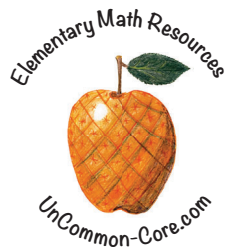
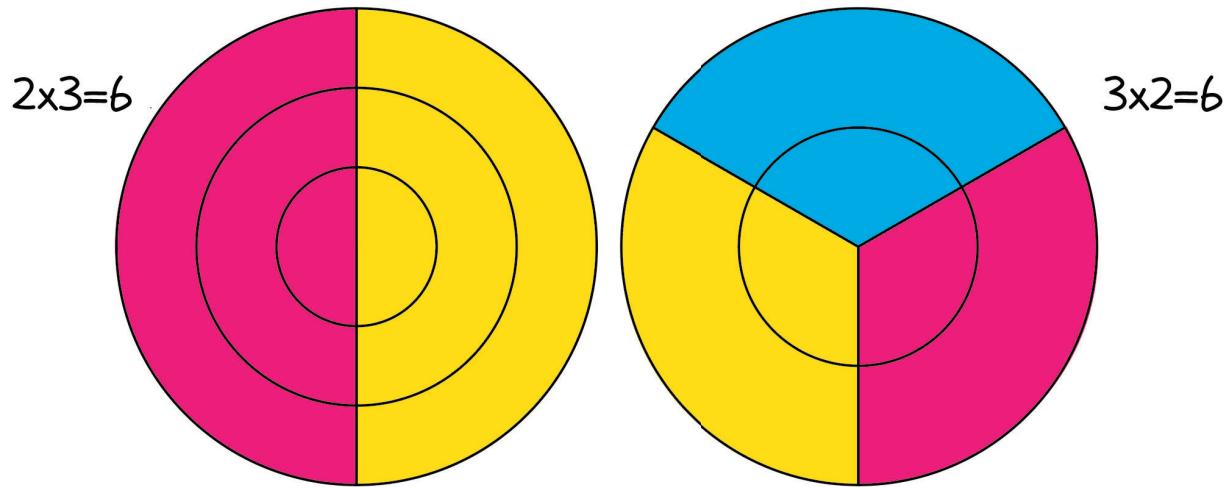


# Simple Concentric Circle Multiplication

## FREE SAMPLE!



Isabelle Hoag M. Ed.  
Director of Education  
UnCommon-Core.com

Hello Teachers,

Thank you for downloading this handout. After decades of teaching, now I am sharing some of the activities I designed for my students and some new ones as well.

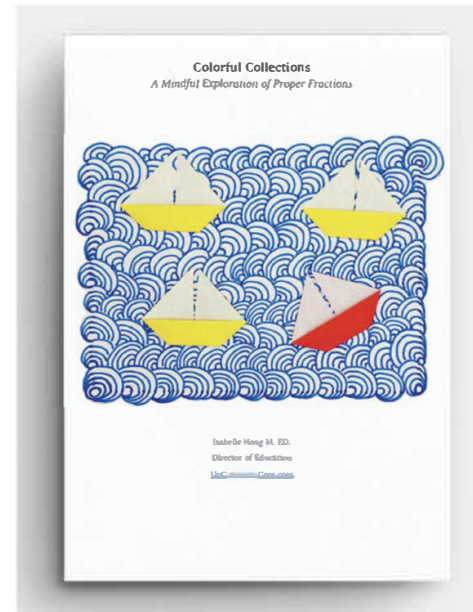
Visit [UnCommon-Core.com](http://UnCommon-Core.com) and sign up for your free copy of *Colorful Collections: A Mindful Exploration of Proper Fractions*. You will also receive Wednesday morning emails with teacher tips, educational ideas, or free copies of products I'm making. You get to use them for free and I get the benefit of your comments and suggestions!

Also, visit my Teachers Pay Teachers store [UnCommon-Core dot com](http://UnCommon-Core dot com).

Thank you again. All the best,

Isabelle

Isabelle Hoag M.Ed.  
Director of Education  
[UnCommon-Core.com](http://UnCommon-Core.com)



# Simple Circles Multiplication Teacher Introduction

Teachers!

Have your students been working on multiplication?

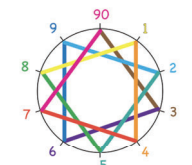
Can they explain multiplication in terms of: equal groups? Skip counting? Repeated addition?

Are they ready for an exciting activity to help them: practice math facts? Consolidate their understanding of multiplication? Make sense of the commutative property of multiplication?

NOT YET?

YES!

