

# Cellular Transport & Homeostasis Stations

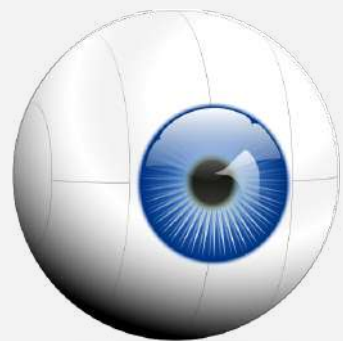


## Self Directed Activity

Directions - Proceed through each of the following stations. Following the directions as written. If a question arises, talk amongst your group members first, then if a consensus is not reached, please seek assistance from your instructor

Station 1

Watch It



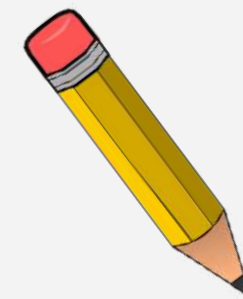
Station 2

Video It



Station 3

Write It



Station 4

Examine It



# Cellular Transport & Homeostasis Stations



## Self Directed Activity

Directions - Proceed through each of the following stations. Following the directions as written. If a question arises, talk amongst your group members first, then if a consensus is not reached, please seek assistance from your instructor

Station 5

Answer It



Station 6

Perform It



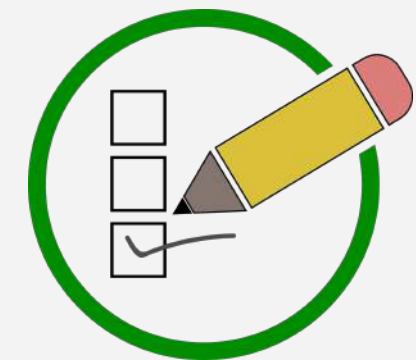
Station 7

Read It



Station 8

Evaluate it





# Watch It – Station 1

*What is the role of the Cell membrane? Identify components of its' structure?*

Question 1

*Differentiate between - permeable, semi-permeable, and impermeable*

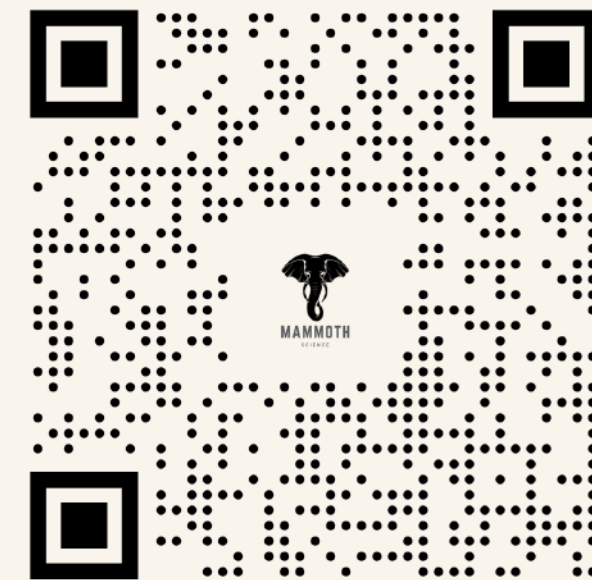
Question 2

*Compare and contrast Passive & Active Transport*

Question 3

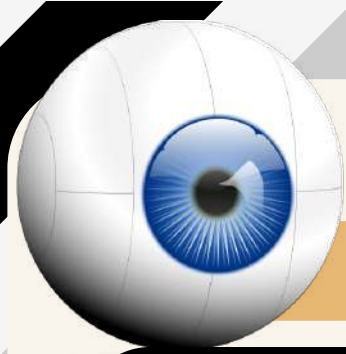
## Directions

Watch the following video



Answer the  
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# Station 1 – Continued



