**2018 Biology Fall Benchmark #2 Review Guide Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Scientific Method**

1. Which of the following are characteristics of living things? (Circle correct characteristics)

# Reproduction Gas exchange Growth Take in energy

# Assimilation of materials Respond to stimuli Definite shape Movement

1. Place the following list of events in the correct order (1, 2, 3, 4, 5)

\_\_ form a hypothesis

\_\_ record and analyze results

\_\_ draw conclusions

\_\_ask a question

\_\_set up a controlled experiment

1. Using the following scenario: Two groups of students were tested to compare their speed working math problems. Each group was given the same problems. One group used calculators and the other group worked without calculators.
   1. Identify the responding variable \_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Identify the manipulated variable \_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Identify the control group \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. A scientist wants to know if students do better on their homework if they listen to music while they do it. She asks one group of students to do their homework without listening to music. She asks another group to listen to classical music while they do their homework. She asks a third group to listen to rock music while they do their homework. After two months, she finds that the students who did not listen to music kept their grades the same. The students who listened to classical music brought their grades up, and the students who listened to rock music got lower grades.

1. What is the question the scientist is trying to answer?
2. What is the independent variable?
3. What is the dependent variable?
4. Which group of students is the control group?
5. Which groups of students would be the experimental group?



5. Create a graph from the following information.

Include labels, increments, and a title.

The following data was recorded during an experiment

|  |  |
| --- | --- |
| Temperature (K) | Volume (m3) |
| 250 | 10 |
| 300 | 12 |
| 350 | 16 |
| 400 | 20 |
| 450 | 24 |

with a gas sample.

**Macromolecules/Chemistry of Life**

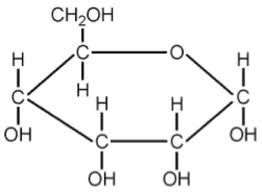
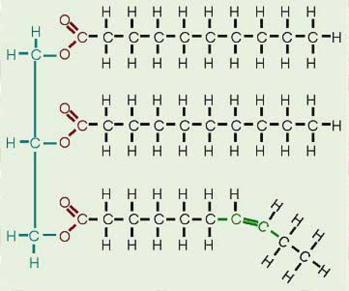
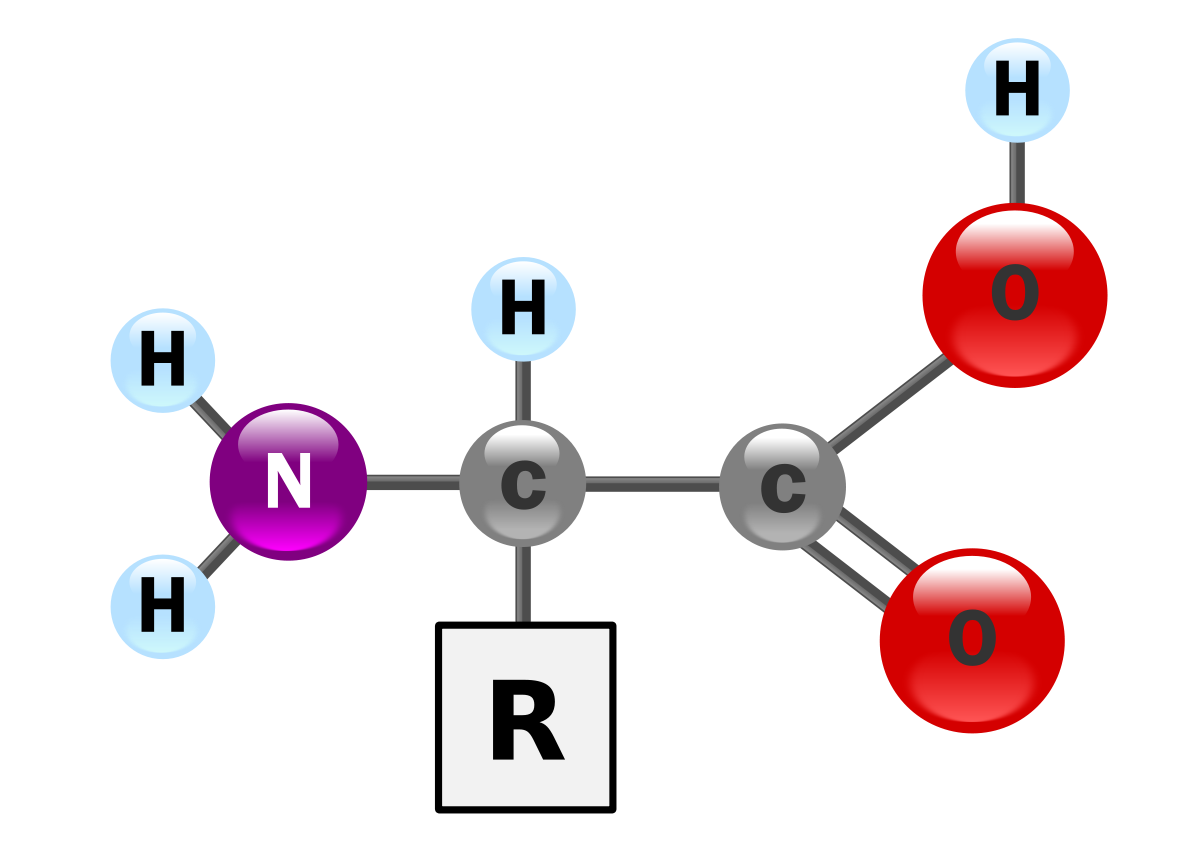
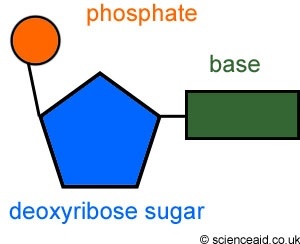
1. The process of polymerization occurs when small units called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are joined together to make a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The monomers may be the same or different.
2. The four groups of macromolecules are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Fill in the table on the 4 major biomolecules:

|  |  |  |
| --- | --- | --- |
| **Biomolecule** | **Monomer** | **Function** |
| 1. Carbohydrate |  |  |
| 2. | Glycerol and fatty acids |  |
| 3. |  | Some are important structural components of living things- some serve as enzymes . |
| 4. Nucleic acids |  |  |

1. Carbohydrates are made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a 1:2:1 ratio. Living things use carbohydrates for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and for structural purposes. A single sugar called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made of one sugar molecule. Examples of a single sugar are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Large sugars called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are made of many small sugars joined together. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a large sugar in animals that is sometimes called animal starch. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a large sugar found in plant cell walls that make them rigid.
2. Lipids are also known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are not in a specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. They are not soluble in water. They are used to store \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and form biological \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Monomers of lipids are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are monomers of nucleic acids. They have three parts: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The job of nucleic acids is to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ genetic information. There are two kinds of nucleic acids: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are monomers of protein.

There are \_\_\_\_\_\_\_\_\_\_\_\_ different kinds of amino acids. Proteins have three main jobs: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Identify the pictures below and tell which macromolecule these monomers belong to:

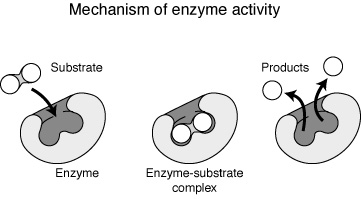
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Chemical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change one set of chemicals into another. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are chemicals that enter a reaction and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are what are produced.

10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are proteins that act as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to speed up a reaction and reduce the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_needed to complete the reaction. Substrates are the reactants in the reaction that bind to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the enzyme where they are catalyzed. The substrate and active site fit together like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are special proteins that speed up the rate of chemical reactions, by lowering activation energy (energy required to start a reaction).

12. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the substance an enzyme acts upon. The enzyme and substrate fit together like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. This interlocking “fit” makes enzymes act only on specific substrates.

13. Label the diagram below with the following terms: Enzyme/substrate complex, substrate, enzyme,

products, and active site.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_

14. If you see a word that ends in –ase, it is probably an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and if a word ends in –ose it

is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

15. The area in which a substrate molecule fits into an enzyme is known as the \_\_\_\_\_\_\_\_\_\_\_\_\_site.

**Cells and Cell Transport**

1. The \_\_\_\_\_\_\_\_ is the basic unit of structure and function in all living organisms.
2. Match the following people with their contributions to our understanding of cells.

a. Hooke \_\_\_\_\_\_ Concluded that all cells come from other cells

b. Leeuwenhoek \_\_\_\_\_\_ Saw living cells in pond water (protists) and named them animalcules

c. Schleiden \_\_\_\_\_\_ Observed cork under the microscope and named the boxes “cells”

d. Schwann \_\_\_\_\_\_ Concluded that all plants are made of cells

e. Virchow \_\_\_\_\_\_ Concluded that all animals are made of cells

The three parts of the **cell theory** state:

a. All organisms are composed of \_\_\_\_\_\_\_\_\_\_\_\_\_.

b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the basic unit of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

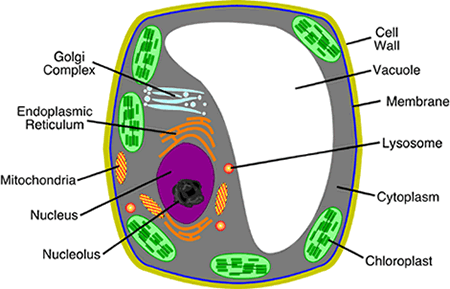
c. All cells come from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

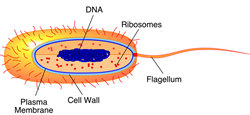
1. There are 2 main types of cells: Prokaryotic and Eukaryotic.