### Multiples of Three Choral Counting Slide Show



A Gentle Introduction to Multiples of Three

Students:

- Make the soundtrack
- Gain fluency with math facts
- Explore memorable patterns

Slide Show Includes:

- 3 minutes of choral counting
- Multiples of three: 0 to 120
- [Access to online Teacher Tips](#)

Isabelle Hoag M. Ed.  
Director of Education  
UnCommon-Core.com

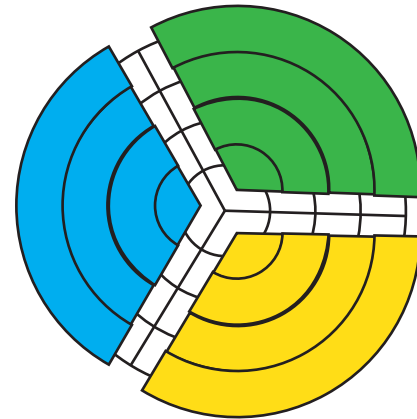
Students who are not yet ready for Concentric Circle Multiplication will enjoy skip counting and the colorful activity that goes with it.

Let me introduce **Concentric Circle Multiplication!**

The activities on each page focus on a unique pair of **factors** and their **product**. There are two circular images; one for each way the factors can be ordered.

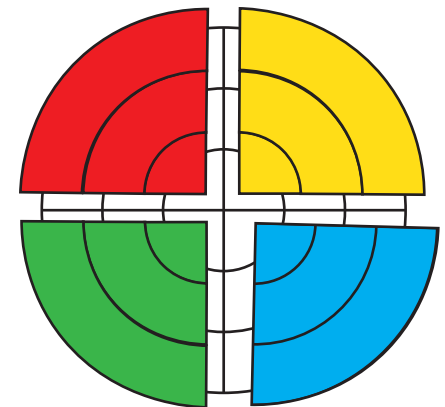
The images show a unique multiplication model in which a **slice** of a **circle** is used as a group. Shapes within each slice are the elements in each group.

The circles are based on a polar grid. Connect the image with a pie chart or an analog clock to give your students everyday references. If any of your students are diabetic, live in food insecure homes, or are fasting for Lent, Yom Kippur, or Ramadan you may not want to compare circles to pie, cake, cookies, or pizza.



The image above shows three groups of four. There are three slices with four pieces in each. The total number of pieces is twelve.

$$3 \times 4 = 12$$



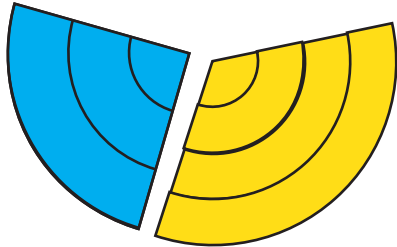
This image shows four slices with three pieces in each. There are four groups of three. The total number of pieces is twelve.

$$4 \times 3 = 12$$

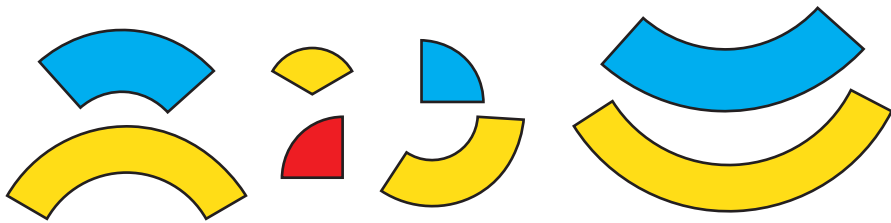


# Simple Circles Multiplication Teacher Introduction

If your students are familiar with fractions of circles, then that connection will help them compare the size of two slices. If they have learned about degrees, that connection will also help.



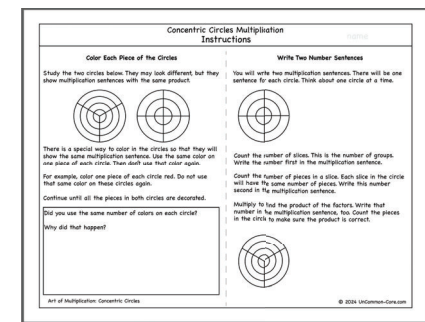
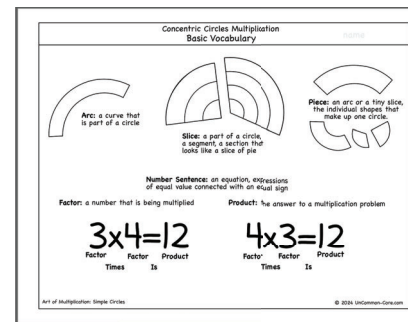
However, even without additional experience with angles or fractions, students can see when one slice takes up more of the circle than another.



The arcs and little slices - from the center of the circles - are called **pieces**. There are the same number of pieces in each circle. This number matches the product of the factors on that page.

Ask students to use specific terms like slice, arc, group, factor, product, and equation when talking or writing about these activities.

There are two pages you can use to introduce the activities to your students. The vocabulary page introduces terms that are used in directions. Encourage students to use this page as a reference when they answer questions or write about what they have done.



Next there is an interactive instruction page. Make sure each student understands what to do. The instruction page uses the factors three and four as examples.

For this reason, consider using the activity page that focuses on factors of three and four as the first independent work you give your students.

Encourage students to keep these pages for reference while working on these activities.

# Simple Circles Multiplication Overview and Vocabulary

## Overview

Using concentric circles and radial dividers to multiply is a fun and colorful alternative to other types of models.

In these activities slices are like groups. The pieces within each slice are the elements inside the group.

