



# THE FIBONACCI SEQUENCE



## WHAT IS THE FIBONACCI SEQUENCE

The Fibonacci Sequence is a series of numbers with a specific pattern. The pattern includes each new number as the sum of the previous two. If you were to start at zero the sequence would be as follows:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597...

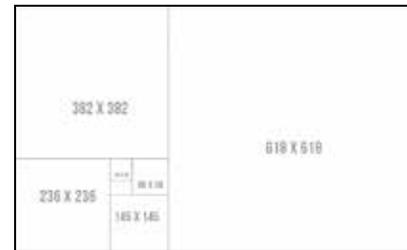
The sequence of numbers could go on indefinitely. You might think that this sequence is only applicable to mathematics however, I will introduce you to the world of the Fibonacci Sequence in design and how to utilize it.

## WHAT IS THE GOLDEN RATIO

The Golden Ratio is best known as the proportions **1:1.618**. This ratio is acquired from the Fibonacci Sequence. The Greeks developed the Golden Ratio to better help people understand the difference between any two numbers within the sequence. The Ratio is not always exact when being compared to the Fibonacci Sequence but does come very close in most instances.

When associating the Fibonacci Sequence with design you can create a golden rectangle. To create a rectangle with golden proportions you can start with a width of 1000 pixels and divide it by 1.618 giving you a height of 618.

Next, you add a 618 x 618 square on the right side of your document. This will leave you with a 382 x 618 rectangle on the left side. This happens to be another golden rectangle! If you take this new rectangle and create another square inside of it you will end up with another golden rectangle. You can keep repeating this sequence indefinitely or until you have run out of room.



## THE GOLDEN RATIO IN DESIGN

Building graphics around the Fibonacci Sequence or Golden Rectangle takes some time to perfect. Any designer can use it as a guideline when creating new designs or to make enhancements to already created designs. The idea behind the golden ratio in design is to point out the best parts of your template and create visually appealing designs. However, this doesn't mean that all great designs have to follow the golden ratio. There are many instances in nature that follow the sequence but there are also many that do not. I have included a couple of examples that can follow the sequence in nature and one that might not. In design the sequence can be very subjective, and any person may or may not see the Fibonacci Sequence in that given design.



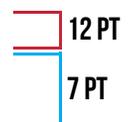
## TYPOGRAPHY

It is natural for designers to choose things that excite them or things they are passionate about. However, too much excitement in a design can overwhelm your audience. The Fibonacci Sequence is a good tool when trying to manage and divide space. Spacing is a key component and essential when holding together a design.

When looking at the sequence itself it is good to consider these numbers as parts of your design. Think of the smaller range of numbers as you decide your font sizes, line heights, and margins. The higher range of numbers can decide column and row widths along with other sections of your template. Below I have included an example of using this sequence to select font size for the header and paragraph.

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## SIZING AND CROPPING IMAGES

The Fibonacci Sequence can also have an impact when sizing and cropping images. An easy way to integrate the golden ratio into a design is to crop an image that is part of your design. This does not have to be done with every design that you create, but you may want to consider it for any image that may be a big part of your template.

When cropping these images it is a good idea to not only keep the golden ratio in mind, but also the golden spiral. I have included an example below of a cropped image to fit the golden ratio and incorporating the golden spiral.

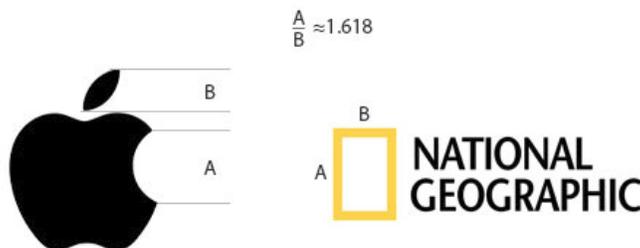
You crop an image in a way that the focal point of the picture is at the center of the golden spiral. This allows you to add interest to your design or advertisement.

If you had a 4 inch image and divide it by 1.618 it comes out close to 2.48 inches, which you can round up to 2.5 inches. You can also add a larger image to your design and multiply your 4 inch photo and end up with approximately 6.48. This can help you create a design that is more intriguing to the eye.



## LOGOS

You can also use the golden ratio to add aesthetic appeal to a company logo. Even if the logo is not shaped like a golden rectangle, it can still have elements that use golden proportions. Below I have included two examples of well known companies that have used these proportions to enhance their logos.



## GENERAL LAYOUT

When designing your layout you want to remember to keep the focus of your design centered on the spiral, keeping the golden rectangles in mind as you divide the elements in your layout. However, the rectangle can be moved around to help you design something that works for you. If the golden rectangle or spiral was unable to move we would have a lot of designs that look similar. Think of the rectangle as a ruler, it doesn't change in size but you are able to move it around to help facilitate all of your elements. Remember not every design has to follow this sequence or ratio but it is a good tool to keep in mind when designing your next layout or advertisement.



## ABOUT AUTOMATED SYSTEMS, INC.

ASI has been a leader in providing innovative core banking software, digital banking solutions, and data processing services for community banks nationwide. An array of integrated applications provide partnered banks with competitive choices. This flexibility enables our partnered banks to address processing requirements associated with providing leading customer service, while delivering industry-leading technology backed by unparalleled in-house conversion, training, and support teams.

## SOURCES

<http://www.companyfolders.com/blog/golden-ratio-design-examples>  
<https://3.7designs.co/blog/2010/10/how-to-design-using-the-fibonacci-sequence/>

To request more information, please contact us at 1 (402) 420-6000 or fill out the online demo request at [www.asiweb.com](http://www.asiweb.com)

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