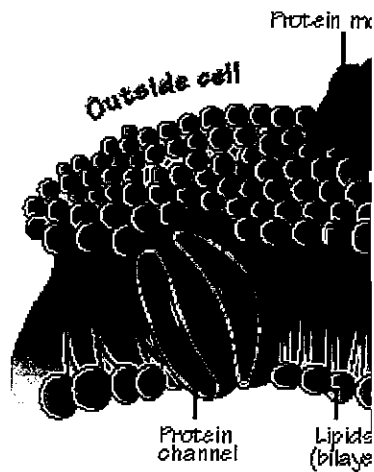


Year 1

FUNCTIONIN

PRAC



Prac A -

Prac E - Tur

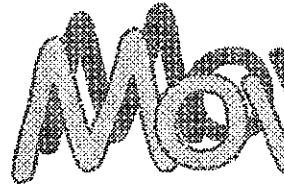
Prac 2.11 - Osmo

Prac 2.14 - Turgor an

C

Prac 2.12 - Osm

Name: _____



Introduction

You might have experienced some of the following situations:

- You walk in the front door, tired and hungry after a hard day at school, to be met by the mouth-watering smell of your favourite food cooking, yet the kitchen is at the other end of the house.
- The front door bell rings just after you have put a tea bag in a mug of boiling water. When you come back a few moments later, the tea is ready even though you haven't 'jiggled' the tea bag.
- After they have been soaking in water, you find that the raisins and sultanas you are going to use in the Christmas cake have taken up a lot of water and have swollen up.

These are everyday examples of two important ways by which molecules are able to move. The processes are **diffusion** and **osmosis** and each plays a significant role in the correct functioning of living organisms.

Purpose

- 1 To observe and describe an example of diffusion.
- 2 To observe and describe the effects of a selectively permeable membrane on the process of diffusion.
- 3 To observe and describe a model for osmosis.
- 4 To investigate osmosis in living cells.

Molecules

A Diffusion

Procedure

- 1 Label two 600 mL beakers. One beaker 'cold' and the other 'hot'.
- 2 Three-quarters fill each beaker with water. The 'hot' beaker with the hottest water from the tap.
- 3 Put the two beakers next to each other. Leave them left undisturbed for at least 10 minutes.
- 4 Place the drinking straw at the bottom of the beaker containing the hot water. Using forceps, push a small amount of potassium permanganate down the straw. Remove the straw with the forceps. (Figure 1).
- 5 Repeat procedure step 4 for the cold beaker.



forceps

drinking straw
(must be held very still)

beaker

potassium permanganate in the hot water. Note: the experiment should be carried out with as little water as possible.

Moving Molecules

RESULTS

PART A: DIFFUSION

COLD (first $\frac{1}{2}$ Hour)

COLD (2 Hours)

HOT (first $\frac{1}{2}$ Hour)

HOT, (2 hours)

