3rd Grade Math

Books and Supplies: Saxon Math 3 (Teacher Edition), Saxon Math 3 Student Workbook Part 1 & 2, Saxon Math Home Manipulatives Kit (or what is included)

A Note about Standards: While I normally include standards covered with each lesson, I simply don't have the space to do so in math. I have constructed math lessons with two things in mind. First, to cover every standard. If you finish the math program you will have covered all of Utah 3nd Grade Core Standards for math. I have added supplemental lessons (below) to ensure those standards that Saxon doesn't include are covered. Secondly, I've taken into account the layout of the Saxon program. The book does not teach the lessons in units. It does, however, build upon each lesson using what was learned in previous lessons. Rather than organizing units, I've decided to follow the Saxon program to ensure that the review portion of the lessons is covered before expecting your child to do it in the workbook. The lessons that are skipped in the Saxon book are ones that do not specifically meet standards for Utah 3nd Grade. This does not mean that you have to skip them. You may want to use them as a part of a "review day" lesson.

Saxon Math Program: Each Saxon lesson includes "The Meeting," "The Lesson," and "Written Practice". I have left it open in which parts of the lesson your family would like to do. You do not have to do them all. Our family, for example, skips "The Meeting" and works through "The Lesson" together, adapting it to the child being taught. We then allow them to work on their "Written Practice" alone. When they are finished, we sit down with the child and check and correct each problem. Some lessons also have a "Class Practice" section, which I find helpful if my child is having a hard time and needs more review of the concept it teaches.

Review Days: Every so often your child will have a Math Review Day. Take time on this day to review a lesson or concept that your child hasn't fully grasped. Cover a lesson again, find a math game that can teach it, work on flash cards and math fact mastery, or let your child choose one of their favorite worksheets to do again. If your child has mastered everything, do one of the skipped lessons, read and prepare a fun recipe, play a card or board game (most of them have a math element), or take the day off from math.

Prodigy: Prodigy is a great review for math concepts throughout elementary. It's a fun game that really has helped my visual learner to make connections because it motivates him to get the right answer. You can sign up with a free account here (https://sso.prodigygame.com/game/start?rid=e5186a1d-5420-4a2a-9a36-4a29ec60352f)

Flash Cards: Use flash cards and/or a multiplication machine (like this one) to help your child memorize all products of two one-digit numbers. These should be practiced every day until your child masters them all. Include division problems with the same numbers.

Supplemental Lessons:

Lesson 1: Halloween
Purchase this packet (or find a substitute) and ask your child to do one or more of the worksheets in it. Focus on multiplication facts or a concept your child is struggling with. Allow your child to color the page when finished.

Lesson 2: Christmas
Use this worksheet (or find a substitute) and ask your child to work through the multiplication problems. Correct their answers and allow your child to color it according to the color chart.

Lesson 3: Estimation by Rounding
Show your child the following math problem:

12 + 26 + 39 = _____

Explain that sometimes we don't need to find an exact answer. We can estimate and get an answer that is very close. Give an example of a time when an exact answer is not needed (e.g. We are having a party and need to buy cups. Cups come in packs of 24. We know that three families are coming, one with 5 people, one with 3 people, and one with 2 people. Through estimation, we can figure out that one package of cups is enough for everyone). Explain to your child how to estimate through rounding:

Step 1: Round each number to the nearest 10

12 becomes 10
26 becomes 30
39 becomes 40

Step 2: Add the rounded numbers together

10 + 30 + 40 = 80

Our estimation is 80. It is not the exact answer, but should be really close to it. If I add 12 + 26 + 39 I get 77, which is very close to 80.
Practice estimating by rounding with your child in the next examples. Then, ask your child to do the worksheet on their own. Remind your child that we don't want the exact answer, but one close to it.

Estimate by rounding to the nearest 10
45 + 61 + 22 = 58 + 32 + 18 = 81 + 99 + 106 =

Lesson 3 Worksheet

Estimate by rounding to the nearest 10

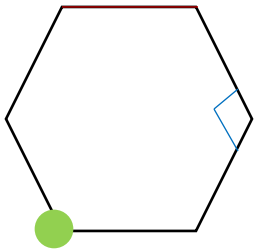
63 + 82 + 13 =	71 + 55 + 98 =	120 + 91 + 7 =
80 + 6 + 18 =	93 + 32 + 15 =	101 + 14 + 10 =
53 + 61 + 28 =	41 + 92 + 45 =	35 + 68 + 9 =
31 + 78 + 21 =	25 + 36 + 12 =	11 + 97 + 16 =

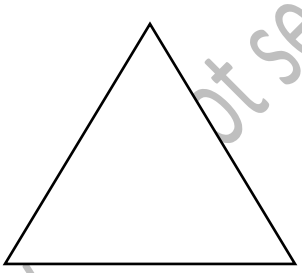
Estimate by rounding to the nearest 100

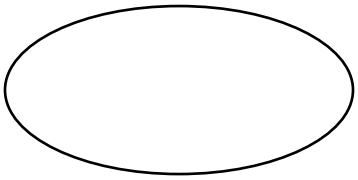
101 + 399 + 250 =	158 + 232 + 318 =	381 + 299 + 106 =
62 + 403 + 894 =	88 + 145 + 110 =	123 + 456 + 789 =
875 + 621 + 302 =	562 + 485 + 142 =	75 + 175 + 275 =
309 + 628 + 22 =	581 + 329 + 183 =	811 + 299 + 315 =

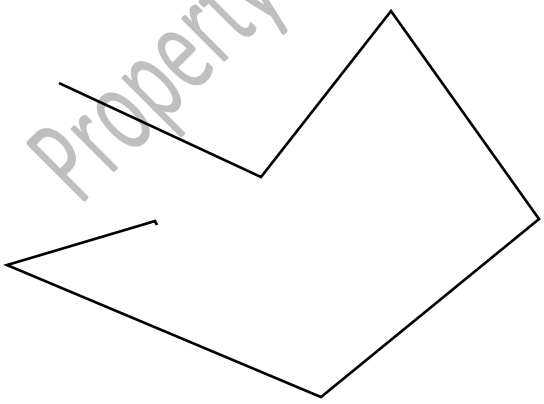
Lesson 4: Categorizing Shapes: Sides, Vertices, and Angles

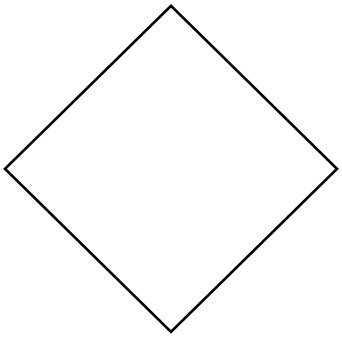
Watch this video with your child to review what a polygon is. Focus on what sides, vertices, and angles are. Then, ask your child to gather one of each of the following: red, green, and blue marker or crayon. Work through the shapes below with your child. First, determine if each shape is a polygon or not. If not, ask your child to cross out the shape. If it is a polygon, ask your child to color one side with the red crayon, one vertex with the green crayon, and one angle with the blue crayon. The first shape is an example:











Lesson 5: Categorizing Shapes: Quadrilaterals

Before the lesson: Print and cut out the shapes and labels on the following pages (3 pages).

