

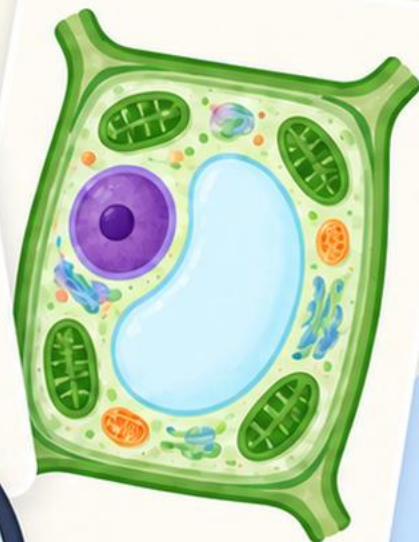
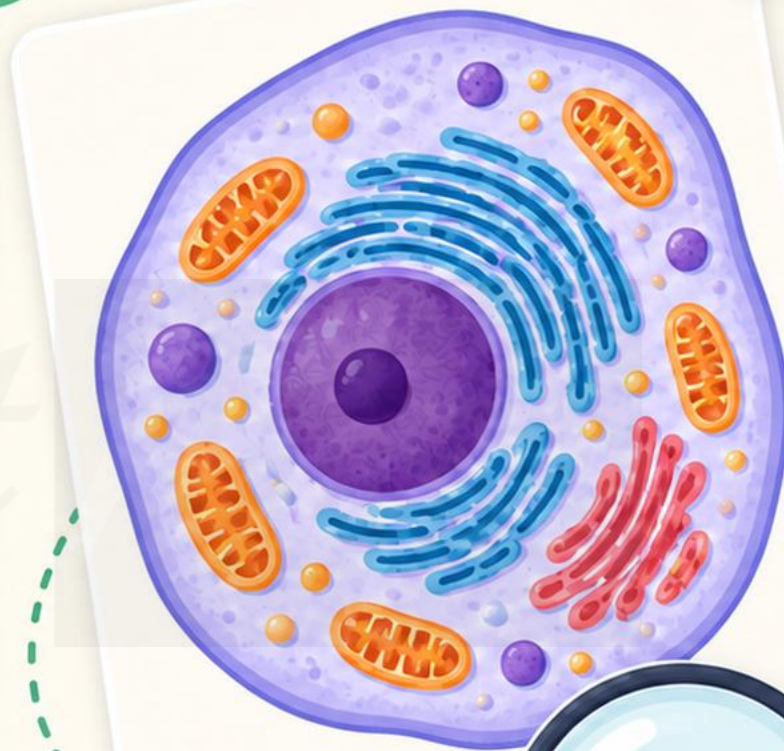
SCIENCE • CLASS 9

CHAPTER 2

Cell

The Building Block of Life

NCERT SOLUTIONS



CELL WALL AND SUPPORT

Pause and Ponder - Q1 and Q2.

Q1. What argument would you give for the necessity of a cell wall in plants usually fixed in one place versus in animals usually moving from one place to the other?

Answer:

The rigid cell wall gives plant cells shape, support and protection. It helps stationary plants withstand wind and other stresses. It resists excessive swelling when water enters. Animal cells need flexibility for movement and changes of shape, so they lack this rigid wall.

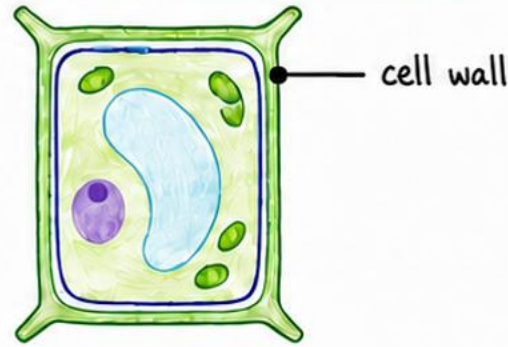
Rigid wall supports plants.

Q2. What consequences would you predict for a plant cell if its cell wall were to become as flexible as a cell membrane?

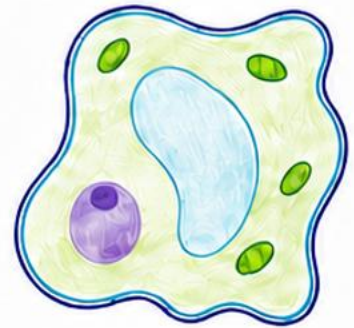
Answer:

The cell would lose firm support and its definite shape. It would deform more easily and would not resist water pressure well. Excess water entry could cause bursting, and plant tissues would become weak.

Firm plant cell (normal)



Flexible boundary (distorted)



A flexible wall would weaken support.

A FAIR POTATO EXPERIMENT

Pause and Ponder - Q3.

