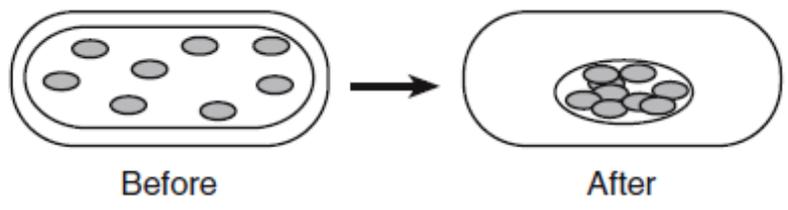


1. Some roads are salted heavily in winter. Describe *one* way plants growing near these roads could be harmed by the salt.

2. State *one* reason why a molecule may *not* be able to pass into or out of a cell.

3. The diagram below represents a green plant cell viewed with the high power of a compound light microscope before and after a particular substance was added.



Identify a substance that could have been added to the slide to bring about the change shown.

4. Base your answer to the following question on the information and data table below and on your knowledge of biology.

In an experiment, three plants of the same species were grown in each of six identical pots. The heights of the plants were measured when growth began. Each of the pots was watered every day with salt solutions of different concentrations. The data for the experiment are shown in the table below.

Effect of Salt Solution on the Height of Plants

Plant Group	Percent Salt Solution Used for Watering the Plants	Average Initial Height (centimeters)	Average Final Height (centimeters)
A	0	2	30
B	1	2	28
C	2	3	15
D	3	2	10
E	4	3	(died)
F	5	3	(died)

State *one* way diffusion was involved in the cause of death of the plants in groups *E* and *F*.

Base your answers to questions 5 and 6 on the diagram below and on your knowledge of biology. The diagram represents a cell and its changes as a result of two laboratory procedure. *A* and *B*.



5. Explain why procedure *B* has the opposite effect of procedure *A*.

6. Describe procedure *A* and explain why it would cause the change shown.

7. Glucose indicator was added to a beaker of an unknown liquid. Starch indicator was added to a different beaker containing the same unknown liquid. The color of the indicator solutions before they were added to the beakers and the color of the contents of the beakers after adding the indicator solution are recorded in the chart below.

Beaker	Solution	Color of Indicator Solution Before Adding to Beaker	Color of Contents of Beaker After Adding Indicator Solution
1	unknown liquid + glucose indicator	blue	blue (after heating)
2	unknown liquid + starch indicator	amber	blue black

Which carbohydrate is present in the unknown liquid? Support your answer.

Base your answers to questions 8 and 9 on the information and data table below and on your knowledge of biology.

A student cut three identical slices from a potato. She determined the mass of each slice. She then placed them in labeled beakers and added a different solution to each beaker. After 30 minutes, she removed each potato slice from its solution, removed the excess liquid with a paper towel, and determined the mass of each slice. The change in mass was calculated and the results are shown in the data table below.

