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Galileo and His Telescope

You would see mountains, craters, and valleys if you looked at the Moon through a telescope. If you looked at the planet Jupiter, you would see its moons. Galileo was the first person to see these things through a telescope. Galileo was born in Italy in 1564. He lived and worked in Italy all his life.

Galileo did not invent the telescope. It was first made by a Dutch lensmaker. But Galileo improved the design so he was able to study the stars and planets closely. Some people call him the first astronomer. His first telescope magnified what he saw by about three times. Later he built one that magnified by 30 times.

As he studied the sky, Galileo found proof that the planets orbit around the Sun. He was not the first person to believe this, but he was the first to prove that it was true. People of that time believed that Earth was the centre of the universe and everything in space moved around Earth. Galileo got into trouble with the government and the church for saying that what they believed was wrong. He had to take back what he said or else he would have gone to jail.

Remembering Galileo

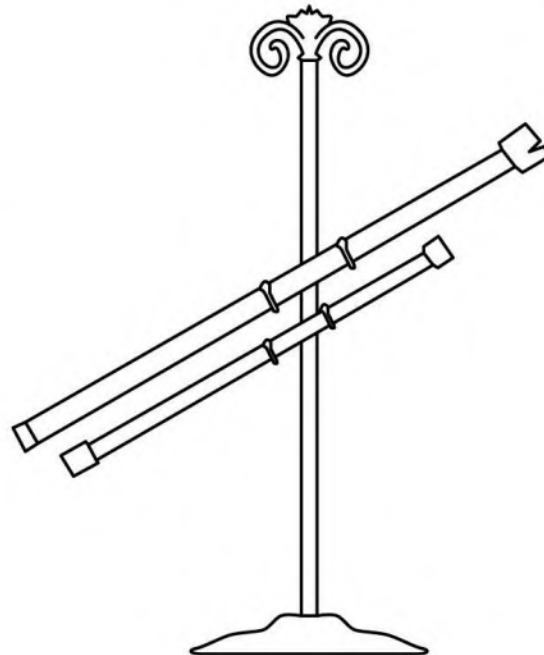
Today we call the four moons of Jupiter that Galileo discovered the Galilean moons. In 1990, NASA sent a spacecraft to Jupiter. They called this spacecraft *Galileo*.

More Than an Astronomer

Galileo was more than an astronomer. He was an inventor as well. He invented the first thermometer. His thermometer did not measure exact temperatures. But it did show if a temperature was higher or lower or the same as another temperature. He invented a compass that was used for aiming cannonballs shot out of a cannon. Later the compass was used to survey land. He invented a device that used a horse and buckets to raise water. This was used for irrigation.

Galileo thought about the world in a new way. Before Galileo, people did not run experiments or test out their ideas. It was enough just to think about ideas. Galileo wanted to test his ideas and see if they worked in the world. Galileo was one of the first real scientists.

Galileo's telescope was called a spyglass





“Galileo and His Telescope”—Think About It

1. What did Galileo prove about Earth, the Sun, and the other planets? How did this get him in trouble?

2. One of Galileo’s telescopes magnified 30 times. What does this mean?

3. How was Galileo’s thermometer different from thermometers we use today?

4. Why do you think Galileo’s telescope was called a *spyglass*?

5. The author says that Galileo was one of the first real scientists. How does the author prove this is true?

6. Write two or three sentences about the important things you learned about Galileo from this text.

Old Money, New Money

It is hard to imagine there was once a time when money did not exist. But thousands of years ago, people traded, or bartered, with each other to get what they needed. For instance, if someone needed a cow, she might trade a few chickens for it.

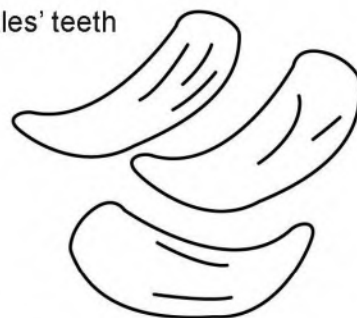
But trading takes time, and it is difficult to move cows and chickens around for bartering. So people began using coins and pieces of paper to represent animals, food, and other items.

Salt, Feathers, and Whales' Teeth

Metal coins have been used in various countries for money for about 3000 years. People started using paper money about 1000 years ago, because it was lighter to carry than coins.

Blankets, feathers, tea leaves, and even whales' teeth have also been used for money. Long ago in ancient Rome, workers were paid not with coins but with salt. That is where the word *salary* comes from. In Canada in the late 1600s, there was a shortage of coins so playing cards were used instead. The amount of money was written on the back of the card.

Whales' teeth



Some First Nations in North America used shell beads known as wampum for trade, in ceremonies for decoration, and to record agreements. It is hard to believe, but huge stone doughnuts were used as money by the people of Yap, which is an island in the Pacific Ocean. Some of the stones were so large they would not even fit in your bedroom!

Coins and Bills

People used to use 25¢ bills in Canada and the United States. These and other bills that were worth less than \$1 were known across North America as *shinplasters* because they looked similar to a small, square piece of paper that was used at the time as a bandage.

Coins last longer than bills because metal is strong and durable. Money that lasts longer is less expensive to produce since it does not have to be replaced as frequently. That is good for the environment too. So many countries have switched from bills to coins for some of their money. Did you know that Canada used to have \$1 and \$2 bills? The government has even talked about changing the \$5 bill to a coin!

Modern Money

Paper money may last as little as two years. That is why countries such as Canada and others are now printing polymer bills. They are stronger than paper and cleaner too, since they do not absorb liquid.

Countries are always looking for ways to make their bills difficult to counterfeit, or copy. Some bills have transparent sections, raised type, metallic images, holograms, and more. Other bills include Braille dots so visually impaired people can use them more easily.



“Old Money, New Money”—Think About It

1. Have you ever traded to get something? What did you trade?

2. Why do you think people stopped using large stone doughnuts as money?

3. If you are a “penny pincher,” you are good at saving money. What do you think the expression “put your money where your mouth is” means?

4. Use evidence from the text to describe the advantages of using coins instead of paper money.

5. What changes do you think could be made to the coins or bills you use every day to make them more difficult to counterfeit and longer-lasting?

6. Money tells people about a country and the people who live there. On a separate piece of paper, design a \$10 bill that represents you and your community.