STEAM PATTERNS

Fact:

- The spiral patterns of pinecones, pineapples, snail shells, and sunflower seeds are all examples of Fibonacci sequence.

  The Fibonacci sequence is the sequence of numbers, 1, 1, 2, 3, 5, 8, 13,…

  This is where each number is the sum of the two previous terms. They are found in many natural forms.

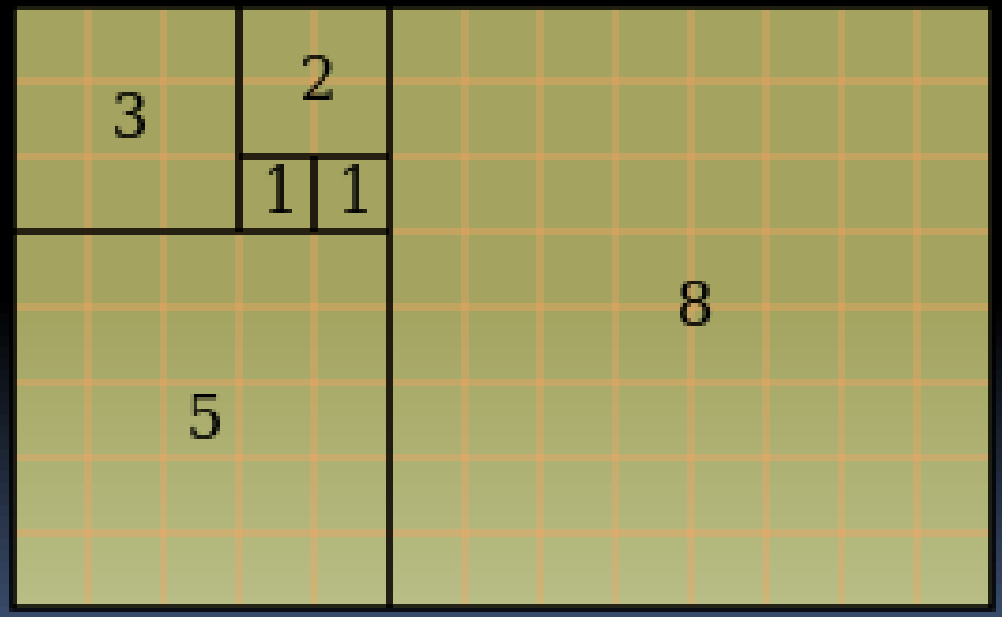
http://safeYouTube.net/w/Evsc

Why Are Fibonacci Numbers Important in Nature? : Math Problems & Trigonometry

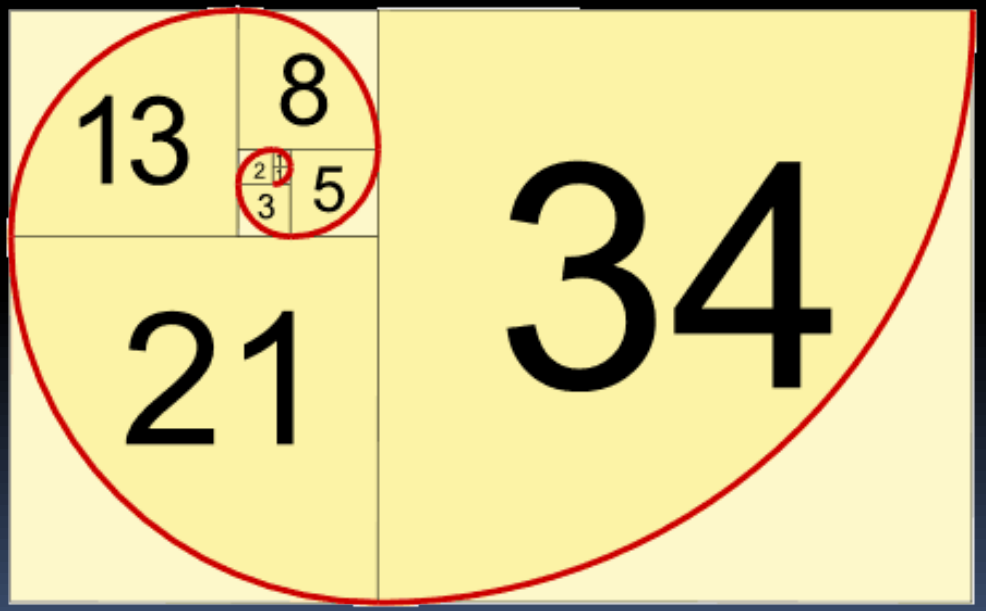
http://safeYouTube.net/w/xysc

Golden Ratio http://safeYouTube.net/w/42sc

Check out the sequence



Check out the sequence



Directions:

- Calculate the next 8 numbers in the Fibonacci sequence.

  1, 1, 2, 3, 5, 8, 13, ___, ___, ___, ___, ___, ___, ___, ___.
- Research the founder of the Fibonacci sequence and write a small biography about him.
- Research what items in nature have the same pattern. (*Hint: use for art*)

STEAM

Science: What items in nature have the Fibonacci sequence

Technology: Look up facts on a computer about Fibonacci and writing a biography

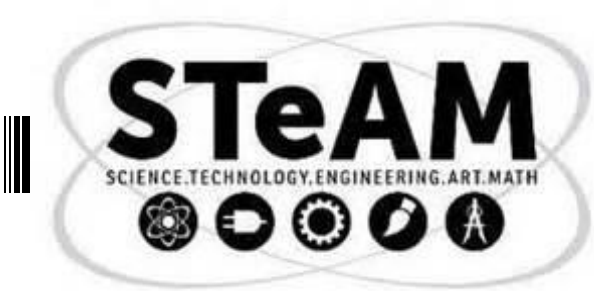
Engineer: Engineering a poster with these patterns. How are these number patterns used by computer engineers?

Art: Creating an artistic poster on patterns

Math: Describe the math steps and strategies used to figure out the patterns.

Resources

- Patterns and Computer Science
- https://stackoverflow.com/questions/4571670/why-are-fibonacci-numbers-significant-in-computer-science
- Patterns and Algebra
- https://math.stackexchange.com/questions/381/applications-of-the-fibonacci-sequence