Review the previous lesson with your child, focusing on the following definitions: polygon, side, vertices, and angles.

Next, hand your child the following items: scissors, spoon, pencil, marker, fork, plate, knife, cup, crayon, glue, and colored pencil. Ask your child what these things are used for. Can they separate these two things into two groups based on the categories of "school" and "eating"? Next, look at the school group. Can your child separate these into even smaller categories? What about "writing and drawing" and "other"? Explain that this is called categorizing. Point out that some items can be in more than one group at a time. Point to the pencil and explain that the pencil is a part of the writing and drawing group and the school group. We can categorize shapes like this, too.

Tell your child that today we are going to learn about one shape category: quadrilaterals. Explain that quadrilaterals are polygons that have four sides and four vertices. Ask your child if they can name any shapes that may fall into this category (squares, rectangles, rhombuses, parallelogram, trapezoid). Some quadrilaterals have parallel sides while others do not. Some have equal angles, others do not. Quadrilaterals can be different sizes and colors.

Give your child the shapes that you cut out. Ask them to find the quadrilaterals and put them into a pile. Put all other shapes to the side.

Ask your child to place the quadrilateral label above their pile of quadrilaterals. Then, explain that we can categorize quadrilaterals even more, just as we did the school items. Hand your child the Trapezoid, Kite, and Parallelogram labels and ask them to place these under the quadrilateral label.

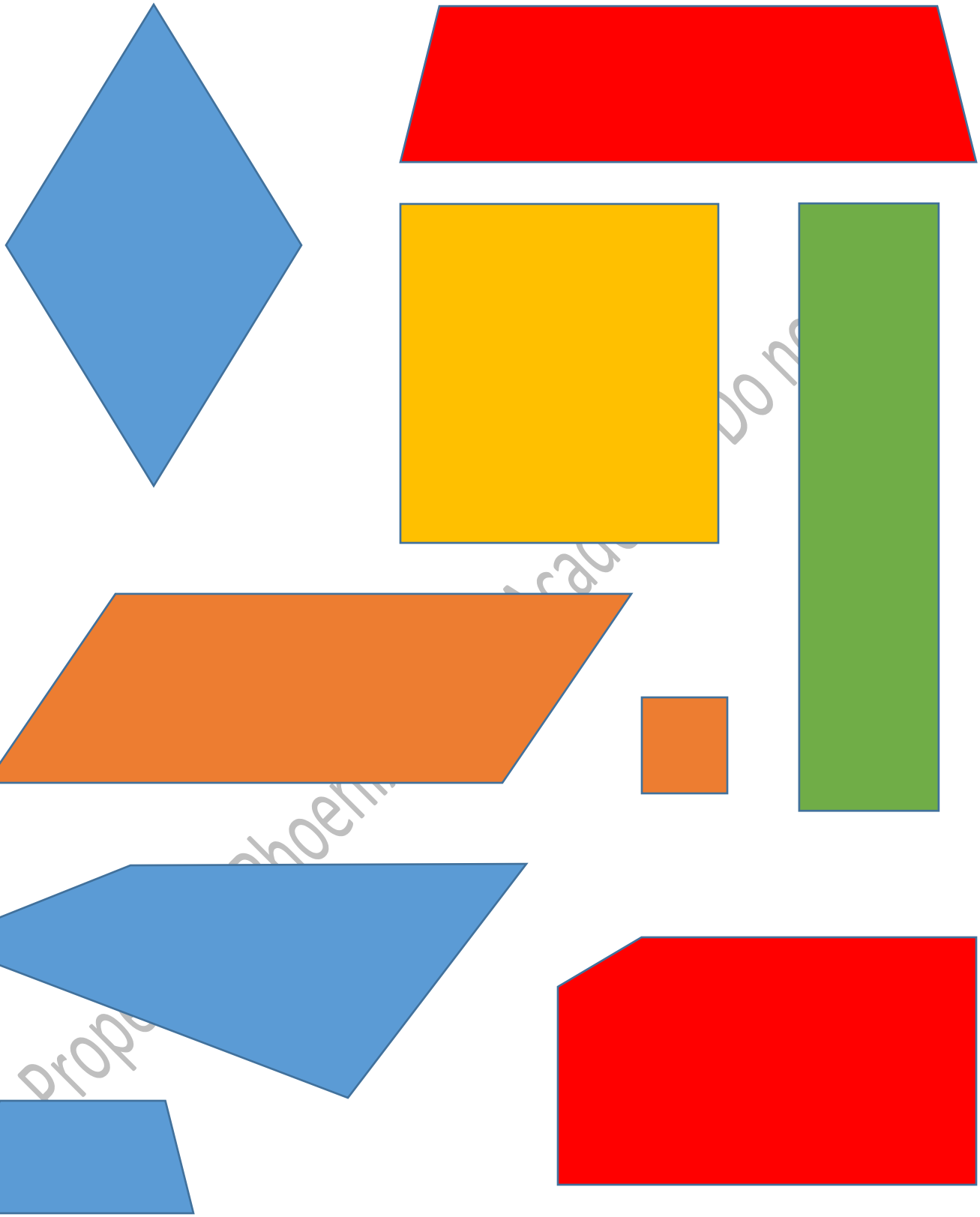
Begin with the kite, explaining that a kite quadrilateral had two pairs (sets of two) of equal adjacent (next to each other) sides. Ask your child to search through the quadrilaterals in their pile to see if they have any kites. Have your child place the one blue kite under that label.

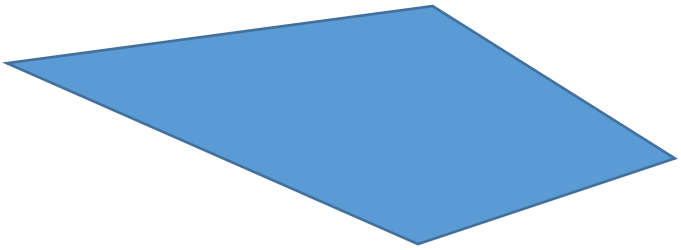
Next, ask your child to look for any trapezoids. These quadrilaterals have one pair of parallel sides. Remind your child that parallel means two lines that will never touch each other, go the same way, and never get any closer to or further apart from each other. Allow your child to find the red and blue trapezoids and place them under that label.