Each slice will be colored in. Students could use the same colors on both circles in order to make a direct comparison.

The concentric circles and radial dividers can also be seen as an area model of multiplication. Both circles on the page take up the same amount of space. Students can cut out the circles and slide them together to check.

Students can also use the concentric circles to show multiplication as repeated addition. Have them write the total number of pieces in each slice under the circle. Students can then add to find the total number of pieces.

Art of Multiplication: Simple Circles

## Vocabulary:

**Arc:** part of the circumference of a circle, a shape that is part of a hoop or ring

**Circle:** a round shape, a ring, a hoop,

**Commutative property of multiplication:** the order of the factors does not affect the product

**Concentric:** nested, fitting inside each other - having the same center point,

**Equation:** - number sentence, a numerical expression with an equal sign in which both sides have the same value

**Factor:** a number to be multiplied

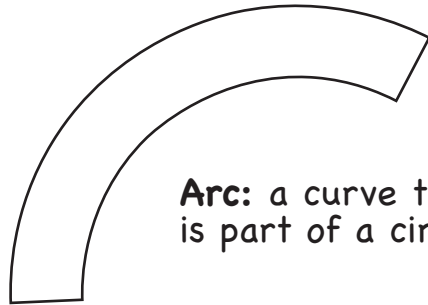
$$\text{factor} \times \text{factor} = \text{product}$$

**Product:** the result of multiplying two factors

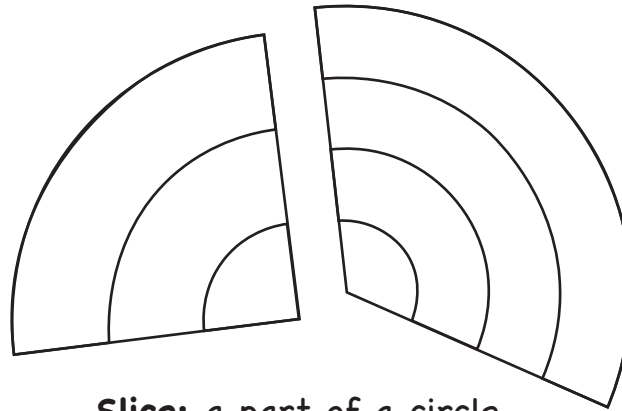
**Slice:** shape that looks like a piece of pie, similar to a triangle however one edge is curved.

# Simple Circles Multiplication Basic Vocabulary

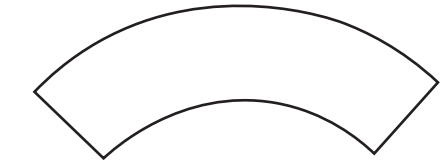
name \_\_\_\_\_



**Arc:** a curve that is part of a circle



**Slice:** a part of a circle, a segment, a section that looks like a slice of pie



**Piece:** an arc or a tiny slice, the individual shapes that make up one circle.



**Number Sentence:** an equation, expressions of equal value connected with an equal sign

**Factor:** a number that is being multiplied

**Product:** the answer to a multiplication problem

$$3 \times 4 = 12$$

Factor      Factor      Product  
Times      Is

$$4 \times 3 = 12$$

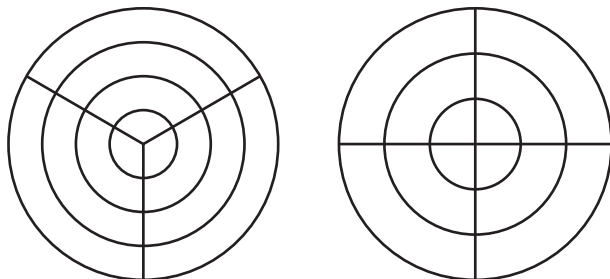
Factor      Factor      Product  
Times      Is

# Simple Circles Multiplication Instructions

name \_\_\_\_\_

## Color Each Slice of the Circles

Study the two circles below. They may look different, but they show multiplication sentences with the same product.



First, color the slices of both circles. You might want to use the same colors on both circles. Slices in the same circle should never be the same color.

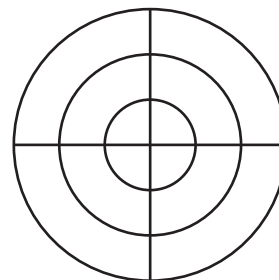
For example, color one slice of each circle yellow. Then, do not use that same color on these circles again.

Did you use the same number of colors on each circle?

Why or why not?

## Write Two Number Sentences

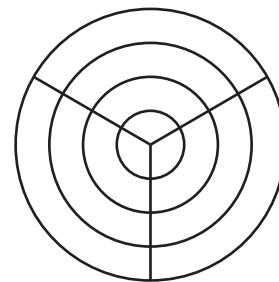
Write a multiplication sentence for each circle.



Count the number of slices. This is the number of groups. Write the number first in the multiplication sentence.

Count the number of pieces in a slice. Each slice in the circle will have the same number of pieces. Write this number second in the multiplication sentence.

Multiply to find the product of the factors. Write that number in the multiplication sentence, too. Count the pieces in the circle to make sure the product is correct.



