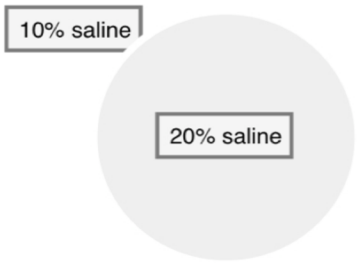
Membrane Transport

Presentation available at www.learnednotebooks.com/membranes (password: homeostasis)

-Hypotonic solutions: _____

_____



-Concentration of the solute is _____

-Concentration of the water is _____

-"Hypo" means: _____

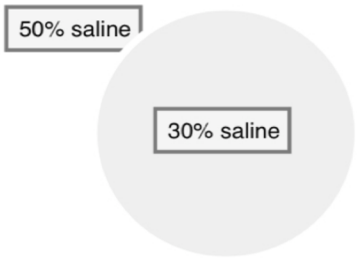
-Think: hypothermia = _____ body heat

-WATER moves _____

-Cell will _____

-Hypertonic solutions: _____

_____



-Concentration of the solute is _____

-Concentration of the water is _____

-"Hyper" means: _____

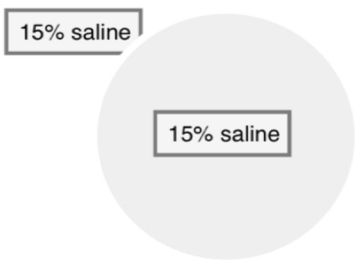
-Think: hyperactive = _____ activity

-WATER moves _____

-Cell will _____

-Isotonic solutions: _____

_____



-Concentration of the solute is _____

-Concentration of the water is _____

-"Iso" means: _____

-Think: isosceles triangle = 2 _____ sides

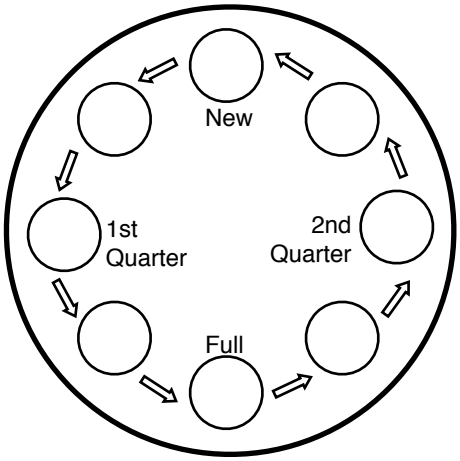
-WATER moves _____

-Cell will _____

Modeling Lunar Phases & Events

Activity from LearnEd Notebooks
www.learnednotebooks.com

Figure 1



In the activity below, you will be using a cream filled sandwich cookie to represent the phases of the moon.

Materials:
4 sandwich cookies (cream-filled)
Paper plate
Plastic spoon

Procedure:
1. Label the paper plate as shown in Figure 1.
2. Gently separate the 4 sandwich cookies (you should now have 8 pieces to represent the phases of the moon).
3. Use the spoon to shape the cream into the shape of the full, new, waxing, or waning moon on each cookie half the cream should represent the part that is visible to us during the cycle.
4. Place them in the correct places on the paper plate.

Where would the Earth be located? _____

Where would the Sun be located? _____

Explain how the alignment of the earth, sun and moon may cause an eclipse:

_____

_____

_____

Explain what occurs during a lunar eclipse:

_____

_____

_____

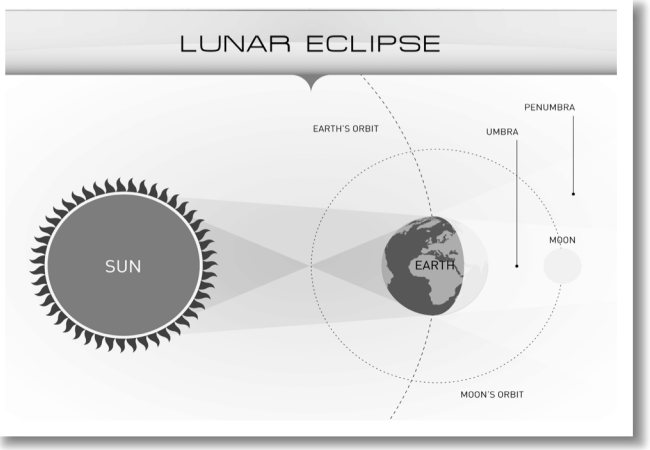
_____

_____

_____

_____

_____



Explain what occurs during a solar eclipse:

_____

_____

_____

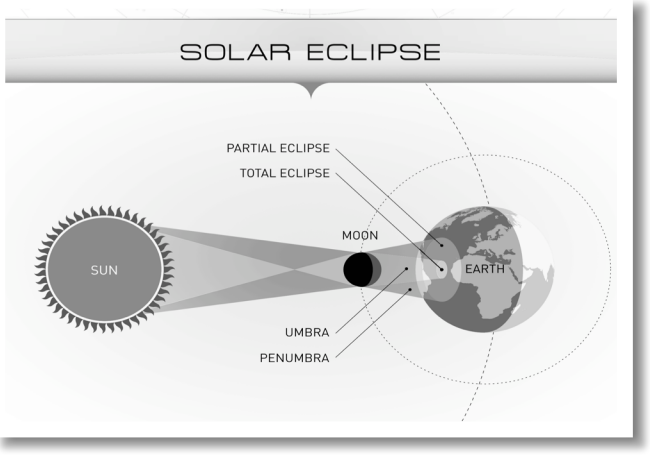
_____

_____

_____

_____

_____



Observing the Effects of Thermal Energy

Activity from LearnEd Notebooks
www.learnednotebooks.com

-What will happen to molecules within a glow stick as they are exposed to different temperatures? How can this be observed?

-Hypothesis: _____

_____

_____

-Materials: 3 glow sticks, 3 beakers, hot water, room temperature water, cold water, a dark area to observe changes or a box to block out light

-Procedure:

1. Fill the first beaker with cold water, the second with room temperature water, and the third with hot water
2. Crack three glow sticks until they light up
   -How will you be able to observe molecular interactions within the glow sticks? Why?

   _____

   _____

   _____
3. Submerge a glow stick into each of the three beakers
4. Your teacher will either need to turn out the lights or you may place a box over your beakers to block out the light. If you use the box method, you must make a viewing slot through which to observe the glow sticks.
5. Record your observations below

	Observation	Explanation
Cold Water		
Room Temp Water		
Hot Water		

-Which beaker caused the glow stick to glow brightest? _____

-Which beaker caused the glow stick to have the fastest moving particles? Why?

_____

_____

-Was your hypothesis correct? Explain: _____

_____

_____

Comparing Photosynthesis and Cellular Respiration

Observing Photosynthesis: Plants are living organisms that must carry out photosynthesis for survival. They must complete this process in order to convert carbon dioxide, water and sunlight into glucose (sugar) for nourishment. You will observe this by completing the experiment below:

-Fill a test tube and a separate beaker with water.
-Obtain a sprig of elodea and crush some of the leaves. Place the sprig into the test tube.
-Add 3-4 grams (about 1/2 teaspoon) of baking soda ($NaHCO_3$). Baking soda naturally reacts with water, producing CO_2. How do you think this will impact the rate of photosynthesis? _____

_____

-Make sure the test tube is completely filled with water, seal with your thumb, invert and place into the beaker (this should prevent any air from entering the test tube).
-Place under a lamp and observe.