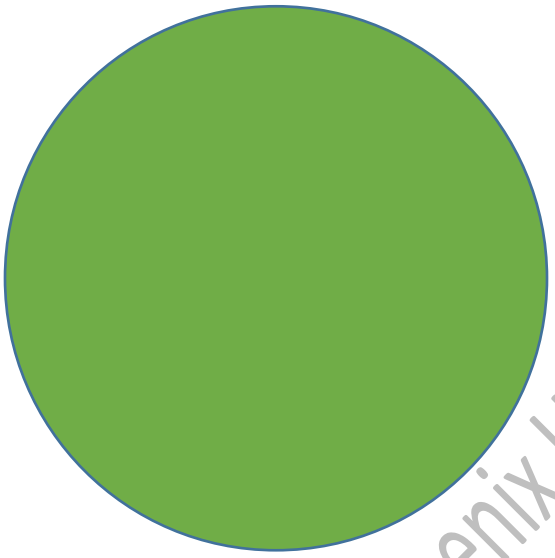
Then, ask your child to look for parallelograms. These shapes have two pairs of parallel sides. Squares, rectangles, and rhombuses are parallelograms.

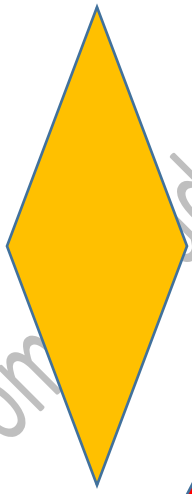
Next, give your child the labels for squares, rectangles, and rhombuses and place those under the parallelogram label. Ask your child to categorize the parallelograms according to these labels. Your final product should look something like this.

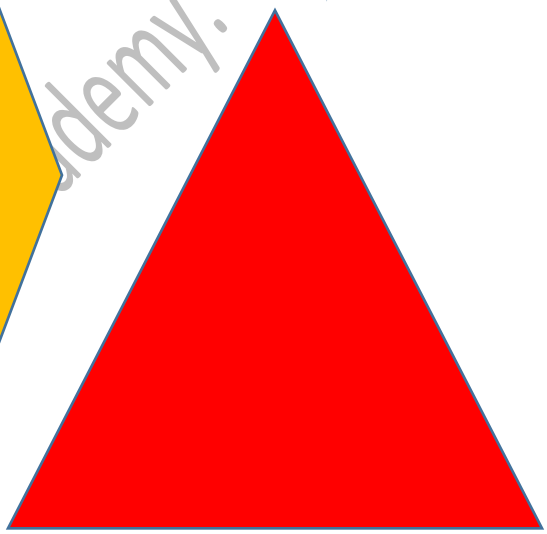
Finally, point out that a square is a parallelogram and a quadrilateral, but a trapezoid is not a parallelogram but is still a quadrilateral. A rectangle is a parallelogram and a quadrilateral, but not a square. Point out the differences in sides, vertices, and angles that make these shapes similar and different. Like our objects, these shapes can be broken down by their different attributes.

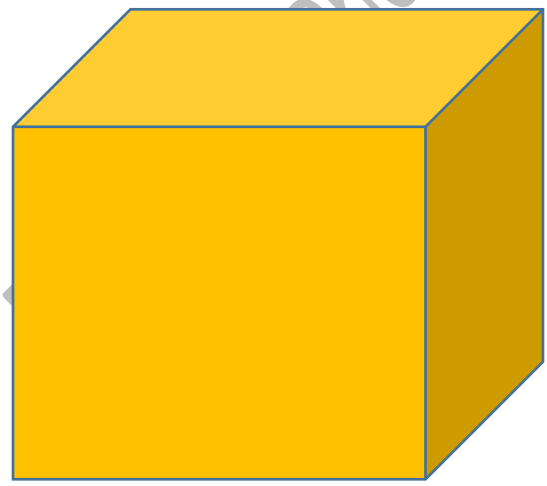


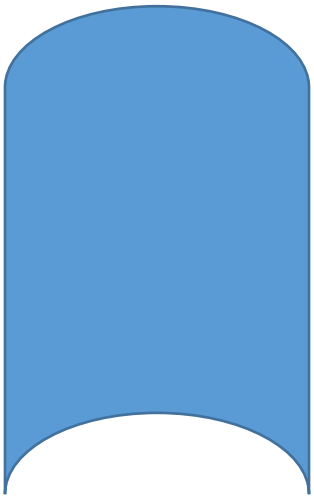












Quadrilateral

(polygon with 4 sides)

Trapezoid

(quadrilateral with one pair of parallel sides)

Kite

(quadrilateral with two pairs of equal adjacent sides)

Parallelogram

(quadrilateral with two pairs of parallel sides)

Square

(parallelogram with four equal sides and four equal angles)

Rectangle

(parallelogram with two sets of equal sides and four equal angles)

Rhombus

(parallelogram with four equal sides and two sets of opposite equal angles)

Lesson 6: Valentine's Day

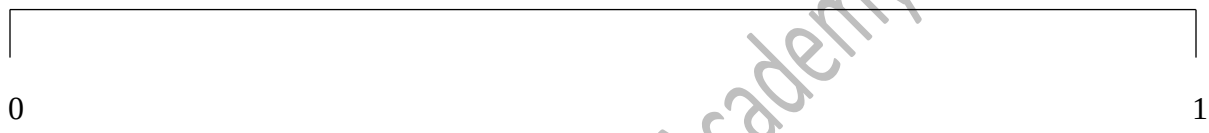
Purchase and print this packet on cardstock. You can also find a substitute or build your own. Choose one of the worksheets to do with your child, focusing on what they need to review/learn most.

Lesson 7: Fractions on a Number Line

Watch this video with your child and answer any questions they may have. Emphasize that a fraction represents a number on the number line. Work through the following examples with your child. Then, ask them to do the worksheet for this lesson.

Example 1:
Find and mark $\frac{1}{4}$ on the number line.

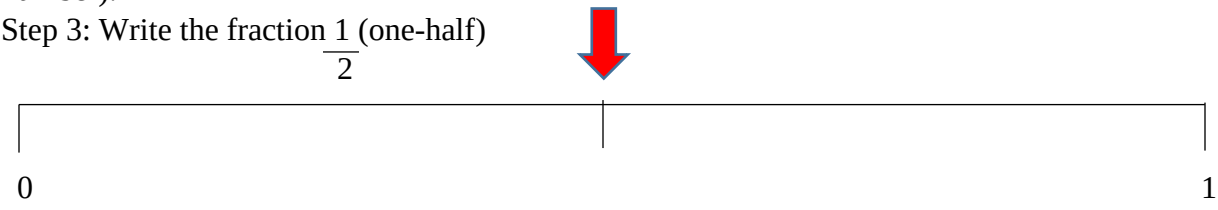
Step 1: Look at the denominator (bottom number) of the fraction. This tells us how many parts our whole needs to be broken into (4).
Step 2: Break the number line into 4 equal parts, called fourths or quarters.
Step 3: Look at the numerator (top number). This tells us how many parts we have (1).
Step 4: Count out 1 part and write $\frac{1}{4}$ there.



Example 2:
Find and mark $\frac{3}{8}$ on the number line.

Step 1: Look at the denominator (bottom number) of the fraction. This tells us how many parts our whole needs to be broken into (8).
Step 2: Break the number line into 8 equal parts, called eighths
Step 3: Look at the numerator (top number). This tells us how many parts we have (3).
Step 4: Count out 3 parts and write $\frac{3}{8}$ there.