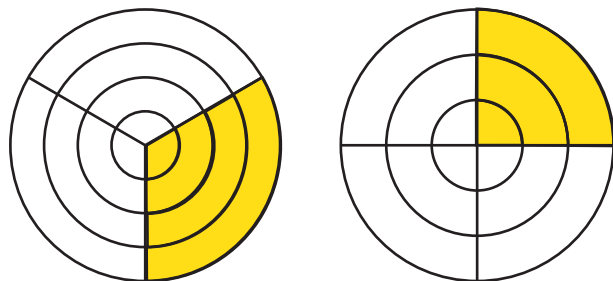


# Simple Circles Multiplication Instructions

name \_\_\_\_\_

## Color Each Slice of the Circles

Study the two circles below. They may look different, but they show multiplication sentences with the same product.



First, color the slices of both circles. You might want to use the same colors on both circles. Slices in the same circle should never be the same color.

For example, color one slice of each circle yellow. Then, do not use that same color on these circles again.

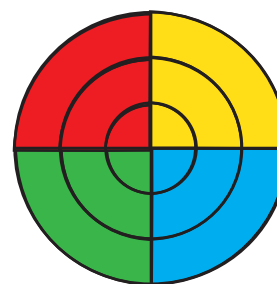
Did you use the same number of colors on each circle? **No**

Why or why not? *Student writing will vary.*

*One circle had three slices and the other circle had four. I used the same three colors on both circles; yellow, blue, and green. Then I used red on the fourth slice of the other circle. Each slice is like a group of pieces. When there were three slices in a circle, then there were four pieces. The other circle was the other way around.*

## Write Two Number Sentences

Write a multiplication sentence for each circle.



$$4 \times 3 = 12$$

There are 4 slices in this circle.

Each slice has 3 pieces.

In total there are 12 pieces in the circle.  
Add 3 together 4 times to get 12.

$$3 + 3 + 3 + 3 = 12$$

Count the number of slices. This is the number of groups.  
Write the number first in the multiplication sentence.

Count the number of pieces in a slice. Each slice in the circle will have the same number of pieces. Write this number second in the multiplication sentence.

Multiply to find the product of the factors. Write that number in the multiplication sentence, too. Count the pieces in the circle to make sure the product is correct.



$$3 \times 4 = 12$$

There are 3 slices in this circle.

Each slice has 4 pieces.

In total there are 12 pieces in the circle.  
Add 4 together 3 times to get 12.

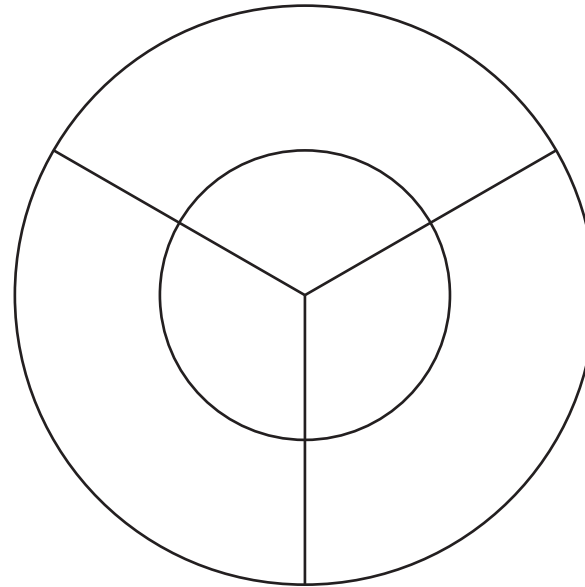
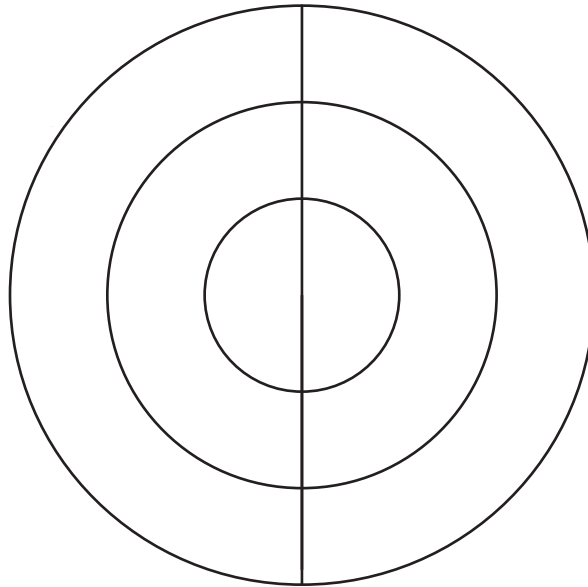
$$4 + 4 + 4 = 12$$



