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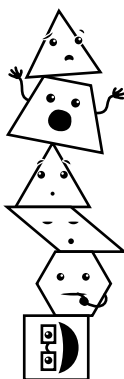
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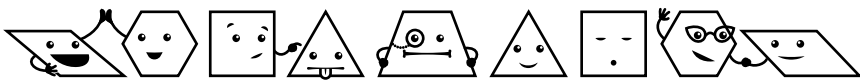
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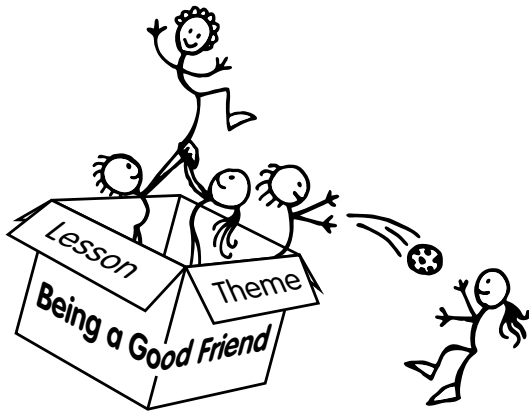




Beginning Fractions

Content Goals

- Students will identify examples of halves and thirds using pattern blocks.
- Students will partition circles and rectangles into halves, thirds, and fourths.

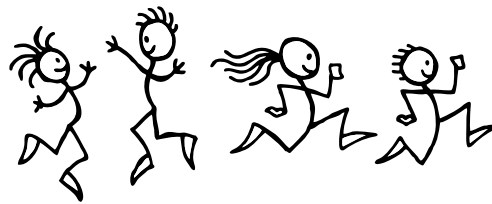


Manipulatives

- pattern blocks magnetic manipulatives (*teacher only*)
- pattern blocks (*5 of each block; tan rhombuses excluded*)

Materials

- scissors
- copies of the *Friendship Flower* sheet (page 92)
- copies of the *Figuring Out Fractions Activity Board* (page 93)
- copies of the *Partitioning Shapes* sheets (pages 94–96)
- copies of the *Friends and Food* activity sheet (page 97)
- copies of the *Sharing Is Caring* assessment (page 98)



Let's Talk!

Step 1: Get students talking about what it means to be a good friend. Read the dictionary definition of *friend*. (See below.) Ask whether students agree or disagree with the definition. Ask them how they would add to or change the definition.

friend—a person who helps and supports someone; a person whom you like and trust

Step 2: Go around the room and have each student say a trait or characteristic that describes a good friend. Write these on the board or on chart paper.

Step 3: Distribute copies of the *Friendship Flower* sheet (page 92) to students. Have students write one word that describes a good friend in each petal on the flower. They can use words from the board or add new words to their flowers. Call on student volunteers to share their friendship-flower responses with the class. Encourage students to color the flower and, after school, give it to a friend who exhibits those qualities. Ask students to count the petals on the flower. Say, “If you have 4 friends, how many petals could you give each friend?” (1)

Step 4: Say to students, “Imagine you have a cookie. Your friend does not have a cookie but would like to eat one too. What should you do? Should you share your cookie? What would a *good* friend do?” Let students respond out loud. Talk about the importance of sharing. Ask students how they could “share” the cookie. (*divide it into 2 pieces, or in half*)

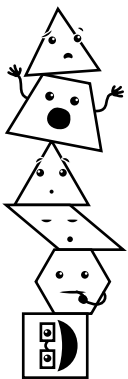
Step 5: Ask students the essential question. Write it on the board. Explain that they are going to learn more about dividing shapes into equal parts and that these parts of a whole are called fractions.

Essential Question

How can a shape be divided into equal parts?

Rules Reminder

Remind students that they must follow the rules when working with manipulatives. Read the rules aloud before distributing the manipulatives. (See page 152.)





All Together Now!

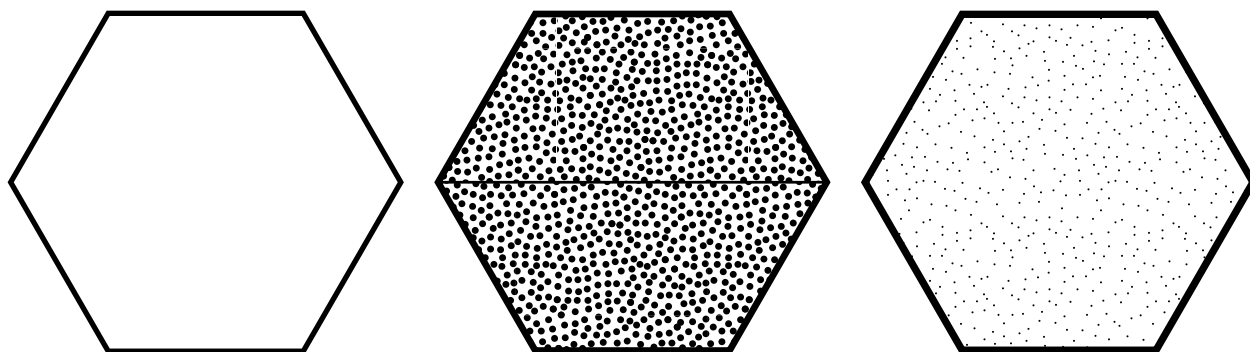
Note: Before beginning the lesson, adhere the adhesive magnets to 5 of each type of pattern block (excluding the tan rhombuses). You will need to cut the magnets to fit the smaller blocks. These will be your magnetic manipulatives.

Step 1: Distribute copies of the *Figuring Out Fractions Activity Board* (page 93) to students. Give each student 5 of each type of pattern block (tan rhombuses excluded). Have them place the blocks above their activity boards. Tell students they are not to touch the blocks again until you tell them to.

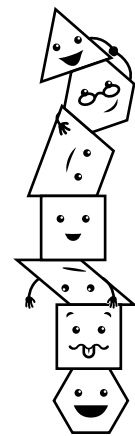
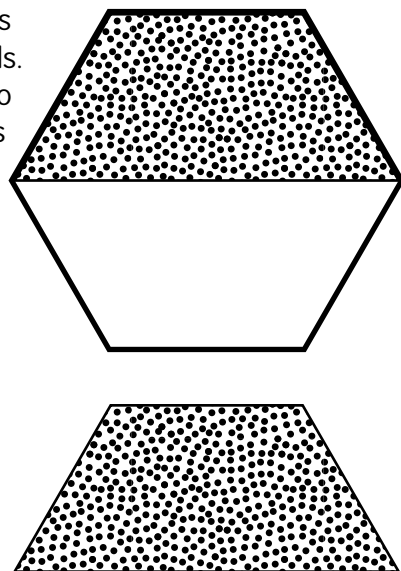
Step 2: Draw a hexagon, a trapezoid, and a rhombus on the board. **Note:** Be sure that the hexagon, trapezoid, and rhombus outlines are the exact same size as the pattern blocks. You can trace the magnetic manipulatives.