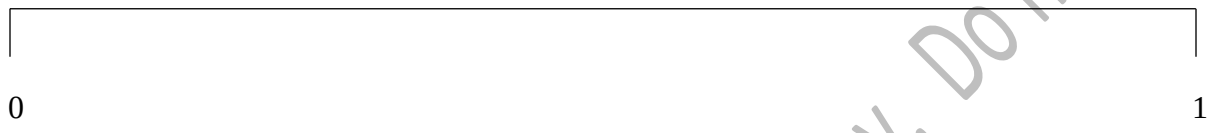
Example 3:
Write the fraction that the arrow is pointing to
Step 1: Count how many parts this whole has been broken into (2). That is your denominator (bottom number)
Step 2: Count how many parts there are until the arrow (1). This is your numerator (top number).
Step 3: Write the fraction $\frac{1}{2}$ (one-half)



Lesson 7 Worksheet

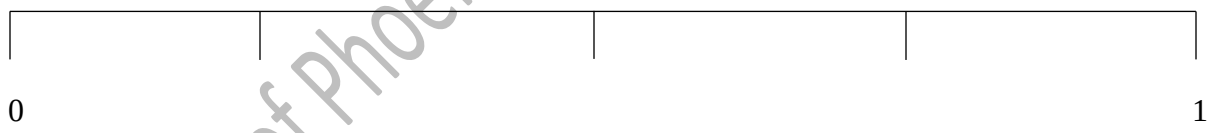
1. Put the fraction $\frac{3}{4}$ on the number line.

2. Put the fraction $\frac{3}{6}$ on the number line.

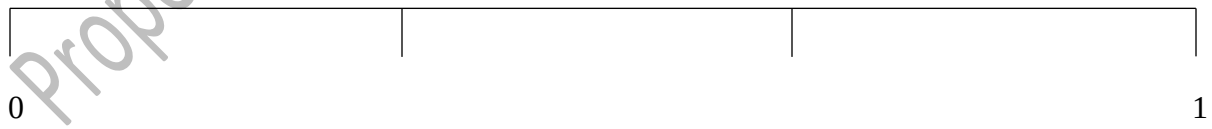


3. Put the fraction $\frac{1}{3}$ on the number line.

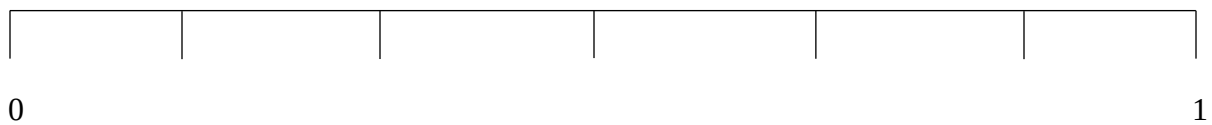
4. Write the fraction the arrow is pointing to



5. Write the fraction the arrow is pointing to



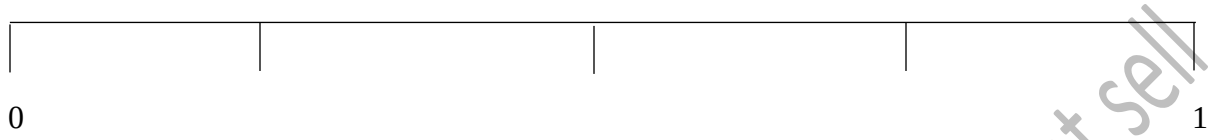
6. Write the fraction the arrow is pointing to



Lesson 8: Whole Numbers as Fractions

Remind your child of the previous lesson. Briefly review how to place fractions on a number line with the following example:

Write the fraction $\frac{2}{4}$ on the number line



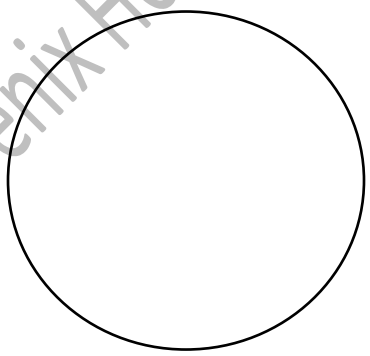
Next, explain that all the fractions we've used so far are a part of a number less than one. Explain that a fraction can also be equal to, or more than one. Show your child the following example:

$\frac{2}{2}$

In this fraction, the denominator (bottom number) is two. That means our whole is broken into two parts. Draw a line to break the circle below into two parts.

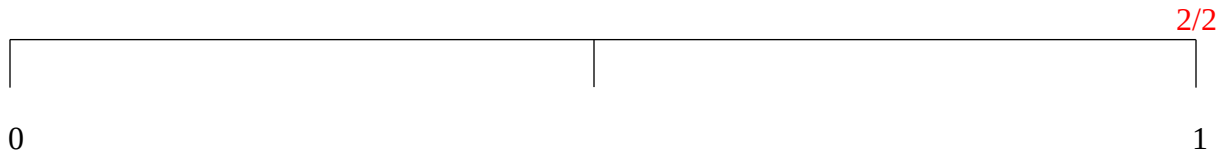
Next, look at the numerator (top number). This number tells us how many parts of the whole we have. In this example, we have two parts. Color in two of the parts of the circle. This means you will color in the whole circle.

$\frac{2}{2}$ is the same as 1 whole.



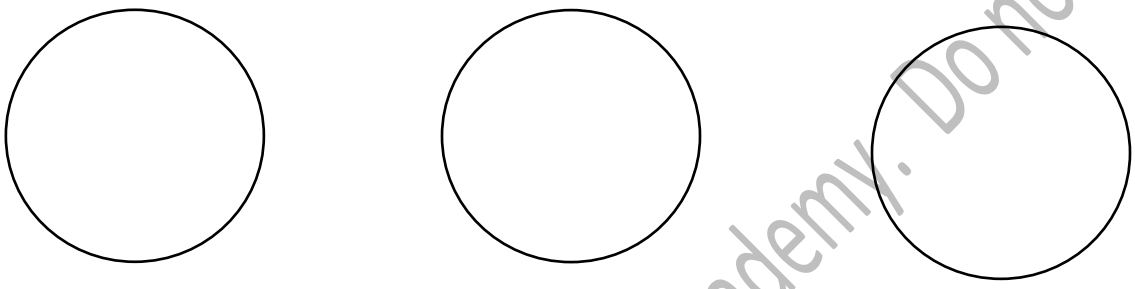
We can also see this on a number line. First, we break the whole into two parts. Then, we count two parts. This leaves us with $\frac{2}{2}$ or 1 whole.

Explain that anytime the numerator and denominator of a fraction are the same number, that fraction is equal to 1.

