



YOUTH ART PROJECT FOR:

GOLDEN RATIO

OBJECTIVE

Students will learn basic geometric language and be introduced to ratios that are naturally occurring in nature as well as in design.

Set up/prep time:

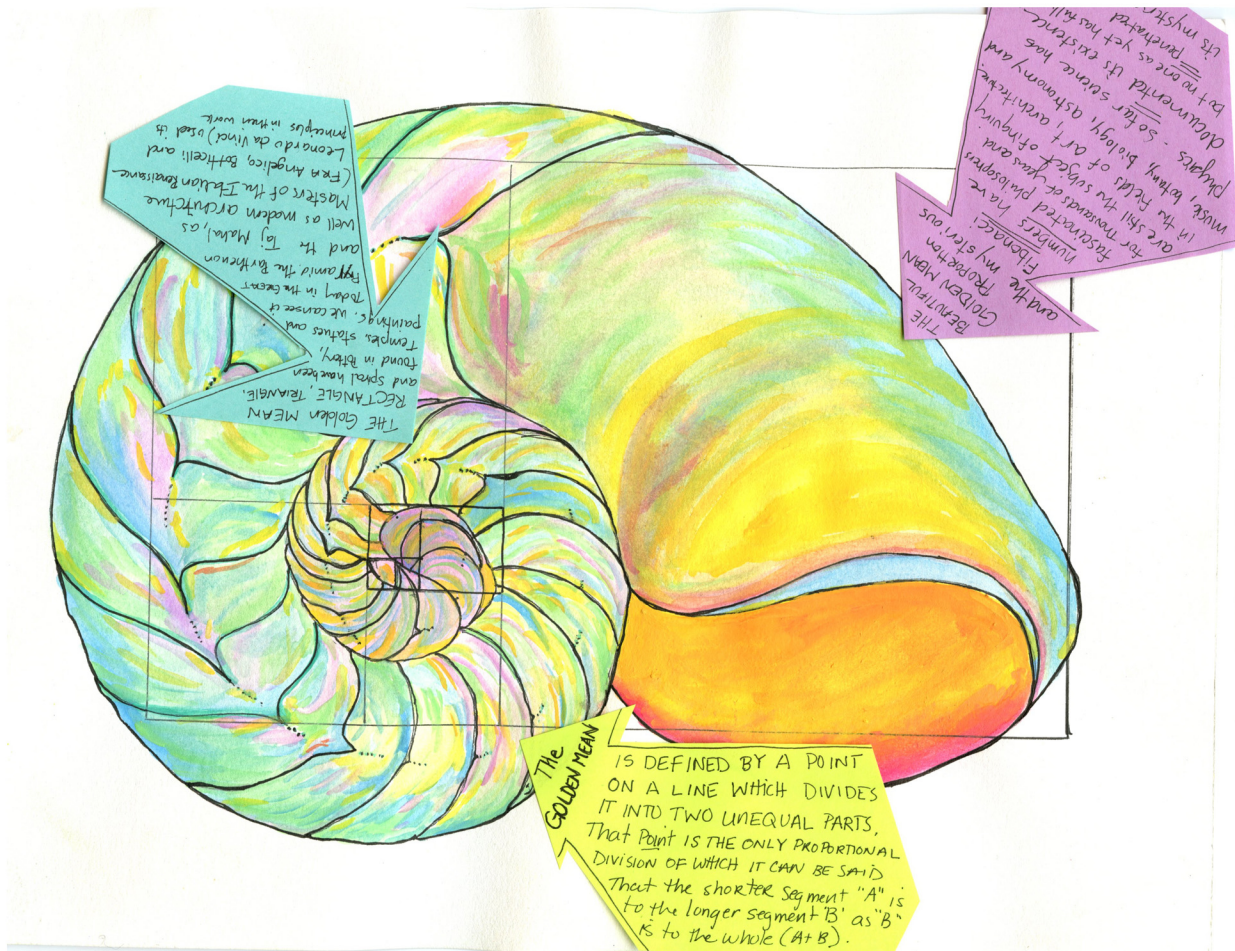
30 minutes

Activity Time:

2-3 hours

Materials Needed:

Paper, Ruler, Pencil, Black Fine Point Marker, & Water Colors





COMMON CORE STATE STANDARD

CCSS.Math.Content.7.RP.A.2 Recognize and represent proportional relationships between quantities.

