their hands with one in your hand. Cards match if they are equivalent fractions (stand for the same amount).
So, $\frac{2}{4}$ matches $\frac{1}{2}$, and $\frac{2}{3}$ matches $\frac{4}{6}$.
3. Each player in turn asks another player if he or she has an equivalent for a fraction, for example, $\frac{2}{4}$. If the second player has any fraction card worth the same amount, the first player gets that card and puts both cards in a “captured fish” pile. If the second player has more than one matching card, the first player gets all of them. If the second player has no matching cards, the first player has to “Fish!”—pick the top card in the face-down pile and add it to his or her hand. If this card results in a match, the player can, on the next turn, put the matching cards in the “captured fish” pile. In addition, the player may ask another player for a different match.
4. The game ends when a player has no more cards or when there are no more matches. In either case, the winner is the person with the most cards in his or her “captured fish” pile.

FRACTION CARDS FOR PLAYING FRACTION FISH

Use the fractions below to play Fraction Fish with someone at home. Cut the squares out and use them as cards.

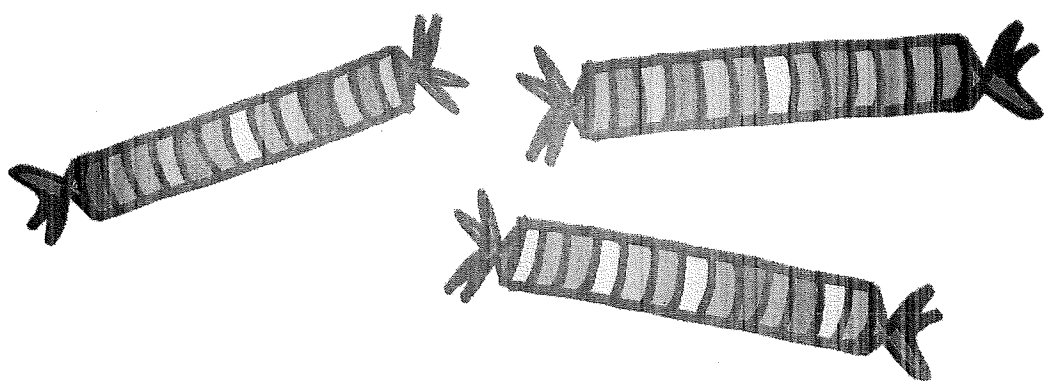
$\frac{2}{3}$	$\frac{1}{6}$	$\frac{4}{2}$	$\frac{6}{6}$	$\frac{0}{2}$
$\frac{1}{4}$	$\frac{3}{6}$	$\frac{9}{6}$	$\frac{1}{8}$	$\frac{2}{4}$
1	$1\frac{1}{2}$	$\frac{4}{6}$	$\frac{6}{8}$	$\frac{0}{4}$
$\frac{4}{8}$	$\frac{8}{8}$	$\frac{8}{4}$	$\frac{6}{4}$	$\frac{4}{4}$
$\frac{6}{12}$	$\frac{0}{6}$	$\frac{1}{2}$	2	$\frac{3}{4}$

Percent Problems



Solve using color tiles, a grid or picture.

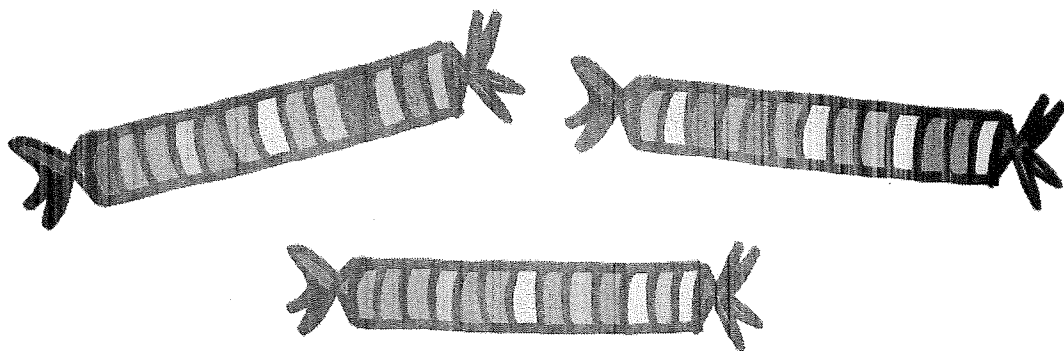
- 1) There are 20 participants in Mr. Ruiz's class. Three of these participants are left-handed. What percent of his participants are left-handed?
- 2) In Mrs. Brown's class 80% of the participants have a younger brother or sister. Mrs. Brown has 25 participants in her class. How many participants in her class have a younger brother or sister?
- 3) There are 18 participants in Ms. Vega's class who have perfect attendance. This is 60% of her class. How many participants are in Ms. Vega's class?



Practicing Percents

Jennifer Reis

of The Upper Elementary Classroom



*** TEACHER Tips ***

☼ Pass out the multi-colored candy that you plan to use with your students. Smarties are cheap and work great! :)

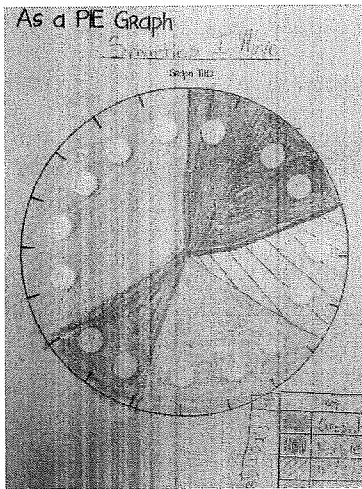
☼ Each student counts how many candies he or she has and writes it in the top oval of his/her paper.

