

ACTIVITY 1

The Golden Ratio

The **golden ratio** was first discovered by the ancient Greeks. Many rectangles called **golden rectangles** demonstrate the golden ratio. The ratio of the length of the longer side to the length of the shorter side is called the golden ratio and is approximately 1.618. Because of their pleasing shape, golden rectangles can be found in the shape of playing cards, windows, book covers, file cards, ancient buildings, modern skyscrapers, and art. It is believed by some researchers that classical Greek sculptures of the human body were proportioned so that the ratio of the total height to the height of the navel was the golden ratio.



Directions For the following activity, measure the various articles for length and width and compute the ratio of length to width to 3 decimal places.

ARTICLE	LENGTH	WIDTH	RATIO <i>(length:width as-a decimal)</i>
small index card			
large index card			
notebook paper			
picture frame			
playing card			
envelope			
top of your desk			

Look at your results in the fourth column. How many of the articles you measured were near the golden ratio?

(continued)



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Possible answers for the lab sheet are as follows:

ARTICLE	LENGTH	WIDTH	RATIO
3 × 5 index card	5 inches	3 inches	1.6667*
5 × 8 index card	8 inches	5 inches	1.6*
Notebook paper	11 inches	8.5 inches	1.294
Picture frame:			
2 × 3	3 inches	2 inches	1.5 "
3 × 5	5 inches	3 inches	1.6667*
4 × 6	6 inches	4 inches	1.5
5 × 7	7 inches	5 inches	1.4
8 × 10	10 inches	8 inches	1.25
10 × 12	12 inches	10 inches	1.2
Playing card (sizes vary)	3.5 inches	2.5 inches	1.4
Envelope (sizes vary)	Business size 9 ⁷ / ₁₆ inches	4 ³ / ₁₆ inches	2.254

* Closest to golden ratio

Have students discover and share what rectangular shapes in the classroom are close to the golden ratio. Measure the length and width to verify.

Extensions

Because the golden ratio was designed to be pleasing to the eye, you might want to explore the size of various magazine covers or cereal boxes that are designed to catch the eye. There are a variety of Web sites that provide artwork demonstrating the golden ratio. A search with golden ratio provides a variety of sources.