**Prokaryotic cell-**

Bacteria

**Eukaryotic cell**- Plant cell

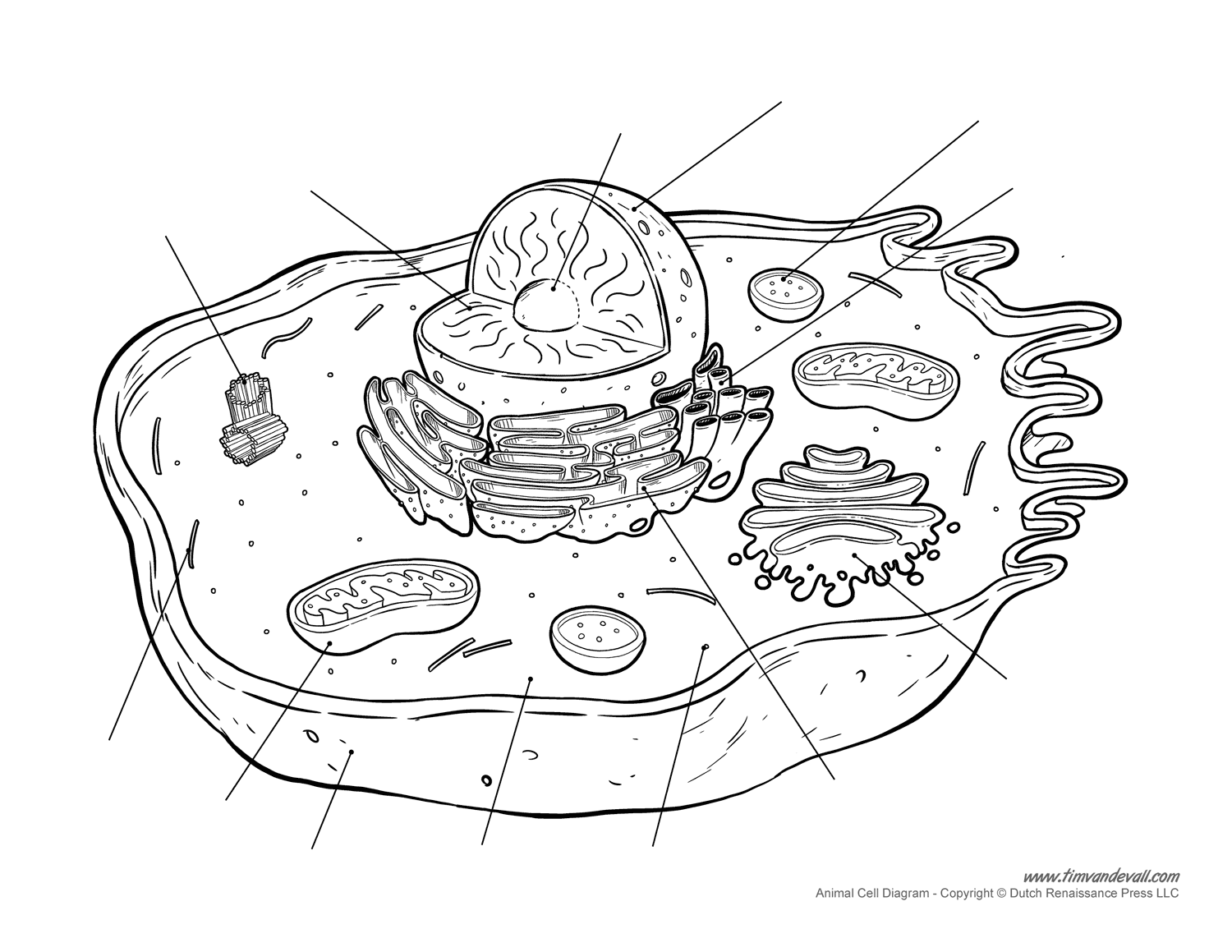




**Eukaryotic cell-**Animal cell

Label the following cell parts on the diagram to the left:

1. Cell membrane
2. Mitochondria
3. Nucleus
4. Nuclear membrane
5. Nucleolus
6. Rough ER
7. Smooth ER
8. Lysosomes
9. Vacuole
10. Golgi bodies
11. Centrioles
12. Cytoplasm
13. Ribosome



**\*\* Also Eukaryotic: Protists and Fungi**

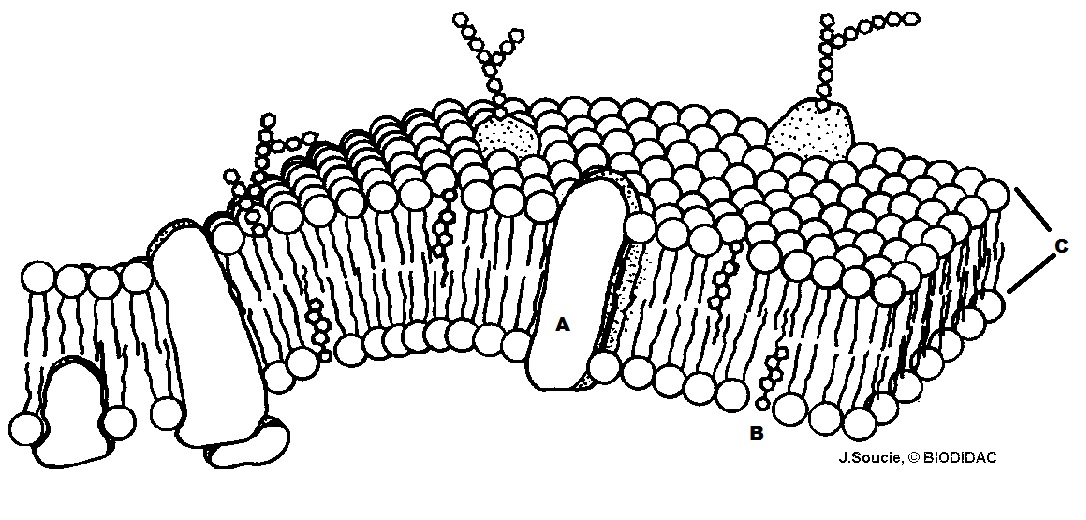
* If a cell has a nucleus and membrane bound organelles, it is said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* If a cell does not have a nucleus or membrane bound organelles, it is said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Both types of cells have DNA and ribosomes.

