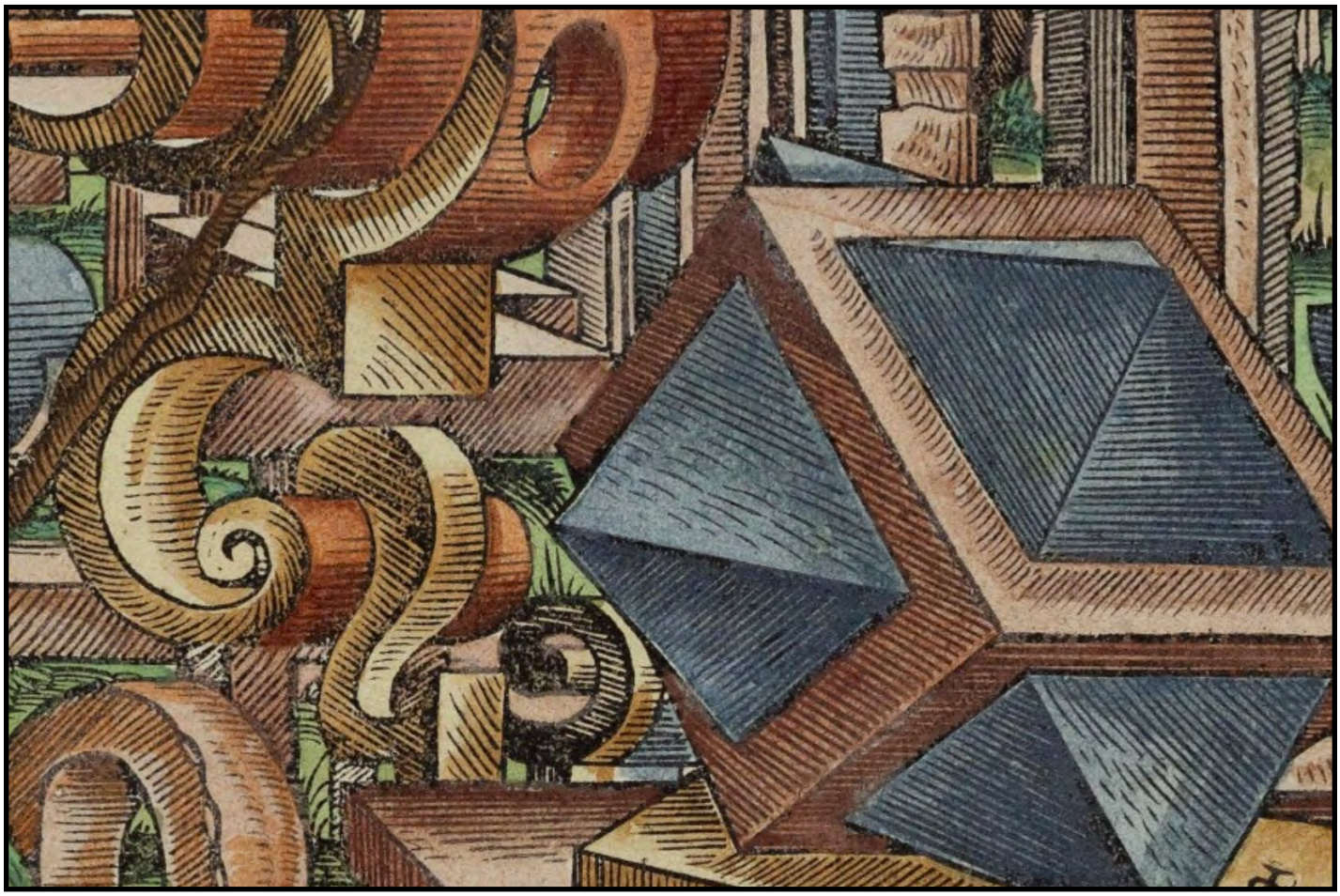
Math Explorers

Biographies of Brilliant Minds



By Rachel Bubb

With special thanks to the ladies how have put together the Beauty and Truth math curriculum. We have used their math curriculum several years now and loved it. They had an idea to every once in a while take a break from regular math and read about a famous mathematician. I thought that was a fantastic idea…it sent me on a search for great biographies for kids about mathematicians. I couldn't find that many at all (most of what I found were picture books about Ada Lovelace) so I decided to research and put something together. I hope this book is a blessing and help in your math endeavors. It was a joy to research and put together.

