Fractions in Grade 1

Understanding of fractions and fractional fluency has been a major concern and hindrance to our students' conceptual knowledge of fractions and the relationships among them. This unit will address the first grade TEKS while developing students' understanding of fractions and the representations for them. The teacher notes are extremely beneficial for teachers, so please take the opportunity to read the teacher notes prior to instruction.

Many of the lessons written go deeper than 1st grade students thinking, complete them as appropriate for your group of students. Please read student practice pages aloud.

The lessons included have multiple practice pages. Please choose the student practice pages thoughtfully, you should only need to complete 1-2 practice pages per lesson.

On the Elementary Math Website-First Grade page you will also find alternative student work pages for your use, with less writing and more space for work.

First Grade Fractions Unit

Fraction Lesson 1 What is a Half? TEK 1.2AB

Math Focus:

- Understanding that $\frac{1}{2}$ is one of two equal parts.
- Finding one half of a set.
- Showing one half of an object.

Materials:

- Chart paper
- Student page: Half of Objects/ Half of sets
- Colors

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Introduction

Explain to students that they are starting a new unit on fractions. Ask students if they know what fractions are and do they know any fractions.

Ask students what they know about one half. Write student's ideas on the chart paper titled "What We Know about One Half"? Tell students that one half is an example of fractions. Fractions are used when we divide something into **equal parts**. Write $\frac{1}{2}$ on the board and explain that this is how one half is written. It also means one out of two equal parts.

Activity: Half of Objects/Half of Sets

Linda and Ebony are twins and they share everything. Their mother gave them stickers to share. How many can each girl get? Teacher will use stickers to demonstrate half of a set.

Show 6 stickers and let children brainstorm how to make 2 equal groups. How many could Linda get and how many could Ebony get? Do several examples of half a set.

Give students 10 cubes each. Have students explore making two equal groups? Students share their work.

Workshop: Complete Linda and Ebony practice sheets. (students do not have to do all practice sheets).

Discussion: How did students divide the sandwich? What is the shape of their sandwich before dividing it? And what is the shape of the two pieces after dividing it? Have students explain how they found the number of stickers for each girl.

Linda and Ebony Share Everything (page 1 of 5)

Linda and Ebony are twins who share everything equally.

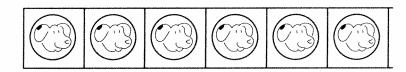
1. Their mother gave Linda and Ebony a sandwich.



Draw a line to show how much Linda got and how much Ebony got.

Color Linda's half red. Color Ebony's half blue.

2. Their mother brought Linda and Ebony a strip of stickers.



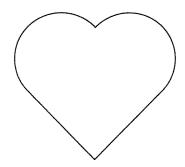
Color Linda's half red. Color Ebony's half blue.

How many stickers did Linda get? _____

How many stickers did Ebony get? _____

Linda and Ebony Share Everything (page 2 of 5)

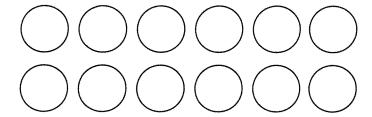
3. Their grandmother gave Linda and Ebony a heart filled with treats.



Draw a line to show how much Linda got and how much Ebony got.

Color Linda's half red. Color Ebony's half blue.

Their older brother gave them 12 marbles.



Color Linda's half red. Color Ebony's half blue.

How many marbles did Linda get? _____

How many marbles did Ebony get? _____

Parts of a Whole, Parts of a Group

Linda and Ebony Share Everything (page 3 of 5)

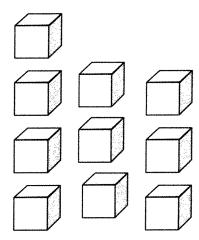
5. Their brother brought them a ball of clay.



Draw a line to show how much Linda got and how much Ebony got.

Color Linda's half red. Color Ebony's half blue.

6. Their friend gave Linda and Ebony 10 blocks.



Color Linda's half red. Color Ebony's half blue.