☼ Students list colors. Each student counts each color, and works through the columns to figure the percent he or she has of each color. (If possible, allow students to use calculators. This helps students focus on the PROCESS of finding percentages.)

☼ Have students graph their results and discuss. (A Pie Graph is the easiest to visualize 100% of the candies. Have students lay their candies on each section to make the correlation between the size of the slice and amount of each color.)

To figure out the percentage:

$$\frac{\# \text{ of the color}}{\text{Total \# of candies}} \times 100 = \% \text{ of each color}$$



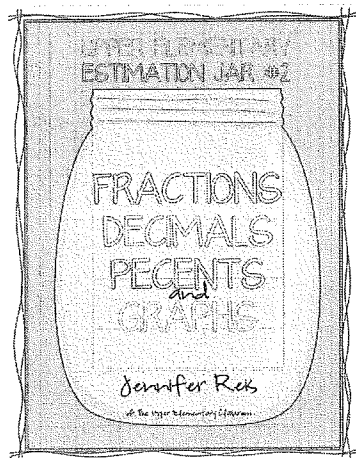
★ Fill out to find out the package

color	how many
Orange	1
Yellow	2
Green	3
Blue	4
Pink	5
Brown	6

Have students lay their candies down to make a bar graph. (A bar graph makes it easy to see which color had the most candies.)

Smarter Balanced Claim #4 Modeling and Data Analysis
 "Students can analyze complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems."

FOR MORE percentage practice, check out the Fraction, Decimal, Percent, and Graphing Estimation Jar in my store!



FOR MORE math activities, visit my store:

<http://www.teacherspayteachers.com/Store/The-Upper-Elementary-Classroom>

Be sure to FOLLOW me for more FREEBIES too!

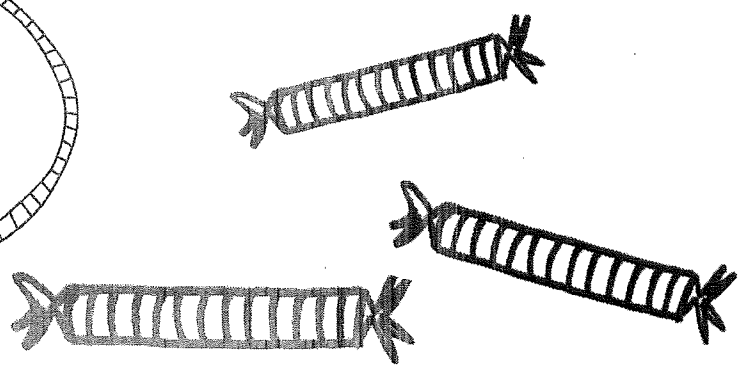
Have a great school year!

-Jen

Name: _____

Fractions, Decimals, & Percents!

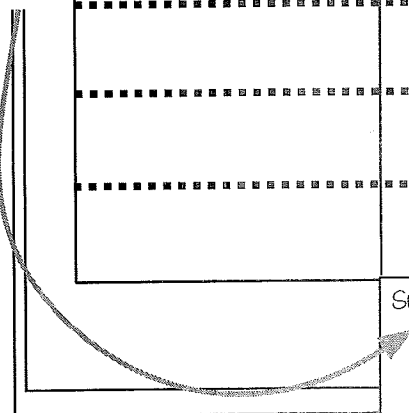
How many total candies are in your package?



★ Fill in to find the percentage of each color in your package.

COLOR <small>(Example is based on 15 candies in the package)</small>	how MANY	fraction <small>$\frac{\text{\#color}}{\text{\# of total candies}}$</small>	decimal <small>(NUMERATOR divided by DENOMINATOR)</small>	percent <small>$\times 100 =$</small>
PINK	5	5/15	0.33	33%
SUM of All Colors:		SUM of All Fractions:	SUM of All Decimals:	SUM of All Percents:
			1.00	100%

Do these match?
Why should they?



MAPPS Childcare grades 2 & 3

MAPPS Session 8

Connecting Fractions, Decimals, and Percents

Materials needed:

Snacks

Percent Worksheets

Small soft ball (optional)

BLM 49 Worksheets

Cuisenaire Rods

Pencils

Real World Math activity directions

Store advertising flyers

6:00 – 6:15	Set up the classroom. Place percent worksheets and pencils on tables.
6:15 – 6:30	As the students enter have them review session 7 concepts by completing the percent worksheets. Encourage math language and ask some review questions.
6:30 – 6:35	Once all the students have arrived, put the percent worksheets away (with the help of the students). Greet the students and introduce yourself. Have the students introduce themselves and share one interesting thing about them. Then, give the students a preview of what the night's plans look like. If you are able to write the schedule out for them, please do. Students like to know what is next and

	when. Doing this creates a safe and comfortable learning environment.
6:35 – 7:00	Introduce the <u>BLM Worksheet 49</u> to the students. Work through the questions as a group by using Cuisenaire rods. Use and encourage math language.
7:00 – 7:30	Introduce the <u>Real World Math</u> activity to the students. Pass out flyers that have products and prices in them. Have the students spend about 5 minutes or so selecting products they would want. Once the students have made their selections have the students list the prices, add the prices, and simulate how they would purchase the items. When the activity is done, reflect about what they have learned.
7:30 – 7:50	Allow the students a bathroom break followed by a snack. In addition, introduce a brain break activity, such as a fraction coloring page or a puzzle.
7:50 – 8:00	Help the students clean up the area. Gather any papers or folders they may be taking with them. Initiate a conversation about the activities they did. This will create a class discussion resulting in a reflection. Before you send the students home, remind them to practice fractions and talk to their families about fractions, decimals, and percents!
8:00 – 8:30	Transition the students to the area where the parents and older grade levels are located. The graduation ceremony will begin.