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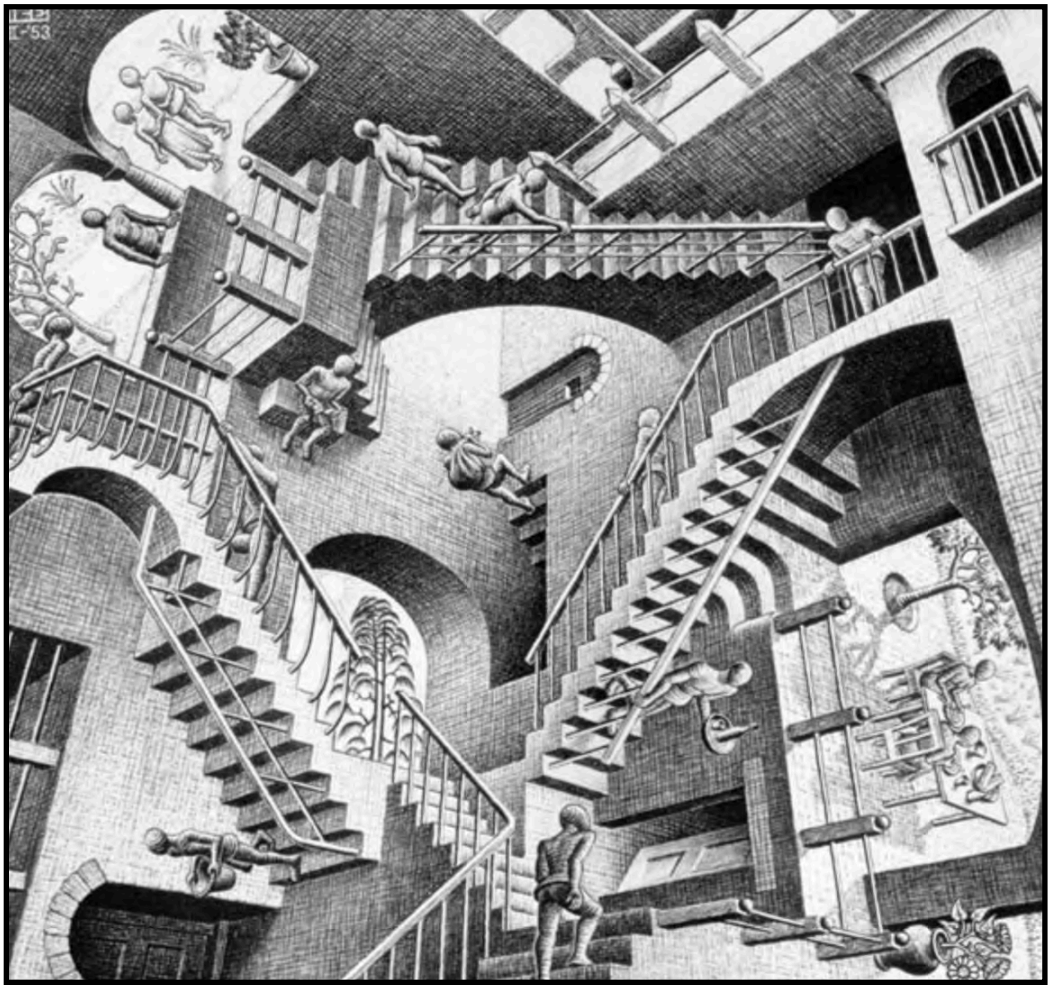