1. There are only 2 kingdoms whose members contain prokaryotic cells. They are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Organisms with prokaryotic cells are all \_\_\_\_\_\_\_\_\_\_ celled organisms where as eukaryotes can be either \_\_\_\_\_\_\_\_\_\_ celled or \_\_\_\_\_\_\_\_\_\_celled organisms.
3. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the outer boundary of the cell and it controls what enters and leaves the cell.

The **regulation** of materials entering and leaving the cell helps the whole body of the organism maintain

**homeostasis.**

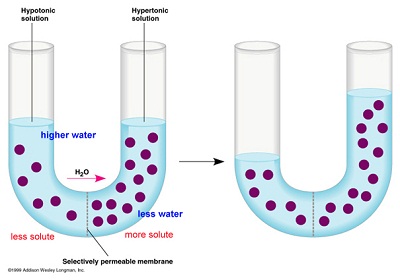
1. Label the following structures in the cell (plasma) membrane below:

**

1. The parts inside of a cell which perform a specific function for the cell are known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Fill out the table below on the Cell Parts.

|  |  |
| --- | --- |
| Cell Part | Function |
|  | Energy center or "powerhouse" of the cell. Turns food energy into useable chemical energy (ATP). This is the site for Cellular Respiration. |
|  | Site for making proteins |
|  | Processes, packages and secretes proteins (cell’s post office) |
|  | Contains digestive enzymes, breaks things down |
|  | Transport, "intracellular highway" |
|  | Stores water or other substances (Plants- 1 large one; Animals-several small ones. |
|  | Uses sunlight to create food, site of photosynthesis (only found in algae and plant cells) |
|  | Provides additional support (plant, fungi, and bacteria cells) |
|  | Jelly-like fluid interior of the cell |
|  | the "control center" of the cell, contains the cell's DNA (chromosomes) |

1. Living things maintain a balance between materials entering and exiting the cell. Their ability to maintain this balance is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (You can also apply this term to the whole organism when discussing maintenance and regulation of body temperature, hormone levels, sweating vs. shivering, etc…).
2. The movement of substances across the cell membrane from an area of high concentration to an area of low concentration is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The three types of passive transport are: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The diagram below is illustrating the process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.



1. The following diagrams represent different solutions that can affect the rate of osmosis.

Label the solutions as being either hypotonic, hypertonic , or isotonic to the cells in the solutions.

This solution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

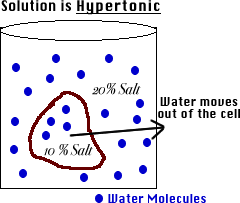
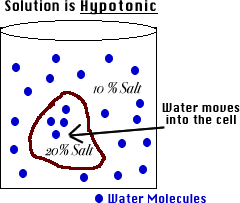
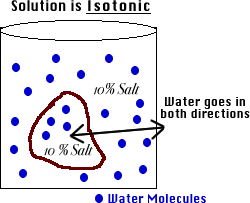
to the cell.

the cell.

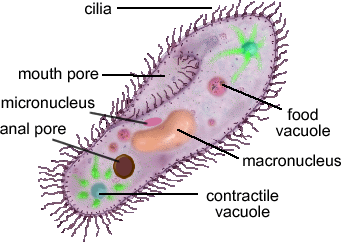
This solution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

to the cell.