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Additional Brain Break Activities:

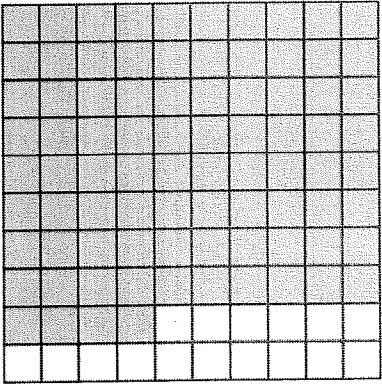
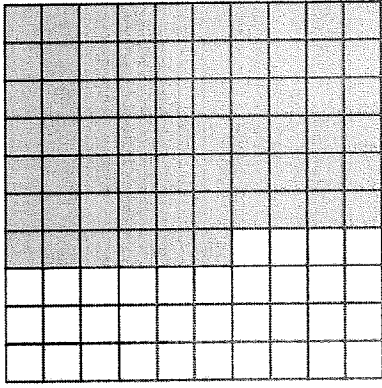
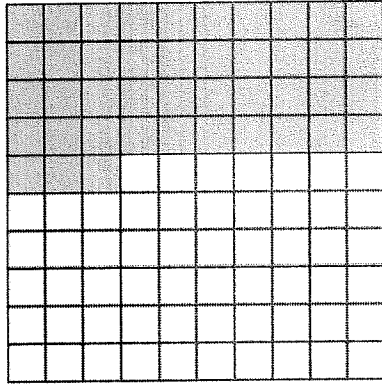
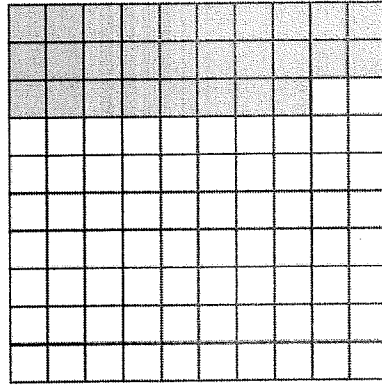
Last Man Standing Game

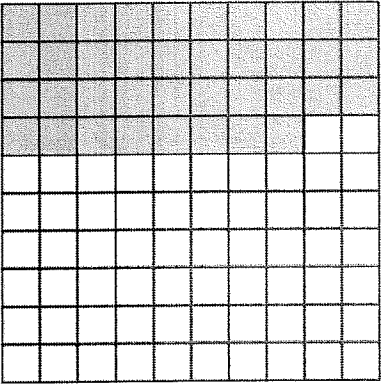
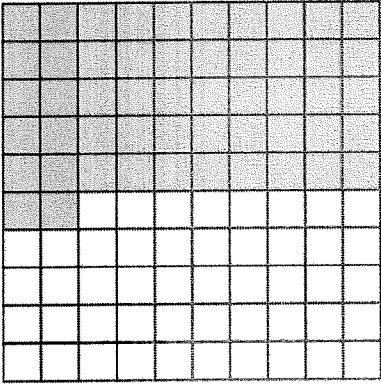
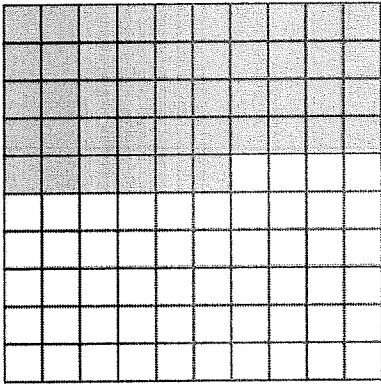
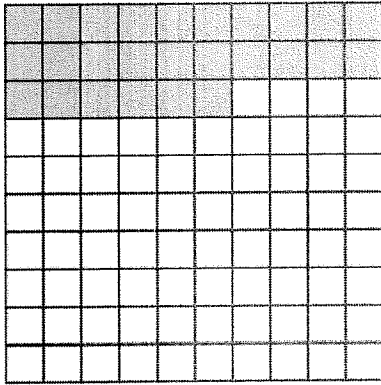
Real World Math

What You Do:

1. Grab your weekly supermarket ad and look through the advertised specials together with your child. Ask her to circle 5-10 items she likes and then use these sale prices for practice with addition, subtraction, division and multiplication problems. (This activity can easily be substituted with restaurant take-out menus, clothes, game catalogs, or book order magazines.)
2. What's the total cost? Ask your child to line up all the decimal points in order to correctly compute the total cost.
3. How much change? As with addition, line up the decimal points before solving subtraction problems. Then have your child find the amount of change that you would receive from a \$100 bill if you bought one item, two items or all items, depending on the price of the items.
4. How much for five? Your child should solve multiplication with decimal problems in the same manner as he would normally solve multiplication problems, but they must remember to move the decimal point over in the answer as many places as are in the problem. Have him find the total cost of purchasing 5 of the most expensive item.
5. How much if we split it? Division with decimals simply requires your child to include a decimal point in his answer directly above the decimal point in the dividend (the number being divided). Then have your child calculate how much each person should pay if 2 people split the total cost of the groceries, rounding their answer to the nearest cent.