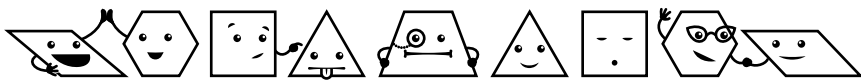
Step 3: Point to the hexagon outline on the classroom board. Ask students, "How can we fill this shape using only *two* blocks?" Encourage them to play with their pattern blocks to try to find the answer.

Step 4: When students suggest 2 red trapezoids, say, "It takes 2 red trapezoids to fill the hexagon. 2 trapezoids equal 1 *whole* hexagon." Write *whole* on the board. Using the magnetic manipulatives, place 2 red trapezoids in the hexagon shape. Have students do the same on their activity boards. Then ask students to place a yellow hexagon on top of the 2 red trapezoids. Hold a yellow hexagon over the 2 red trapezoids on the board. Repeat, "1 whole yellow hexagon equals 2 red trapezoids."



Step 5: Say, "If we remove 1 red trapezoid, how much of the hexagon is filled?" Remove the yellow hexagon and one of the magnetic trapezoids. Place the trapezoid in the outline below the hexagon. Have students do the same on their activity boards. Say, "Now only *half* of the hexagon is filled." Write *half of* on the board. Say, "When we split the hexagon in half, into 2 *equal shares*, we get 2 trapezoids."

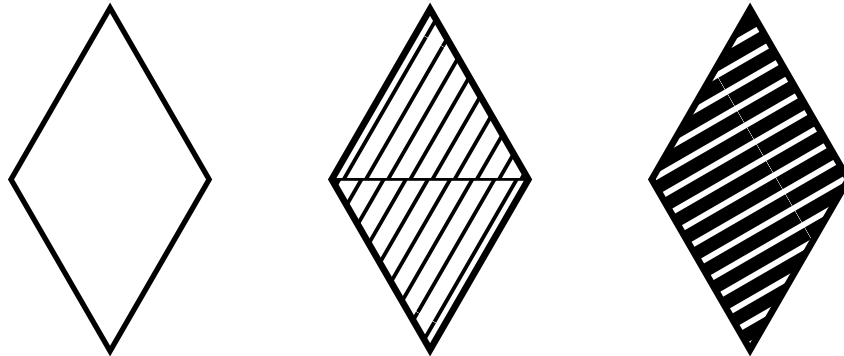




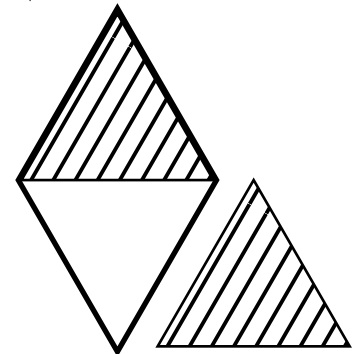
All Together Now! (cont.)

Step 6: Have students clear their activity boards. Ask them, "How can we fill the rhombus using only 2 blocks?" Encourage them to play with their pattern blocks to try to find the answer.

Step 7: When students suggest 2 green triangles, say, "It takes 2 triangles to fill the rhombus. 2 triangles equal 1 *whole* rhombus." Point to the word *whole* on the board. Using the magnetic manipulatives, place 2 triangles in the rhombus shape. Have students do the same on their activity boards. Then ask students to place a blue rhombus on top of the 2 green triangles. Hold a blue rhombus over the 2 green triangles on the board. Repeat, "1 *whole* rhombus equals 2 triangles."

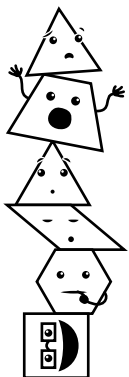
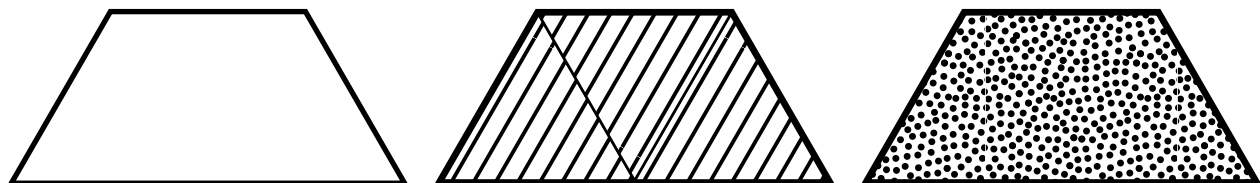


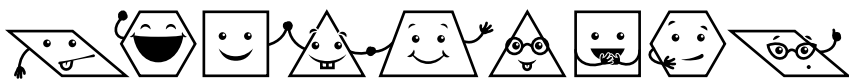
Step 8: Say, "If we remove 1 triangle, how much of the rhombus is filled?" Remove the blue rhombus and one of the magnetic triangles. Have students do the same on their activity boards. Say, "Now only *half* of the rhombus is filled." Point to the phrase *half of* on the board. Say, "When we split the rhombus in half, into 2 *equal shares*, we get 2 triangles."



Step 9: Say, "We know if we split the yellow hexagon into 2 equal shares we get 2 red trapezoids. A red trapezoid is *half of* a yellow hexagon. And, we know that if we split a blue rhombus into 2 equal shares we get 2 green triangles. A green triangle is *half of* a blue rhombus. But what if we wanted to split a red trapezoid into 3 equal shares? How could we do that? Try to fill the trapezoid using only 3 of your blocks." Allow students time to play around with the blocks to find the answer.

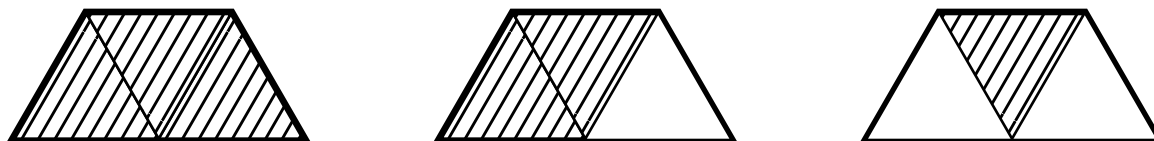
Step 10: When students figure out it takes 3 green triangles, say, "It takes 3 green triangles to fill the trapezoid. 3 triangles equal 1 *whole* trapezoid." Point to the word "whole" on the board. Using the magnetic manipulatives, place 3 triangles in the trapezoid shape. Have students do the same on their activity boards. Then ask students to place a red trapezoid on top of the green triangles. Hold a red trapezoid over the green triangles on the board. Repeat, "1 *whole* red trapezoid equals 3 green triangles."