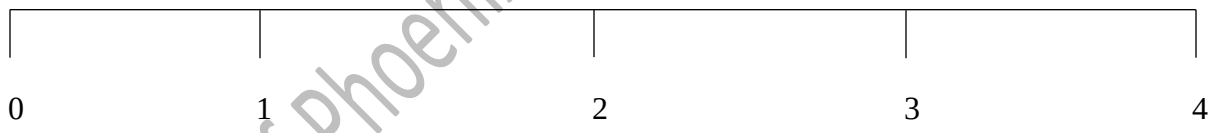


Next, work through the following example with your child. First, ask if the numerator and denominator are the same number. Point out that they are different. Then, ask your child what number the denominator is. (1) Explain that this means our whole will be broken up into 1 part. Next, ask your child what the numerator is. (3). Explain that this means we will have three parts. Remind your child that each part is a whole, so for this fraction we simply color in three whole circles. Ask your child to color in the circles. Point out that this fraction is more than 1 whole. This happens when the numerator is bigger than the denominator.

$\frac{3}{1}$



Now, let's put this fraction on a number line. Point out that this number line shows whole numbers 0-4. Remind your child of the three whole circles and ask them where they think the fraction 3/1 would go on the number line. Point out that finding this fraction is easy. We simply count three whole numbers (1, 2, 3) and mark the fraction beside the whole number 3.



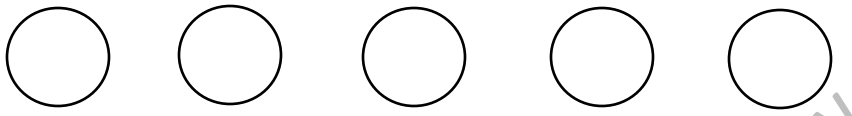
$\frac{3}{1}$ is equal to the whole number 3.

Explain that anytime the denominator is 1, the numerator is showing a whole number.
Ask your child to do the following worksheet.

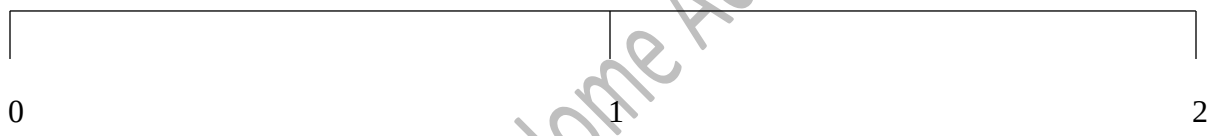
Lesson 8 Worksheet

1. Put the fraction $\frac{5}{5}$ on the number line.

2. Color in $\frac{4}{1}$ of the circles



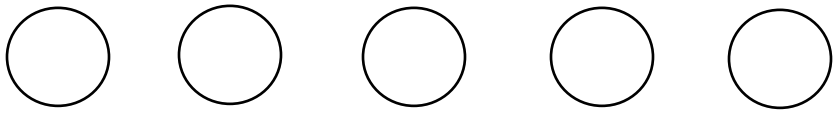
3. Put the fraction $\frac{2}{1}$ on the number line.



4. Color in $\frac{3}{1}$ of the circles

5. Put the fraction $\frac{6}{6}$ on the number line.

6. Color in $\frac{1}{1}$ of the circles

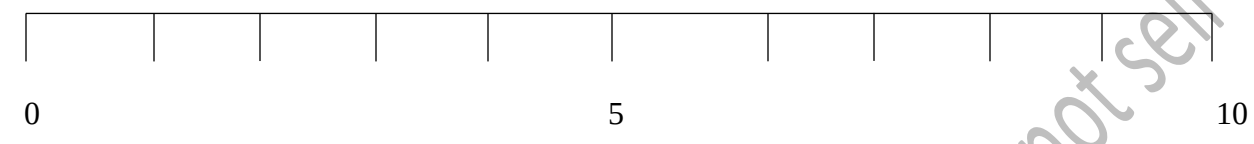


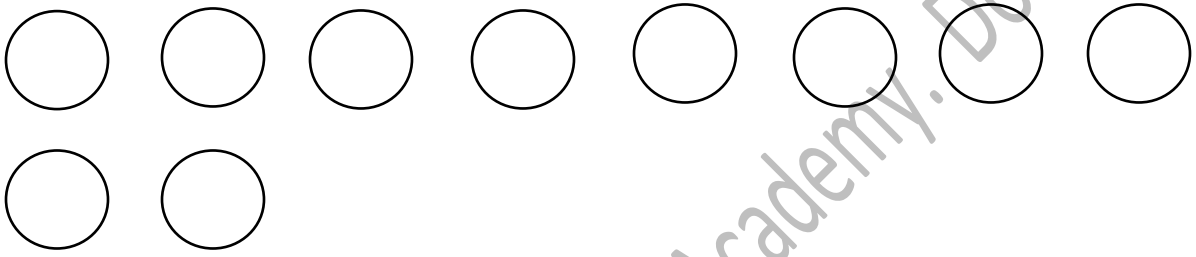
Lesson 9: Equivalent Fractions: Whole Numbers

Review the previous supplemental lesson with your child, reminding them that anytime the numerator and denominator match, the fraction is equal to 1 and that anytime the denominator is 1, the fraction equals a whole number given by the numerator. Then, work through the following worksheet with your child allowing them to do as much as possible on their own:

Lesson 9 Worksheet (2 pages)

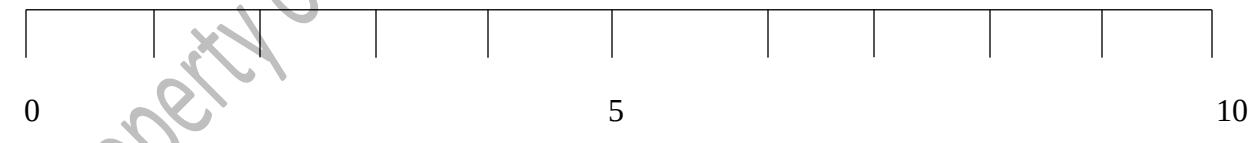
1. Find the fraction $\frac{9}{1}$ on the number line. Then, fill in the circles for that fraction. Finally, write the whole number that the fraction is equal to.

