



What do you wonder about?

01 Working with a classmate, fill in the organizer with some questions you have about the natural world, human life, or the universe.

Our questions

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02 Read “An Ounce of Common Sense Is Worth a Pound of Theory.” Identify the main topic of each paragraph.

1. It describes the process of the scientific method.
2. It describes the difficulties and the benefits of using the scientific method.
3. It explains the importance of the scientific method. It also mentions who uses it.

03 Read the text again. Complete the questions with the correct letter.

1. What kinds of _____ do you like to observe?
 - a. bias
 - b. phenomena
 - c. hypothesis
 - d. theory
 - e. fine-tune
 - f. arduous
2. How many times do you typically redefine your _____ before it is finished?
3. What is the most _____ part of the scientific method?
4. What was the first _____ that you ever derived?
5. Have you ever had to _____ another scientist's theory?
6. What can you do to prevent _____ in your investigations?

An Ounce of Common Sense Is Worth a Pound of Theory

1. The beauty of science is that it is based on fact and observation, minimizing religious, political, or philosophical **bias**. Scientists do not simply invent and believe an idea, but follow a scientific method to support or disprove it. This method is so effective that it is used in the hard sciences, such as math and biology, and in the social sciences, such as sociology, using statistics and probability.
2. The scientific method follows multiple steps, starting with observing a **phenomenon**. Next, the problem is defined, and a hypothesis, a statement to be proven or disproven, is created. With the **hypothesis** defined, experiments must be designed and conducted to test it. The results could lead to the revision of the original hypothesis until, finally, using the outcome of the experiments, a **theory** is derived that can be used to predict the likelihood of further results.
3. Nevertheless, scientists constantly question theories to **fine-tune** them. Although the concept is simple, the process can be **arduous**. It might take scientists years, even decades, of repeated trial and error before the theory fits the observed facts. The scientific method ensures that theories are molded to fit observation and not the other way around, ensuring that we don't just believe what we want. Science safeguards the truth and guarantees that regardless of any personal predisposition, fact will prevail.



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04 With a classmate, imagine that you are interviewing a scientist about the scientific method. Ask one another the questions from Exercise 3.

05 Match the sentence halves.

- | | |
|--|---|
| 1. Scientists might need to modify their theories many times | a. that another team was working on proving the same hypothesis in another country. |
| 2. Sheilla may have a paper published later this year | b. before they become accepted. |
| 3. Jason couldn't have known | c. your work won't be supported by your peers. |
| 4. You might have told me that my paper had been rejected | d. on her work on the atomic theory. |
| 5. Although you can try to prove a theory without using the scientific method, | e. before I began to tell everyone about it! |

06 Finish writing the sentences using a clause containing *can*, *might*, *could*, or *may*.

- Before you claim I copy my work,

- If I can get more experience in science before university,

- If my friend dedicates more time to studying,

- Since there were too many errors in the article in the well-known journal, _____
- Someone will always question your hypothesis

07 With a classmate, choose one of the ideas from Exercise 1. In the organizer below, design a series of experiments that you could conduct to answer one of your questions.

1		2	
3		4	

08 Using your ideas from Exercise 7, tell another group how your experiment plan follows the steps of the scientific method. Use the language below to help guide you.

We can investigate how...	We are thinking that we can start with a hypothesis that...
We might have to modify the hypothesis to...	Depending on the results, we may...