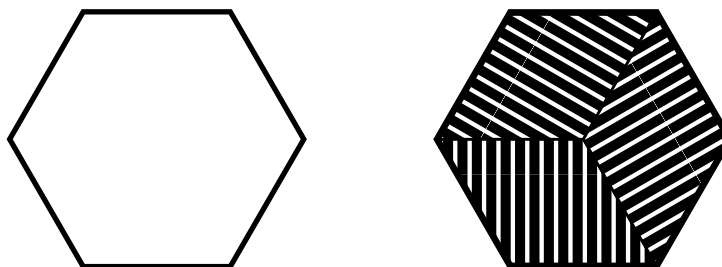


All Together Now! (cont.)

Step 11: Say, "If we remove 1 triangle, how much of the trapezoid is filled?" Remove the red trapezoid and one of the magnetic triangles. Have students do the same on their activity boards. Ask, "Is half of the trapezoid filled?" Explain that more than half of the trapezoid is still full because they used 3 blocks and not 2. They divided it into *3 equal shares* or *thirds*, not halves. Write the word "thirds" on the board. Remove 1 more magnetic triangle and say, "Now we have *one third* of a trapezoid."



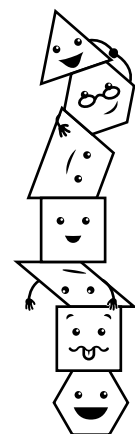
Step 12: Have students clear their activity boards. Ask them to fill the hexagon using 3 blocks. Allow students time to play with the blocks to find the answer. Using the magnetic manipulatives, fill the hexagon on the board with 3 blue rhombuses. Ask, "Is this hexagon divided in *halves* or *thirds*? How do you know?" Explain that we know it is divided into thirds because there are 3 equal shares, or parts, just as with the trapezoid and the green triangles. If we wanted to divide the hexagon into halves, then we would use the red trapezoids.

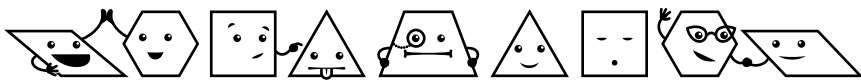


Step 13: Say, "Let's practice some more by dividing circles and rectangles into equal shares, or parts." Distribute copies of the *Partitioning Shapes* sheets (pages 94–96). There are 3 sheets total. Give each student 1 copy of each sheet. Have them carefully cut along the *dashed* lines only. Make sure they understand they should not cut along the solid lines. Make copies for yourself as well and cut out the shapes. Draw a rectangle and a circle on the board. Be sure they are the same size as the ones on the activity board. You can use the cutouts as a template and trace around them.

Step 14: Point to the rectangle on the board. Say, "This is one whole rectangle. Look at your 3 rectangle cutouts. Which one shows the rectangle cut into 2 equal parts, or halves?" Have students try positioning the 2 cutouts into the rectangle outline to find the correct piece.

Step 15: On the classroom board, place the *halves* cutout in the rectangle. Place a magnetic orange square in each half of the rectangle to hold the cutout on the board. Say, "This rectangle is cut into 2 equal parts. We took a whole and cut it in half. We made 2 *halves*. If you wanted to, you could share this rectangle with one friend." Have students color half of the rectangle cutout.





All Together Now! (cont.)

Step 16: Have students clear their activity boards. Say, "What if you wanted to divide this rectangle equally between you and 2 of your friends? How would you do that? How many equal parts would you need?" Ask students to find the cutout that divides the rectangle into 3 equal parts.

Step 17: On the classroom board, place the *thirds* cutout in the rectangle. Place a magnetic orange square in each part of the rectangle to hold the cutout on the board. Say, "This rectangle is cut into 3 equal parts." Count the 3 orange squares aloud. Say, "We took a whole and cut it into *thirds*. You get 1 piece. And each of your 2 friends gets 1 piece." Have students color a *third* of the rectangle cutout.



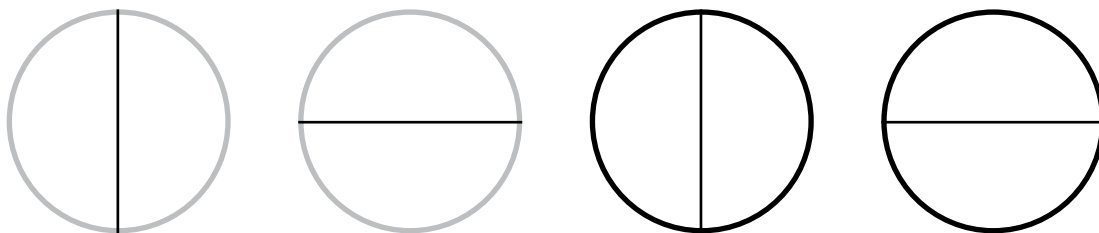
Step 18: Have students clear their activity boards. Ask, "What if you wanted to share this rectangle equally between you and 3 of your friends? You would need 4 equal parts. What would that look like?" Have students find the cutout divided into fourths.

Step 19: On the classroom board, place the *fourths* cutout in the rectangle. Place a magnetic orange square in each part of the rectangle to hold the cutout on the board. Say, "This rectangle is cut into 4 equal parts." Count the 4 orange squares aloud. Say, "We took a whole and cut it into *fourths*. You get one piece. And each of your 3 friends gets 1 piece." Have students color a *fourth* of the rectangle cutout.

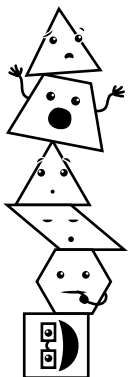


Step 20: Tell students to imagine that the circle on their activity board is a pizza. Tell them you want them to cut the pizza in half so they can share it with a friend. Have them use a pencil to draw a line that will cut the pizza in half.

Step 21: After students have drawn their lines, hold up the *halves* circle. Ask, "Is this how you divided your pizza?" Be sure that students understand that the line can run up and down (vertically) or from side to side (horizontally); both are correct. Have them find the *halves* cutout and place it in the circle over their line. Then have them color *half* of the cutout. Say, "This now shows half of the whole."