While this activity offers lots of fun and challenge even when it's done occasionally, it's even better if you make it a regular feature of your weekly shopping. Do it often, and your third grader will thrive in math--but even better, will be prepared to be a savvy consumer for life.

	Fraction	Decimal	Percent
	$\frac{84}{100}$	0.84	84%
			
			
			

	Fraction	Decimal	Percent
	$\frac{38}{100}$	0.38	38%
			
			
			

Write fraction as percent.

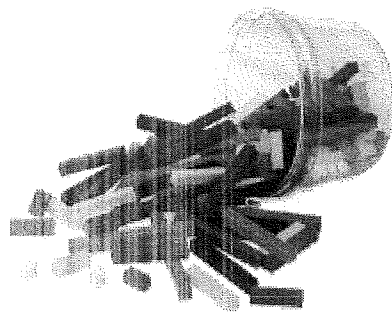
$\frac{23}{100}$	
$\frac{35}{100}$	
$\frac{67}{100}$	
$\frac{78}{100}$	
$\frac{92}{100}$	
$\frac{51}{100}$	
$\frac{65}{100}$	
$\frac{79}{100}$	
$\frac{14}{100}$	
$\frac{27}{100}$	
$\frac{31}{100}$	

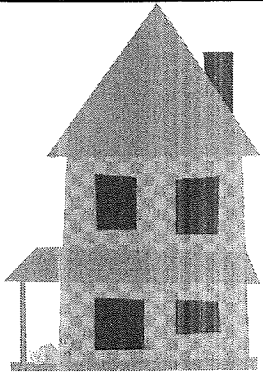
$\frac{34}{100}$	
$\frac{29}{100}$	
$\frac{42}{100}$	
$\frac{57}{100}$	
$\frac{83}{100}$	
$\frac{21}{100}$	
$\frac{39}{100}$	
$\frac{52}{100}$	
$\frac{61}{100}$	
$\frac{72}{100}$	
$\frac{87}{100}$	

Cuisenaire® Rod Puzzles

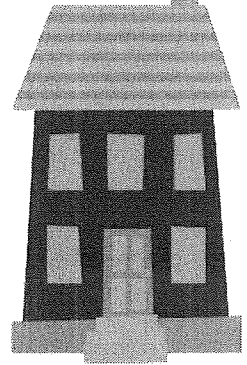
Fill in each blank with a color or a percent.

1. If orange = 100%, then red = _____%.
2. If orange = 100%, then _____ = 70%.
3. If brown = 100%, then yellow = _____%.
4. If _____ = 100%, then white = 25%.
5. If _____ = 100%, then purple = 90%.
6. If purple = 100%, then dark green = _____%.
7. If dark green = 50%, then light green = _____%.
8. If blue = 90%, then _____ = 20%.
9. If _____ = 125%, then red = 50 %.
10. If orange = 10%, then white = _____%.
11. If black = $\frac{7}{8}$, then red = _____%.
12. If purple = $\frac{1}{3}$, then _____ = 50%.
13. If red = 0.4, then _____ = 100%.
14. If _____ = 0.1, then orange = 50%.