How many blocks did Linda get? _____

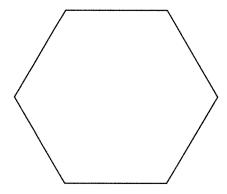
How many blocks did Ebony get? _____

Session 1.1

Parts of a Whole, Parts of a Group

Linda and Ebony Share Everything (page 4 of 5)

7. Their grandfather brought them a hexagon filled with treats.



Draw a line to show how much Linda got and how much Ebony got.

Color Linda's half red. Color Ebony's half blue.

8. Their friend gave Linda and Ebony 6 stars.



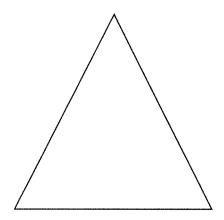
Color Linda's half red. Color Ebony's half blue.

How many stars did Linda get? _____

How many stars did Ebony get? _____

Linda and Ebony Share Everything (page 5 of 5)

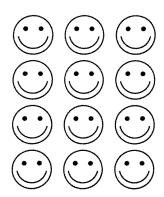
Their uncle brought them a triangle filled with treats.



Draw a line to show how much Linda got and how much Ebony got.

Color Linda's half red. Color Ebony's half blue.

10. Their aunt gave Linda and Ebony 12 happy faces.



Color Linda's half red. Color Ebony's half blue.

How many happy faces did Linda get? _____

How many happy faces did Ebony get? _____

Halves of Blocks and Half of Balloon Bunches Lesson 2 TEK 1.2AB

Math Focus

- Determine whether a block is half of another block.
- Solving problems about finding halves of quantities in different contexts.

In this lesson students work with halves and not halves of two different kinds of objects: three-dimensional objects (Geoblocks) and sets (bunch of balloons).

Introduction:

Geoblocks: Show the students the rectangular prism that measures 4 cm \times 8 cm \times 4 cm. Ask if there a block that is $\frac{1}{2}$ of this block? Let a few students try to find such a block, or hold up a 4 cm cube and ask: is this block $\frac{1}{2}$ of this block? Can you prove it? Could there be a different block that is also $\frac{1}{2}$ of this block? Have a student show that two cubes can be put together to make the prism. Students did a similar activity in Kindergarten.

Introduce Bunches of Balloons to students: On Saturday, Linda and Ebony will have a birthday party. Some of their friends and relatives send them birthday balloons early. On Monday, Tuesday, and Wednesday, Linda and Kim share the balloons that come. For each day you need to figure out whether Linda and Ebony can each get half of the balloons.

Let's do Monday together. On Monday, 6 balloons arrive. I want you to think about whether each girl can get half. Use counters and pictures to show if each girl gets half.

Math Workshop: Students work on two activities to explore halves.

Halves of Geoblocks: Students choose a block and find blocks that are one half of the block. They prove this by putting two identical blocks together and placing them besides the Geoblocks that is twice as large.

- Can students find two blocks that, when brought together, make another block?
- Can students correctly identify which of the smaller blocks are half of the larger block and which are not?
- Do students find more than one block that is half of another block?

Bunches of Balloons: Students solve Bunches of Balloon problems. Students can use cubes or draw pictures to represent the balloons. Students find one half of a set of objects as they decide whether a given number of balloons can be divided in half.

Name:	Date:
Bunches o	f Balloons
1. On Monday, 10 balloons arr	ive at the house.
Can each girl get the same	number of balloons?
How many does Linda get? _	
How many does Ebony get?	

Show your work below.

Name:	Date:
2. On Tuesday	, 12 balloons arrive at the house.
Can each gir	l get the same number of balloons?
How many do	oes Linda get?
How many do	oes Ebony get?
Show your w	ork below.

Nam	e: Date:
3. Oı	n Wednesday, 14 balloons arrive at the house.
Cai	n each girl get the same number of balloons?
Но	w many does Linda get?
Но	w many does Ebony get?
Sho	ow your work below.

Additional Practice Pages

Bunches of Balloons (page 1 of 2)

On Saturday, Linda and Ebony will have a birthday. Some of their friends and relatives send them birthday balloons early.

On Monday, 6 balloons come.

Can each girl get the same number

of balloons?

How many does Linda get? _____

How many does Ebony get? _____

2. On Tuesday, 8 balloons come.

Can each girl get the same number

of balloons?

