

Name: _____
Living Environment – Cumulative Exam Review Sheet
1st Quarter

**SAVE this review
sheet for the rest
of the year!**

LAB SAFETY

1. Review all lab safety rules and be able to identify errors in procedures described in an experiment.

SCIENTIFIC METHOD

1. List the steps of the scientific method in proper order.
2. Describe the difference between an observation and an inference.
3. Why do scientists use the scientific method?
4. What's the difference between the independent and dependent variable?
5. How do the control group & experimental group differ in a scientific investigation?
6. Identify 2 ways to improve the reliability or validity of any experiment.
 - 1-
 - 2-

LIFE FUNCTIONS

1. Describe each of the following life functions:
 - a. Respiration
 - b. Regulation

c. Reproduction

d. Transport

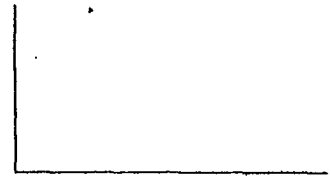
e. Nutrition

f. Growth

g. Excretion

h. Synthesis

2. Define homeostasis and draw a graph to represent it:



3. Define Metabolism:

4. Select any two life processes and explain how they interact to maintain homeostasis in a cell.

CELL THEORY AND EXCEPTIONS

State the 3 *components* of the Cell Theory:

1)

2)

3)

State the 3 *Exceptions* to the Cell Theory

1)

2)

3)

CELL ORGANELLES

**You must be able to identify the major organelles in diagrams of a plant cell and animal cell. You must also know which organelles are visible under the compound light microscope (nucleus, cell wall, cytoplasm, cell membrane).

1. Identify the major difference between a prokaryote and a eukaryote.

2. Describe the function of each of the following organelles: (* = top 5 most important)

*Cell membrane –

*Nucleus –

*Ribosome –

*Mitochondria –

*Chloroplast –

Cell wall –

Cytoplasm –

Nucleolus –

Endoplasmic Reticulum –

Vacuole –

Golgi complex –

Lysosome –

Centriole –

3. Select any two cell organelles and describe how they work together to maintain homeostasis in a cell.

LEVELS OF ORGANIZATION

List the levels of organization in order from simple to complex, beginning with organelles:

Organelles → _____ → _____ →
_____ → _____ → Organism

TOOLS OF THE BIOLOGIST

You must be able to identify the parts of a microscope and calculate the total magnification of a specimen using the appropriate formula.

Ocular lens magnification x Objective lens magnification = Total magnification

1) Which objective lens should you always begin with? Why?

2) Why shouldn't you use the coarse adjustment knob while using the *high* power lens?

MOVEMENT ACROSS A MEMBRANE

**You should be able to identify the components of a diagram of the cell membrane.

1) Describe the structure of the cell membrane. What is it composed of and how is it arranged?

Molecules that CAN pass the membrane	Molecules that can NOT pass the membrane
1-	1-
2-	2-
3-	
4-	
5-	

3. Define each example of Passive Transport - **ENERGY NOT REQUIRED!**

1- Diffusion:

2- Facilitated Diffusion:

3- Osmosis:

Types of Solution (describe the movement of water in each of the following)

a. Isotonic solution

b. Hypotonic solution

c. Hypertonic solution

What is the clue you can use to remember how salt (a solute) affects movement of water molecules inside and outside a cell? " _____ "

4. Active Transport - **ENERGY IS REQUIRED!** (List 4 examples of active transport)

1-

2-

3-

4-

5. Describe 2 *differences* between active transport and simple diffusion (passive transport):

▪

▪

NY STATE LAB – DIFFUSION THROUGH A MEMBRANE

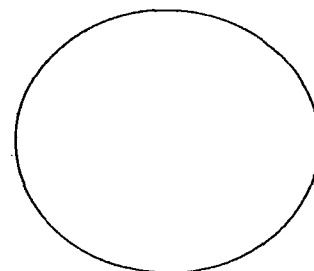
1) Classify which molecules were able and NOT able to diffuse across the membrane of our model cell made from dialysis tubing. (starch, glucose, water, iodine)

<u>Molecules ABLE to Diffuse</u>	<u>Molecules NOT ABLE to Diffuse</u>
1 -	1 -
2 -	
3 -	

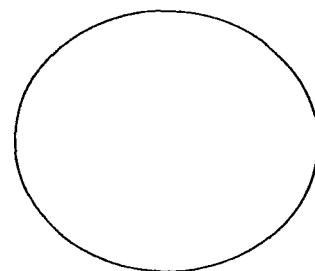
- 2) Name the starch indicator. Explain how to use it and what would be observed in a positive result.

- 3) Name the glucose indicator. Explain how to use it and what would be observed in a positive result.

- 4) Describe what happened to the water content of the red onion cell when placed in salt water. Draw an onion cell in salt water.



- 5) Describe what happened to the water content of the red onion cell when placed in distilled (pure) water. Draw an onion cell in distilled water.



BIOCHEMISTRY

- 1) How can you tell the difference between an inorganic and an organic compound?

- 2) How can you tell if a structure is a carbohydrate?

- 3) List (in order) the 6 most important and abundant elements of all living things.

**You must be able to recognize the structures of each of the 4 major organic compounds. You must also know the elements they are composed of, recognize the ratio of Hydrogen to Oxygen (if any), know examples of each organic compound (mono, di, and poly if appropriate), as well as functions and uses of each. (From your graphic organizer notes)

4) List the 4 Organic Compounds, their building blocks and an example of each.

Organic Compound (Macromolecule)	Building Blocks (Subunits)	Example
1-		
2-		
3-		
4-		

5) Enzymes (a.k.a. organic catalysts)

a. What is the main function of an enzyme?

b. How can you tell if a word is the name of an enzyme?

c. Describe the "lock and key" model of enzyme specificity

d. What are three factors that can influence the rate of enzyme activity?

1-

2-

3-

e. Enzymes work at an optimum temperature of _____ degrees Celsius (body temperature) and an optimum pH level of _____ (neutral)

f. An enzyme is an example of which organic compound (macromolecule)?

g. Why won't an enzyme molecule work if it becomes *denatured* (misshapen)?

h. How come the enzyme that breaks down protein does not work on breaking down carbohydrates? (HINT: Use the word "SPECIFIC" in your answer)

For each type of cell below, label & define each organelle!

- A -
- B -
- C -
- D -
- E -
- F -

ORGANELLE	LIFE FUNCTION!!

Why does a plant cell have...
 chloroplasts? -
 cell wall? -