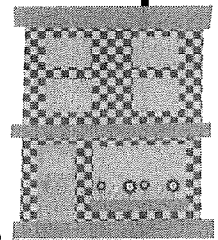


Fraction Avenue



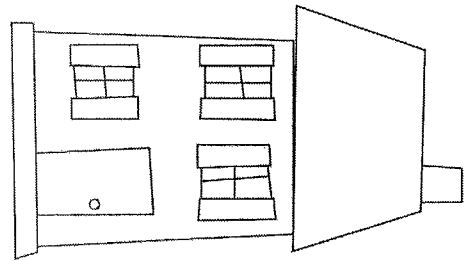
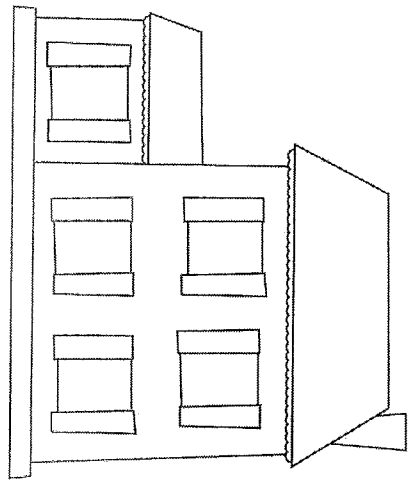
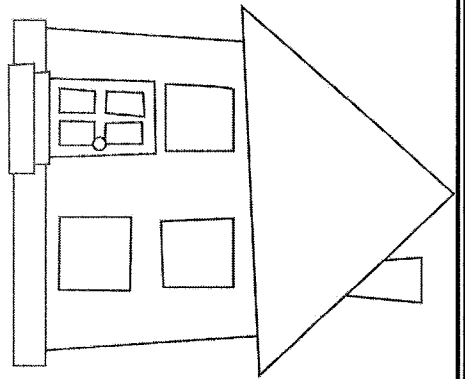
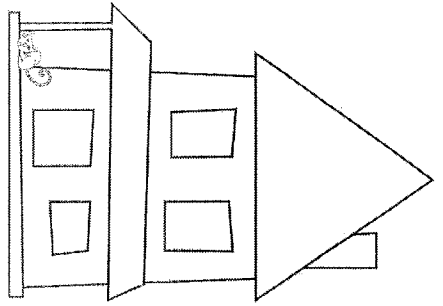
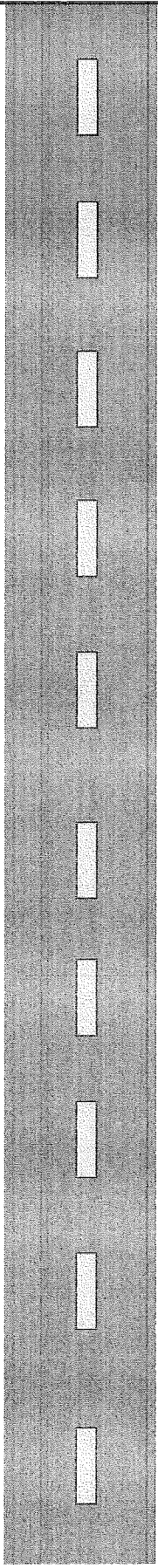
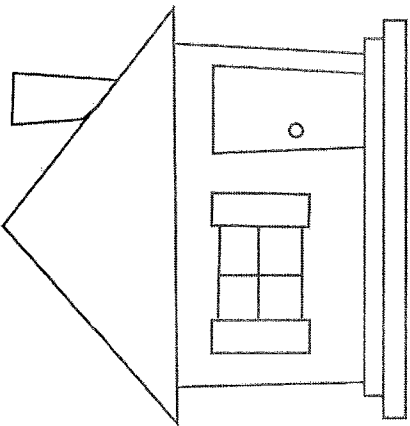
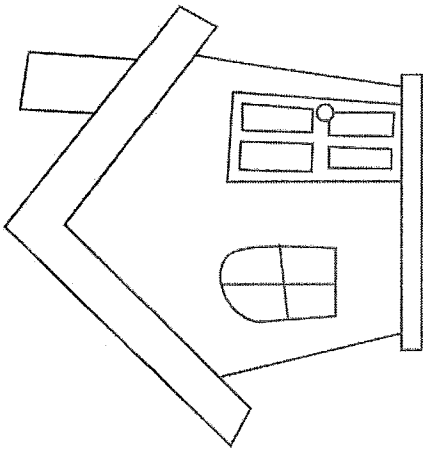
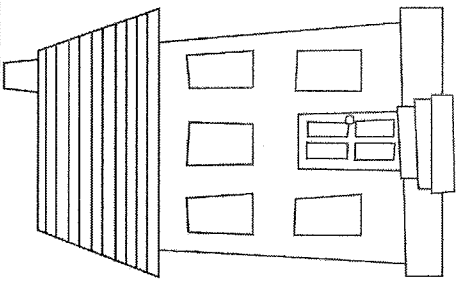
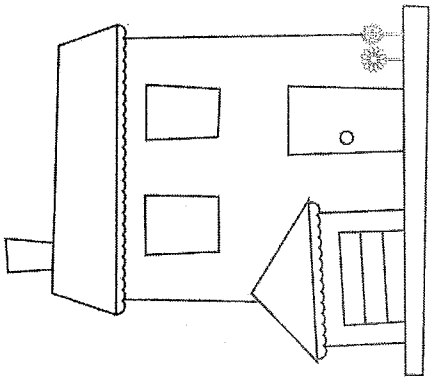
Congratulations! You have just moved to Fraction Avenue, which is a street full of fractions. Use the following information to complete the map of your new street.

