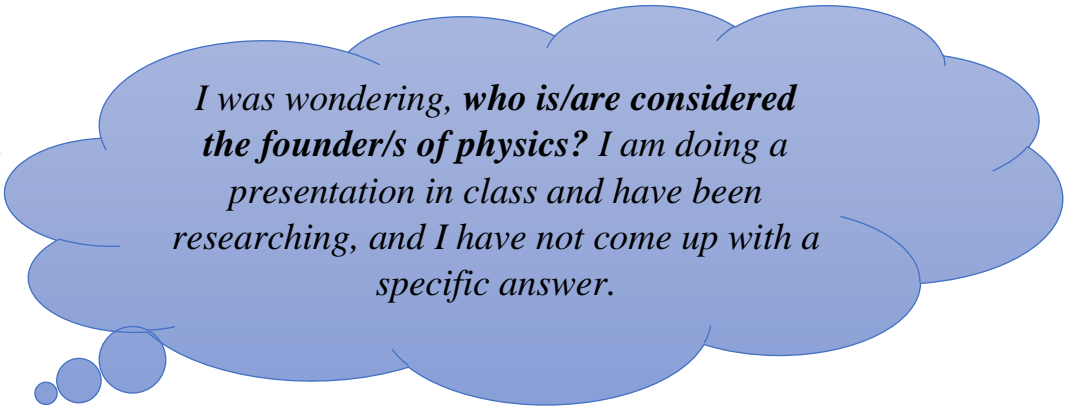


LEAD-IN:

1. An American teenager addressed the “Ask a Scientist” website with the following question:



How would you answer this question?

2. Work in groups. Discuss what you know about the history of physics and its founders. Share your ideas with the rest of the class. Follow the following headings:

Founder’s

- date of birth
- place of birth
- education
- inventions & discoveries

3. There is an abstract about the early history of physics. Complete the abstract with words from the box based on your background.

going on and why *little ability to investigate*
these myths *to understand and explain*

A) Historically, science is rooted in people’s efforts _____1_____ the world and the Universe. They wanted to feel in control of their lives or to explain what was _____2_____. Their interest was born of concern, fear, and curiosity. The early history of man involves very _____3_____ what could not be observed with senses. Many people attributed phenomena they couldn’t understand to the presence or actions of Gods. Others didn’t accept _____4_____ and chose to investigate them further.

READING

Task1. Read the text to learn more about the early history of physics. Complete the chart about the founders of physics and their accomplishments.

Scientists	Accomplishments
Archimedes	measured the density of solid bodies by submerging them in a liquid, etc.
.....
.....



B) The study of mathematics and the sciences, particularly astronomy and physics, began in the important centers of ancient civilizations. Alexandria was one of such centers where the mathematician and inventor Archimedes designed various practical mechanical devices, such as *levers and screws (рычаги и винты)*, and measured the density of solid bodies by immersing them in a liquid.

C) Some famous Greek philosophers such as Socrates, Plato, and Aristotle significantly impacted Western civilization and science development. Aristotle viewed the learning process

as one of observation and thinking, but he would not conduct experimentation. It wasn't until the beginning of the Renaissance that people realized that experiment and observation were equally important.

D) Modern science followed the Renaissance. The Polish natural philosopher Nicolaus Copernicus introduced the heliocentric system claiming that the planets move around the sun. He was convinced, however, that the planetary orbits were circular.

E) Sometime later, Johannes Kepler concluded that the planets follow not circular but elliptical orbits with the Sun at one focus of the ellipse. This discovery overturned a millennium of dogma based on Ptolemy's idea of 'perfect' circular orbits for the 'perfect' heavenly bodies. Kepler first proposed the model of planetary motion in which a force emanating from the Sun deflects the planets from their 'natural' movement, making them follow curved orbits.

F) When Galileo Galilei heard of the invention of the telescope, he constructed one of his own in 1609. By observing the phases of the planet Venus, he confirmed the heliocentric system. He also discovered the surface irregularities of the moon, the four brightest satellites of Jupiter, sunspots, and many stars in the Milky Way. During the early 17th century, Galileo pioneered experimentation to validate physical theories, which is the key idea in the modern scientific method. Galileo's interests were not limited to astronomy; he also demonstrated that bodies of different weight fall at the same rate and that their speed increases uniformly with the time of fall. Galileo's astronomical discoveries and his work in mechanics foreshadowed the work of the 17th-century English mathematician and physicist Sir Isaac Newton, one of the most outstanding scientists ever lived.

Task 2. Mark the statements **T** for 'true' or **F** for 'false.' Correct the false ones and expand on the true ones.

Statements	T/F
a) People's fright and desire to have more control of their lives and curiosity led to the birth of science.	
b) Even in the early days, people had quite a good ability to conduct experiments and investigations.	
c) Alexandria was one of the most important scientific centers of the ancient world.	
d) Aristotle considered experimentation an important part of any research process.	
e) Nicolaus Copernicus suggested that the planets move around the Sun.	
f) German astronomer Johannes Kepler concluded that the planets follow circular orbits.	
g) Galileo constructed the first telescope in the world and, with its help, observed the phases of the planet Jupiter	
h) Galileo devoted all his research efforts to astronomy.	

WRITING

Task 3. Based on your previous knowledge and facts from the text, write an answer to the question of an American teenager about the founders of physics. Start like this:

"Physics appeared as a separate science only in the early 19th century. Before that time, a physicist was often a philosopher, mathematician, chemist, biologist, engineer, or political leader. That's why I do not think a particular person can be called the founder of physics. So, we can name several outstanding scientists. I want to start with...."