How many does Linda get? _____

How many does Ebony get? _____

3. On Wednesday, 10 balloons come.

Can each girl get the same number

of balloons?

How many does Linda get? _____

How many does Ebony get? _____

Bunches of Balloons (page 2 of 2)

On Thursday, 4 balloons come.

Can each girl get the same number of balloons? ______

How many does Linda get? ______

How many does Ebony get? ______

5. On Friday, 2 balloons come.

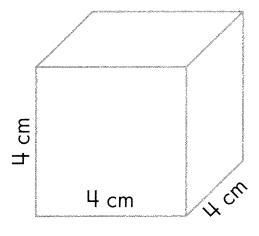
Can each girl get the same number of balloons? ______

How many does Linda get? ______

How many does Ebony get? ______

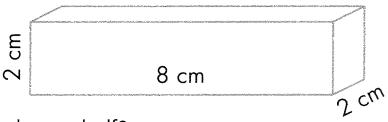
Build the Geoblock (page 1 of 2)

1. Put Geoblocks together to build this block.



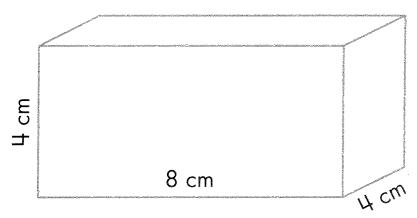
Is each part half?

2. Put Geoblocks together to build this block.



Is each part half?

3. Put Geoblocks together to build this block.



Is each part half?



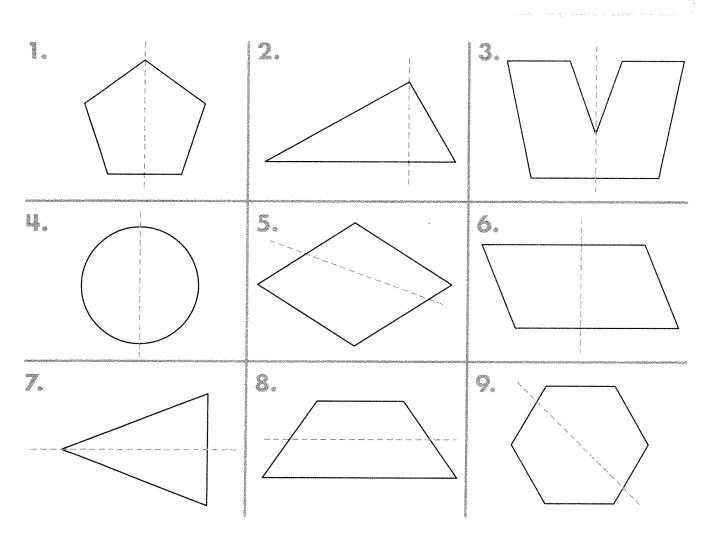
Halves and Not Halves

Color the shape if the line shows halves.

NOTE Students determine which shapes are divided into halves by the given line.



SAL 84, 86



Ongoing Review

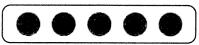
10. Which equation describes the groups of dots?



$$5 + 5 = 10$$
 (C) $5 + 6 = 11$

$$2 + 5 = 7$$

$$2 + 5 = 7$$
 (D) $4 + 4 = 8$







Halves of Blocks, Balloons, and Rectangles Lesson 3 TEK 1.2AB

Math Focus:

Halves and Not Halves

Materials:

- Student pages halves and not halves of a rectangle
- Pieces of a rectangle (run on colored paper)
- Glue
- Chart paper
- Pennies
- Solving Pennies Problems

Introduction:

Halves and not Halves: Remind students of the activity when Linda and Ebony shared a sandwich. We have seen there are different ways to divide a rectangle. Think back to when Linda and Ebony shared a sandwich and needed to cut it in half. Draw a rectangle on a chart and ask the class what shape the sandwich was.