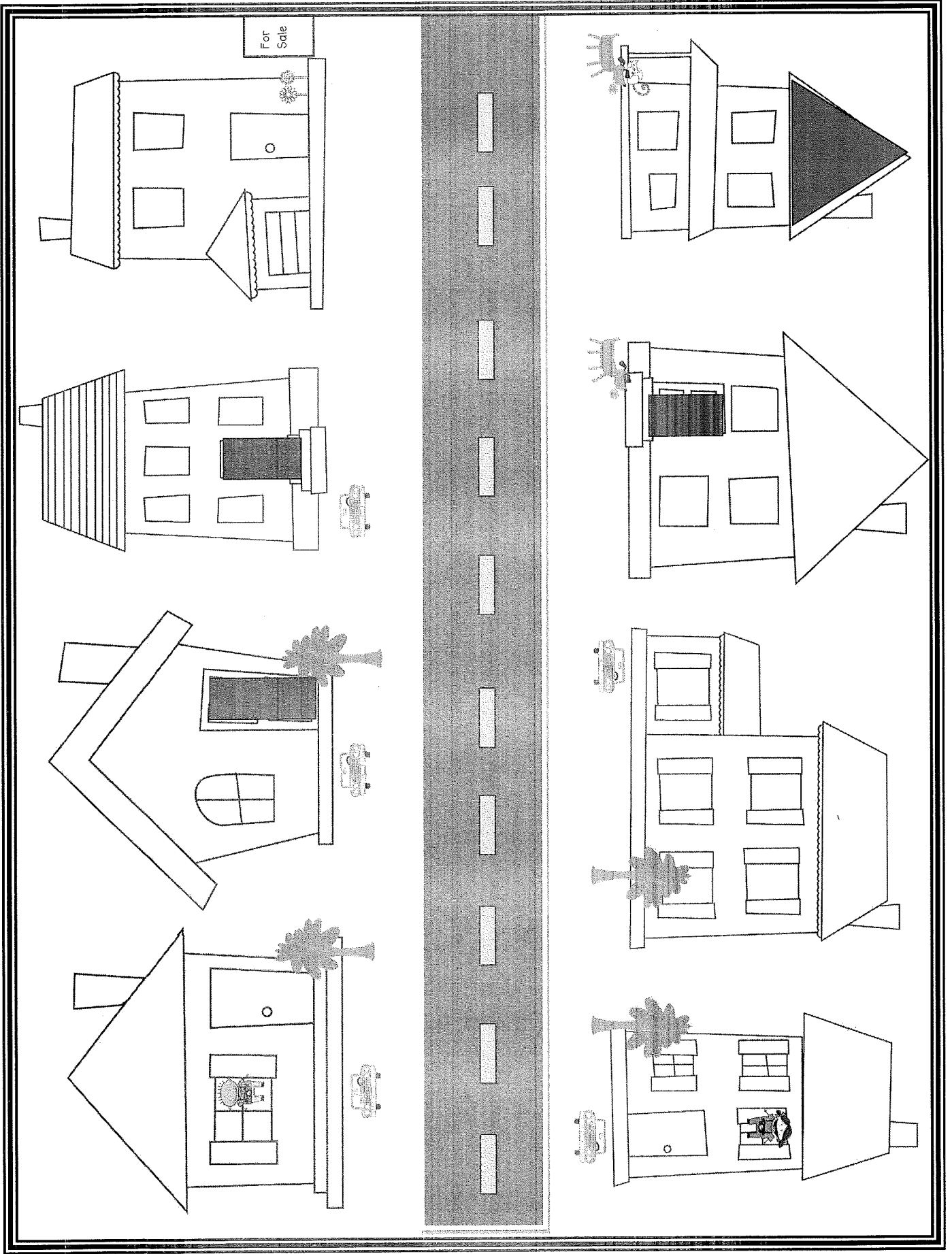
- $\frac{1}{8}$ of the houses are for sale
- There are trees in the front yard of $\frac{1}{2}$ of the houses
- $\frac{2}{8}$ of the homes have dogs outside.
- You can see a person in $\frac{1}{4}$ of the windows
- $\frac{3}{8}$ of the homes have a red door
- There are cars parked outside of $\frac{3}{4}$ of the houses
- $\frac{1}{8}$ of the houses have a blue roof



Bonus

Write your own fraction problems on the back and add those details to your neighborhood too!

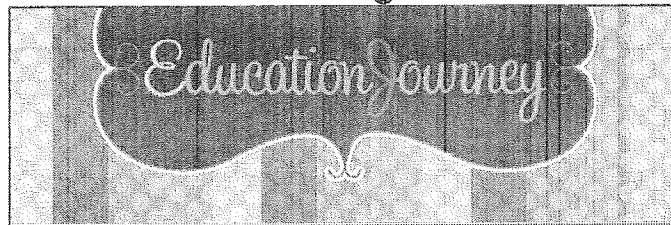




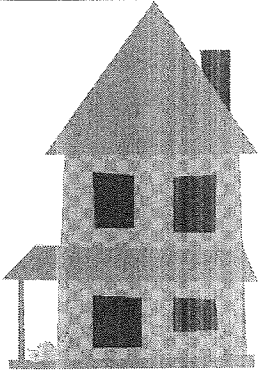
I hope that you find the Fractions Avenue useful. If you like this, you may want to check out the link to my entire fractions collection, where there are additional activities and worksheets to teach your students about fractions.

You may also want to visit my blog (ashleigh-educationjourney.com) to see more instructional ideas and pictures of many of my products. I also use the pages to share information about upcoming sales, new products, and of course freebies, so be sure to follow me!

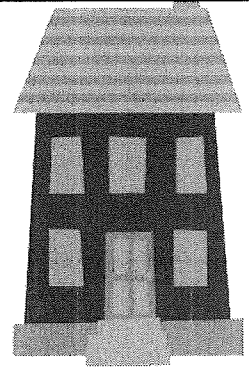
Ashleigh



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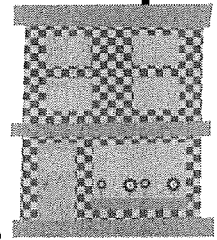


