

Student Discussion Worksheet

Directions: Discuss and answer the following questions about the online *Science News* article "[How the Earth-shaking theory of plate tectonics was born.](#)" A version of the story, "Shaking up Earth," appears in the January 16, 2021 issue of *Science News*. For more on the story of plate tectonics and other big advancements in science over the last 100 years, visit *Science News'* Century of Science site at www.sciencenews.org/century.

Thinking about theories

Discuss the following questions with a partner before reading the *Science News* article.

1. What does it mean to say that you have a theory about something? Think of a theory you've had about something outside of science.
2. What is one scientific theory you have learned about this year in science? Explain what you remember about it.
3. How does the general use of the term theory differ from its use in a scientific context?

The theory of plate tectonics

Read the online *Science News* article "How plate tectonics upended our understanding of Earth," and answer the following questions individually before discussing them as a class.

1. What is the theory of plate tectonics? Over how many years was it developed?
2. Who helped develop the theory and what did they contribute to it? What types of scientists were they and where were they from?
3. Before the theory's development, what were the conflicting lines of thought?

4. What did scientists need to resolve the conflict? Why did the conflict take so long to resolve?

5. How was evidence communicated to other members of the scientific community? Why was the communication important?

Defining a scientific theory

Discuss the following questions with a classmate.

1. Based on your answers to the questions above, how would you define a scientific theory?

2. Think about a scientific hypothesis that you have written or look up an example of a hypothesis. How would you define a hypothesis? How is it different than a theory?

Possible Extension

What is a scientific law that you have learned about in school? Explain how a scientific law is different than a scientific theory. For more information, watch this Ted-Ed video called "[What's the difference between a scientific law and a theory?](#)" by educator Matt Anticole.