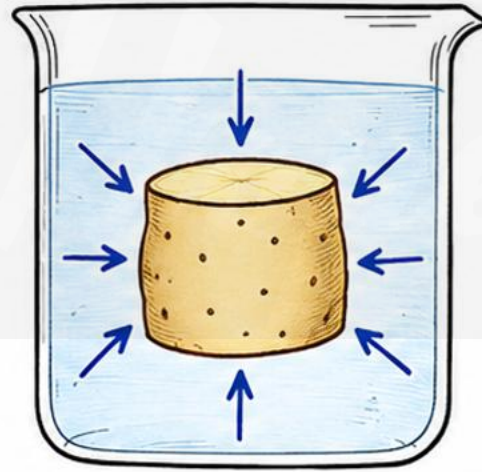
Q3. Why is it important to cut the two potato pieces in roughly equal size and measure their initial weight before placing them in different liquids?

- ① Equal-sized pieces have similar starting amounts of tissue and exposed surface area. This makes the comparison fair.
- ② Initial weight gives a starting value. We can then find whether each piece gained or lost water.
- ③ The liquid should be the main changed factor. Keep the time, temperature and liquid volume the same.

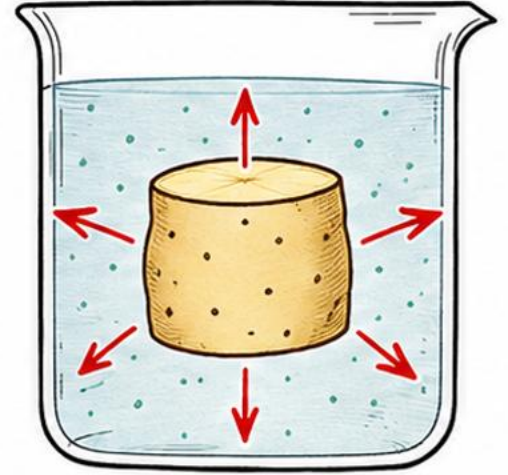
Change in weight = final weight - initial weight.

Final answer: Equal size controls the comparison.
Initial weight lets us measure the change.

A - plain water



B - concentrated salt solution



Expected observation:

A gains water
and weight.

B loses water
and weight.

WHITE FLOWERS AND PIGMENTS

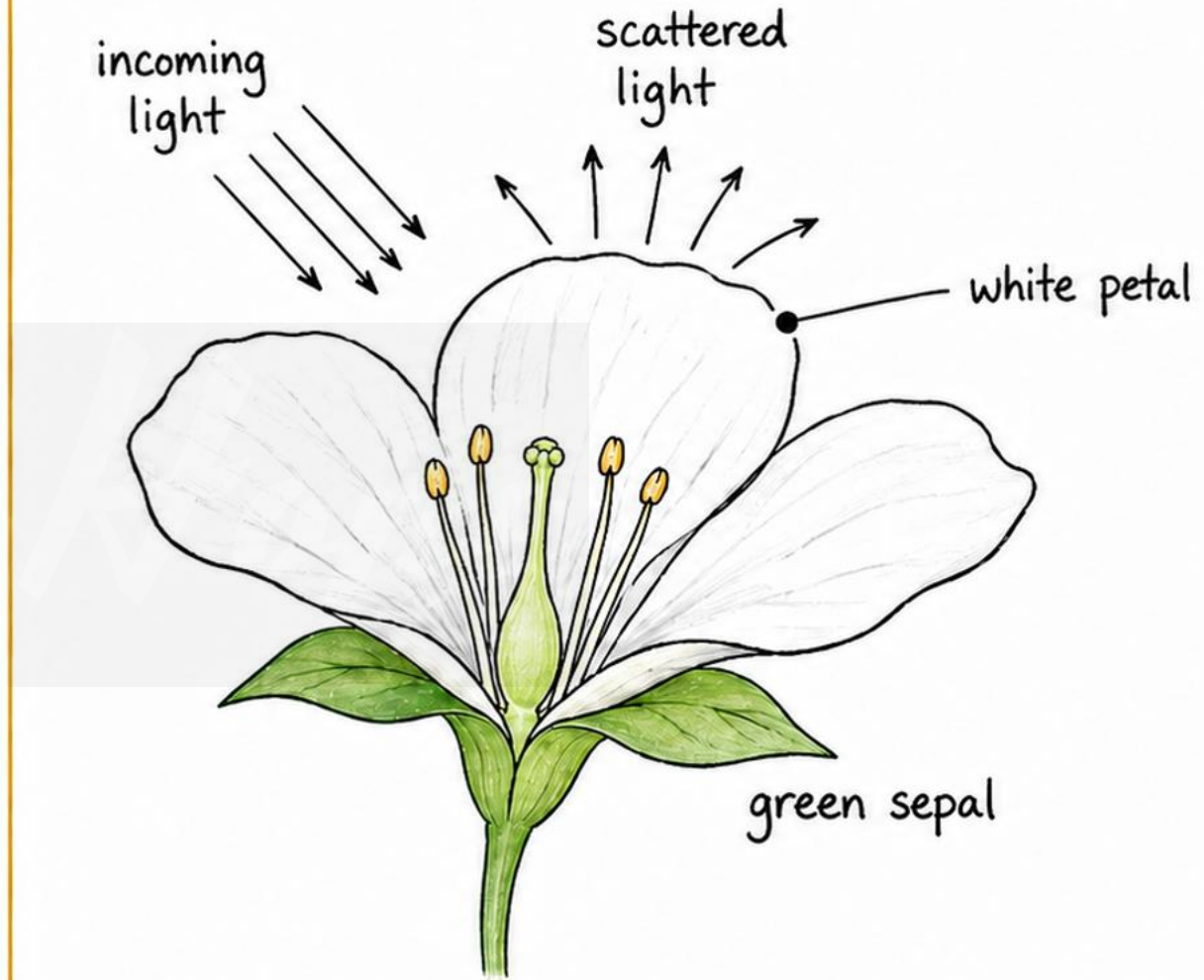
Pause and Ponder - Q4.