Simple Circles Multiplication  
Factors: two and three

name

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

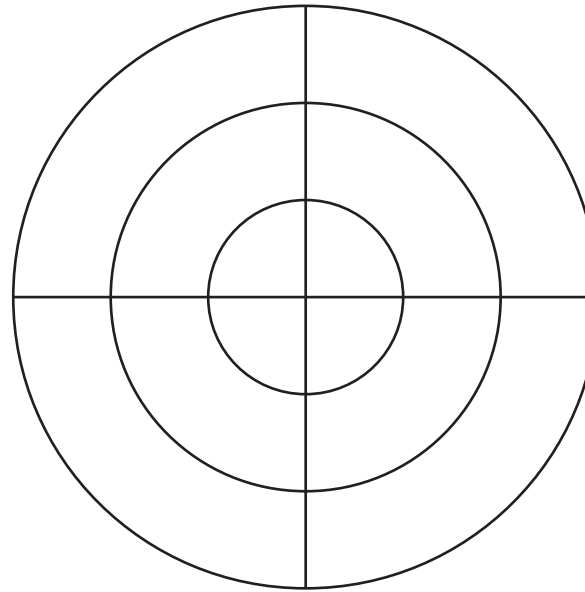
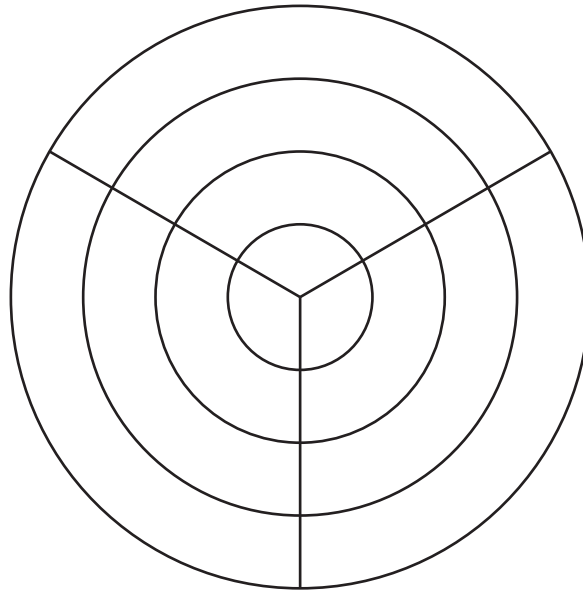


# Simple Circles Multiplication

## Factors: Three and Four

name \_\_\_\_\_

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

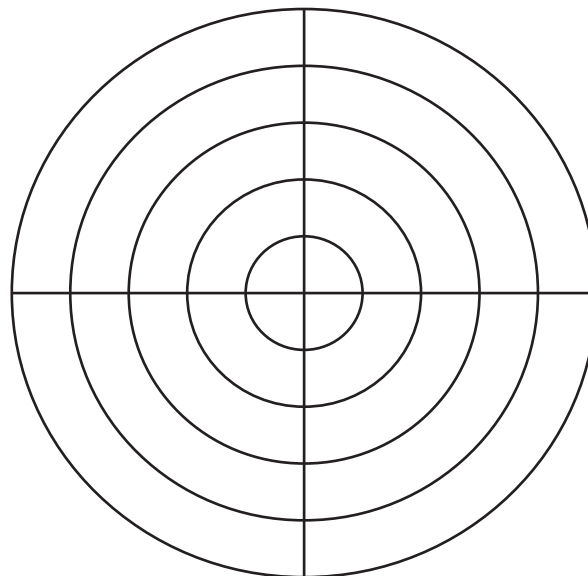
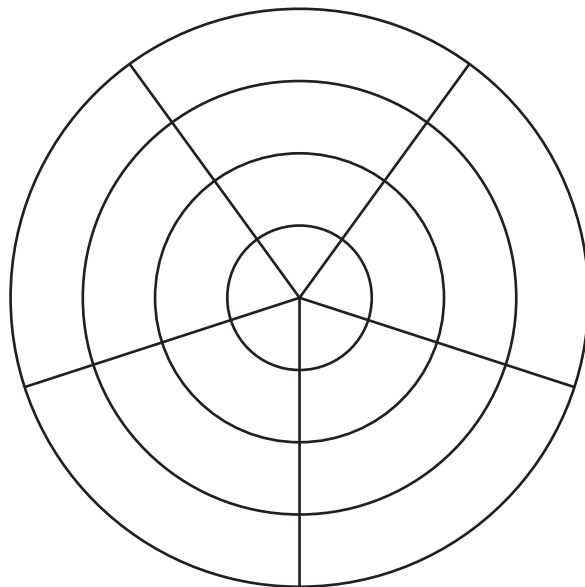