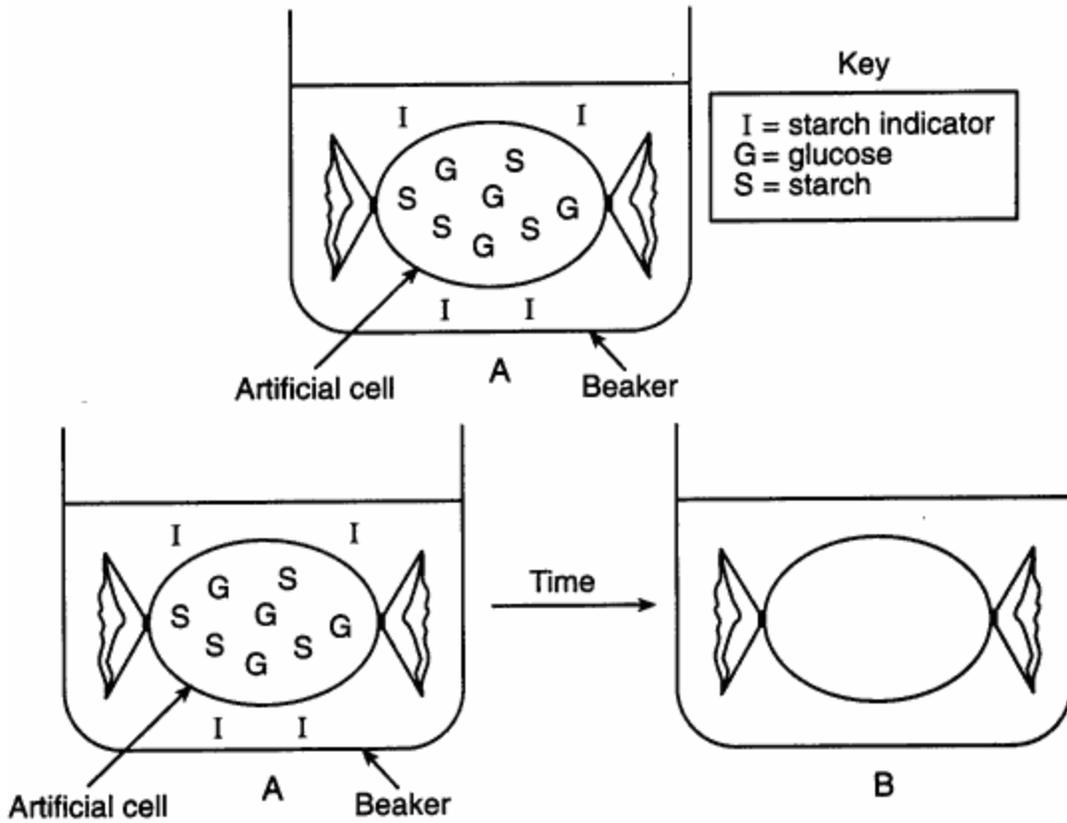
Change in Mass of Potato in Different Solutions

Beaker	Solution	Change in Mass
1	distilled water	gained 4.0 grams
2	6% salt solution	lost 0.4 gram
3	16% salt solution	lost 4.7 grams

8. Explain why the potato slice in beaker 1 increased in mass.

9. Identify the process that is responsible for the change in mass of each of the three slices.

Base your answers to questions 10 through 12 on the information and diagram below and on your knowledge of biology. The diagram illustrates an investigation carried out in a laboratory activity on diffusion. The beaker and the artificial cell also contain water.



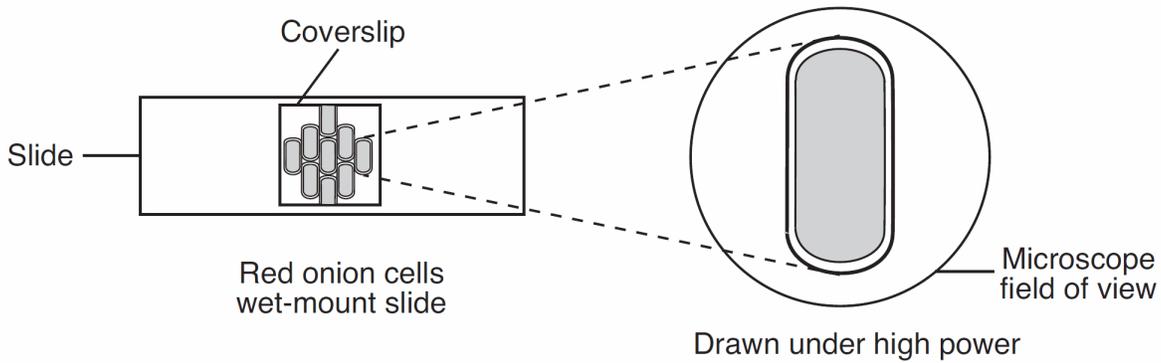
10. State what is observed when there is a positive test for starch using the starch indicator.