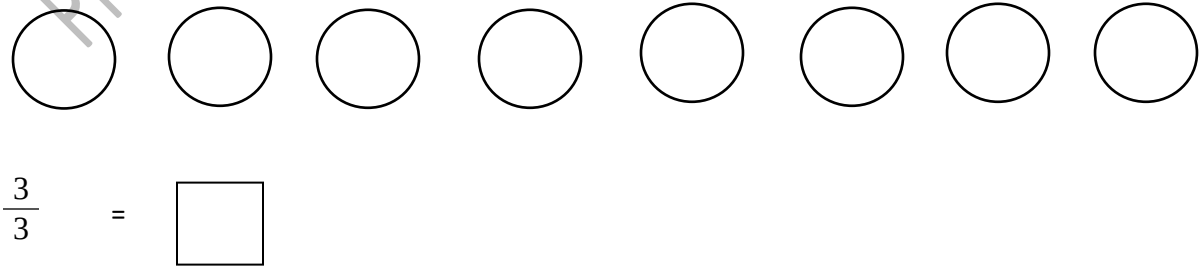




$\frac{9}{1}$ = ☐

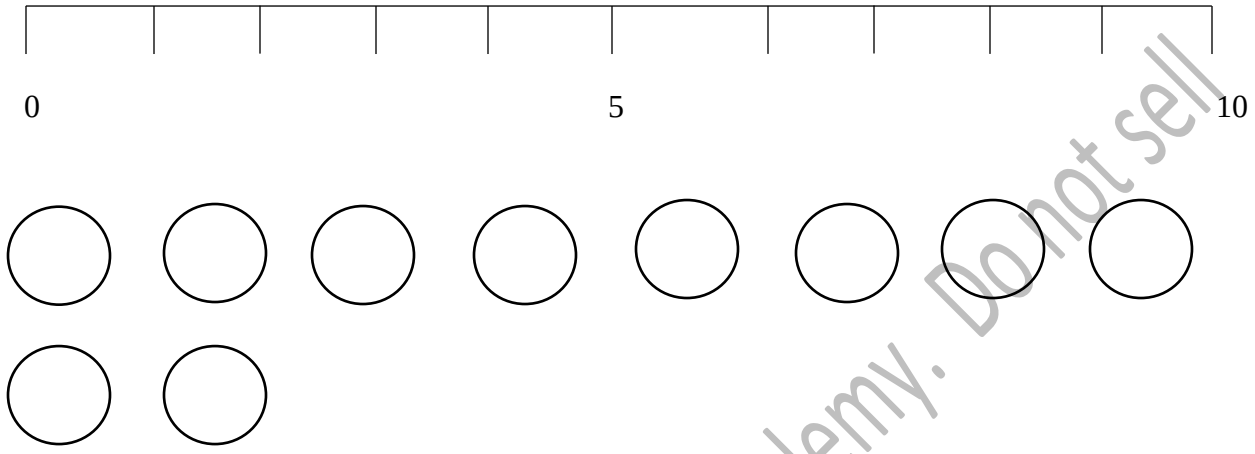
2. Find the fraction $\frac{3}{3}$ on the number line. Then, fill in the circles for that fraction. Finally, write the whole number that the fraction is equal to.





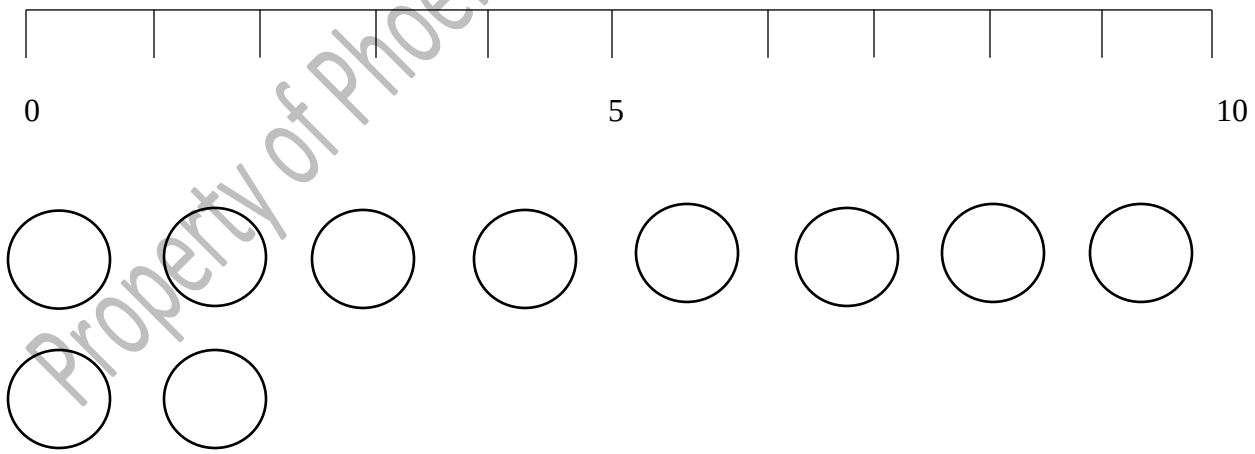
$\frac{3}{3}$ = ☐

3. Find the fraction $\frac{5}{1}$ on the number line. Then, fill in the circles for that fraction. Finally, write the whole number that the fraction is equal to.



$\frac{5}{1}$ = ☐

4. Find the fraction $\frac{6}{6}$ on the number line. Then, fill in the circles for that fraction. Finally, write the whole number that the fraction is equal to.



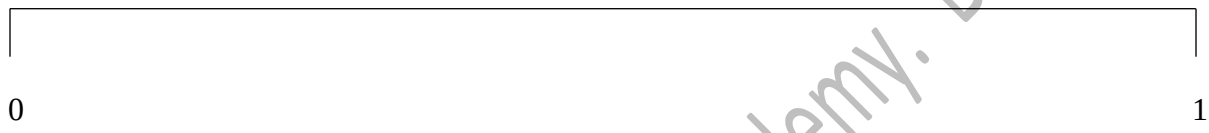
$\frac{6}{6}$ = ☐

Lesson 10: Equivalent Fractions: Parts

Briefly review supplemental lessons 7-9 with your child. Discuss how a fraction with a numerator and denominator that match is equal to 1, no matter what number is shown (5/5, 1/1, and 3/3 are all equal to 1). Work through the following example with your child:

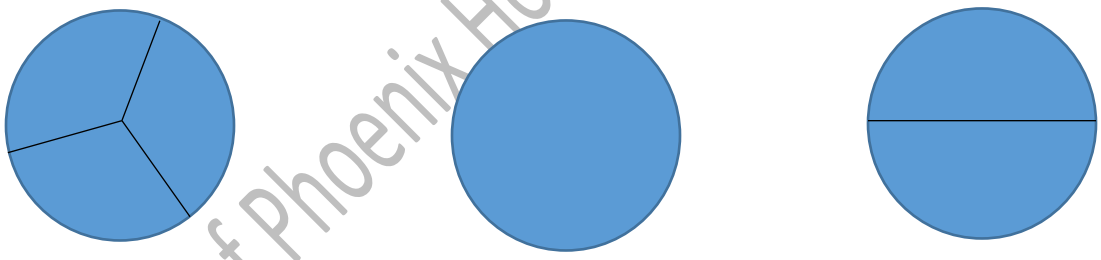
Using three different colored markers, place each of the following fractions on the number line below:

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



0 1

Point out that these fractions all reach the whole number 1 on the number line, which means that they are all equal to, or have the same amount as, 1. Illustrate this further by matching the following to each of the fractions you just placed on the number line and pointing out that each of them fills exactly 1 whole circle:



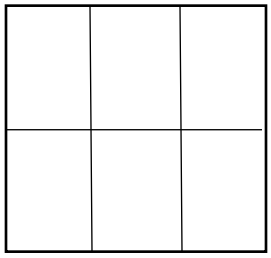
Next, draw each of the following fractions on the number line, each with a different color:

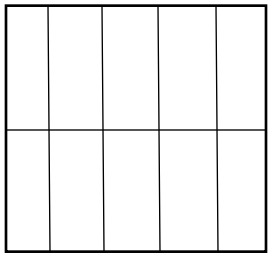
$\frac{3}{6}$ $\frac{5}{10}$ $\frac{2}{4}$

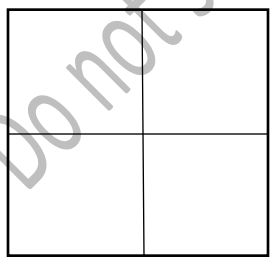
0 1

Point out that these fractions all reach the point exactly in the middle of the whole number 0 and 1, or the ½ (one-half) point. This means that all these fractions are equal to one-half.