Workshop:

• Pieces of Rectangles: Shapes A-F

In workshop today, you will look at different parts of a rectangle and decide whether each part of rectangle is half or is not half. Show students the cut out pieces. Take piece A and place it on the sheet labeled Halves and Not Halves of Rectangles according to the label. Draw a line to mark off piece A, dividing the rectangle into two parts. Label piece A. Is piece A half of the rectangle? Which part is bigger or are they the same? Students glue cutout pieces from Pieces of rectangles sheet on to the halves and not halves sheet and determine whether each piece is $\frac{1}{2}$ of the rectangle.

• Sharing Pennies

Read the situation below to the students.

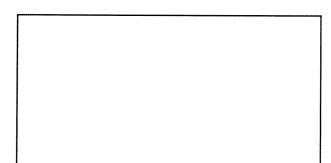
Linda and Ebony placed all the pennies they saved in a jar. Sometimes they empty the jar, and count the pennies, and figure out how to share them equally. Use pennies to help solve the problems *Sharing Pennies* and determine if the girls were able to share the pennies equally.

Parts of a Whole, Parts of a Group

Halves and Not Halves of Rectangles

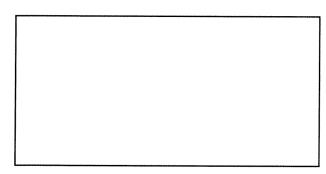
(page 1 of 2)

Use Piece A here.



Is Piece A $\frac{1}{2}$ of this rectangle?

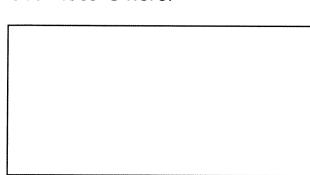
Use Piece B here.



Is Piece B $\frac{1}{2}$ of this rectangle?

Which part is bigger, or are the 2 parts the same?

Use Piece C here.



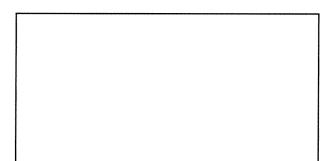
Is Piece C $\frac{1}{2}$ of this rectangle?

Parts of a Whole, Parts of a Group

Halves and Not Halves of Rectangles

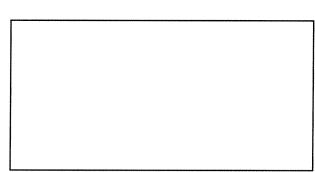
(page 2 of 2)

Use Piece D here.



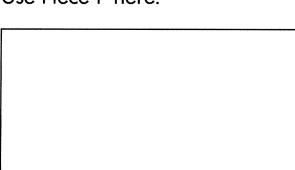
Is Piece D $\frac{1}{2}$ of this rectangle?

Use Piece E here.



Is Piece E $\frac{1}{2}$ of this rectangle?

Use Piece F here.

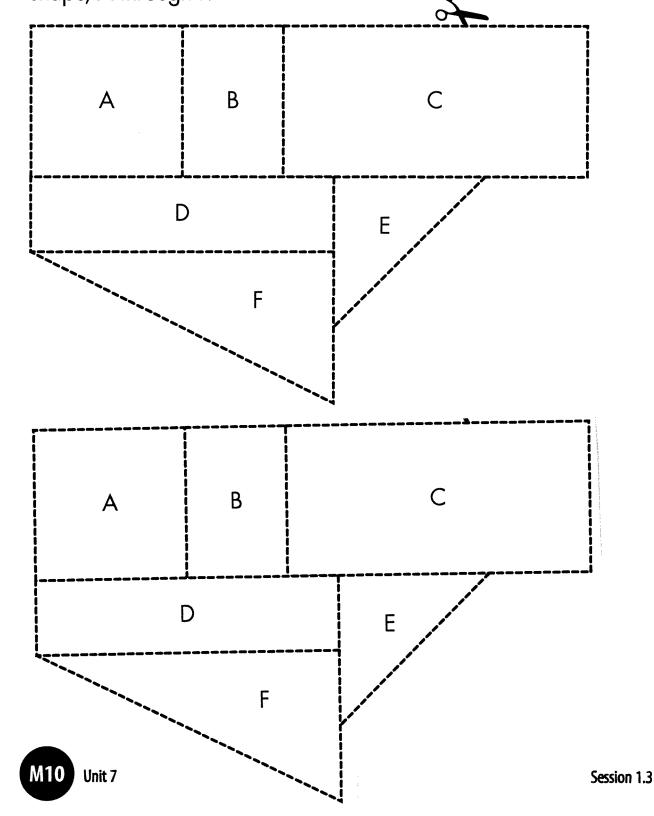


Is Piece F $\frac{1}{2}$ of this rectangle?