Step 22: Repeat Steps 20 and 21 using the thirds cutout and the fourths cutout. Be sure students recognize and clearly understand the following terms: *whole, half of, third of, fourth of.*



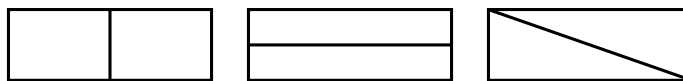


Teamwork Time!



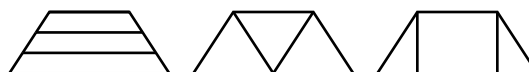
Step 1: Review the *Working as a Team* rules sheet (page 153) with students. Place students in small groups. Allow students to keep and use their activity boards, cutouts, and pattern blocks with their groups.

Step 2: Draw the following 3 shapes on the classroom board. Ask students to work with their groups to find out which shape is divided equally into halves. Allow students time to discuss the drawings with their groups.



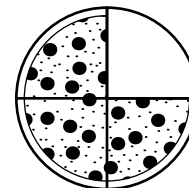
Step 3: Go around the room and ask which shape each group picked. Then have a class discussion on why *all 3* of these shapes are divided equally into halves.

Step 4: Draw the following 3 shapes on the board. Ask students to work with their groups to find out which shape is divided *equally* into *thirds*.



Step 5: Go around the room and ask which shape each group picked. Then have a class discussion on why the shape in the middle is the only one equally divided into thirds.

Step 6: Draw the following picture on the board. Ask students to work with their groups to find out the answer to this question: "One slice of pizza is missing. Would you say one *half* of the pizza is missing, one *third* of the pizza is missing, or one *fourth* of the pizza is missing?" Write the words *half*, *third*, and *fourth* on the board. Allow groups time to discuss the question.



Step 7: Go around the room and ask which answer each group picked. Then have a class discussion on why on-fourth is the correct answer.



You Can Do It!

Step 1: Distribute copies of the *Friends and Food* activity sheet (page 97) to students. Tell students they can use their pattern blocks and activity boards to help them if necessary. Read the directions. Have students complete the activity sheet independently.

Step 2: When students have finished, go over the answers as a class. Ask students if they were able to find the answers without using the pattern blocks. If so, how did they do it? Discuss as a class how visualization and drawings can help students if they do not have blocks to use.



Show What You Know!

Distribute copies of the *Sharing Is Caring* assessment (page 98) to students. Tell students they can use their pattern blocks, visualize, or draw on scratch paper if needed. Read the directions for each section aloud. Make sure students understand what they are being asked to do.

Put It in Words!

Read the prompt aloud.

Pretend you have an oatmeal cookie. It is round. You want to share it equally with two of your friends. Do you cut the cookie into halves, thirds, or fourths?

Have a class discussion about how you would find the answer. Call on student volunteers to show the answer with drawings on the board. Then have students write the following sentences in their math journals. Ask them to draw pictures in their journals to show what they learned.

I can divide shapes.

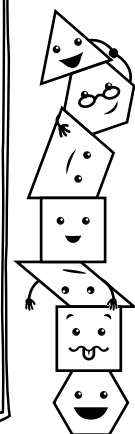
I can make equal parts.

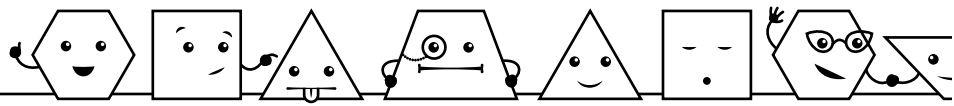
This is a whole circle.

This is half of a circle.

This is a third of a circle.

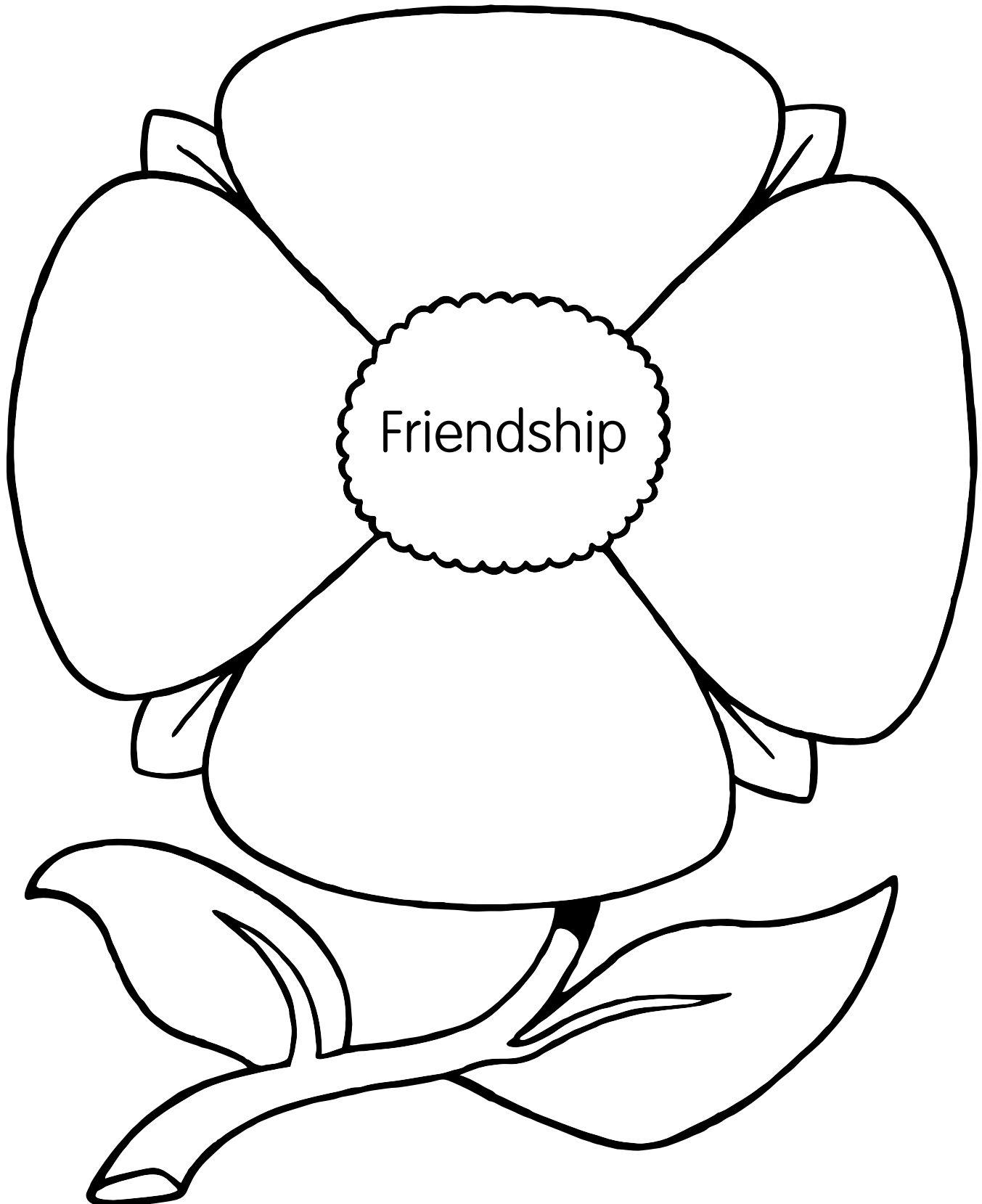
This is fourth of a circle.

