

Cells: The Building Blocks of Life

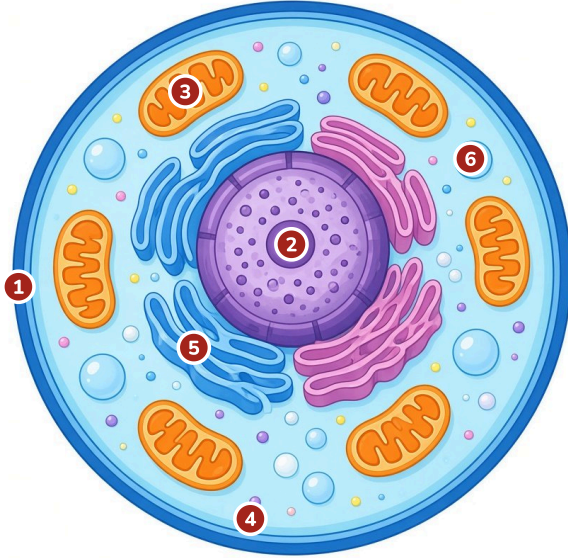


Name: _____

Date: _____

Instructions: No word bank: name the numbered parts from memory or from the module. Number the discoveries in order and write each date. Analyse the source, explain significance, then write full-sentence answers and plan the essay.

1. Name the parts (no word bank)



1 _____ 2 _____ 3 _____ 4 _____
5 _____ 6 _____

Did you know?

- Hooke saw dead cork cell walls, not living cells; van Leeuwenhoek was first to see living cells.
- Cell theory has three parts: all living things are made of cells, the cell is the basic unit of life, cells come from cells.
- DNA in one human cell would stretch about 2 metres if unwound.
- Mitochondria have their own small set of DNA.

Background

Every living thing is made of tiny units called cells. Some living things, like bacteria, are just one cell. You are made of around 37 trillion cells working together. Most cells are far too small to see without a microscope: about 10,000 average human cells could fit on the head of a pin. A cell is alive. It takes in food and oxygen, releases energy, gets rid of waste, grows and can make copies of itself. That is why scientists call the cell the basic unit of life.

2. Timeline: order and date

Number the events 1 to 7 (1 = earliest) and write the date of each.

#	Event	Date
1	Robert Hooke names 'cells' in cork	
2	Schwann and Schleiden: all living things are made of cells	
3	Hooke publishes Micrographia	
4	Virchow: every cell comes from another cell	
5	Early compound microscopes made in the Netherlands	
6	Van Leeuwenhoek sees living single cells	
7	The double-helix shape of DNA is discovered	

3. Source analysis

I could plainly see it to be all perforated and porous, much like a honeycomb. These pores, or cells, were not very deep, but consisted of a great many little boxes.

Robert Hooke, Micrographia (1665), describing cork (paraphrased)

1. What did Hooke compare the cork to?

2. Why do you think he chose the word 'cells'?

3. Hooke was looking at cork, which is dead. What could he not see?

4. Significance

Scientist or term	Who or what? Why does it matter?
Robert Hooke	
Antonie van Leeuwenhoek	
Theodor Schwann	
Rosalind Franklin	
Cell	

5. Cause and consequence

1. Explain why the invention of better microscopes led to cell theory.

2. Explain one consequence of a cell's mitochondria not working properly.

6. Longer answers (full sentences)

1. Explain how a red blood cell is adapted to its job.

2. Why was the invention of the microscope so important for biology?

3. Describe the levels of organisation from cell to organism, with an example of each.

4. What does 'every cell comes from another cell' mean, and how does it explain growth and healing?

5. Explain in your own words: Explain how cells, tissues, organs and organ systems are linked.

7. Essay question

Essay: 'The cell is the most important discovery in biology.' How far do you agree? Plan an essay with points for and against and a conclusion.

Plan: introduction · point for (evidence) · point against (evidence) · conclusion with your judgement.