Pieces of Rectangles: Shapes A-F

Date

Copy onto cardstock, and cut out six sets of each shape, A through F.



Sharing Pennies (page 1 of 2)

Linda and Ebony place all of the pennies they save in a jar. Sometimes they empty the jar, count out the pennies, and figure out how to share them equally. Then they put the pennies back.

On Monday, the girls counted 8 pennies in their jar.

Can each girl get the same number of pennies? _____

How many does Linda get? _____

How many does Ebony get? _____

2. On Tuesday, the girls counted 10 pennies in their jar.

Can each girl get the same number of pennies?

How many does Linda get? _____

How many does Ebony get? _____

3. On Wednesday, the girls counted 12 pennies in their jar.

Can each girl get the same number of pennies?

How many does Linda get? _____

How many does Ebony get? _____

Sharing Pennies (page 2 of 2)

On Thursday, the girls counted 14 pennies in their jar.

Can each girl get the same number of pennies? ______

How many does Linda get? _____

How many does Ebony get? _____

5. On Friday, the girls counted 20 pennies in their jar.

Can each girl get the same number of pennies? _______

How many does Linda get? ______

How many does Ebony get? _____

Halves of Rectangles and Sharing a Picnic Lesson 4

Math Focus:

- Finding one half of a set.
- Understanding that $\frac{1}{2}$ is one of two equal parts.

Materials:

- Going on a picnic student pages
- Counters

Introduction: Going on a Picnic:

Tell students the following situation.

Linda and Ebony get half of everything their mother packed in their lunch basket. Their mother packed 4 bags of chips, 2 drinks, and 6 strawberries. How much of each item does each girl get? Use counters, cubes, or pictures to solve.

Workshop:

- Halves/not Halves of Rectangles (continued from yesterday)
- Going on a Picnic student pages

Discussion: Have students explain how they know that piece B is not $\frac{1}{2}$ of the rectangle. Which of the pieces that you worked with is $\frac{1}{2}$ of the rectangle?

Name:	Date:
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Going on a Picnic

1. Linda and Ebony have 4 sandwiches. They share the sandwiches evenly. How many sandwiches does each girl get? Show your work below.

2. Linda and Ebony have 10 mini cupcakes. They share the cupcakes evenly. How many cupcakes does each girl get? Show your work below.

3. Linda and Ebony have 18 M&M's. They share the M&M's evenly. How many M&M's does each girl get? Show your work below.

4. Linda and Ebony have 20 grapes. They share the grapes evenly. How many grapes does each girl get? Show your work below.

Fourths of a Square Lesson 5

Math Focus:

- Seeing different ways to make fourths of a square.
- Learning the term one fourth and the notations $\frac{1}{4}$.
- Recognizing the equivalence of different fourths of the same object.

Materials:

Di-cut squares or the attached square (pre-cut)

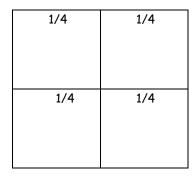
Activity:

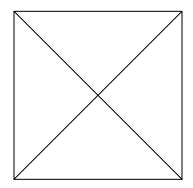
Folding and Folding Again:

Today we're going to look at what fractions we get when we fold paper. We'll start by looking at halves. You're going to fold your square in half. You'll fold it so that the crease makes two equal pieces. After students have folded the square, ask them to open it up again and look at the halves. Let students show their paper. One results in two rectangles, and the other in two triangles.