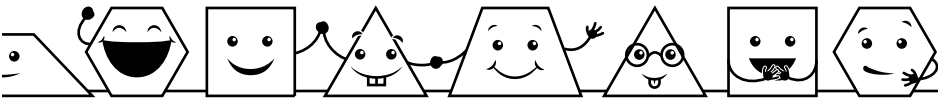




Name: _____

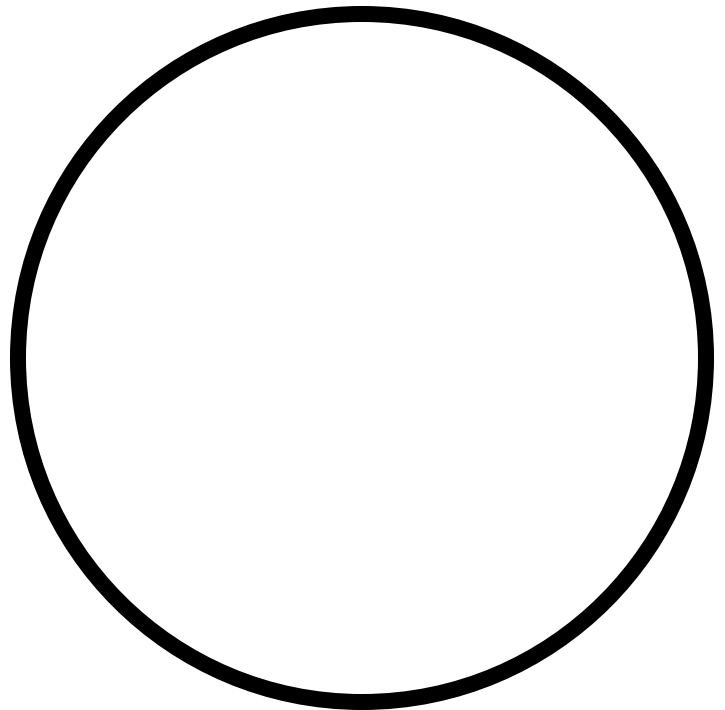
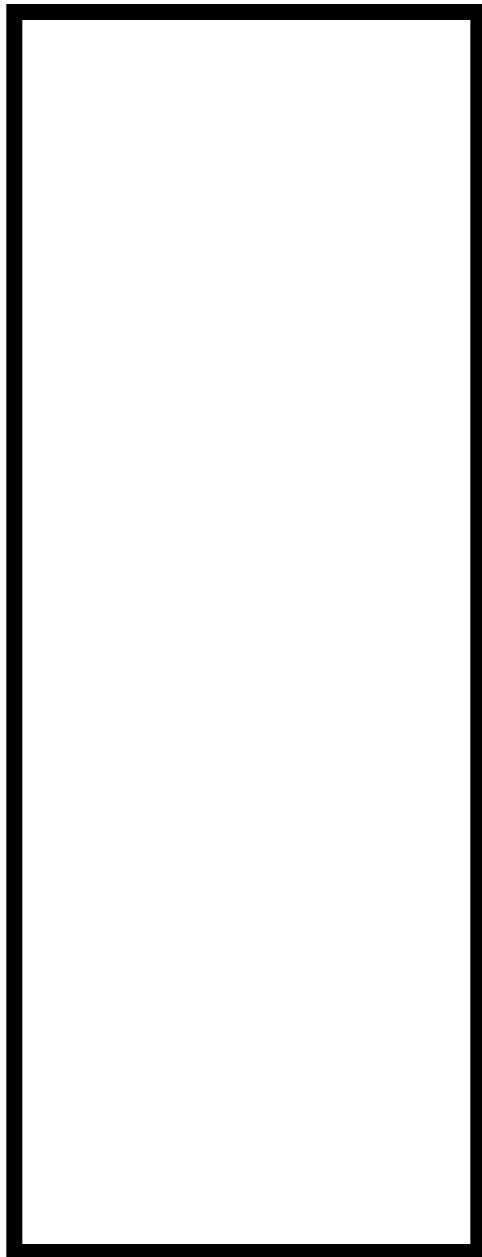
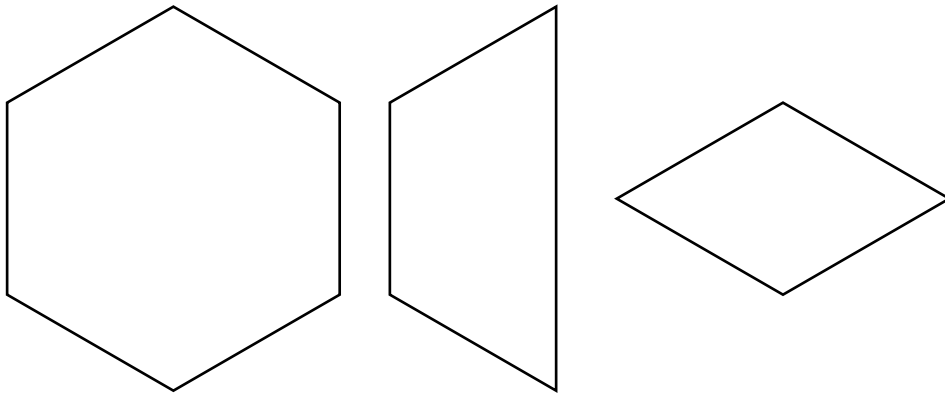
Friendship Flower






