



SCIENCE EXPERIMENT LAB SHEET

OBSERVING PLANT CELL PLASMOLYSIS UNDER A MICROSCOPE

Name: _____

Date: _____

Age/Grade: _____

BACKGROUND

Plant cells have a cell wall that provides support. Inside the cell, the cytoplasm and vacuole are surrounded by the cell membrane. When a plant cell is placed in a hypertonic solution (a solution with a higher concentration of solutes than the cell), water leaves the cell by osmosis. The vacuole shrinks and the cell membrane pulls away from the cell wall. This process is called plasmolysis.

MATERIALS

- Red onion (or purple onion)
- Microscope
- Glass slides
- Cover slips
- Dropper or pipette
- Distilled water
- 10% salt solution (table salt dissolved in water)
- Paper towel
- Forceps or tweezers (optional)

PROCEDURE

1. Peel a thin, transparent layer of red onion epidermis (the thin inner skin).
2. Place the onion peel flat on a clean glass slide.
3. Add 1–2 drops of distilled water to the slide. Place a cover slip over the sample.
4. Observe under the microscope using low power, then high power. Draw what you see in the "Before" box below.
5. Using a dropper, add 1–2 drops of 10% salt solution to the edge of the cover slip (opposite side of the sample). Blot the other edge with a paper towel to help draw the solution through.
6. Wait 2–3 minutes.
7. Observe again under the microscope. Draw what you see in the "After" box below.
8. (Optional) To reverse plasmolysis, add a drop of distilled water to the edge and observe again.

RESULTS – COMPLETE THE TABLE

Condition	Cell Membrane Position	Vacuole Size	Cytoplasm	Plasmolysis Observed?
Before (distilled water)				
After (salt solution)				

THINK & EXTEND

1. Why did water move out of the plant cells in the salt solution? _____
2. In what real-life situation might plasmolysis be harmful to plants? _____

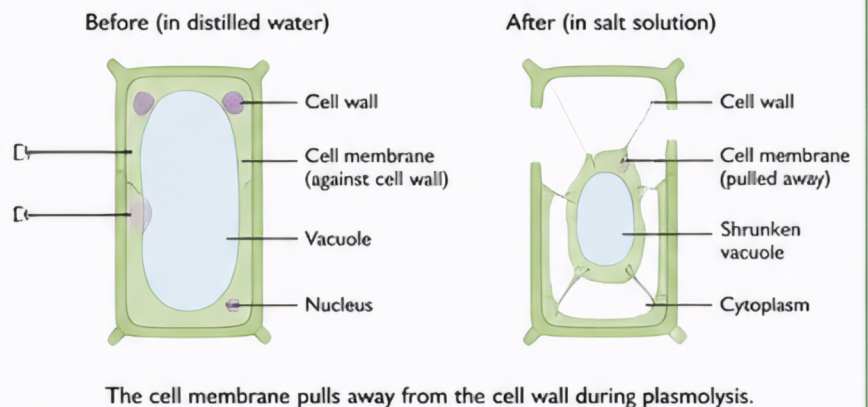
QUESTION

What happens to plant cells when they are placed in a hypertonic solution?

HYPOTHESIS

If _____
then _____

WHAT TO LOOK FOR



OBSERVATIONS – DRAW WHAT YOU SEE

Before (in distilled water)

After (in salt solution)

CONCLUSION

Did the results support your hypothesis? Why or why not?