1. What do you expect to happen? _____
2. Why? _____
3. How does the baking soda impact the rate of photosynthesis? _____

_____

4. Why did this happen? _____
5. What gas is released from this process?_____

Observing Cellular Respiration: Yeast are living organisms that carry out cellular respiration. They are often used to make breads and drinks because of the reaction that occurs when they convert sugar into energy. You will observe this by completing the experiment below:

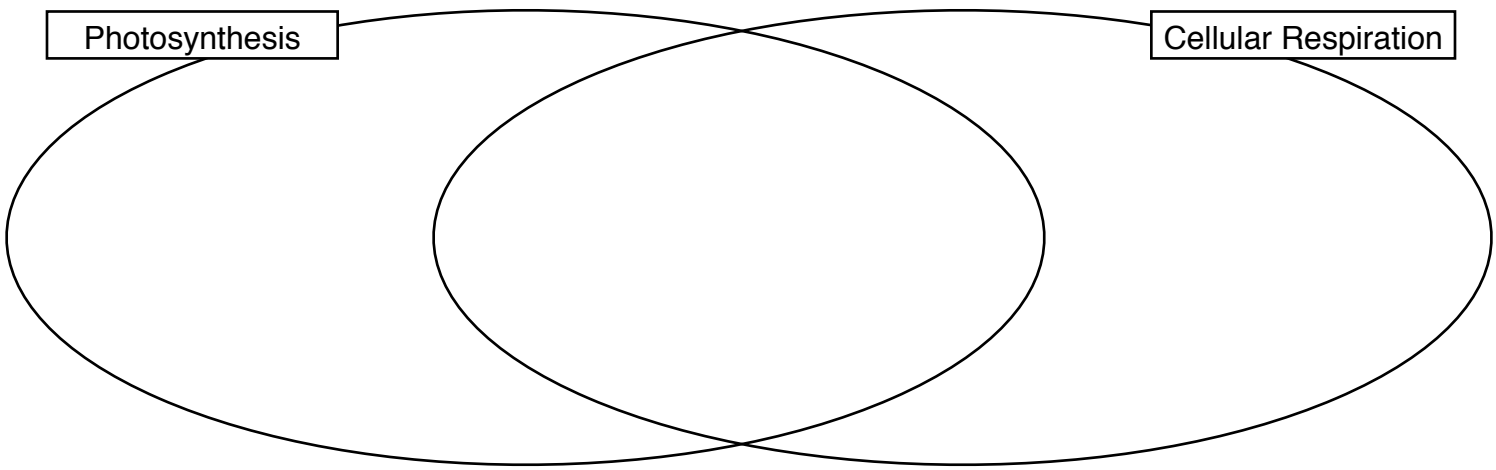
-Fill a test tube with 5 mL apple or grape juice
-Add about 1/8 of a packet of active dry yeast to the test tube
-Seal with your thumb and shake well
-Place a balloon on the opening of the test tube and allow to sit overnight

6. What do you expect to happen? _____
7. Why? _____
8. On day 2, what did you observe? _____

_____

9. Why did this happen? _____
10. What gas is released from this process?_____

Use the diagram below to compare and contrast photosynthesis and respiration:



Effects of Friction

Activity from LearnEd Notebooks
www.learnednotebooks.com

How Does Friction Affect the Motion of an Object?

Hypothesis: _____

_____

_____

Materials: Toy car, ramp, various materials to place on ramp, stopwatch

Procedure:

- Create a ramp using several books and a board and determine which materials you will place on the board.
- Using the data table below, predict the amount of time it will take the toy car to roll down the ramp with each material in place.
- Roll the car down the ramp without placing any additional materials on the ramp. Time how long it takes for the car to reach the end of the ramp three different times. Record on the data table below.
- Repeat the procedure using various materials to cover the ramp.

Data:

Material on Ramp	Prediction (seconds)	Actual Time (seconds)			
		1st Run	2nd Run	3rd Run	Average
Plain ramp					

Conclusion:

Using the data, write a conclusion paragraph answering the following questions. How does friction affect the motion of objects? Which type of material provided the most friction and how do you know? Which type of material provided the least friction and how do you know? Compare and contrast the causes and effects of the different types of friction.

_____

_____

_____

_____

_____