PRE LESSON ASSESSMENT

Find out what the students already know about the golden mean.

VOCABULARY

Golden mean, Golden Ratio, Fibonacci numbers

RELEVANT RESOURCES

Content

<http://science.howstuffworks.com/life/evolution/fibonacci-nature1.htm>

http://arthistory.about.com/cs/glossaries/g/g_golden_ratio.htm

<http://mathgoldenratio.blogspot.com/>

Art

<http://www.gestaltreality.com/wp-content/uploads/2013/03/golden-ratio-in-nature.jpg>

http://www.springerimages.com/Images/Environment/1-10.1007_s12210-009-0041-0-5

<http://io9.com/5985588/15-uncanny-examples-of-the-golden-ratio-in-nature>

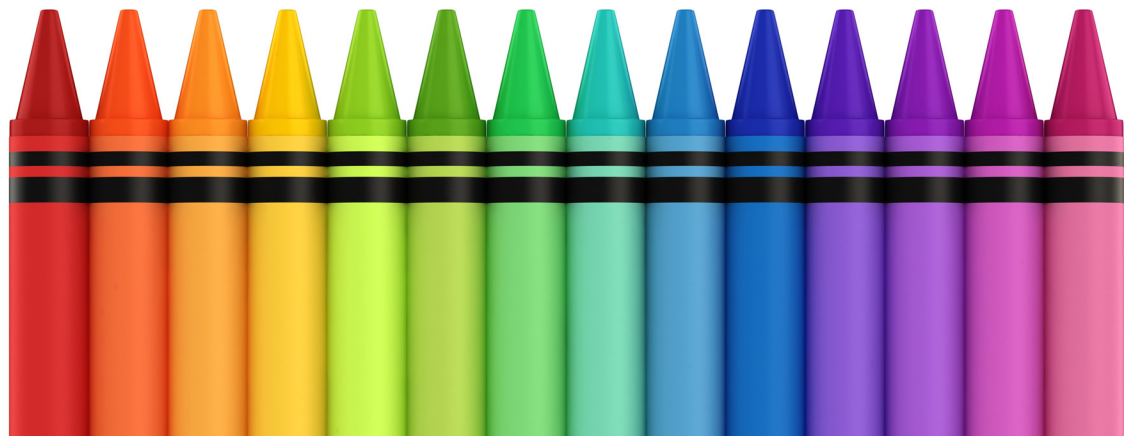
http://www.miqel.com/fractals_math_patterns/visual-math-phi-golden.html

Students will engage in:

- Listening
- Speaking
- Reading
- Writing
- Partner Work
- Cooperative Learning
- Whole Group Instruction
- Visuals
- Hands on
- Technology Integration
- A Project
- Centers
- Simulations
- Activities

*“Nature's surface beauty conveys no more than
a hint of the loveliness hidden within”*