Reinforce this idea by matching the fractions to each of the following shapes, asking your child to color in the correct number of parts. Then, point out that each of them fill exactly one-half of the square. Explain that these fractions are equal, or equivalent, because they represent the same amount.







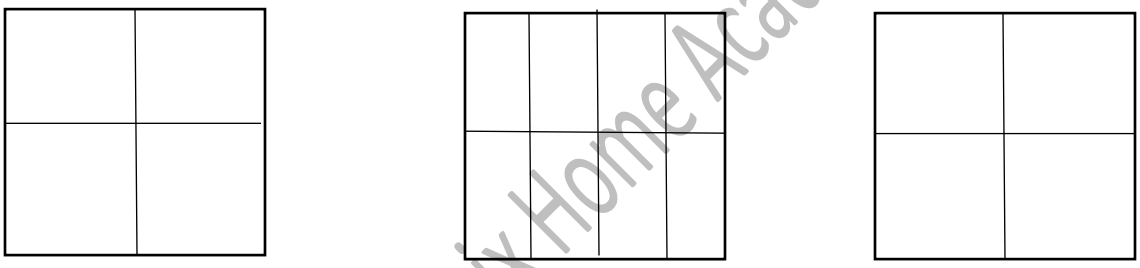
Finally, ask your child to do the worksheet for this lesson.

Worksheet Lesson 10

Circle the equivalent fractions for each problem. Use the number line and/or shapes to find the answer.

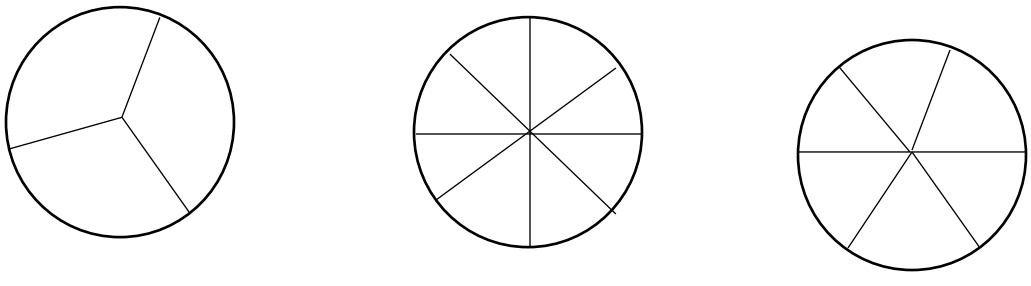
1. $\frac{5}{5}$ $\frac{3}{5}$ $\frac{6}{6}$

2. $\frac{1}{4}$ $\frac{2}{8}$ $\frac{2}{4}$



3. $\frac{1}{5}$ $\frac{1}{6}$ $\frac{2}{10}$

4. $\frac{2}{3}$ $\frac{3}{8}$ $\frac{4}{6}$

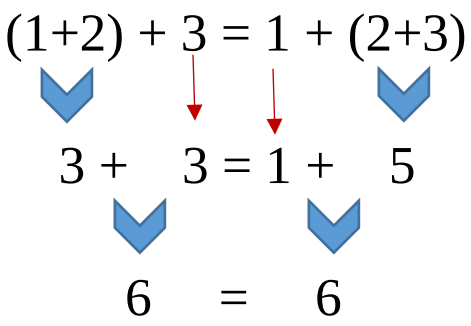


Lesson 11: St. Patrick's Day

Purchase this worksheet packet (or find a substitute) and choose one concept that your child needs to review. Allow them to work through and color the worksheet of your choice.

Lesson 12: Associative Property

Remind your child of the associative property of addition (a + (b + c) = (a + b) + c) with the following example. Point out that when there are parenthesis in a math problem, you do the part inside the parenthesis first:



Explain that no matter what order we add these three numbers in, we get the same answer.

Then, explain that this is true for multiplication problems, too, because multiplication is simply adding a number to itself a certain number of times. Show your child the hundreds chart. Then, ask your child to solve the following by placing their finger on the 10 hundreds chart, then jumping 10 places at a time until they add all the 10's in the problem together (10, 20, 30, 40) :

10 + 10 + 10 + 10 =

Next, ask your child to convert this addition problem to a multiplication problem. Explain that they simply have to find out how many of the same number (in this case, 10) they are adding together. This problem shows us we need 4 tens. Ask your child to solve the problem in the same way as the addition problem using the hundreds chart and point out that they have the same answer.

10 x 4 =

Finally, point out that addition and multiplication are related and the associative property works for both. Use the following example to help your child understand that multiplying the same numbers in a different order create the same product, or answer.

$$(2 \times 3) \times 4 = 2 \times (3 \times 4)$$

$$6 \times 4 = 2 \times 12$$

$$24 = 24$$

Practice the following with your child so they understand the concepts taught. Then, ask them to do the worksheet for this lesson.

$$(4 \times 2) \times 3 = 4 \times (2 \times 3)$$

$$8 \times 3 = 4 \times 6$$

$$24 = 24$$

Worksheet Lesson 12

Fill in the blank number and solve the problem to find the equivalent values

1. (3 + 2) + 5 = 3 + (2 + __)

2. (6 + 3) + 4 = 6 + (___ +4)

3. (6 x 1) x __ = 6 x (1 x 2)

4. (4 x 2) x 2 = 4 x (2 x __)

5. (1 x 1) x __ = 1 x (1 x 9)

6. (5 x 1) x 2 = ___ x (1 x 2)

7. 6 x 4 = 6 x ____

8. 5 x 2 = 2 x ____

9. 3 x 2 = 2 x ____

10. 1 x 9 = 9 x ____

11. 8 x 4 = 4 x ____

12. 7 x 7 = 7 x ____

13. 1 x 4 = 4 x ____

14. 3 x 7 = 7 x ____

Lesson 13: Distributive Property

Review the associative property of multiplication with your child. Be sure they really understand it and take extra time if needed.