E T

PROCEI

- 1 Cu
Pla
- 2 Fil
wi
sal
ac
tul
- 3 Al
30
- 4 Re
fle

MATERI

- Potato
- Sharp I
- 5 test ti
- distille
- 1M sud
- 3M Na
- 50% al

PART E: TURGID OR FLACID

1. Describe what has happened to each chip using your knowledge of how substances enter and leave cells

2. Rank the chips in order of most turgid to most flacid.

3. Explain the process and which substance has passed through the membrane in each case



To c



3 pc
Scal
3 pe
Lab





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1
2
3
4
5
6


 Met


 Mat


2 fresh, unble
2 large boilin
Test tube raci
Labels
Saturated salt

 1 Use sc
stalks

 2 Label
other v

 3 Two-t
tube B
Put a g

 4 Leave
possib

 5 Draw v
norma

Thi
1 h
2 h
3 D
4 W
t
5 W
to



To in

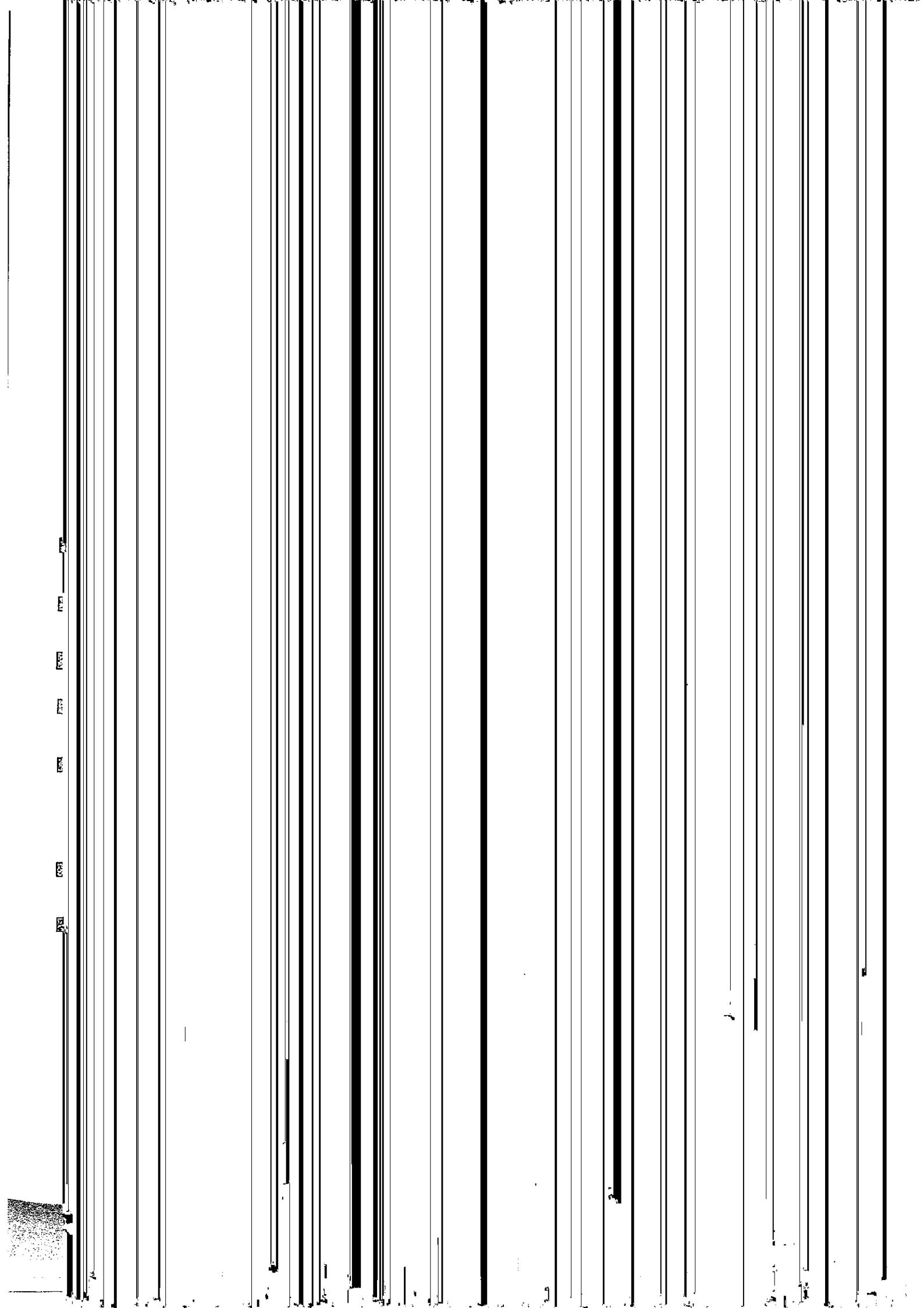



Onid
pe




Micr
Tissu
Filde
Mot






 Object —

To demonstrate water










 Materials

Tissues
20% sucrose solution,

 Material p

Dialysis tubing (14 m
2 250 ml beakers

Note: Dialysis tubing
molecules diffuse thro

-  1 Cut a piece of c
between your f
-  2 Tie a tight knot
-  3 Carefully squeez
-  4 Dry the outside
-  5 Immerse the ba
-  6 Prepare a secon
dry the outside
-  7 Immerse this ba
-  8 Your experimen
Leave the bags
dry and reweigh
-  9 Put both bags b
30 minutes. If th
the bags, dry th

Think about i

- 1 In A, wher
- 2 Which wa
- 3 In B, wher
- 4 Which wa
- 5 If the bag c
solution, w