Introduction

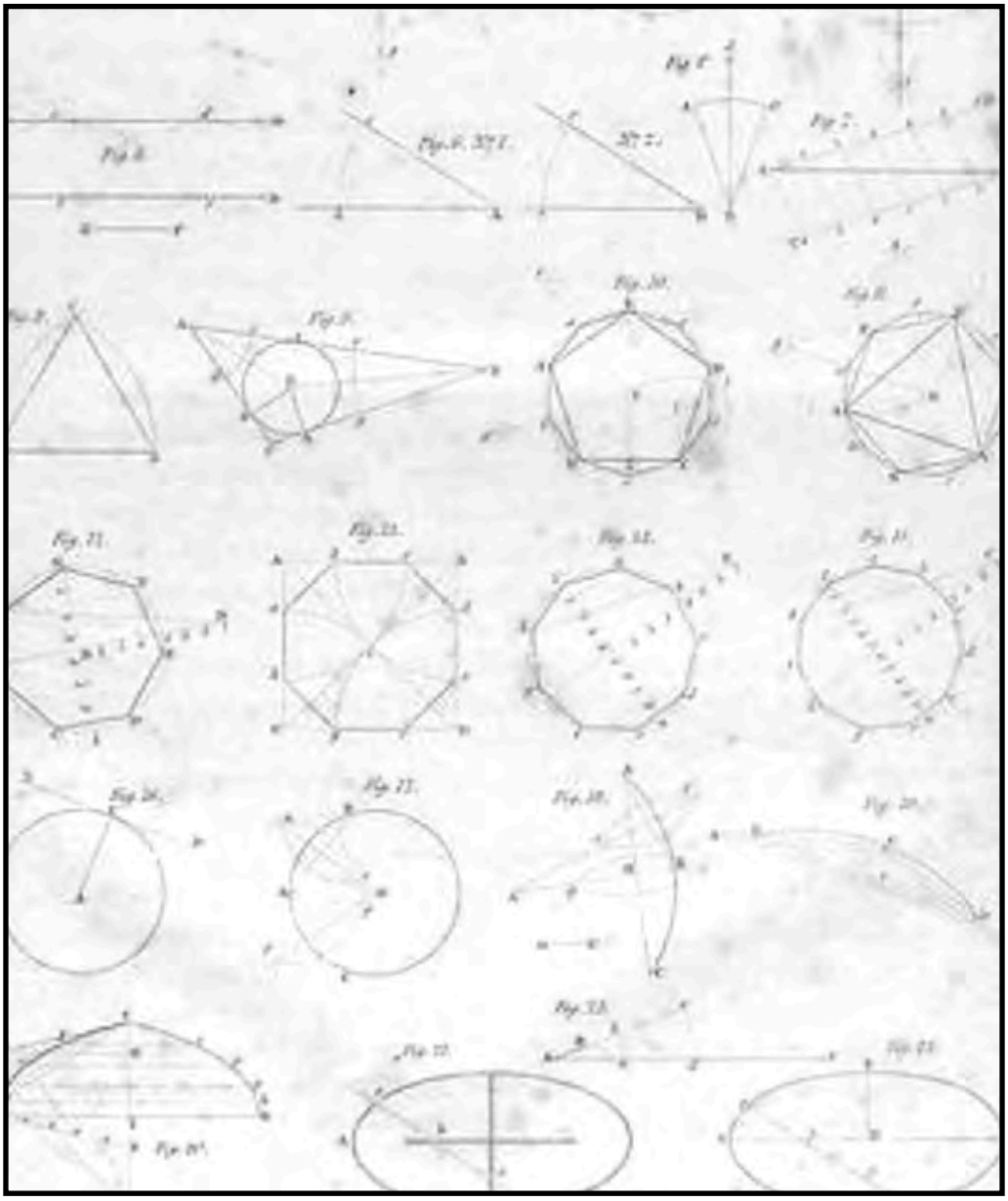
When you think of math today, there's so much to learn. Many high school students use complicated calculators (graphing calculators) to do math and then you have computers. However, there was a time when there were no calculators and no computers. Most of the math people used was in the marketplace when people bought food.

One of the biggest breakthroughs over time was the idea of zero and infinite numbers. Zero in particular was a problem. As one author commented: "Instead of 'We have zero bananas' the grocer says, 'We have no bananas.' You don't have to have a number to express the lack of something, and it didn't occur to anybody to assign a symbol to the absence of objects. This is why people got along without zero for so long. It simply wasn't needed. Zero just never came up."

The ancient Egyptians were some of the first to come up with a system for writing larger numbers. For the number of 123, they would write six different pictures or hieroglyphics (the name of their writing system): one snare, two heels, and three marks up and down. Actually, quite a few hieroglyphics have marks for numbers in them. They also started to think of space or area: how big or small is a place. "The ancient pharaohs assigned surveyors to assess the damage and reset the boundary makers, and thus geometry was born. These surveyors, or rope stretchers (named for their measuring devices and knotted ropes designed to make right angles), eventually learned to determine the areas of plots of land by dividing them into rectangles and triangles."

Then came the ancient Greeks, Romans, Chinese, and others, who started to think about numbers and shapes. It seems that math discoveries were a bit slow in the beginning and really picked up in the last 500 years or so. In this book we'll talk about some of the people who discovered or were known for their math. I hope this book inspires and encourages you in your math

endeavors. As you read through some of the biographies, you'll probably realize that some were rich and others were poor. A number of these people died young. Who knows what more they could've discovered had they lived longer?



