Cake Out

Fifth Grade + Math

CORE SUBJECT AREA

Math

ART FORM + ELEMENTS

Visual Arts
Painting
Value

MSCCR STANDARDS

CCSS.MATH.CONTENT.5.NBT.B.5. Fluently multiply multi-digit whole number using the standard algorithm.

MSCCR CREATIVE ARTS STANDARDS

VA:Cr.1.1.5a. Combine ideas to generate an innovative idea for art making.

VA:Cr.1.2.5a Identify and demonstrate diverse methods of artistic investigation to choose an approach for beginning a work of art.

OBJECTIVES

TSW fluently multiply whole digit numbers
TSW use the art element value to represent factoring whole-digit numbers.

DURATION

90 minutes

MATERIALS NEEDED

Plain rectangular-shaped art paper
Paint in various colors
White paint
Paper plates for paint
Paintbrushes
Compasses for drawing

VOCABULARY

Value
Color
Factor tree
Whole Number
Multiple
Multiply
Composite
Factors

RECOMMENDED RESOURCES

Wayne Thiebaud cake art prints:
“Lemon Cake”
“Cake Slice”
“One and a Half Cakes”
(digital or print reproductions)

LESSON SEQUENCE

Introduction

TTW begin the lesson by introducing TS to the works of Wayne Thiebaud.
TTW explain to the student that Thiebaud was an artist who painted everyday objects and was best known for painting cakes, pastries, toys.
TTW show the student the paintings, “Lemon Cake,” “Cake Slice,” and “One and Half Cakes” by Thiebaud.
TTW introduce the student to the art element of value.

TTW explain to the student that Thiebaud used the element of value to make his paintings appear more realistic.
TTW explain to the student that value is the lightness and darkness of a particular color.
TTW show the students an example of a value scale for the color black found at http://helloartsy.com/value-scale
The student will watch the video found at https://www.youtube.com/watch?v=AAWYHNo31ZQ to review what value is
TT and the student will identify different places where Thiebaud uses value in the three paintings.

Transition

TTW explain to the student that, like color has different values, numbers used in math have different values.
TTW review with the student the concept of multiplying multi-digit numbers.
TTW explain to the student that whole numbers are just multiples of each of their factors.
TTW review the definitions of whole numbers, factors, and multiples with the student.
TTW introduce concept of a factor tree.
TTW choose a two-digit composite number.
TTW model finding different factors that can be multiplied to create this number until the factors are broken down into the simplest form.
TTW write the factors of her chosen number in order from smallest to largest.
TTW explain to the student that these numbers change in value just like the colors on the value scale change in value.
TTW compare how the smallest factor of every number (1) has the least value just like the lightest color on the value scale, while the original number has the highest value just like the darkest color on the value scale has the darkest value.
TTW tell the student that they are going to be artists and use value to create a Wayne Thiebaud-inspired cake painting.

Description

Each student will choose a two-digit composite number and will create a factor tree for their number. Every number in the factor tree will represent a layer on the cake (for example), if the student chose 15, the factors would be 1, 3, 5, and 15.
The student's cake would have 4 layers, one for each factor.
The teacher will model on the board the technique for drawing the Thiebaud inspired cake to make it appear three-dimensional.
The teacher will show the the student how to create the layers using a 90 degree angle in the middle of the cake to make it appear as if a slice has been cut from it.
The student will use this technique and will create a layer for every factor.
The teacher and the student will use a compass to help them create this angle.
The teacher and the student will sketch the outlines for their cakes with the correct amount of layers for each factor.
The student will choose a color that they want to represent using using value on their cake.
The student will use value to create the colors of each layer of their cake.
The student will begin with plain white paint and will add one drop of their chosen color to the white paint to represent the factor one.
The student will paint their top color with this paint.

The student will create the value of their remaining layers by adding drops of paint for each factor to their white paint (for example, if the student chose 15 with the factors being 1, 3, 5, and 15, the student will add three drops of paint to a small amount of white paint to create the layer for 3 and 5 drops of paint to a small amount of white paint to create the layer for 5.)
The student will use the original colored paint color with no white added to paint the bottom layer which represents the original factor.
The student will add any details to their cake paintings and will allow the paint time to dry.
The teacher display the student's cakes for their classmates to view.

EXTENDED LEARNING ACTIVITIES

The artwork could also lead into a lesson on correctly using angles in art.

SOURCES

https://artusin.blogspot.com/2013/01/value-scales-student-work.html

https://www.artsy.net/artwork/wayne-thiebaud-cake-slice-

https://helloartsy.com/value-scale

TIPS + FREQUENTLY ASKED QUESTIONS

Put students using the same color paint in groups together to make sharing paint colors easier.