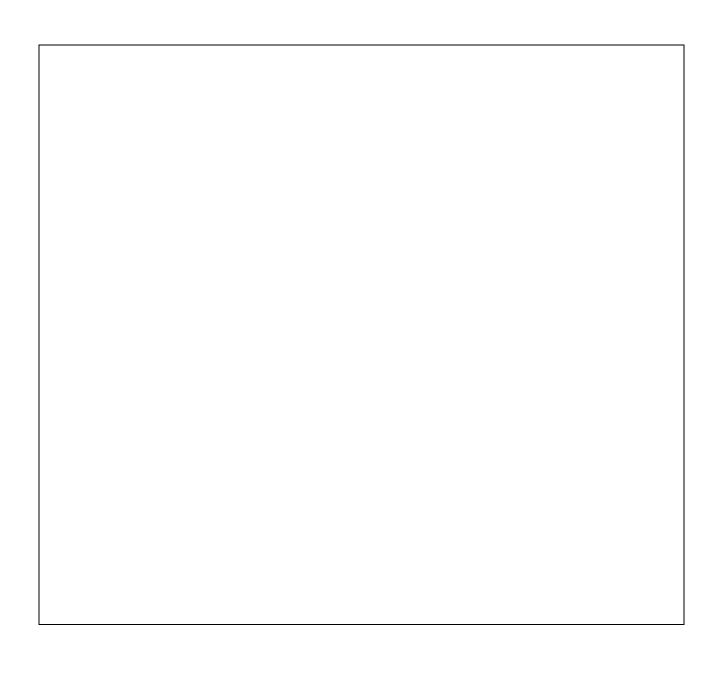
After students have looked at different ways to divide the square in half, ask them to repeat the first step and fold the square in half again. What do you think will happen if you take that one half and fold it again? What do you think it will look like? Have students describe what they think it will look like. After students have folded the paper ask students how many pieces does your square have now? Are they equal? Does anyone know what each piece is called? Record student's idea's on the board. When something is divided into four equal pieces, each piece is called one fourth. Write $\frac{1}{2}$ on the board. This is the way we write one half, how would we write one fourth? Write $\frac{1}{4}$ on the board and ask students label their each of the fourths of their square $\frac{1}{4}$ and then color their squares, using a different color for each fourth. Let's look at different ways you made fourths when you

folded your square. Expect students to show the following three ways to make fourths.





1/4	1/4	1/4	1/4



Fourths of a Square Lesson 6 TEKS 1.2AB

Focus:

- Learning the term one third and the notations 1/3.
- Identifying halves, thirds, and fourths of a region.

Material:

- Anchor Chart of flags
- Flag sheets
- Colors

Thirds of a Flag:

Make an anchor chart of the three different flags on the following page, Flag of Poland, Flag of the Russian Federation, and Flag of Mauritius.

The flag of Poland is divided into how many equal parts? (2) What part of the flag is white? (One half)

What about the Mauritius flag? How many equal parts are in the flag? (4) What part of the flag is green?

(One fourth, which is one out of four equal parts). Write half and 1/2, one-fourth and 1/4 on the board. The middle flag is from Russia. It's divided into three equal parts. Do you know what a piece is called if it's one of three equal parts? Write one-third and 1/3 on the board. When you write a fraction, the bottom number tells you the number of parts in a whole. For the fraction 1/3, there are three equal parts in the whole. Make an anchor chart showing the fractions. (See fraction anchor chart example on one of the following pages.)

Activity: Fraction Flags: Student activity page

You will see outlines of three flags. Today you're going to color to flags according to the fraction shown. Then you may color the other parts of the flag any color you choose.

Prepare ahead of time for an anchor chart.

white
red

Flag of Poland

white
blue
red

Flag of the Russian Federation

red
blue
yellow
green

Flag of Mauritius

Name:	Date:	
	Fraction Flags: Student Activity Page	
Color	$\frac{1}{2}$ of the rectangle red	

Color 1/3 of the rectangle blue

Color $\frac{1}{4}$ of the rectangle green

Fractions Anchor Chart (Example)

Number of equal pieces	Name the Parts	Fractions
2	halves	1/2
3	thirds	1/3
4	fourths	1/4

Fraction Flags Lesson 7 TEK 1.2AB

Math Focus:

• Indentifying Halves, thirds, and fourths of regions

Materials:

- Fractions flag sheets
- colors

Discussion: Children will continue working on fraction flags. Remind students the $\frac{1}{2}$ is one out of 2 equal parts, 1/3 is one out of 3 equal parts and $\frac{1}{4}$ is one out of 4 equal parts..