Then, explain that there is another trick to finding multiplication products (or answers) when you are multiplying. This trick is called the distributive property and can help when multiplying large numbers. It states that:

$$a \times (b + c) = ab + ac$$

Use the following example to work through a problem with distributive property with your child:

$$5 \times (3 + 2) =$$

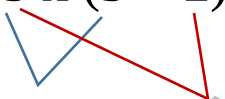
We can solve this problem two different ways. We could do the problem within the parenthesis first, and then solve those outside of the parenthesis:

$$5 \times (3 + 2) =$$

$$5 \quad x \quad 5 = 25$$

Or, we could use the distributive property:

$$5 \times (3 + 2) =$$

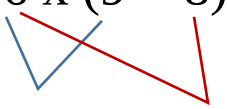


$$5 \times 3 \; + \; 5 \times 2 \; =$$

$$15 \quad + \quad 10 = 25$$

Point out that we got the same product with both methods. Work through the following with your child using distributive property

$$6 \times (9 + 8) =$$



Finally, show your child this example, explaining that distributive property allows us to multiply large numbers:

$$\begin{array}{r} 15 \\ \times\ 5 \\ \hline \end{array}$$

Point out that 15 is simply 10 + 5 so we can solve this problem in the following way:

5 x (10 + 5)

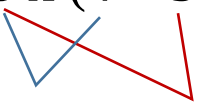
5 x 10 + 5 x 5

50 + 25 = 75

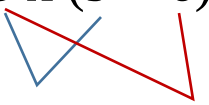
Lesson 13 Worksheet

Use distributive property to solve the following:

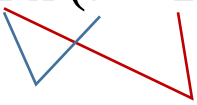
1. $3 \times (4 + 5) =$



2. $5 \times (9 + 6) =$



3. $2 \times (7 + 1) =$



4. $4 \times (8 + 7) =$

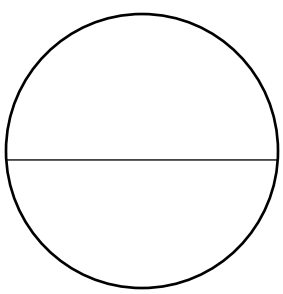
5. $\begin{array}{r} 13 \\ \times\ 2 \\ \hline \end{array}$

6. $\begin{array}{r} 16 \\ \times\ 3 \\ \hline \end{array}$

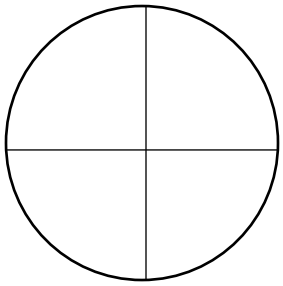
7. $\begin{array}{r} 18 \\ \times\ 4 \\ \hline \end{array}$

Lesson 14: Fractions as a Division Problem

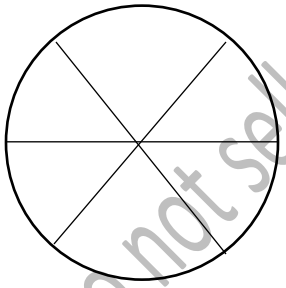
Review fractions with your child by asking them to color in the appropriate spaces for each of the following:



$\frac{1}{2}$



$\frac{3}{4}$



$\frac{2}{6}$

Next, ask your child to read the following fraction to you. Remind them that they read the numerator (top number) first, then the denominator (bottom number):

$$\frac{32}{8}$$

Explain that this fraction is called an improper fraction because the numerator is bigger than the denominator. This fraction can be read as thirty-two eights. However, it can also be changed into a whole number through division. Remind your child of the parts of a division problem:

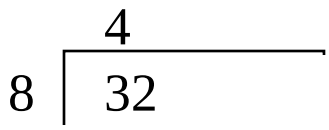
Quotient
Divisor ⟌ Dividend

To divide a fraction, we simply put the numerator in the dividend place and the denominator in the divisor place and then solve:

8 ⟌ 32

Or 32 ÷ 8 =

Ask your child to solve the division problem by figuring out how many times 8 goes into 32.



Or 32 ÷ 8 = 4

Explain that we could also figure this out using multiplication:

32 = 8 x ___

Work through the following fractions, turning them into division problems with your child, and then ask them to do the worksheet for this lesson:

$$\frac{15}{3}$$

$$\frac{24}{6}$$

Lesson 14 Worksheet

Find the whole number quotients of the following division problems:

1. $\frac{12}{2}$

2. $\frac{6}{3}$

3. $\frac{54}{9}$

Fill in the missing number:

4. 3 x ___ =21
5. 6 x ___ = 30
6. 4 x ____ = 12

4. 5 x ___ =15
5. 2 x ___ = 20
6. 7 x ____ = 28

4. 8 x ___ =64
5. 9 x ___ = 81
6. 1 x ____ = 9

Lesson 15: Word Problems: Two Step Equations

Read the following to your child:

Sara had 5 bags with 5 pieces of candy in each of them. Her friend gave her 2 more bags of candy that each had 3 pieces of candy in them. How many pieces of candy did Sara have in all?

Read the first sentence to your child again. Ask them to underline the numbers they see. Then, help your child draw out 5 bags with 5 pieces of candy in each of them on a blank paper. It should look something like this:

Ask your child how they would find out how many candies are in these bags?

Your child may want to add them: 5 + 5 + 5 + 5 + 5
Or multiply them: 5 x 5

Point out that, because the bags all have the same number of candy in them, multiplication may be faster. Ask your child to write 5 x 5 on their paper below the picture they drew.

Next, read the second sentence to your child, asking them to underline the important numbers in it and then illustrate it:

Ask your child how they would write out this problem, encouraging them to use multiplication rather than addition but pointing out that both would work. Ask your child to write that problem under the new illustration:

3 + 3
Or 3 x 2

Finally, ask your child if either problem represents all of the bags of candy Sara had at the end. Did she only have the bags with 5 candies? The ones with 3 candies? Or did she have bags with both 5 and 3 candies each? Point out the phrase *in all* and remind your child that this means we are supposed to add the numbers together. Use the illustrations to show that we can write this out different ways.

We could simply add them all:
5 + 5 + 5 + 5 + 5 + 3 + 3 =

Or, we could use a mixture of multiplication and addition to get the answer faster. To do this we simply take our multiplication problem from the first sentence:

5 x 5

And add it to our multiplication problem from the second sentence:

5 x 5 + 3 x 2 =

Explain that when solving a problem like this we start with multiplication and/or division problems, then we add or subtract. So, solving this problem would look like this:

5 x 5 + 3 x 2 =

25 + 6 = 31

Help your child work through the worksheet problems in the same way, encouraging them to do as much as they can on their own.

Lesson 15 Worksheet

1. Billy had 6 containers holding 3 building blocks each. His friend, Alfonso, had 4 containers holding 5 building blocks each. Which friend has the least amount of blocks?

2. Jessica had 3 packs of 6 juice boxes. She shared 1 juice box with each of her 15 friends. How many juice packs did Jessica have left?

3. Raymond had 5 boxes with 9 strawberries in each. His friend had 7 boxes with 8 blueberries in each. How many berries did they have in all?