Aristotle VS Galileo

HARMONY PBL LEVEL II PROJECT

Watch my video

Visit my website

History

One historical connection that I made was that of Galileo's history. He was a studied mathematician and studied at the University of Pisa. Pisa was where he conducted his famous experiment directly disproving Aristotle's theory. This was a major turning point in history because for nearly the past 2000 years, everyone had been following Aristotle's theory. This was also a turning point in history due to the fact that Galileo was bringing many new theories of his own into the world of science. These theories of Galileo are the theories that we use today.

How Does it Work?

First gather the materials. You will need a feather, a coin, a vacuum tube, and a vacuum. Once you have all your materials, put the feather and coin into the tube. Hold the tube vertically and flip it upside down. The coin falls down faster than the feather. Turn the valve on the top of the tube up and hook it up to the vacuum. Turn on the vacuum and remove all the air from the tube. Once all the air is taken out, turn the valve on the tube down and then remove it from the vacuum. Again , hold the tube vertically and flip it upside down. The feather and the coin fall at the same rate.

Scientific Principle

Aristotle is a Greek physicist that first instituted the idea that the mass of an object is directly proportional to the rate at which they fall to earth. For example, an object with less weight would fall slower to earth than an object with more weight, this also meant that an object that weighed half the weight of another object would fall to earth at half the speed. Aristotle got people to believe him by dropping a feather and a rock at the same time and showing how the rock hit the ground first and explaining that this was because the rock weighed more. This was very effective because people believed him for almost 2000 years.

Galileo came almost 2000 years later and said that Aristotle was wrong, but for people to believe what Galileo was saying, he not only had to bring in his theory and prove it right, he had to explain the feather and the rock example that Aristotle showed. Galileo believed that if you dropped two objects of different weights at the same time, then they would fall and hit the earth at the same exact time. The way that Galileo proved this to the public was by going to the top of the leaning tower of Pisa and dropping a rock that weighed a lot and a rock that weighed a significantly smaller weight. Everyone watched as the two rocks hit the ground simultaneously. Galileo had proven his theory. Now Galileo introduced a new theory to provide an explanation to why a feather would fall at a different rate than the rock. Galileo introduced the idea of air drag, explaining that air drag was determined by the mass size and speed. He proposed that in a vacuum, or place without air and therefore also without air drag, a feather would fall at the same rate as any other object.