*What are the three forms of passive transport?*

Question 4

*Identify and explain forms of passive transport*

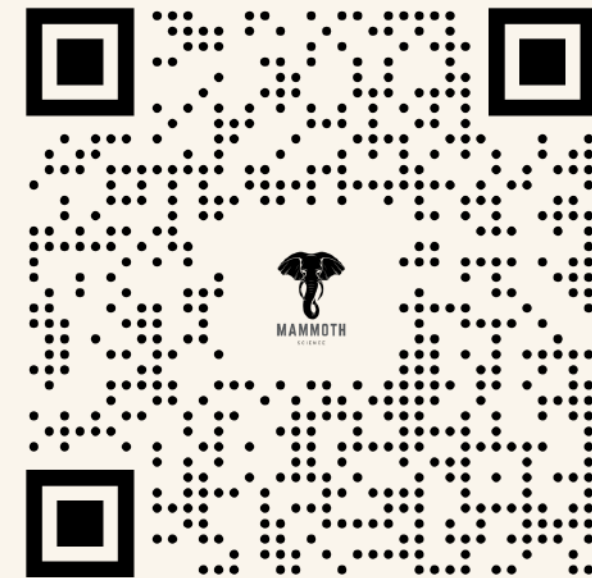
Question 5

*Compare and contrast the three solution types - isotonic, hypotonic, and hypertonic*

Question 6

## Directions

Watch the following video



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# Station 1 – Continued



*How are facilitated diffusion/transport similar to forms of active transport? How is it different?*

Question 7

*Define concentration gradient.*

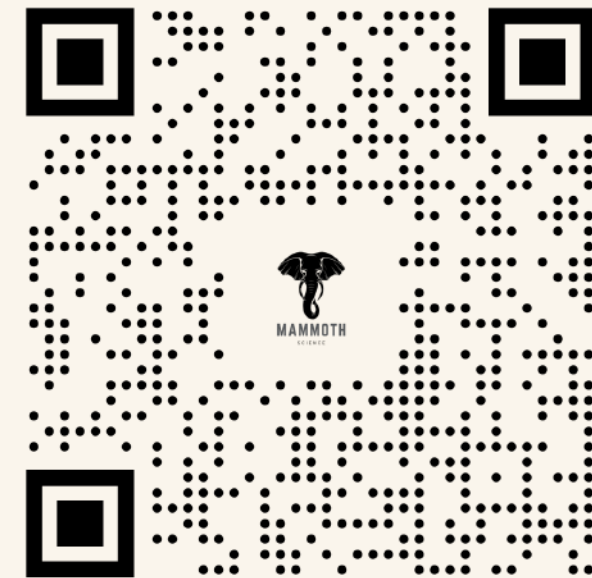
Question 8

*What is the energy required to perform active transport?  
How is it made inside the cell?*

Question 9

## Directions

Watch the following video



Answer the  
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## Station 2 – Video It

### Directions

Make a video of about 3 minutes.

Your video should include the following information, using the sentence stems right.

*Insert (copy & paste) your video link into your answer doc*

Some Video creation suggestions:

- Loom
- Screencast-o-matic
- Screencastify
- Animoto

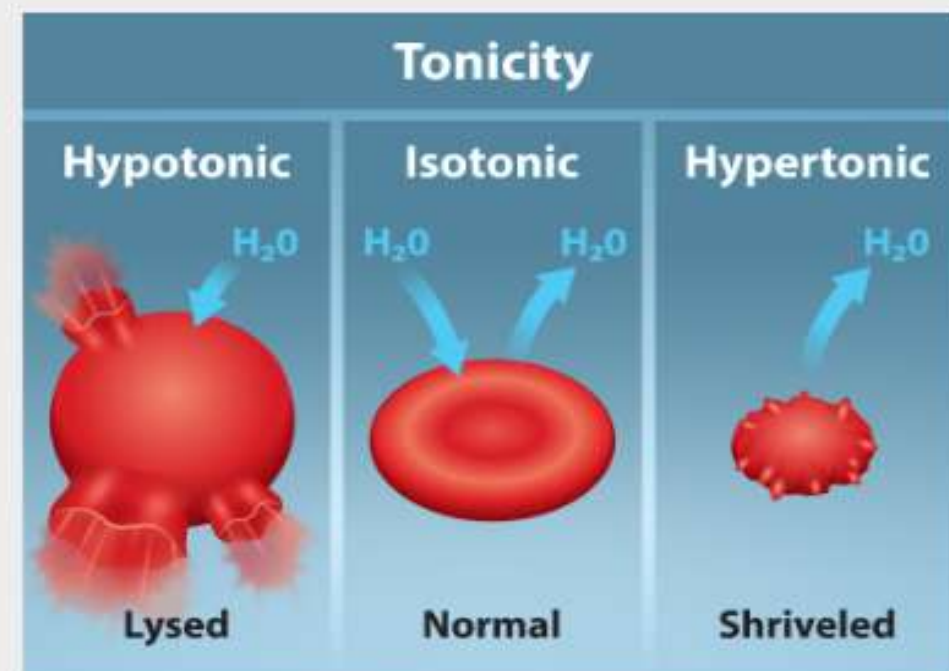
*"The structure of the plasma/cell membrane facilitates/supports regulation of substances moving into/out of the cell by..."*