Math Workshop:

Fraction Flags: The following sheets contain three flag outlines divided into halves, thirds, or fourths. Organize the class into three groups and have each group start on a different page. This arrangement will foster the completion of a wider variety of flags in a shorter period of time.

Students will make up their own flags. As they color the flags students need to think about the fraction. Students need to color the fraction part one color then the rest of the flag a different color so the student will be able to see the fraction. When they finish coloring, write what fraction is shown by each color.

Discussion:

After completion of flags children can share their flags with the class.

Fractions Flags

1. Color $\frac{1}{2}$ of the flag red. 2. Color 1/3 of the flag blue. 3. Color $\frac{1}{4}$ of the flag green.

4. Color $\frac{1}{2}$ of the flag gree	en.
5. Color 1/3 of the flag blue.	
6. Color $\frac{1}{4}$ of the flag red.	

7. Color ½ of the	e flag purple	2.	
8. Color 1/3 of 1	he flag orai	nge.	
9. Color $\frac{1}{4}$ of the	e flag blue.		

Fraction Flag Posters Lesson 8 TEKS 1.2AB

Math Focus:

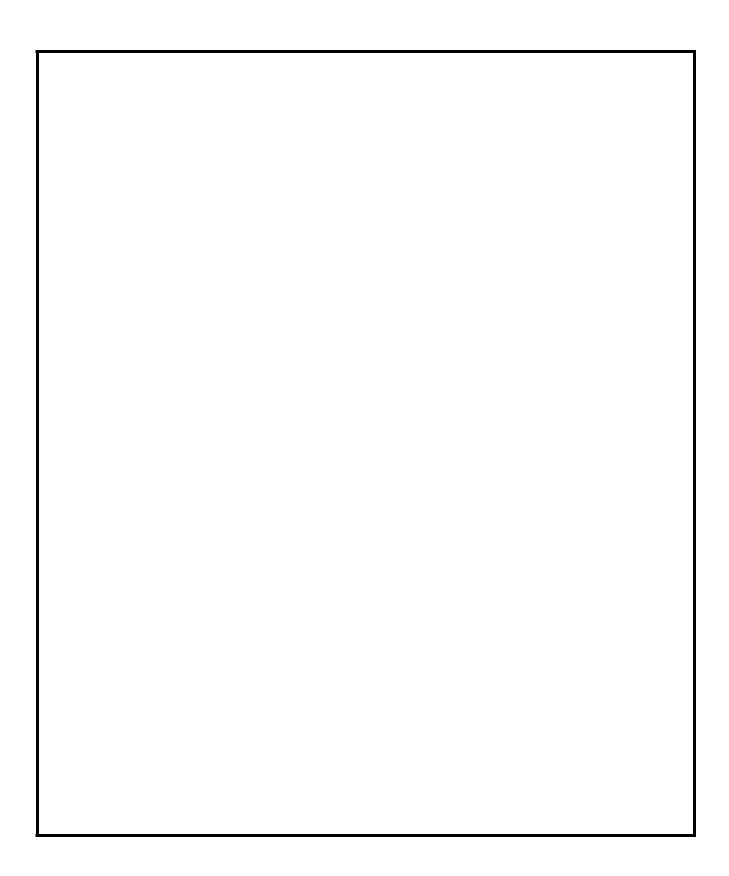
- Identifying halves, thirds, and fourths
- •

Materials:

- Chart paper, one labeled $\frac{1}{2}$ (one out of 2 equal parts) one labeled 1/3 (one out of 3 equal parts) and one labeled $\frac{1}{4}$ (one out of four equal parts.
- Paper for students
- Crayons

Activity: Show students chart paper. Tell students they will design their own fraction flag. They need to pick one fraction and design a flag to match the fraction they choose. If time permits student can make more than one fraction flag. Then students will tape their fraction flag to the correct fraction poster.

Discussion: Review each poster and students will explain why they put their fraction flag on the particular poster.



Sharing Among Friends Lesson 9 TEKS 1.2AB

Math Focus:

- Finding Thirds and Fourths of a set.
- Understanding equal parts.