- Pascual's Triangle
- https://www.maplesoft.com/applications/view.aspx?SID=3617&view=html
- Real Life Applications
- https://www.quora.com/What-are-the-real-life-applications-of-Fibonacci-series
- Golden Ratio
- https://www.mathsisfun.com/numbers/golden-ratio.html
- http://safeYouTube.net/w/42sc



RUBRIC – Topic: Patterns

Math Emphasis: Algebra & Operations

CCSS.MATH.CONTENT.5.OA.B.3

Criteria	1 Novice	2 Apprentice	3 Practioner	4 Expert
Creativity	The project has little creative or unique aspects.	The project has some creative or unique aspects.	The project is creative and unique.	The project shows advanced creativity and unique aspects.
Communication & Collaboration (visuals, data labeled, sequential) *Math Topic Explained (words, numbers, pictures)	Information is not organized. Missing or inaccurate data. Missing visuals or words to support the math.	Some information is clear and organized. Some data is inaccurate.	Most or all information is clear and organized. Data is represented accurately. Visuals, Equations, Words support solutions.	All information and data are presented in an organized and accurate manner. Ideas shared go beyond the requirement.
Research	There is no research demonstrated.	The project demonstrates some research.	The project demonstrates research and creativity.	The project demonstrates research that leads to connections to topic & STEAM.
Critical Thinking	The process was not explained clearly or correctly.	Steps used to solve the problem are not logical or clear.	Steps to solve problem are logical and solve the problem,	Demonstration of higher level thinking by making real world connections.