*"The forms of passive transport are...examples would be..." "One of the forms of active transport involves ion movement across the membrane. The sodium-potassium pump is involved in..."*

*"The three solution types involved in osmosis are..."*

# Write It

In a quickwrite (3-5 Sentences) - Using the image below...



**Figure 5.12** Three different scenarios involving red blood cells (RBC) are shown. Left: A RBC placed in a hypotonic solution, where the concentration of solutes in the surrounding fluid is lower than those in the cell, will cause water to rush into the RBC and lead to lysis of the cell. Middle: there is no net water movement into or out of the cell as the concentration of the solutes inside the cell equal or is isotonic to that of the surrounding fluid. Right: a RBC placed in a hypertonic solution, where the concentration of solutes in the surrounding fluid is greater than that in the cell will cause water to rush out of the cell and into the surrounding fluid. This will cause the RBC to shrivel. Credit: Tag, A., Rao, A., Hawkins, A and Fletcher, S. Department of Biology, Texas A&M University.

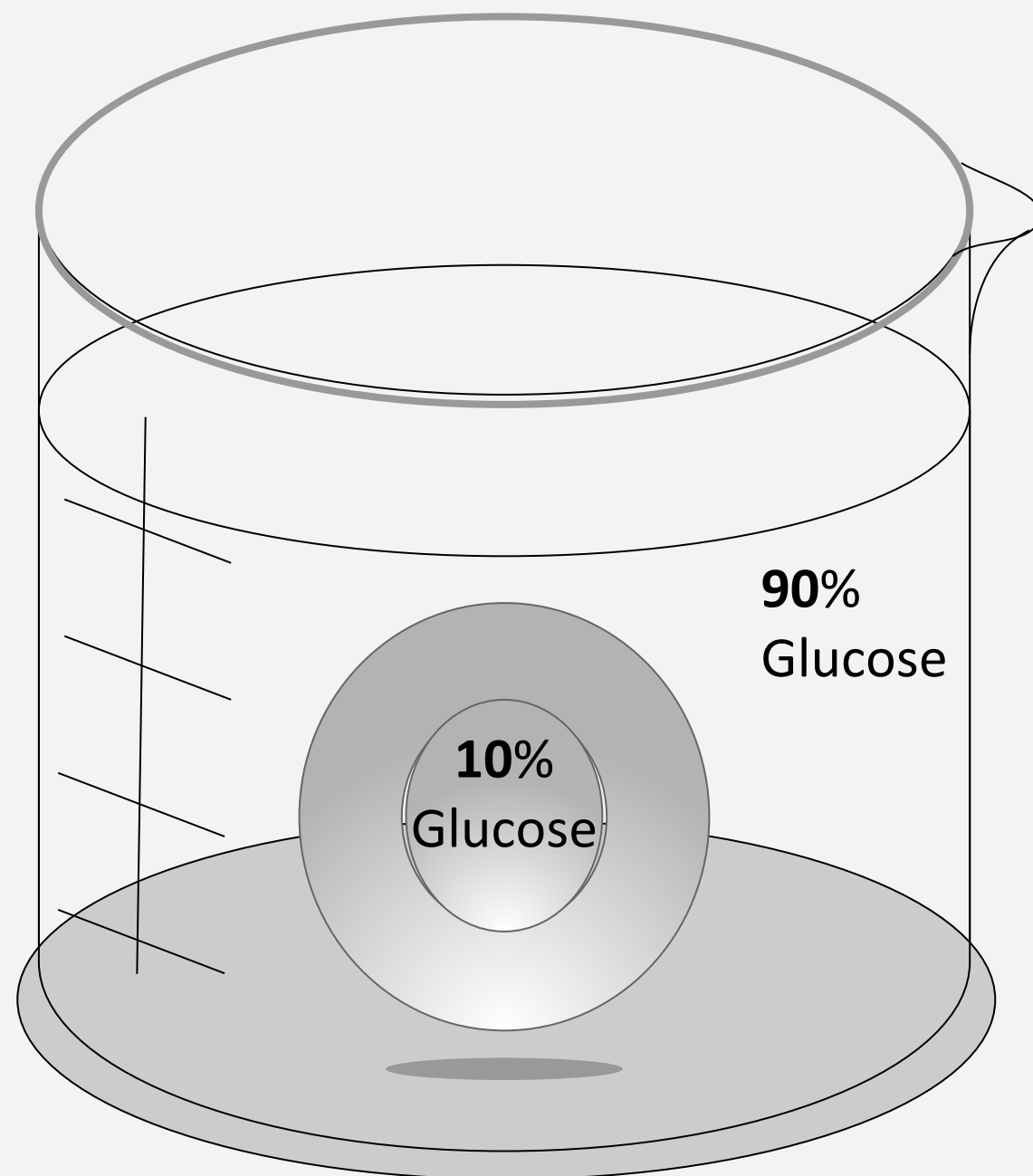
*A doctor injects a patient with what the doctor thinks is an isotonic saline solution. The patient dies, and an autopsy reveals that many red blood cells have been destroyed. Do you think the solution the doctor injected was really isotonic?*