Materials:

- Chart paper
- Colors
- Student pages
- manipulatives

Discussion: Using the fraction flags created from yesterday discuss with the students how the fractions parts must be equal. For instance, if you have a flag showing 1/3 then make sure children understand that there are 3 equal parts.

Activity: Finding Fractions of a set. Using chart paper, show the example below of finding fractions of a set. Then student will complete student activity page.

Finding One Half

Jim and Kim collect bugs, their mom gave them 4 bugs.

Can they each get half? _____

How many bugs will Jim get?

How many bugs will Kim get? _____



Name:	 Date:

Student Activity: Sharing sets of objects

1. Jim and Kim collect bugs, their mom gave them 6 bugs.

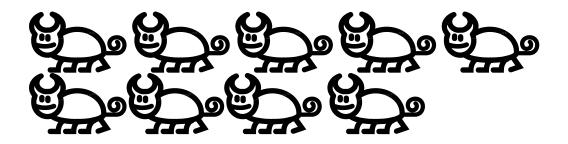
Can they each get half?

How many bugs will Jim get? _____

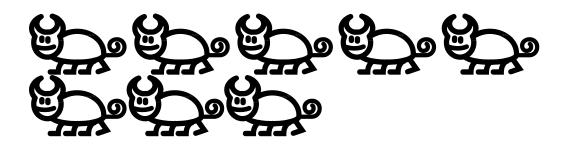
How many bugs will Kim get?



Name:	Date:
2. Jim, Kim and there friend Sam	collect bugs. They have 9 bugs.
Can they each get an equal amoun	t of bugs?
How many bugs will Jim get?	
How many bugs will Kim get?	
How many bugs will Sam get?	



Name:	Date:
3. Jim, Kim, Sam and Maria collect butogether.	gs. They have 8 bugs all
Can they each get an equal amount of	bugs?
How many bugs will Jim get?	
How many bugs will Kim get?	
How many bugs will Sam get?	
How many bugs will Maria get?	

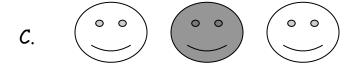


Fractions of a Set Lesson 1

1. Which set shows 1 out of 3 shaded?







2. Which set shows 2 out of 4 shaded.

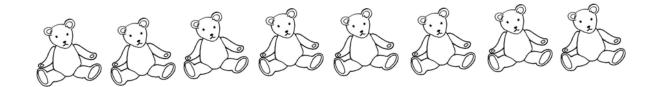






Name:______ Date:_____

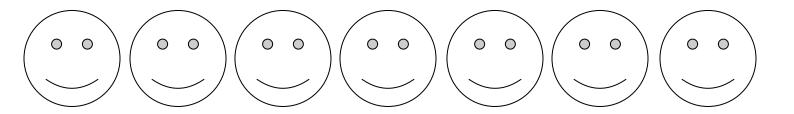
3. Color 3 out of the 8 bears brown.



4. Color 4 out of the 5 hearts red.



5. Color 6 out the 7 happy faces yellow.

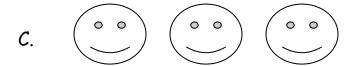


Fractions of a Set Lesson 2

1. Color in the set that you can show 3 out of 5 red.







2. Color in the set that you can show 3 out of 6 green.



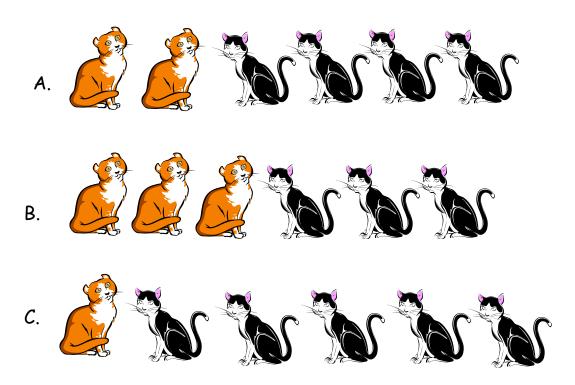




Name:	Date:

Fractions of a Set Lesson 3

1. Circle the set that shows 5 out of 6 are black and white cats.



2. Circle the set that shows 4 out of 5 are cars green.