Fraction Avenue



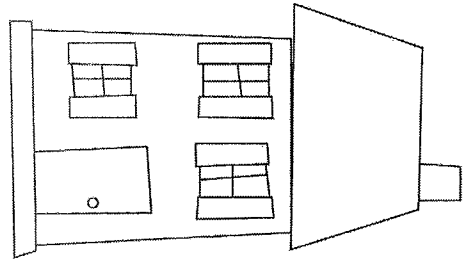
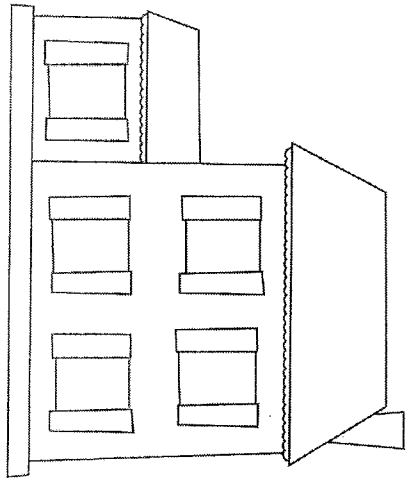
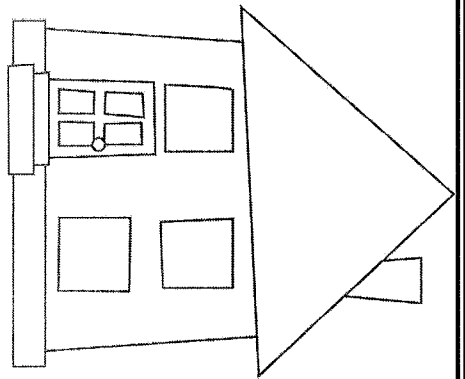
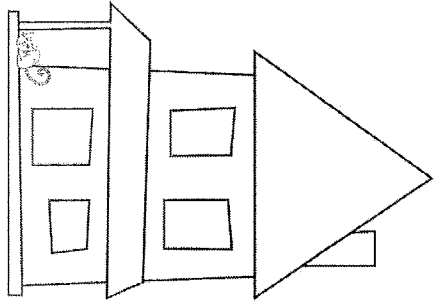
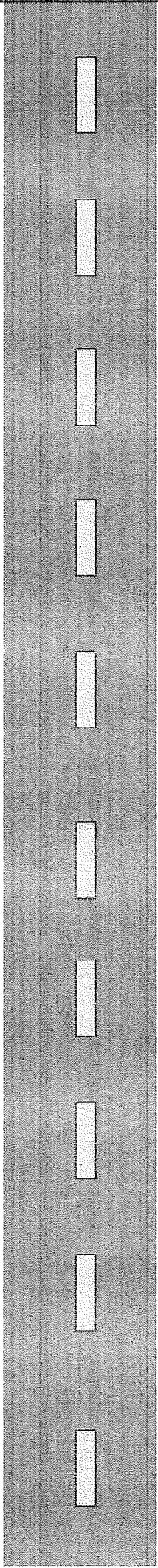
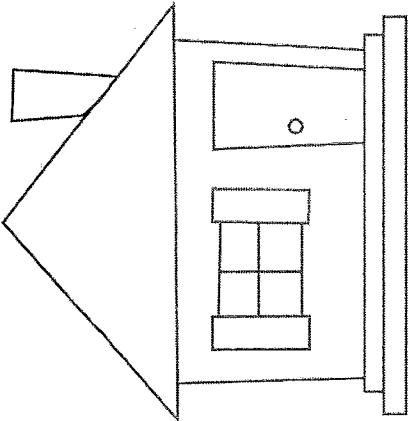
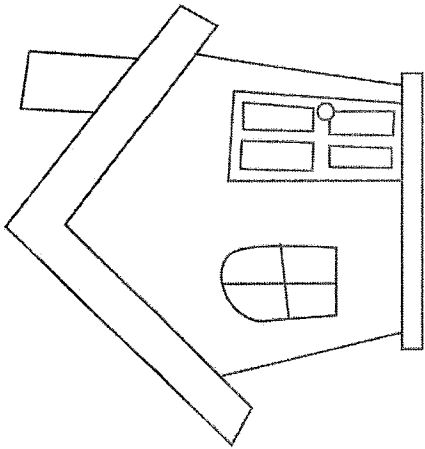
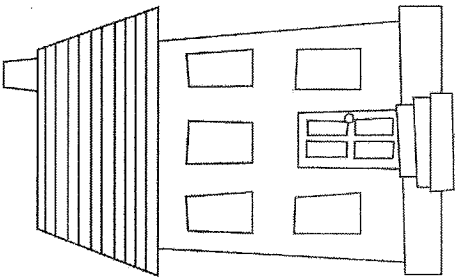
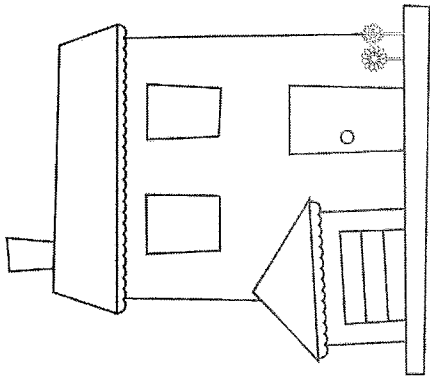
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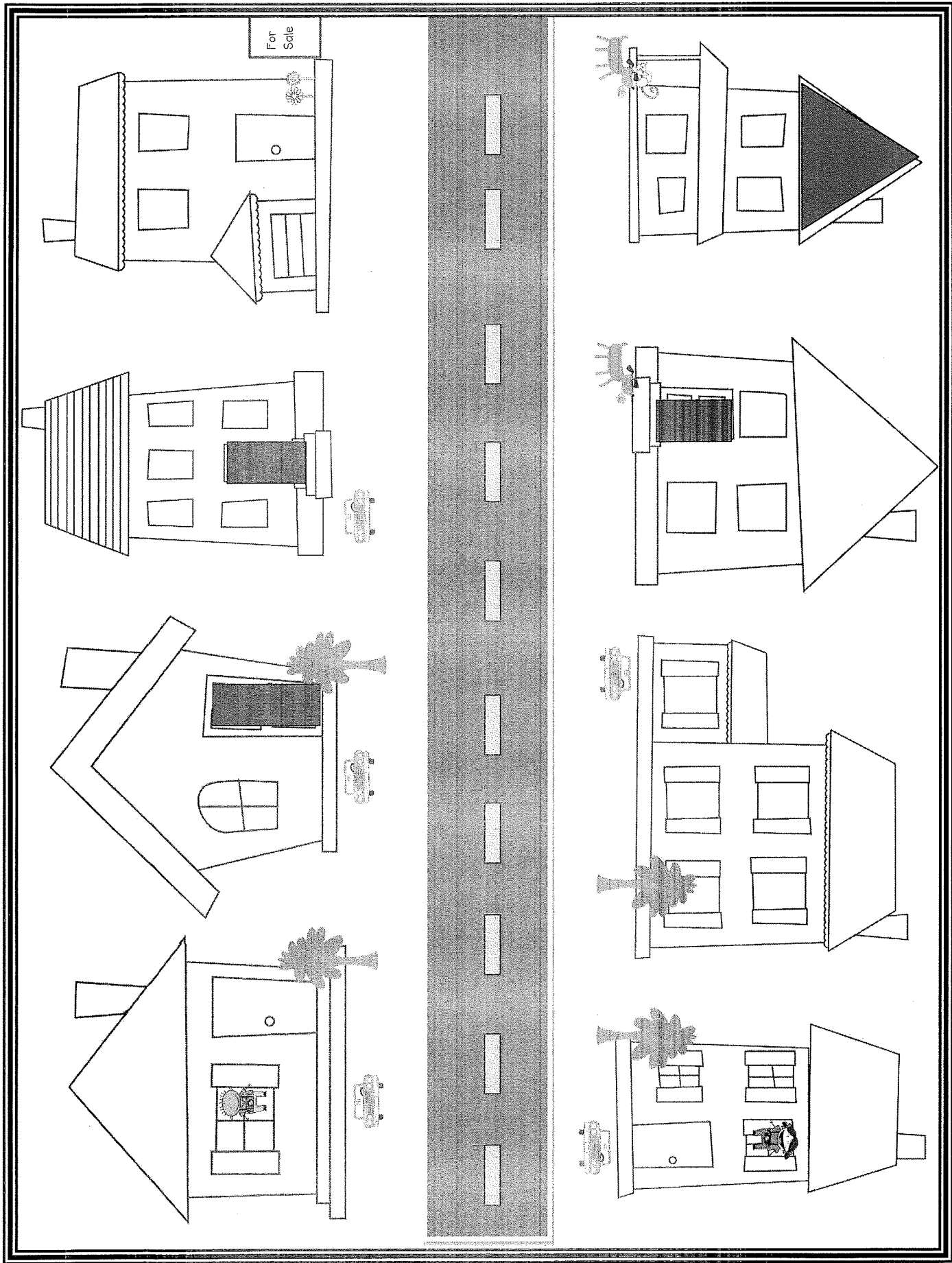
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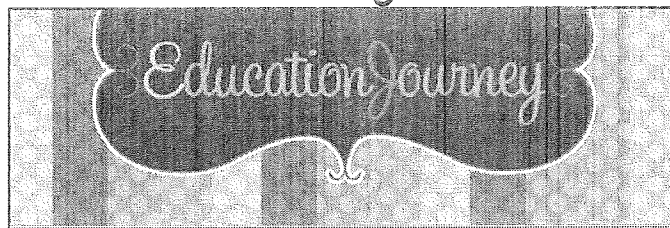