# Simple Circles Multiplication

## Factors: Four and Five

name \_\_\_\_\_

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

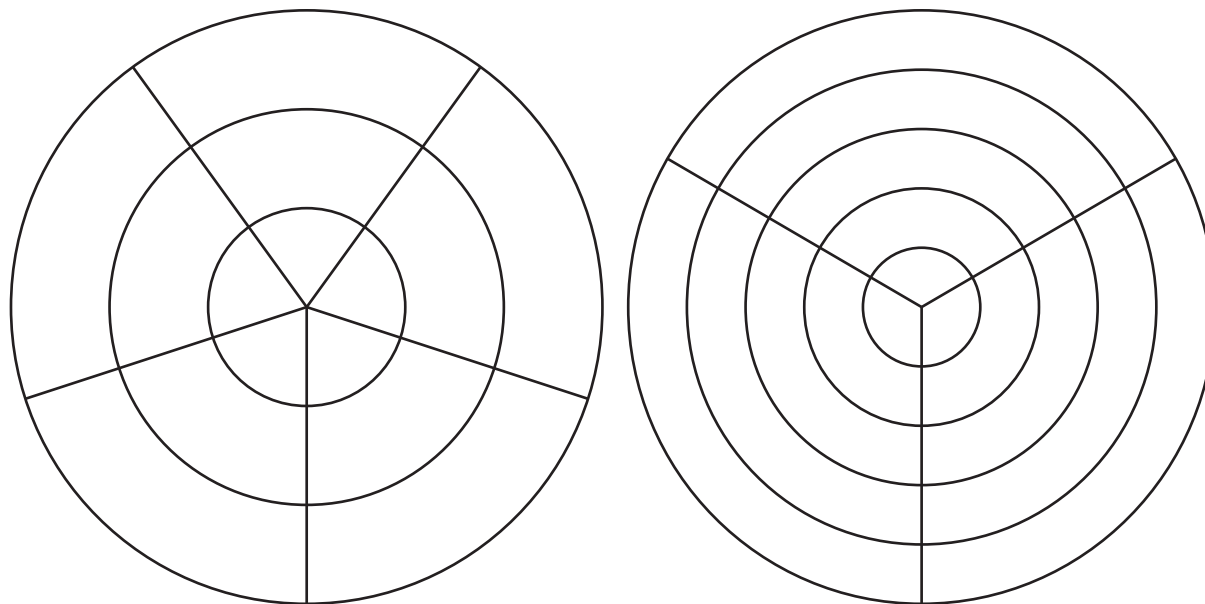


# Simple Circles Multiplication

## Factors: Three and Five

name \_\_\_\_\_

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

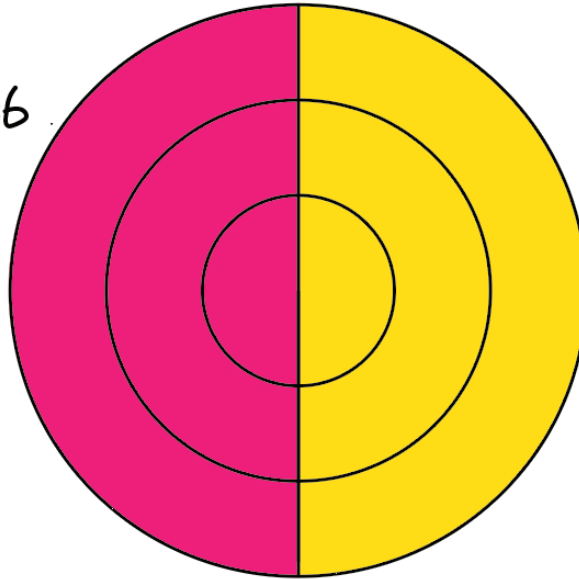


Concentric Circles Multiplication  
Factors: two and three

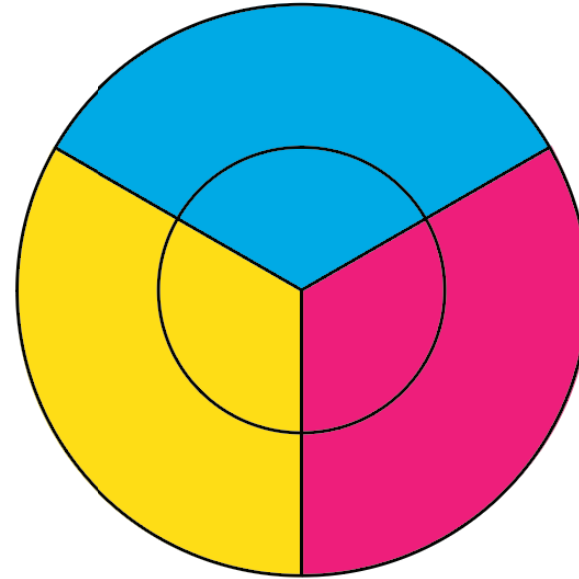
Answer Key

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

$2 \times 3 = 6$



$3 \times 2 = 6$



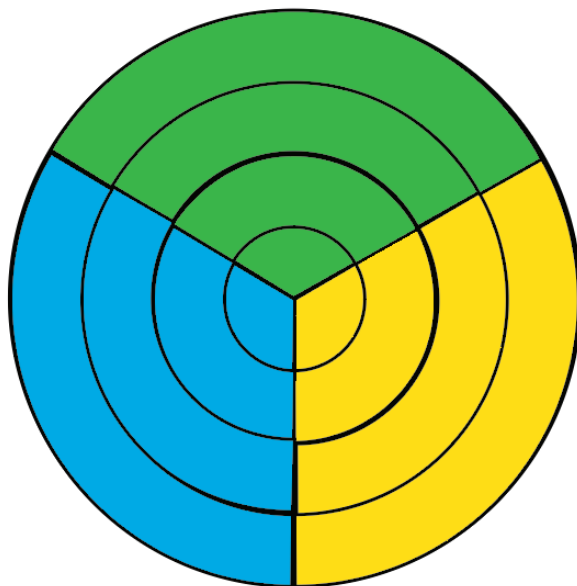
Student writing will vary.

