Plant and Animal Cells: Structure and Function

Ages 11–14 · Science

Name _____ Class _____ Date _____

A Key terms: match each term to its meaning

Write the letter of the correct meaning in the box next to each term.

1	**Cell**	☐	**A** Structures in the cytoplasm where respiration releases energy from glucose.
2	**Nucleus**	☐	**B** The smallest unit of a living thing that can carry out the processes of life.
3	**Cell membrane**	☐	**C** A structure containing green chlorophyll, where photosynthesis takes place.
4	**Cytoplasm**	☐	**D** A thin, flexible layer around the cell that controls what enters and leaves.
5	**Mitochondria**	☐	**E** A tough outer layer made of cellulose that supports and protects a plant cell.
6	**Ribosome**	☐	**F** The part of a cell that contains its genetic material (DNA) and controls the cell's activities.
7	**Cell wall**	☐	**G** A tiny structure where proteins are made.
8	**Chloroplast**	☐	**H** The jelly-like fluid inside the cell where most chemical reactions take place.

B Quick quiz

Circle the best answer, write its letter, then explain your choice in a few words.

1 What is the job of the cell membrane?

a) It makes food using light
b) It controls what enters and leaves the cell
c) It stores cell sap
d) It builds proteins

Answer: _____ Why? _____

2 Which three structures do plant cells have that animal cells do not?

a) Nucleus, cytoplasm and membrane
b) Mitochondria, ribosomes and nucleus
c) Cell wall, chloroplasts and a large permanent vacuole
d) Cell membrane, chloroplasts and ribosomes

Answer: _____ Why? _____

3 Where in a cell is energy released from glucose by respiration?

a) Mitochondria
b) Chloroplasts
c) Cell wall
d) Vacuole

Answer: _____ Why? _____

4 A plant has not been watered for a week and its leaves droop. What has happened inside its cells?

a) The cell walls have dissolved
b) The chloroplasts have turned into mitochondria
c) The vacuoles have lost water, so the cells are no longer firm
d) The nucleus has left each cell

Answer: _____ Why? _____

5 Roughly how wide is a typical plant or animal cell?

a) 10–100 micrometres
b) 1–10 millimetres
c) 1–10 centimetres
d) 10–100 metres

Answer: _____ Why? _____

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Answer key for teachers · Ages 11–14 · Science

A Key terms

1	Cell	B	The smallest unit of a living thing that can carry out the processes of life.
2	Nucleus	F	The part of a cell that contains its genetic material (DNA) and controls the cell's activities.
3	Cell membrane	D	A thin, flexible layer around the cell that controls what enters and leaves.
4	Cytoplasm	H	The jelly-like fluid inside the cell where most chemical reactions take place.
5	Mitochondria	A	Structures in the cytoplasm where respiration releases energy from glucose.
6	Ribosome	G	A tiny structure where proteins are made.
7	Cell wall	E	A tough outer layer made of cellulose that supports and protects a plant cell.
8	Chloroplast	C	A structure containing green chlorophyll, where photosynthesis takes place.

B Quick quiz

1 b) It controls what enters and leaves the cell

The cell membrane controls which substances pass into and out of the cell. Chloroplasts make food, the vacuole stores sap and ribosomes build proteins.

2 c) Cell wall, chloroplasts and a large permanent vacuole

Plant cells have everything an animal cell has, plus a cellulose cell wall, chloroplasts for photosynthesis and a large permanent vacuole.

3 a) Mitochondria

Mitochondria release energy from glucose by respiration. Both plant and animal cells have them, because both need a constant supply of energy.

4 c) The vacuoles have lost water, so the cells are no longer firm

When vacuoles lose water they stop pressing outwards on the cell wall. The cells go soft and the plant wilts. Watering refills the vacuoles.

5 a) 10–100 micrometres

Most plant and animal cells are about 10 to 100 micrometres across. A micrometre is a thousandth of a millimetre, so a microscope is needed to see them.