Figuring Out Fractions Activity Board

Name: _____



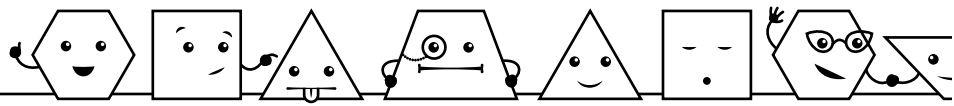
Terms to Remember:

whole 

half of 

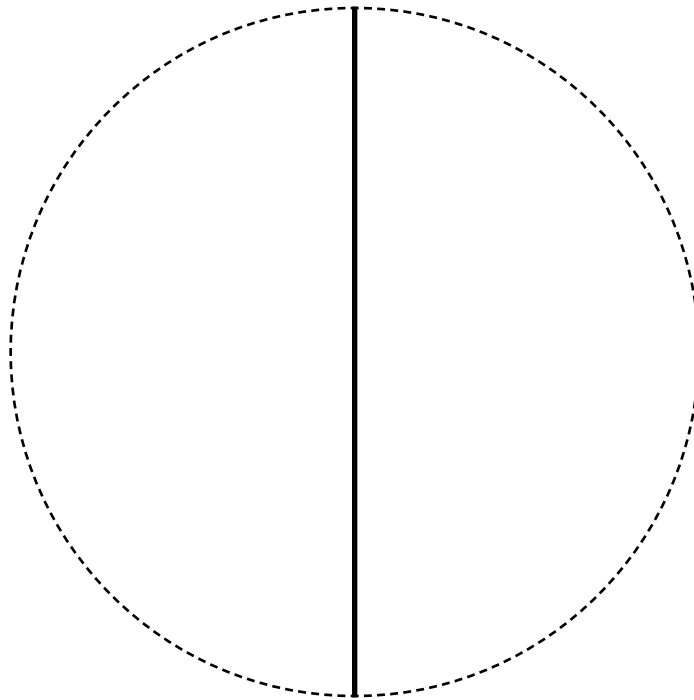
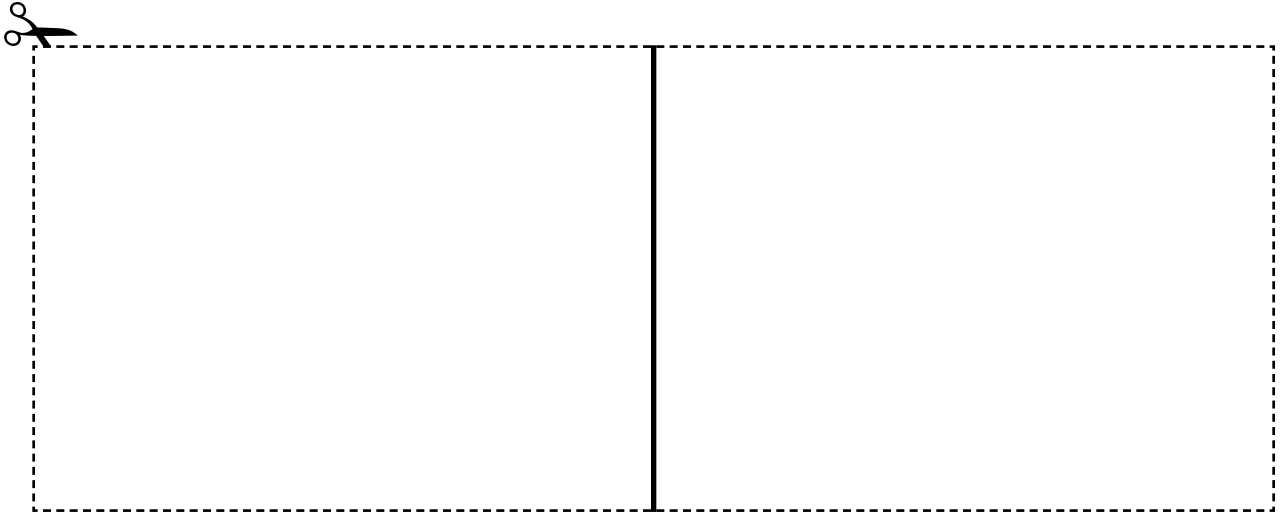
third of 

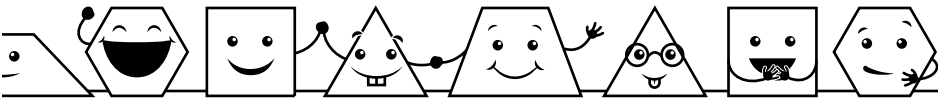
fourth of 



Partitioning Shapes

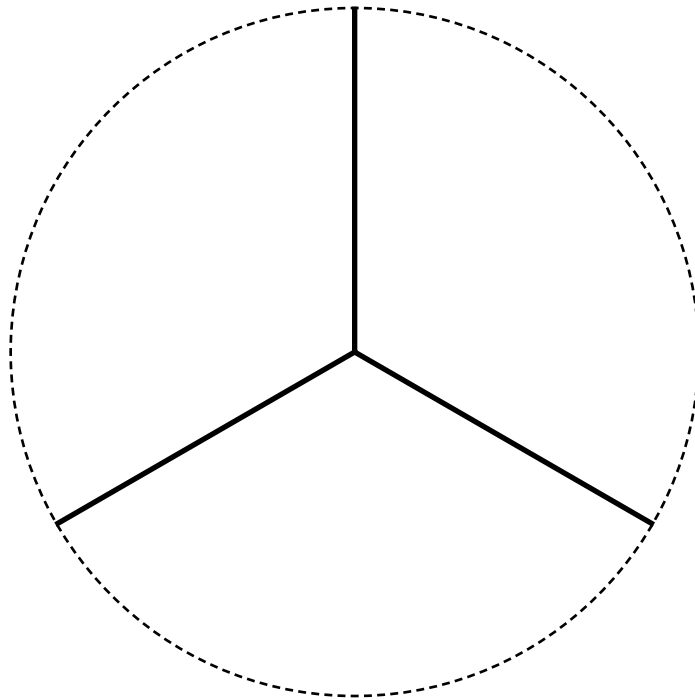
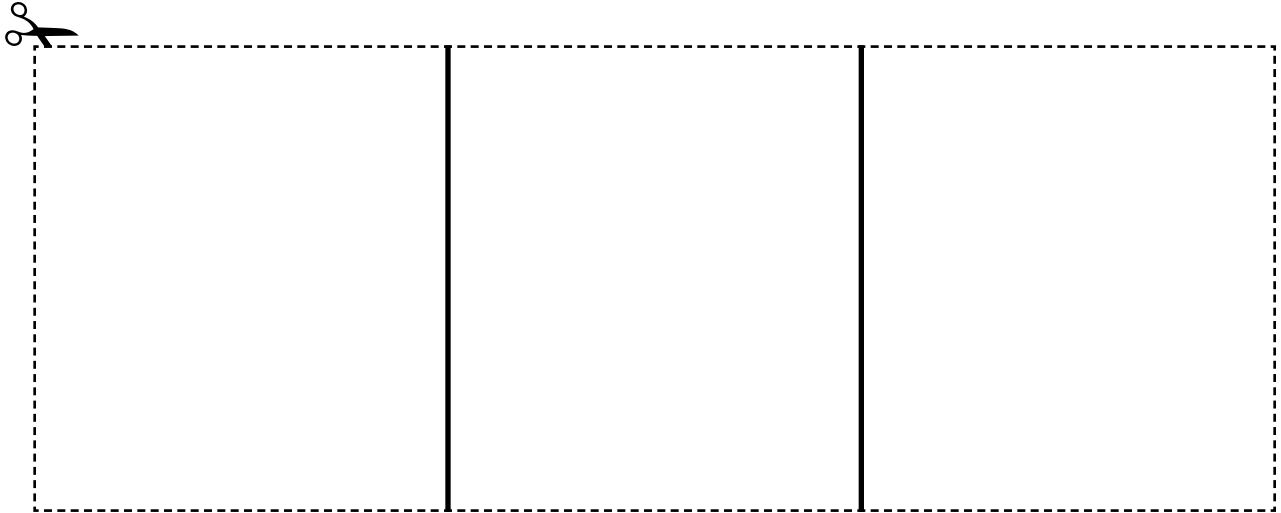
Halves