Chapter I: A Famous Theory (Pythagoras)

The first person we'll talk about lived a long time ago in Greece. He's most famous for a theory that's named after him: the Pythagorean theory. Let's first talk about the person the theory is named after: Pythagoras. We don't know a lot about his life because there wasn't much written about him. He was born around 575 BC (we don't know exactly when he was born) and lived to be 75 years old, which was really old back then. He was born on the island of Samos (a Greek island close to Turkey) and traveled as a child to Phoenicia, Egypt, and Mesopotamia. Traveling took much more time than it does today because there weren't any cars or planes. How long do you think it took to go from Samos to Egypt?

Some people think that he went to Miletas in Asia Minor as a teenager where he learned more about math from Thales (a famous philosopher and mathematician). Many years later (when he was 38 years old) he moved back to Samos. Soon a new person came to rule over Samos who was a really bad ruler. So Pythagoras moved again and went to Croton in the southern part of Italy. He soon started a sort of school or community where people could talk about science, religion, music, and other things. Pythagoras loved numbers and thought they were the key to explaining how the world worked.

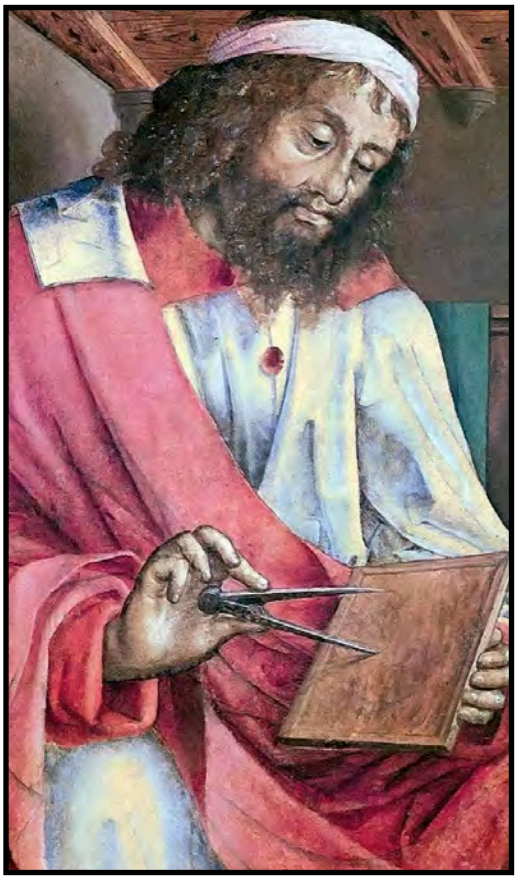
Something Pythagoras thought of was how music vibrates. In his day they had a music box with strings which they would pluck to make music. He noticed something about the strings and the music they made. If two strings sound nice together then they were the ratio of two smaller numbers like 1:2, 2:3, 3:4, 3:5 and

so forth. “To Pythagoras, playing music was a mathematical act. Like squares and triangles, lines were number-shapes, so dividing a string into two parts was the same as taking a ratio of two numbers.”

Pythagoras was known as a dynamic speaker and people came from far away to hear him speak. Soon he was rather famous and many people followed him to learn from him. As someone noted, he was “...a powerful orator, a renowned scholar, and a charismatic teacher. He was said to have written the constitution for Greeks living in Italy. Students flocked to him, and he soon acquired a retinue of followers who wanted to learn from the master.” However, not everyone liked him and the people who followed him. He finally died in Metapontum Village in Italy.

Chapter II: The Start of Geometry (Euclid)

This next person we're going to be talking about grew up in ancient Egypt. Like many people who lived long ago, we don't know exactly when he was born but it was sometime around 347 BC. He grew up in Alexandria, a city in ancient Egypt that was famous for its huge library. Some people think that in his teenage years or sometime around then he traveled to Athens to learn from Plato. We don't know much else about his life, how he died, or even when he died.



He's most famous for his book, or books, called The Elements. It was a collection of all of the math that was known at the time as well as a few things that he added. It had over thirteen books but there's no original copy of the book today. The books were mostly on geometry but they did have some things about numbers and number patterns. In part of it he mentioned: "If a line segment intersects two straight lines, forming two interior angles on the same side of that given line, such that sum of their measures is less than two right angles, then the two lines, if extended indefinitely, will meet on that same side of the given line, where those two angles have a sum less than two right angles." Drawing a picture of how this would look like might help it make sense.

Many, many years later, one of America's greatest Presidents would mention these books in one of his speeches. When Abraham Lincoln debated with Stephan Douglas, he said:

“If you have ever studied geometry, you remember that by a course of reasoning, Euclid proves that all the angles of a triangle are equal to two right angles. Euclid has shown you how to work it out.” It’s said that Abraham Lincoln normally had part of Euclid’s books in his horse bag when he went traveling.