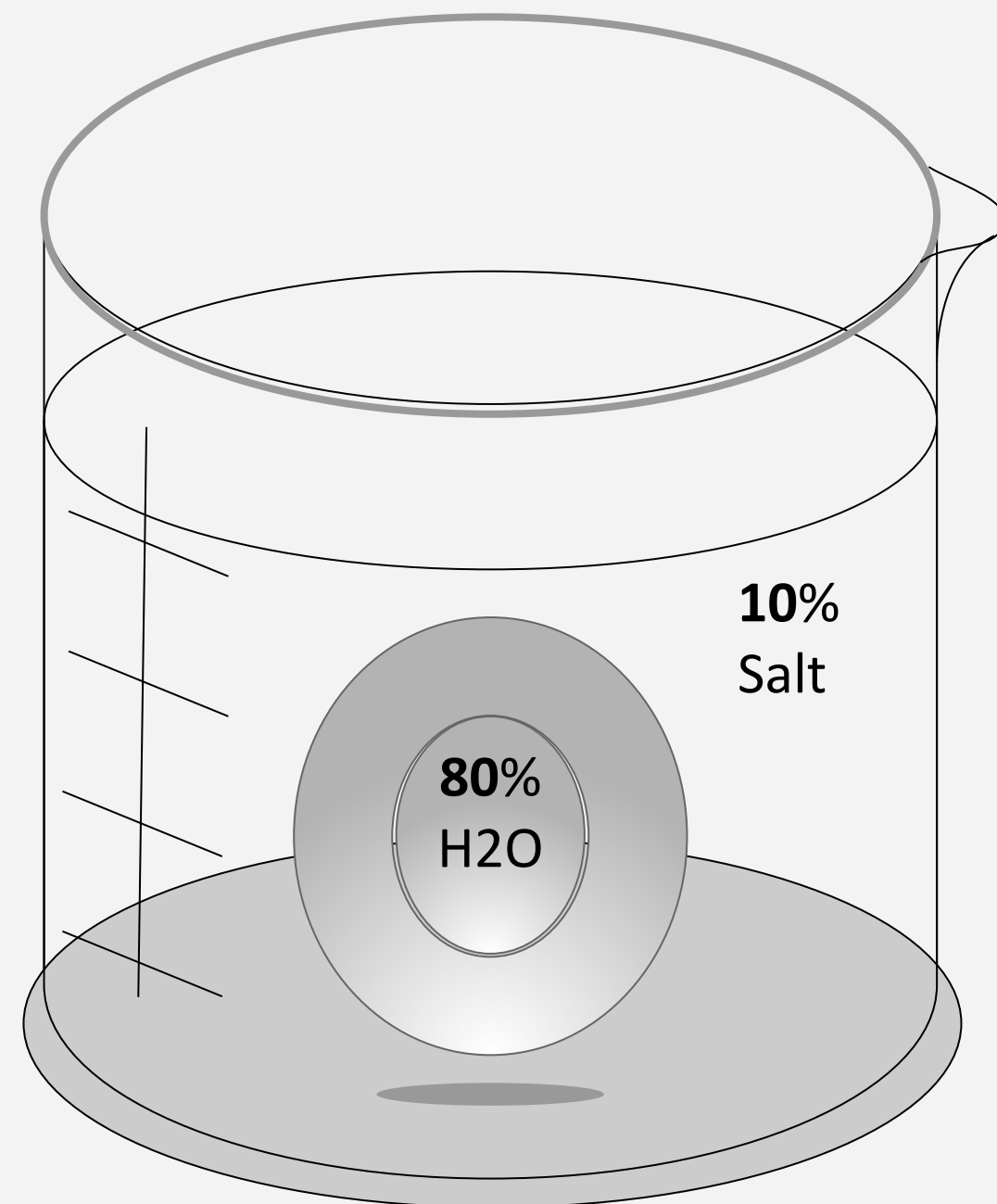
# Examine It

What type of solution is illustrated by each image below? Why

Cell 1



Cell 2



Stations 1-4





# Answer It

1. *Why is it advantageous for the cell membrane to be fluid in nature?*
2. *Why do phospholipids tend to spontaneously orient themselves into something resembling a membrane?*
3. *Discuss why the following affect the rate of diffusion: molecular size, temperature, solution density, and the distance that must be traveled.*
4. *Why does water move through a membrane?*
5. *Both of the regular intravenous solutions administered in medicine, normal saline and lactated Ringer's solution, are isotonic. Why is this important?*
6. *Describe two ways that decreasing temperature would affect the rate of diffusion of molecules across a cell's plasma membrane.*
7. *Where does the cell get energy for active transport processes?*
8. *Glucose from digested food enters intestinal epithelial cells by active transport. Why would intestinal cells use active transport when most body cells use facilitated diffusion?*