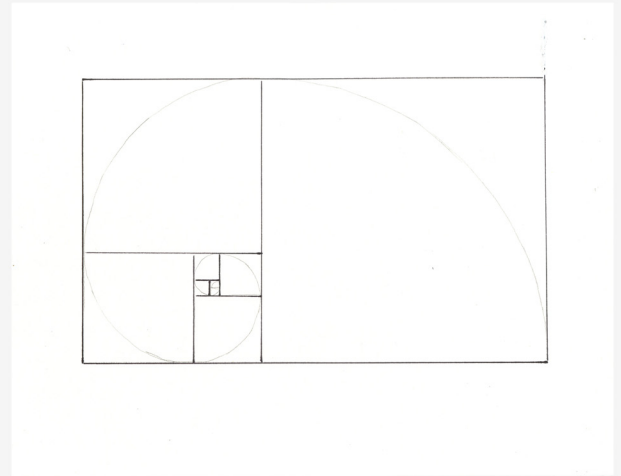
–Huntle





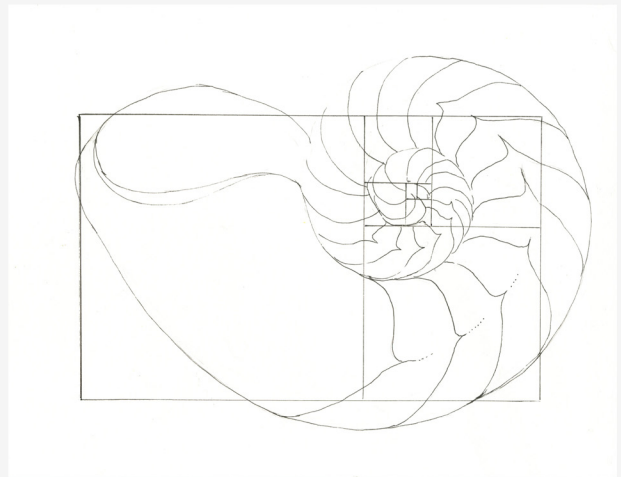
STEP 1

Have the students use pencil and a ruler to lightly trace the Golden Ratio pattern onto a blank piece of paper. (Refer to the diagram in image one as an example pattern for the Golden Ratio). Once the students are done drawing their pattern, have them outline their artwork with a black fine point marker.



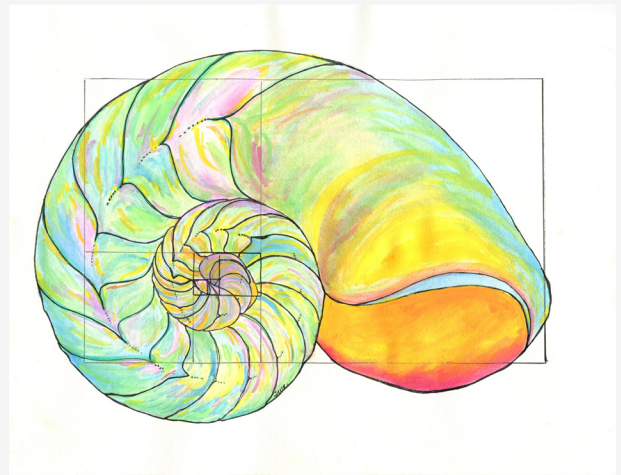
STEP 2

Have the students use a pencil to lightly draw the outline of a seashell as shown in the diagram in image two. Make sure they bring the center spiral of the shell to the center of interest in the golden ratio pattern. This is the focus point where the eye is naturally drawn, and is the place on the pattern where the squares become increasingly divided. Instruct the students to complete the outline of their shell by adding more detail, as shown in the second image. Again, once the students are done with the outline of their shell, have them go over their pencil lines using a black fine point marker.



