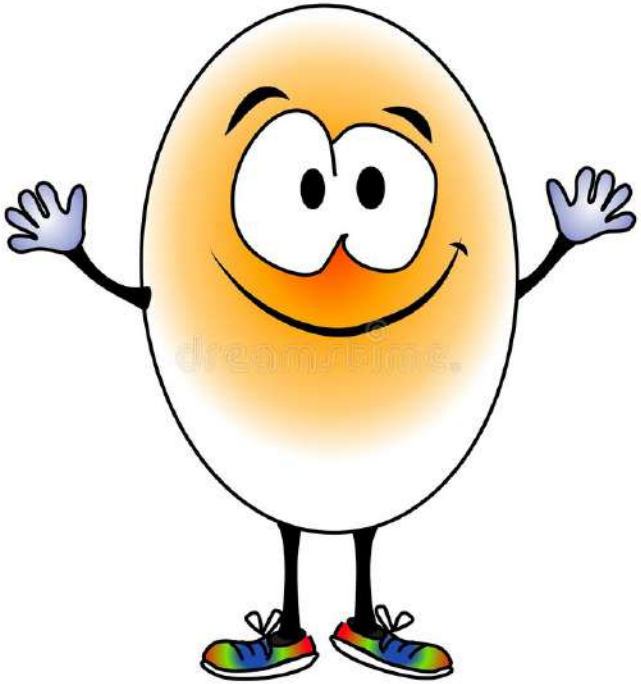
EGG OSMOSIS LAB



Slide Show by Kelly Riedell/Brookings Biology

Images from:
https://thumbs.dreamstime.com/b/smiling-egg-cartoon-character-2776082.jpg
http://www.incnow.com/wp-content/uploads/2013/03/egg-carton.jpg

INTRODUCTION

Soaking eggs in vinegar removes the calcium from the eggshells, making them soft and exposing the chorionic membrane which surrounds the developing chicken embryo and the food molecules stored in the egg to help the embryo grow.

See video

LAB GROUPS

2-3 people

~ Wear gloves when handling eggs.
~ Aprons if desired

Each lab group needs:
2 cups
2 eggs

Label cups with names and SUGAR or DISTILLED
Put eggs in cups for transport across room.
Weigh each egg and mark on data table.
Place egg in correctly labeled cup & cover with liquid

Place cups on front table

COLLECT DATA:

	Egg in sugar water	Egg in distilled water
Mass of egg (g) at the start		
Mass of egg (g) after 24 hours		
Mass of egg (g) after 48 hours		
Total change in mass (g) from Day 1 to Day 3 Use + if it got bigger Use – if it got smaller		

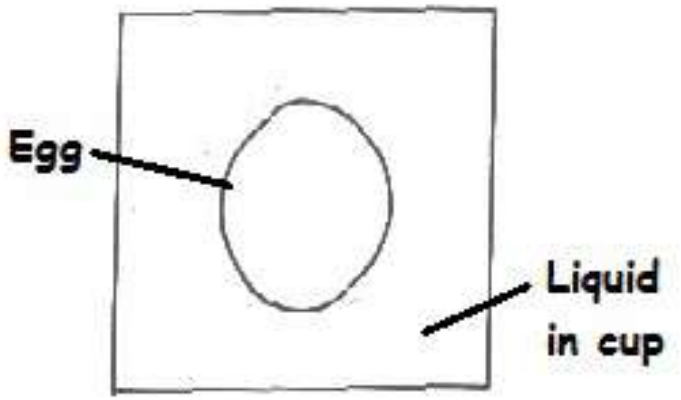
Write BALANCE NUMBER on your lab sheet. Use same balance every time you weigh.

Zero the balance with empty weight boat. Make sure balance reads zero before adding egg.

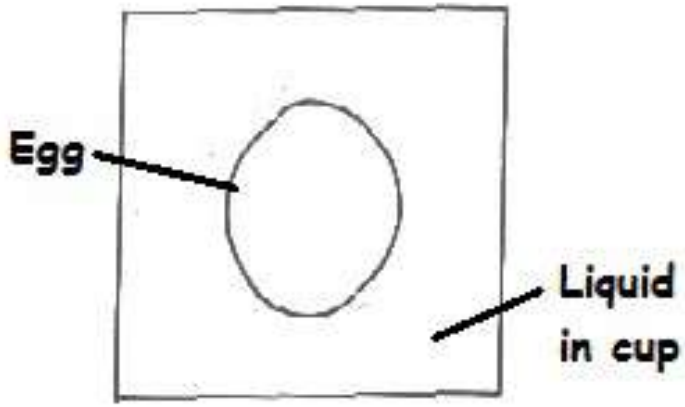
MODELING OSMOSIS:

ADD DOTS representing solute molecules to the diagrams provided below to show where solute molecules could be found AT THE START of this experiment when you put the eggs in the cups and covered them with liquid. If solute molecules are unable to pass through a cell membrane water will move to try and equalize the concentration.

ADD ARROWS to the diagrams to show how you think the water will move.



EGG IN SUGAR WATER



EGG IN DISTILLED WATER

REMEMBER: SOLUTE SUCKS!!!!

MAKE A HYPOTHESIS:

What do you think will happen to the eggs in this experiment? EXPLAIN WHY you think so.

_____

_____

Tell 2 ways the membrane surrounding the egg is like the plasma membrane in a cell.

1._____

_____

2. _____

_____

Tell a molecule in the egg that might not be able to cross the membrane and explain WHY?

_____

_____

Video from: http://www.southtexascollege.edu/tdehne/BC_ShockwaveAnimations/08SWF-MembraneStructureAndFunct/08-02-MembraneStructure.swf

Small Hydrophobic Molecules

O_2
CO_2
N_2

Small Uncharged Molecules

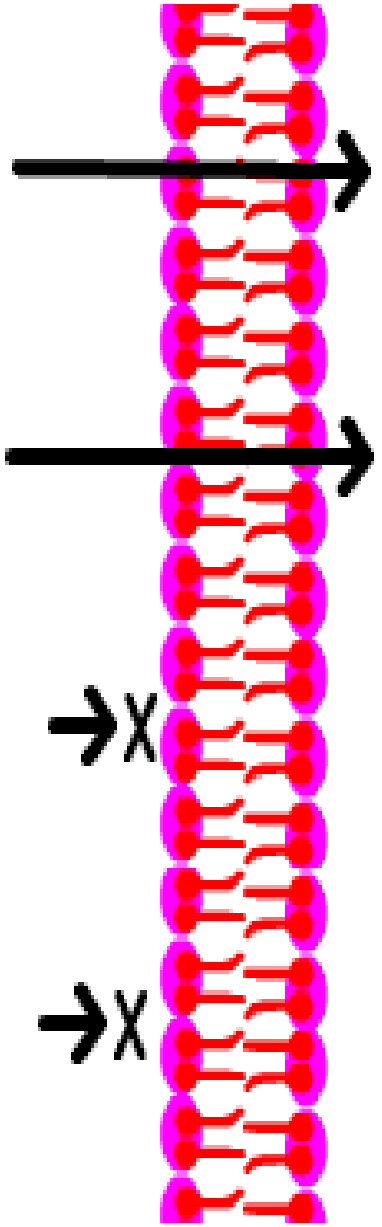
glycerol
ethanol

Large OR Polar Molecules

H_2O
amino acids
glucose
nucleotides

IONS

H+
K+
Ca++
Cl-
Na+



PROBLEM for Cells?

Cell membranes are SELECTIVELY PERMEABLE

See a movie