For Sale

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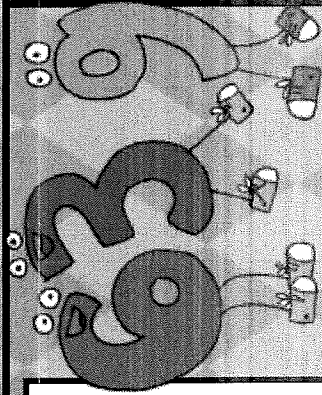
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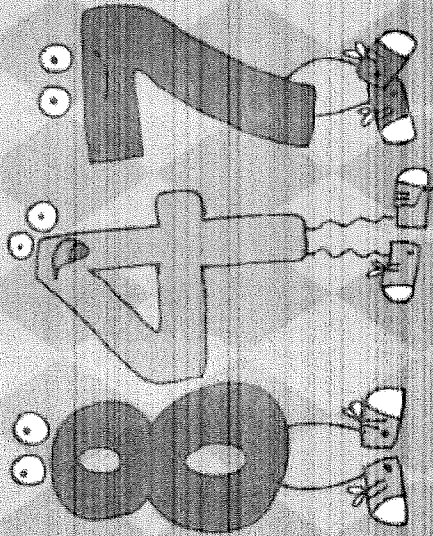


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Let's
Stand!



Listen to
the clues.
Sit down if
your number
doesn't
match the
clues!



Pitner's Potpourri pitnerm.blogspot.com Graphics by KPMDoodles.com Graphics by KevinandAmanda.com

Second Grade Common Core Math Standards

NBT.2.1 Understand Place Value. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:

- a. 100 can be thought of as a bundle of ten tens – called a "hundred."
- b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

NBT.2.2 Understand Place Value. Count within 1000; skip-count by 5s, 10s, and 100s.

NBT.2.3 Understand Place Value. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Teachers: Adapt the numbers to fit your skills. Call out clues. For instance: say, "My number has a four in the tens place." All students whose number doesn't fit this clue will sit down.

452

769

338

761

902

119

832

452

117

831

467

312

639

649

441

782

506

210

200

503

402

210

743

789

477

672

111