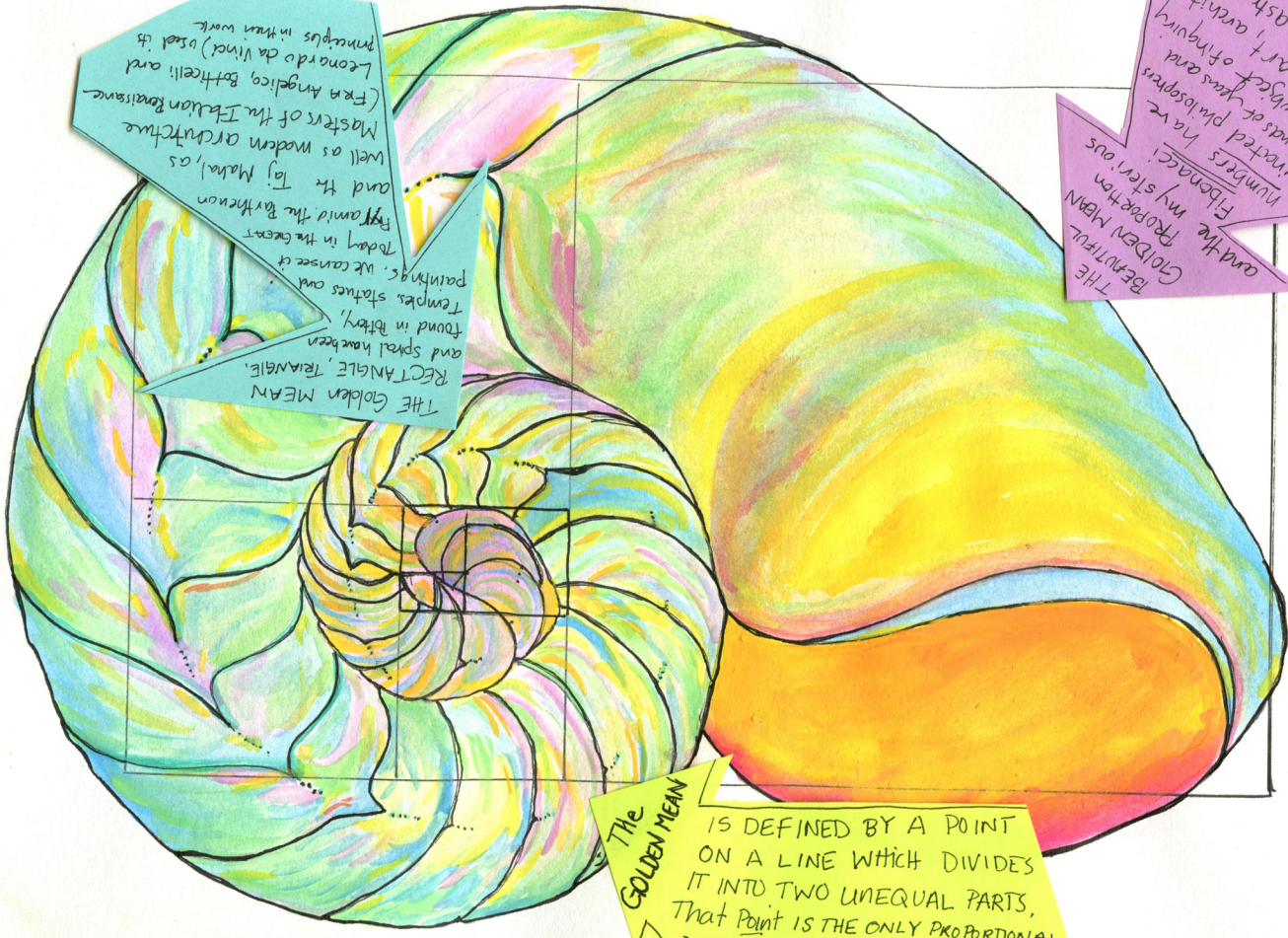
STEP 3

Using water colors, have the students color their artwork as they desire, but make sure their original pattern, drawn in step one, can still be seen. If needed, have the students go over their pattern again with a black fine point pen. Have the students then use sticky notes, or a separate sheet of paper to make arrows. On these arrows, have the students take notes about what they have learned concerning the Golden Ratio. Once the students have completed their notes, have them stick or glue the arrows to their artwork and share, either with a partner or the entire class, what they have learned about the Golden Ratio.



POST LESSON ASSESSMENT

Do a post assessment to determine what new knowledge the students have gained.



THE Golden MEAN
 RECTANGLE, TRIANGLE,
 and spiral have been
 found in many
 temples, statues and
 paintings. We connect
 today in the great
 pyramids, the Parthenon
 and the Taj Mahal, as
 well as modern architecture
 Masters of the Italian Renaissance
 (Fra Angelico, Botticelli, and
 Leonardo da Vinci) used its
 principles in their work.

THE Golden MEAN
 and the PROPORTION
 Fibonacci!
 numbers have
 fascinated philosophers
 for thousands of years and
 are still the subject of inquiry
 in the fields of art, architecture,
 music, botany, biology, astronomy and
 physics - so far science has
 documented its existence
 but no one as yet has fully
 penetrated its mystery.

The Golden MEAN
 IS DEFINED BY A POINT
 ON A LINE WHICH DIVIDES
 IT INTO TWO UNEQUAL PARTS,
 THAT POINT IS THE ONLY PROPORTIONAL
 DIVISION OF WHICH IT CAN BE SAID
 THAT THE SHORTER SEGMENT "A" IS
 TO THE LONGER SEGMENT "B" AS "B"
 IS TO THE WHOLE (A+B).