

Date: _____

Name: _____

PASSIVE TRANSPORT LAB

BACKGROUND/INTRODUCTION:

Our cells carry out a myriad of reactions which require different substances and produce several substances. These substances must be delivered to or removed from the cells. Cells have a membrane which separates the inside of the cell from the outside environment. Therefore these substances move into and out of cells across the cell membrane. It is said to be permeable. Substances move across the membrane in different ways and are affected by different factors such as properties of the phospholipid by-layer of the cell membrane and properties of the substance e.g. size, charge. Some substances move easily based on differences in concentration (concentration gradient) inside and outside of the cell. Others require help such as special transport molecules and energy.

For this lab, the movement of substances across a membrane will be investigated. An indicator, iodine, will be used to track the movement as it changes colour in the presence of starch.

PURPOSE: To observe passive transport of a substance across a permeable membrane.

HYPOTHESES: circle the one you think is true>why?

1. Iodine molecules will travel from the beaker into the zip-lock bag and turn cornstarch blue-black.
2. Cornstarch molecules will travel from the zip-lock bag into the iodine solution in the beaker and turn blue-black.
3. Iodine molecules will travel from the beaker into the zip-lock bag and turn cornstarch blue-black and cornstarch molecules will travel from the zip-lock bag into the beaker and turn blue-black in the iodine solution.

WHY:

MATERIALS:

- | | | |
|--|-----------------------------------|------------------------------|
| <input type="radio"/> Beaker | <input type="radio"/> Scoopula | <input type="radio"/> Iodine |
| <input type="radio"/> Plastic zip lock bag | <input type="radio"/> Corn starch | <input type="radio"/> Water |

SAFETY/PRECAUTION INSTRUCTIONS:

1. Do not eat the cornstarch
2. Be careful with iodine. DO NOT let any spill on your hands, clothing or notebooks. They will turn blue-black!

3. Ensure you close the zip-lock bag tightly/properly
4. Lower zip-lock bag, bottom first, into beaker. Ensure that the top (closure) of the zip-lock bag is above the iodine solution.

METHOD:

1. Put 1 scoop of corn starch into the bag.
2. Put 200mL of water into the bag.
3. Close bag.
4. Add water to a beaker until it is half full
5. Put 10 drops of iodine into the beaker.
6. Submerge the bag in the beaker.
7. Wait for 15 minutes.
8. Record observations.

OBSERVATIONS:

Table showing observations of colour changes before and after zip-lock bag containing cornstarch solution was submerged in a beaker of iodine solution.

Condition	BEFORE submersion of bag into beaker	AFTER submersion of bag into beaker
Cornstarch		
Iodine solution		
Volume of solutions		