# Perform It – Station 6

*Remove the divider again and start the timer at the same time. Stop the timer when the no. of blue molecules on the left side of the divider is the same as they are on the right. Record the time in the table below. Then complete the table by increasing the number of molecules as described in the table on your answer doc*

Directions

*How did the number of particles of rate affect diffusion?*

Question 1

*How did the temperature affect the rate of diffusion?*

Question 2

## Directions

Watch the following lab simulation

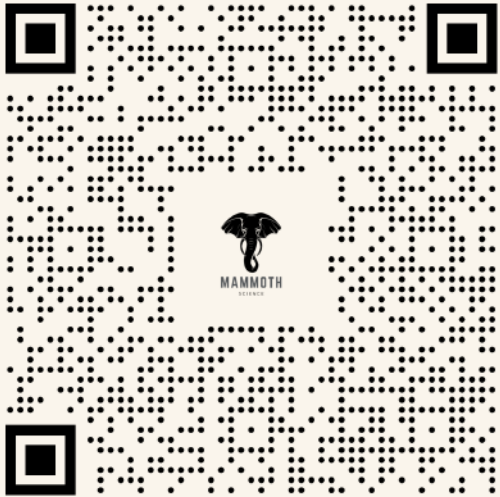


Answer the questions on the video



# Station 7 – Read It

Article



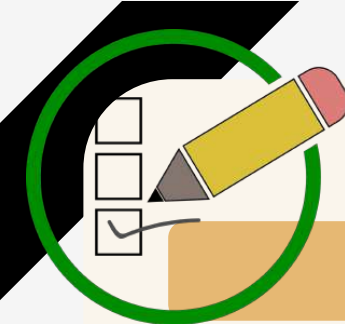
Main Idea

summary

Inferences

How is it connected to learning

Stations 5-8



# Station 8 – Evaluate It

TH

what do I know?

List at least 5 items:

what do I wonder?

List at least 4 items:

what have I learned?

List at least 5 Items:

Stations 5-8