Concentric Circles Multiplication  
Factors: Three and Four

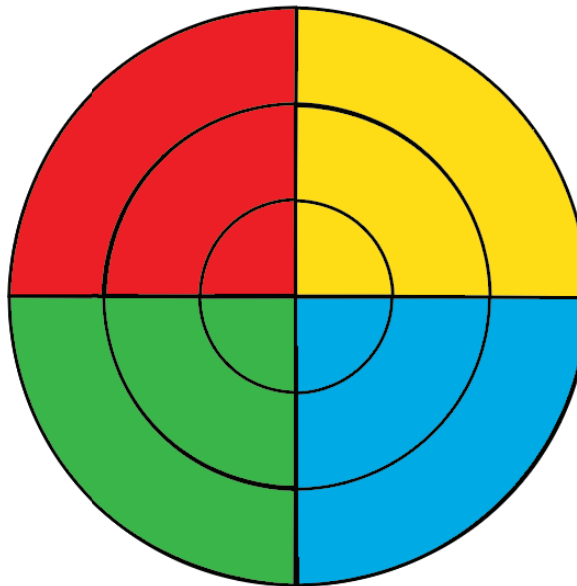
Answer Key

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

$3 \times 4 = 12$



$4 \times 3 = 12$



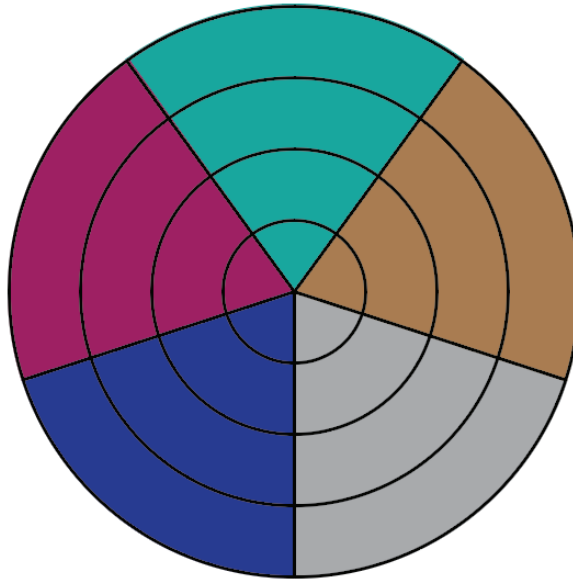
Student writing will vary.

Concentric Circles Multiplication  
Factors: Four and Five

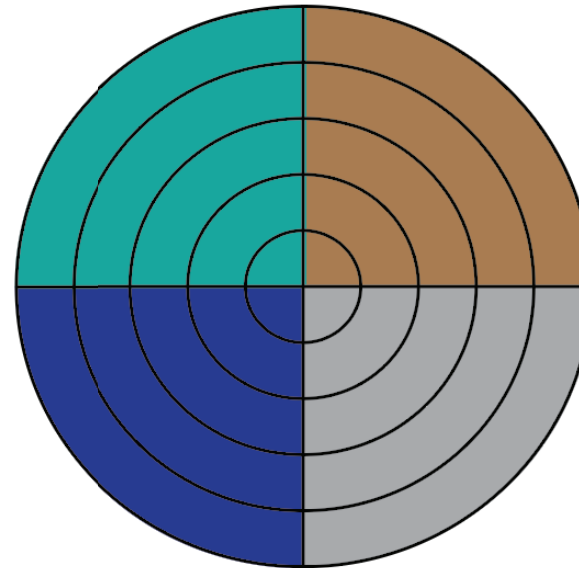
Answer Key

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

$$5 \times 4 = 20$$



$$4 \times 5 = 20$$



Student writing will vary.

