Circle It Up





Essential Question How do artists decide if their work is effective?

sum

difference

VOCABULARY

place value	
model	
represent	
scale	
reflect	

Materials List

- colored construction paper
- circle tracers of four different sizes
- scissors, markers

Pacing

2-3 sessions

SUMMATIVE SUMMATIVE SUMMATIVE SUMMATIVE SUMMATIVE	Assessment			
subtraction.	SUMMATIVE	Students create a meaningful interactive piece of art to represent a math problem of both addition and subtraction.		

Elements	• Space
of VISUAL	• Shape
ART	• Form

CONTENT Standard

CCSS.MATH.CONTENT.2.NBT. B.7

Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

Additional Standards Addressed: CCSS.MATH.CONTENT.2.NBT.A.1 CCSS.ELA-LITERACY.W.2.2

21st Century Skills

- Critical Thinking
- Creative thinking
- Communication
- Productivity

Lesson Overview

This lesson should occur only when students have a solid understanding of place value (ones, tens, hundreds). To solidify their knowledge, students will represent the numbers and places in various circles, create and solve a math problem using numbers up to 1,000.



Artful Thinking Routine

Looking: Ten Times Two routine

Have students view the Wassily Kandinsky's <u>Color</u> <u>Study, Squares with Concentric Circles</u> and complete the analysis.

- Look at the image quietly for at least 30 seconds. Let your eyes wander.
- List 10 words or phrases about any aspect of the picture.
- Repeat Steps 1 & 2: Look at the image again and try to add 10 more words or phrases to your list.

Artful Thinking by Project Zero is licensed under a Creative Commons AttributionNonCommercial 4.0 International License. Routine found here: http://pzartfulthinking.org/

VA:Cr3.1.2a

Discuss and reflect with peers about choices made in creating artwork.

Additional Standards Addressed: VA:Cr1.2.1a VA:Cr2.3.1a

Lesson Objective

Students will create and solve a math problem through an original piece of artwork.



Introduction

Get students quickly thinking about addition and subtraction facts by playing a quick fact game. Pair students up with their hands behind their back. Partners count to three and then put one hand out, with their choice of fingers. See who can add the two hands together first. After a few rounds, Have partners use both hands. Another variation is to do the same thing, but students subtract the two numbers.



Place Value Review

Review place value (ones, tens, hundreds) with students in whatever method you have used to make place value visual for your students. Perhaps you used number cubes, base ten blocks, or flip charts) Be sure they can verbalize what place value means.

Ask them: Can the smaller places fit inside the larger places? Yes, they can. Show them this visualization with the base ten blocks (10 ones cubes can fit in 1 ten strip, 10 ten strips can fit inside 1 hundred block).

Take the time to reteach the concept of place value if necessary.



Kandinsky's Circles

Share with students the two included art pieces by Wassily Kandinsky: *Several Circles* and *Circles in a Circle*. Engage students in a conversation about the pieces. Questions to include could be:

- What do you notice about the relationships of the circles?
- Do some of the circle fit inside of the other circles? Is this at all like place value?
- Find three different circles, and decide what numbers they might be, explaining your reasons why.
- How are these circles like numbers?
- Are the circles connected?

Teacher to Teacher

- Circle tracers in different sizes (you will need 4) will be helpful to students to keep the proper ratio of size. Be sure students understand the relationship between the size of the circles to place value.
- Allow students to not only make the choice of layout, but of colors being used as well.
 Some students will think of the color wheel, and how colors also can fit inside of each other and relate to each other.
- Once students have cut out all of the circles they need, have them play with layout on their paper simply in sliding and moving the circles around before they glue them down. As they are doing this, circulate and talk to students. Are they making deliberate design choices related to place value?



Main Activity

Students will make a representation of two different numbers using different sized circles, and create a piece of art with it. For example, to make the number 235, students would use 2 large circles, 3 medium circles, and 5 small circles. However, when putting it on their paper, they cannot simply lay the circles next to each other linearly. They need to create an artistic representation with them, and purposefully connect the circles in a new and unique way, showing how they are connected, much like Kandinsky did. They will do this for two different numbers.

In order to make their art interactive, they will include a "what number am I?" section on their art. This should be designed in a way, of their choosing, that a viewer does not see the actual number right away, but has a place to go to check their thinking.

Students will also create a circle representation of the sum of the two numbers and the difference of the two numbers. The starting numbers should both be under 1,000.

Finally, students will write an artistic statement, explaining their design choices for the layout and creation (including color choice) of their circle design, and an answer key for their art work.

Estimated Time: 45 minutes

CLOSURE

Display the art around the room. Pair up students and have each student to go in front of their partner's art. Take part in the interactive art by figuring out the two numbers, and finding the sum and difference of the numbers. Then have the original artists check their mathematical work. If there is an error, partners should work through it together.



Literature Connections



The Noisy Paint Box Barb Rosenstock

A charming story that tells the story of Wassily Kandinsky, who from a very young boy heard and saw colors differently than anyone else. An insight into the bold art he would go on to create.



The Dreaming Giant Veronique Massenot, Peggy Ville Kandinsky's work is brought to life through the story of a giant who happens upon a small town. A contrast between color and size, a story that invites the imagination.



The Power of 10 Judy Newhoff, Deanna Ruby Zevin

A boy tries to buy a basketball, but quickly discovers his understanding of place value is weak. In comes Tenacious Ten, a super hero to make place value come alive.



Earth Day - Hooray Stuart Murphy

On a mission to recycle 5,000 cans, a group of friends get lesson on place value as they work to count their collection.





Circles in a Circle, Wassily Kandinsky





Several Circles, Wassily Kandinsky

Circle It Up - Student Answer Key			
MATH • VISUAL ART			
Name:	Date:		
Create an answer key for your artwo	ork:		
What is your first number?			
What is your second number?			
What is the sum of your	What is the difference of your		
two numbers? Show your work:	two numbers? Show your work:		
-			



Name: _____

Date: _____

Discuss the artist choices you made with your circles to represent your numbers. Include how and why you made choices to the layout, design and color choices of the numbers.

STUDENT RESOURCE MATH • VISUAL ART	
Name:	Date:
Whose art are you looking at?	
What is their first number?	
What is their second number?	
What is the sum of their two numbers? Show your work:	What is the difference of their two numbers? Show your work:

TEACHER ASSESSMENT MATH • VISUAL ART

Circle it Up

Student: _____

Total Score: ____ / <u>12</u>

CRITERIA	Distinguished (4 Points)	Excelled (3 Points)	Adequate (2 Points)	Basic (1 Point)
The student is able to add and subtract within 1000.	The student is able to fluently add and subtract within 1000, using multiple strategies and mental math.	The student is able to add and subtract within 1000.	The student is sometimes able to add and subtract within 1000. They may need support and/or guidance, including the use of manipulatives.	The student is unable to add and subtract within 1000.
The student is able to use concrete models and drawings based on place value.	The student is able to use concrete models and drawings based on place value in a way which supports their thinking.	The student is able to use concrete models and drawings based on place value.	The student is sometimes able to use concrete models and drawings based on place value and may need support.	The student is unable to use concrete models and drawings based on place value.
The student is able to discuss and reflect about choices made in creating artwork.	The student is able to discuss and reflect about meaningful and purposeful choices made in creating artwork. Choices made are purposeful and deliberate.	The student is able to discuss and reflect about choices made in creating artwork.	With prompting, the student is able to discuss and reflect about choices made in creating artwork.	The student is unable to discuss and reflect about choices made in creating artwork.

NOTES: