

Cells, Evidence, Change

Trace how evidence and revision shaped cell theory.

LS.2.a "the development of the cell theory demonstrates the nature of science;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each observation or piece of evidence that helped scientists develop cell theory. Number three places where a new tool, new evidence, or a revised claim shows how science changes over time.

How Cell Theory Grew

- ① In 1665, Robert Hooke examined thin slices of cork with a microscope. He saw many tiny boxlike spaces and called them cells because they reminded him of small rooms. Cork came from a plant, but its cells were dead, so Hooke could not see how living cells worked. His report did not create a full theory. It added an observation that later scientists could question, compare, and build upon as microscopes and methods improved over time.
- ② During the 1670s, Antonie van Leeuwenhoek used carefully made lenses to observe living microorganisms in water. More than 150 years later, Matthias Schleiden concluded that plants are made of cells, based on plant studies. In 1839, Theodor Schwann compared animal tissues with plant evidence and argued that animals are also made of cells. These scientists did not simply accept one person's idea. They used observations from different organisms to support a broader explanation about life.
- ③ One major question remained: Where do new cells come from? Some people once proposed that cells could appear from nonliving material. Evidence from observations of cell division challenged that proposal. In 1855, Rudolf Virchow stated that every cell comes from an existing cell, building on earlier research, including work by Robert Remak. Cell theory shows that scientific explanations can grow over time. New tools, repeated observations, and discussion among scientists can strengthen, revise, or replace earlier ideas.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Why did Hooke's observation of cork not explain how living cells work?

2 What did Schwann compare, and how did that comparison help develop cell theory?

3 How did observations of cell division change an earlier proposal about where cells come from?

4 Name two ways the passage shows that scientific explanations can change or become stronger over time.

3 YOUR TURN _____ Your own words

Imagine you are studying a living thing that has not been closely studied before. Write exactly three sentences: state a cautious claim, describe an observation that could support or challenge it, and explain how another scientist could test or revise the claim.

PART 1 • READ AND MARK

Underline each observation or piece of evidence that helped scientists develop cell theory. Number three places where a new tool, new evidence, or a revised claim shows how science changes over time. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Why did Hooke's observation of cork not explain how living cells work?	The cork cells were dead, so Hooke could not observe how living cells work.
2	What did Schwann compare, and how did that comparison help develop cell theory?	He compared animal tissues with plant evidence. This supported the idea that animals, like plants, are made of cells.
3	How did observations of cell division change an earlier proposal about where cells come from?	They challenged the proposal that cells could appear from nonliving material and supported the claim that every cell comes from an existing cell.
4	Name two ways the passage shows that scientific explanations can change or become stronger over time.	Answers include improved tools, observations from different organisms, repeated observations, building on earlier research, and discussion among scientists.

PART 3 • YOUR TURN (SAMPLE ANSWER)

My cautious claim is that the tiny green structures in a leaf cell may help the cell use light. I would observe many leaf cells under a microscope and compare them with cells from a part of the plant that receives little light. Another scientist could repeat the comparison with more samples and revise the claim if the structures are not consistently linked to light exposure.

Accept responses that connect a scientific claim to evidence and explain that testing, repetition, or new evidence can lead to revision. For the open task, accept any plausible investigation with exactly three sentences and all three required parts.