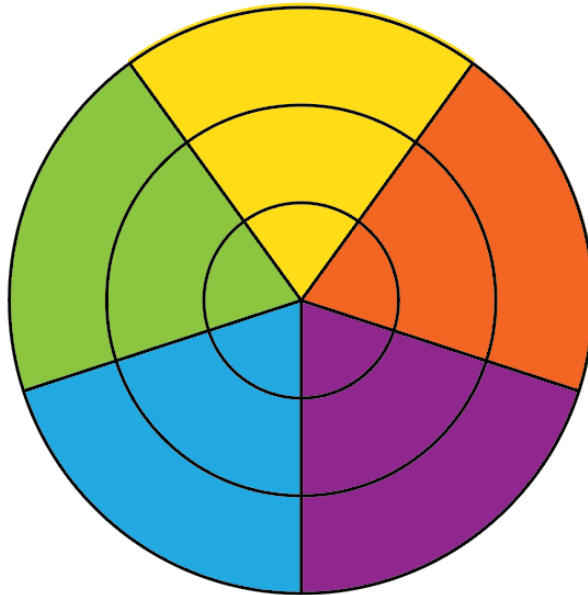


Concentric Circles Multiplication  
Factors: Three and Five

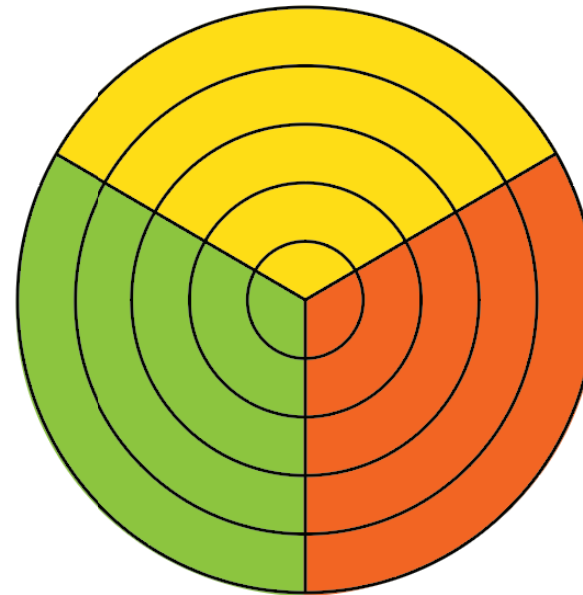
Answer Key

1. Color each piece of the circles.
2. Write a number sentence to go with each circle.
3. Review your work.
4. Write about what you did and learned.

$5 \times 3 = 15$



$3 \times 5 = 15$



Student writing will vary.

First, I colored in every slice of both circles. I used the same colors on both. Then I used two more colors, blue and plum, on the circle with five slices. I counted fifteen pieces in both circles. This didn't surprise me because three multiplied by five is fifteen. I learned that it doesn't matter if the five comes first or if the three comes first, as long as the factors are 3 and 5 the answer will always be fifteen!

Click below, then sign up for weekly emails.

## Download **Colorful Collections:** *A Mindful Exploration of Proper Fractions*

### Help your students make sense of fractions.

I started teaching in 1987, which means I've collected many tips and tricks along the way. In this ebook, I share concepts, strategies, and classroom materials to help you make math sticky.

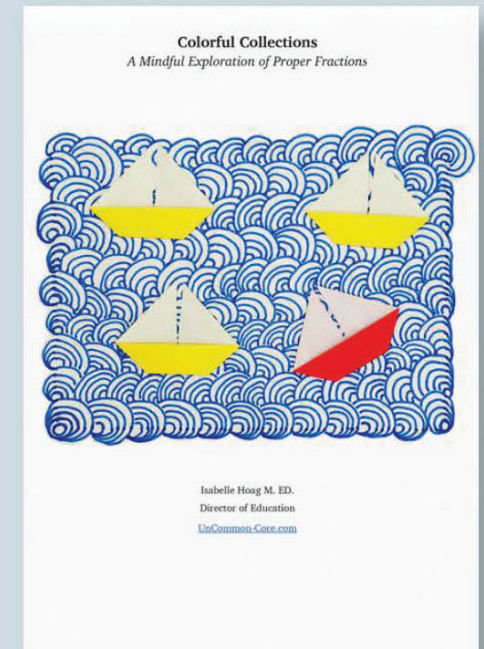
Along with this useful ebook, you will receive weekly emails from StickyMath@UnCommon-Core.com. I send information like: teacher tips, educational ideas, book reviews, curated lists, reviews of educational sites, and free first drafts of products that I'm creating for my TPT store. That way, you get helpful ideas and free stuff, while I get some feedback before I finalize products and put them up for sale.

I value your privacy. I will never sell your information. You may unsubscribe at any time.

All the best!

*Isabelle*

Isabelle Hoag M. Ed.



# Terms of Use

By downloading this product, you agree that the contents are the property of Isabelle Hoag M. Ed., Director of Education at [UnCommon-Core.com](http://UnCommon-Core.com) and licensed to you only for classroom/personal use as a single user.

I retain the copyright, and reserve all rights to this product.

## YOU MAY:

- Use this product with your own students, in your classroom, or for your own personal use.
- Reference this product in blog posts, professional development workshops, at seminars, or other similar venues, ONLY if both credit is given to me as the author and a link to [UnCommon-Core.com](http://UnCommon-Core.com) or my TPT store [UnCommon-Core dot com](http://UnCommon-Core dot com) is included.
- Please direct others to [UnCommon-Core dot com](http://UnCommon-Core dot com) where they can download their own copy.

## YOU MAY NOT:

- Claim this work as your own, alter the files in any way or remove copyright/watermarks.
- Sell the files or combine them into another unit for sale or for free.
- Post this document for sale or free elsewhere on line including Google Doc links on blogs.
- Make copies of this product to share with others.

Thank you for following universally accepted codes of professional ethics while using this product. If you have any issues with the file, or notice an error please contact me and I will be happy to help sort it out.