

## **Math is Golden- Exploring the Golden Ration in Middle School**

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### **Synopsis**

In this unit students will explore the relationship of math to nature and art. They will grasp and understand the basic concepts of ratios. Students will construct for themselves the famous “golden rectangle” and while doing this they will explore the Pythagorean Theorem and Fibonacci numbers.

Students will first be exposed to art and nature during the introduction of the unit. From there they will move on to explore the concepts of ratios, proportions, and similar figures leading up to the introduction of the golden ratio.

The golden ratio will be explored through constructions of rectangles as well as golden spirals. During this construction process mathematics concepts such as the Pythagorean Theorem, Fibonacci numbers, quadratic formula, and other basic algebra will be explored. The relationship of the golden ratio to art and nature is then investigated more thoroughly.

Going back to websites and videos earlier viewed with an understanding of how mathematics appears in art and nature will reinforce the concepts with students. The culmination of the unit will be a project where students use the concepts learned in the unit to create a piece of artwork and then explain the relationship of math to their art.