Donald W. Reynolds Center for the Visual Arts
E.L. Wiegand Gallery

160 West Liberty Street, Reno, Nevada, 89501
775.329.3333 | nevadaart.org

NEV MUS OF
ADA EUM ART

GOLDEN RATIO

PRE LESSON

GRADE: 5

STANDARDS:

ART: VA:Re8.1.5a Interpret art by analyzing characteristics of form and structure.

Math: 5.OA.B.3. Analyze patterns and relationships, generate numerical patterns using given rules, identifying apparent relationships between corresponding items.

OBJECTIVE:

Students will be able to interpret form and structure of art by analyzing numerical patterns and relationships.

VOCABULARY:

Leonardo Fibonacci - (born c. 1170 — died after 1240), medieval Italian mathematician, the first European to adapt work from Hindu and Arabian mathematics.

Pattern - An underlying design that organizes images or objects in a consistent, regular manner. Pattern is often a repeating shape or form. Patterns can be found in nature or be manmade.

Spiral - winding in a continuous and gradually widening (or tightening) curve, either around a central point on a flat plane or about an axis so as to form a cone.

MATERIALS:

- Availability of TV or use of YouTube for video
- Large pieces of paper
- Colored Pencils
- Pencils

- Sketch pads
- Pinecones and flowers for introduction

TIME: 1 hour

LESSON:

ENGAGEMENT:

Begin the lesson by introducing spirals in nature. Have examples on hand for the students to observe. Explain to the students that if you look closely at the center of flowers or pinecones, they are not solid. They are made up of sets of spirals. They don't go around in circles, they spiral out away from the center. How many spirals go clockwise compared to the spirals that go counterclockwise? Have students trace the spirals with their finger to show they understand the way the spiral is growing.

EXPLORATION:

Now take the students outside with sketch pads so that they can observe spirals in nature for themselves. Not only will they find spirals in flowers and plants, but they can also look up in the sky for spirals in clouds. Or they can look down at the ground to find spirals in insects and shells. Give the students ample time for discovery

and drawing. Allow the use of colored pencils so the spirals are easy to see in the sketches.

EXPLANATION:

Once the students have settled back inside, it is time to show the short video.

https://www.youtube.com/watch?v=BMJ_B9_ab74

Have the students discuss the video amongst themselves before bringing the discussion to the whole class. What did they observe? How are the spirals a pattern in nature? How could we measure these patterns to better understand their form?

ELABORATION:

The students will now be broken up into groups of two or three to research more about spirals in nature. How many kinds of spirals can they find?

In their small groups, the students will create posters depicting the different kinds of spirals that they found.

Pass out large sheets of paper for each group. The students can use colored pencils to showcase the spirals, much like the spirals they found outside.

EVALUATION:

Have each group present their poster and research to the class. How many different examples of spiral patterns did they find in nature?

EXTENSION:

If there is time, show the following video to the class.

https://youtu.be/fwYfuJfIgaw