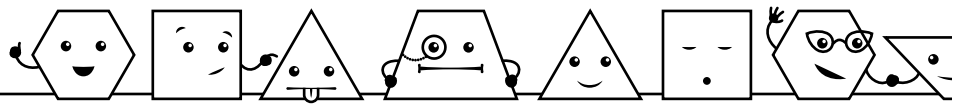




Partitioning Shapes *(cont.)*

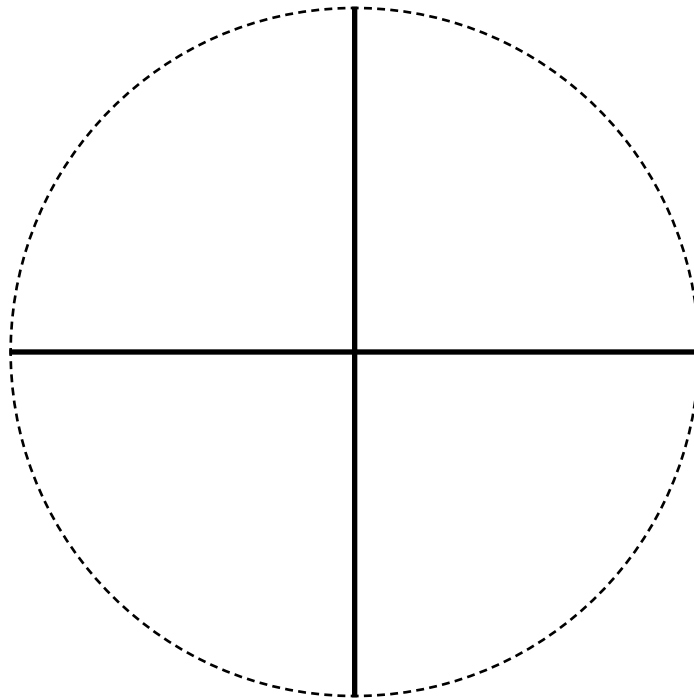
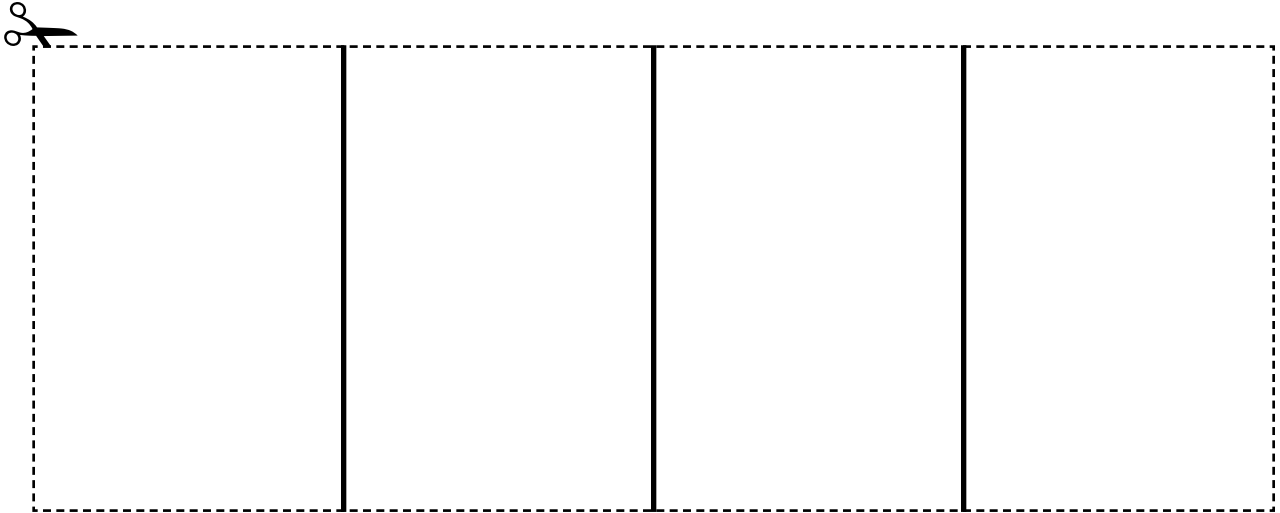
Thirds





Partitioning Shapes *(cont.)*

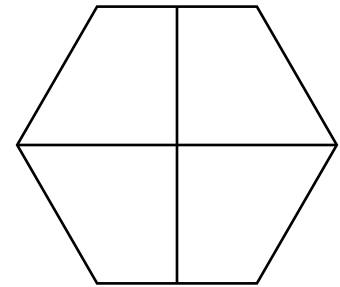
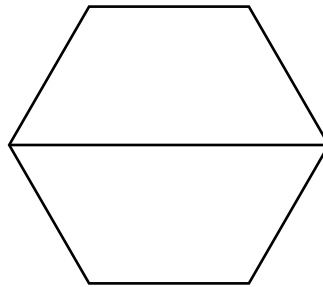
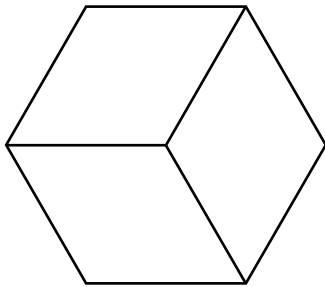
Fourths