Question: Do white flowers contain any pigment?
Give reasons.

Answer:

White petals usually have very little or no pigment that absorbs visible light strongly. Their tissues scatter most visible colours of light, so they look white.

This does not mean that the whole flower is pigment-free. Green parts, such as sepals, contain chlorophyll. Some white petals can also contain pigments that do not give them a visible colour.



Final answer: White appearance is mainly due to light scattering and little visible colour-producing pigment, not a special white pigment.

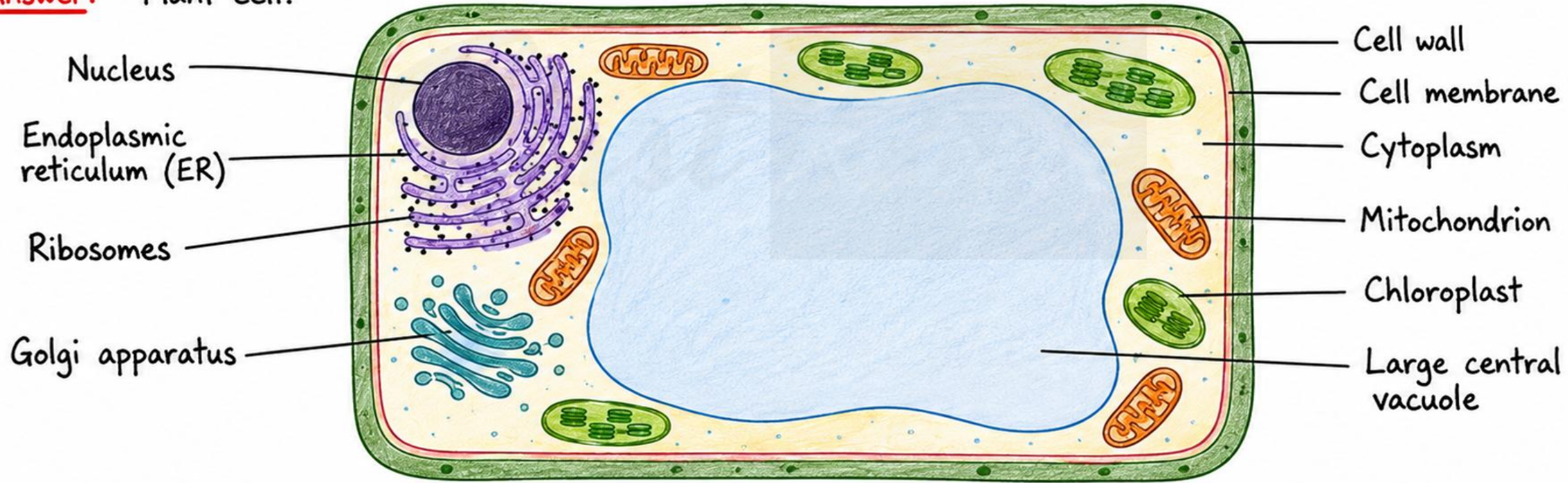
A LABELLED PLANT CELL

Pause and Ponder - Q5.

Q5. Draw a well-labelled schematic diagram of a plant or an animal cell using these clues:

- (i) Nucleus appears as a dark and round body inside the cell.
- (ii) ER spreads like a network of extended nuclear envelope.
- (iii) Mitochondria and chloroplasts are rod shaped. You may refer to Fig. 2.10.

Answer: Plant cell.



ER connects with the outer nuclear envelope. Mitochondria and chloroplasts are shown as elongated organelles.

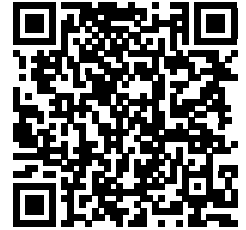


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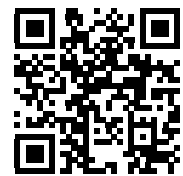


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