**Lesson Plan Template: M333 Art Integrated Lesson**

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**Elementary Grade Level(s) for which the lesson is designed:** 5th grade

**Subjects to be Integrated:** Math/Geometry

**Lesson Title:** Thiebaud Cake Math

**Standard in Art:** VA:Cr1.2.5a: Identify and demonstrate diverse methods of artistic investigation to choose an approach for beginning a work of art.

**Standard in other subject:** 5.5.4: Find the surface area and volume of solids using appropriate units.

**Objective:** Students will design their own cake using inspiration from Thiebaud while mastering the skills of volume and surface area.

**Assessment:** Students will trade the cakes they designed and have to solve for the surface area and volume of their partners cake. Teachers will be walking around giving help as needed and checking for accuracy.

Teachers will know that students have demonstrated mastery on surface area and volume by evaluating their work to see that students have accurately measured surface area and volume according to their cake design.

**Materials:**

* Smart board
* Art paper (blank)
* Pencils
* Water color paint
* Paint brushes

**Visual Aids:** Powerpoint providing information on volume, surface area, and artist Wayne Thiebaud, to assist in the teaching of the lesson

**Motivating Opening Hook:** Facilitating teachers will launch the lesson by asking students what their favorite dessert is. One of the facilitating teachers will mention that their favorite dessert is cake. Then, facilitating teachers will extend the discussion with questions such as: What is your favorite cake flavor? Do you like icing? What kind of icing do you like?

**Concepts/Vocabulary:**

Art: design, color, shape, symmetry, proportion

Math: volume, surface area, cylindrical shapes

**Sequence of Instruction:**

**Launch:** Facilitating teachers will launch the lesson by asking students what their favorite dessert is. One of the facilitating teachers will mention that their favorite dessert is cake. Then, facilitating teachers will extend the discussion with questions such as: What is your favorite cake flavor? Do you like icing? What kind of icing do you like? After the short discussion, facilitating teachers will provide information through a powerpoint on surface area, volume, and artist Wayne Thiebaud, to assist in the teaching of the lesson. This provides a visual aid for students and keeps them engaged during the beginning of the lesson. While students are learning surface area and volume during the powerpoint presentation, they will be provided a copy of a cake image by Thiebaud and will practice finding the surface area and volume of that cake. Next, students will be taught a mini lesson about Thiebaud. After examining many piece by Thiebaud, students will be asked to engage in a series of questions as follows: Why would Thiebaud choose to paint cakes? How are cakes similar to the other things he paints? What do you think he wants us to know or think about?

**Investigate:** Students will receive a blank sheet of white paper and will create their own cake. Their only guideline is that the cake has to be cylindrical in shape. Students will sketch out their cakes first on scratch paper. When they are finished with their sketch, they can move onto using their watercolor paints to create their cake. While creating their cake, facilitating teachers will emphasize the importance of design, color, shape, symmetry, and proportion. Students will find the surface area and volume of their own cake and make an answer key after a teacher has checked their work. Then students will pair up and swap their cake drawing with a partner and they will find the surface area and volume of their partner’s cake drawing.

**Summarize (Reflecting and Sharing):** Facilitating teachers will close the lesson by reviewing and reflecting upon the lesson. With the students, teachers will discuss the struggles students may have faced in creating their cakes and finding surface area and volume. Upon reflecting on the activity, students will have the opportunity to share their work with the whole group. Students will be asked to speak about their cake design and how they solved for surface area and volume on another person’s cake drawing in pairs.

**Link:** <https://www.nga.gov/education/teachers/lessons-activities/counting-art/thiebaud-intermed.html>