11. Predict what would happen over time by showing the location of molecules *I*, *G*, and *S* in diagram *B* above.

12. State what is observed when there is a positive test for starch using the starch indicator.

Base your answers to questions 13 through 15 on the information below and on your knowledge of biology.

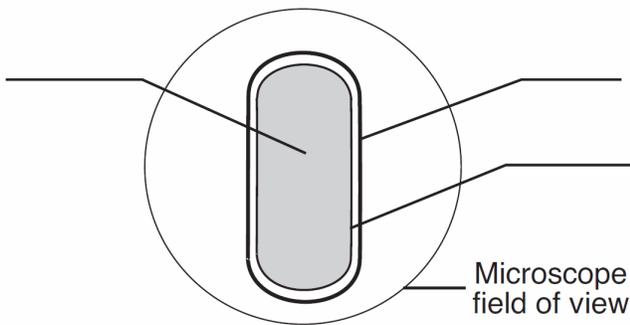
A wet-mount slide of red onion cells is studied using a compound light microscope. A drawing of one of the cells as seen under high power is shown below.



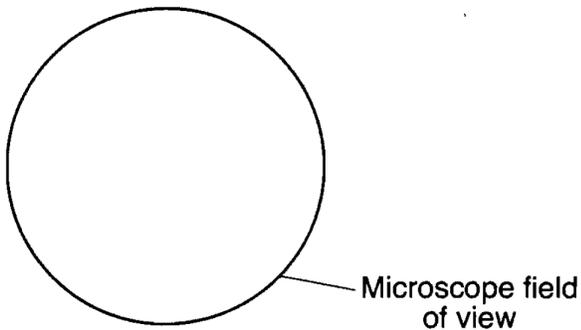
13. Describe the proper way to add a saltwater solution to the cells without removing the coverslip.

14. On the diagram below, label the location of each of the cell structures listed.

cell wall
cytoplasm
cell membrane



15. In the space below, sketch how the cell would look after the saltwater solution is added to it.



Answer Key

Review Diffusion Lab

1. – Salt could cause water to diffuse out of the cells of the plants. – The solution contains less water than was in the leaves, so water could diffuse out of the leaves. – Water could leave the plant. – They would dehydrate.
2. — too large to pass through the cell membrane — no receptor site — faulty receptor site — molecule is charged
3. — salt — salt solution
4. – When more salt was used, more water diffused out of the plant cells. The plants in *E* and *F* dried out and died. – The cells lost too much water. – It caused the plants to dehydrate and die.
5. – In procedure *B*, distilled water is added to the cell. The distilled water goes into the cell and restores the cytoplasm to the normal size. – Process *B* is to add distilled water to dilute the salt water. Water will move into the cell and fill it back up. – Procedure *B* adds a new substances that causes water to reenter the cell.

6. – In procedure *A*, salt water is added to the cell. The reduced water concentration outside results in water leaving the cell and its cytoplasm shrinks away from the cell wall. – Put the cell in salt solution. Water moves out of the cell and the cell contents shrink.

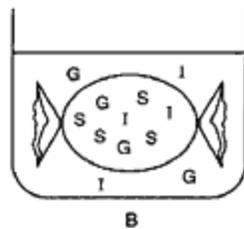
7. *Example:* — starch — The solution in beaker 2 changed color.

8. Water diffused into the cells of the potato because there was a higher concentration of water outside than inside the slice.

9. *Examples:* — diffusion — osmosis

10. Acceptable responses include, but are not limited to: a color change or that the color changes from amber to blue black.

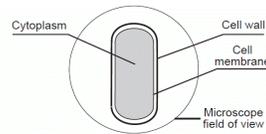
11.



12. *Examples:* – a color change – The color changes from amber to blue black.

13. — Place saltwater solution on one side of the coverslip. Then draw the saltwater solution under the coverslip by placing a piece of paper towel on the opposite side.— Place a drop of saltwater solution on one side of a coverslip and a paper towel on the other side.

14.



15.