Name: _____

Friends and Food

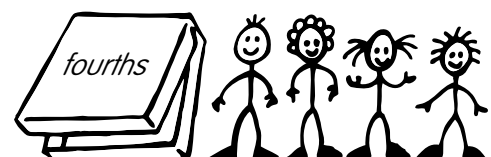
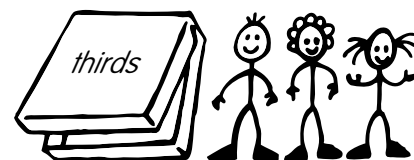
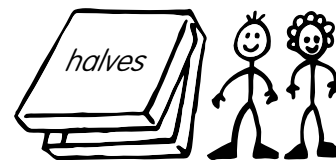
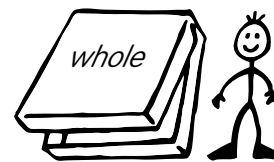
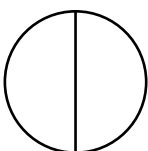
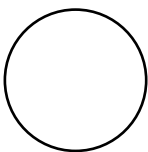
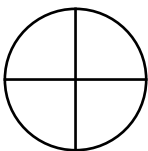
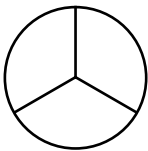
- 1** You and your friend want to share this cracker equally. How should you cut the cracker so that you each have *half of it*? Circle the answer.

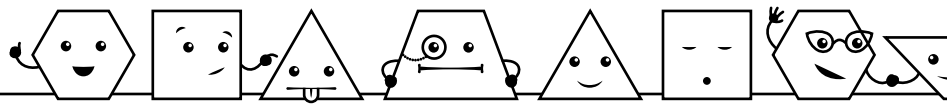


- 2** Which granola bar could be shared equally with you and 3 of your friends? Circle the answer.



- 3** Which pizza goes in each box? Draw a line to match each pizza with the correct pizza box.



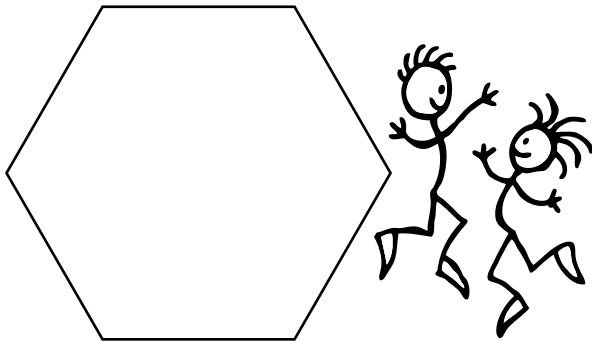


Name: _____

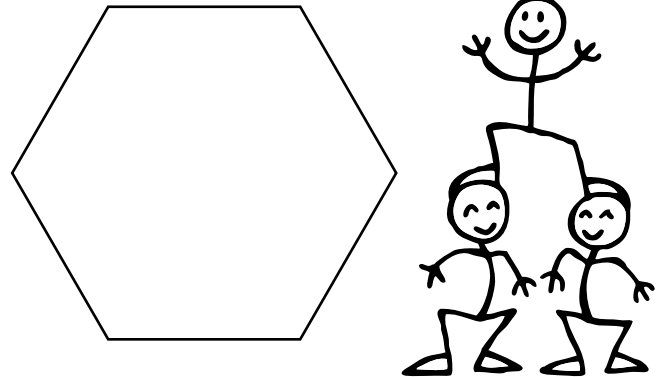
Sharing Is Caring

Directions: Draw lines to divide each shape equally for the group of friends to share.

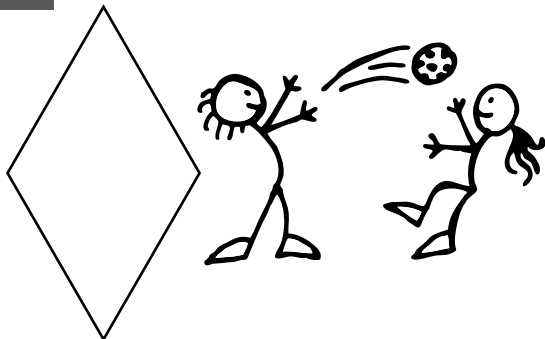
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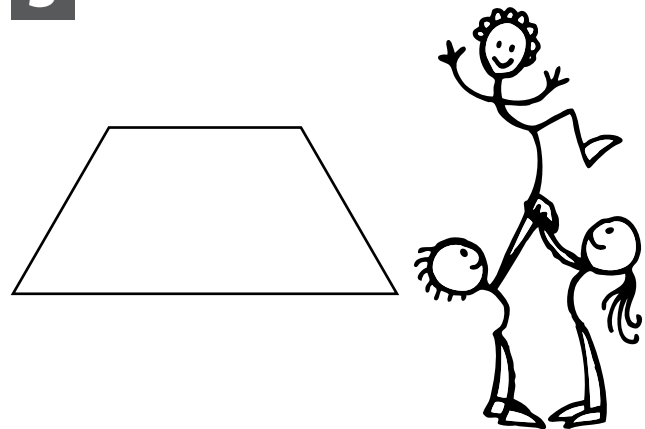
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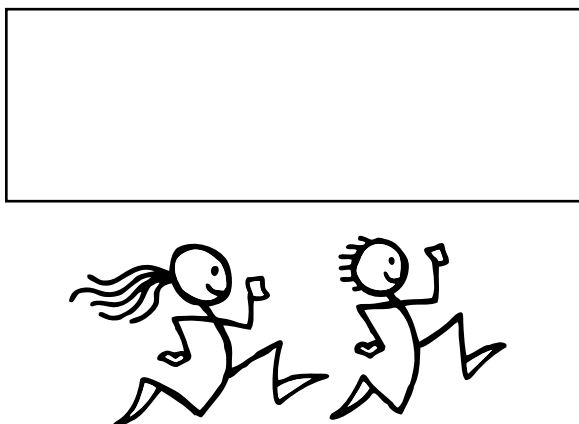
2



5



3



6