This solution is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



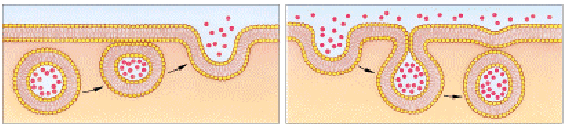
14. The contractile vacuole inside of some protists like the paramecium below maintains osmotic

 balance (amount of water inside the cell) by pumping out excess \_\_\_\_\_\_\_\_\_\_\_\_\_.

15. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the type of membrane transport which requires energy.

16. Active transport into the cell is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and active transport out of the

cell is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Label the diagrams below according to the type of active transport.



**Cell Energy: Photosynthesis and Cellular Respiration**

1. ATP-*Adenosine Triphosphate* is a special molecule that **stores and releases** the energy in its bonds for cellular work. Below is a diagram showing the ATP-ADP cycle. On the lines beside the diagram write either

**exergonic** for chemical reactionsor **endergonic** from chemical reactions**.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ATP**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ADP + P**

2. The process in which plants transform sunlight energy into chemical energy in the bonds of glucose is called

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3. The process above takes place in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the plant cell.

4. Fill in the summary reaction for photosynthesis below with the correct reactants and products.

Use the following terms: water, carbon dioxide, glucose, oxygen, CO2, H2O, C6H12O6, O2  (Place symbols

on the top lines and words on the bottom.)

**sunlight**

\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. The process by which organisms break down glucose in order to release the energy in its bonds is known as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. This process takes place in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell.

7. Fill in the summary reaction for cellular respiration below with the correct reactants and products. Use the

following terms: water, carbon dioxide, glucose, oxygen, ATP CO2, H2O, C6H12O6, O2  (Place symbols on the top lines

and words on the bottom.)

\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **PHOTOSYNTHESIS** |  | **CELLULAR RESPIRATION** |
|  | Occurs in what cell part? |  |
|  | What types of organisms do this process? |  |
|  | What are the reactants? |  |
|  | What are the products? |  |
|  | What are the Stages? |  |
|  | Require energy or Releases energy |  |

8. Cell respiration occurring without oxygen is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and can result in either of which two processes?

**Chapter 8 Classification**

1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the branch of biology which deals with the grouping and naming of organisms.

2. Carolus Linneaus developed the two word system to name organisms known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (2 Words)

3. The first word of a scientific name is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ name and the second word is the

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ name.

4. There are \_\_\_\_\_\_\_\_\_\_\_\_\_ taxa (classification categories) in Linneaus’ system. List them in order from

largest to smallest.

1.

2.

3.

4.

5.

6.

7.

8.

5. In the modern day classification system there are \_\_\_\_\_\_\_\_\_ kingdoms and \_\_\_\_\_\_\_\_ domains.

6. Correctly identify the kingdoms given the descriptions in the table below. Provide an example organism in

each kingdom.

|  |  |  |
| --- | --- | --- |
| Kingdom | **Description** | **Example Organism** |
|  | Consumers that stay put. They have eukaryotic cells. They may be unicellular or multicellular. They decompose dead organisms and waste from the environment. |  |
|  | Multicellular eukaryotes that photosynthesize. Have cellulose cell walls. |  |
|  | Mainly found in extreme environments. Some of these prokaryotic cells like extremely hot temperatures and areas of high salt content. |  |
|  | Multicellular consumers. They do not contain cell walls. Most have the ability to move. |  |
|  | Most diverse kingdom of organisms. They may be unicellular or multicellular. They live in moist environments. Some are plant-like, some animal-like, some fungus-like. |  |
|  | This group of prokaryotes can be both beneficial and harmful. Some cause diseases while others are used in the food industry and are decomposers. |  |

**Animals**

7. Match the animal phylum characteristics with the correct phylum name:

\_\_\_\_Contain no specialized tissue. Have many pores. A. Platyhelminthes

\_\_\_\_ Bodies with radial symmetry. Stinging cells. B. Chordata

\_\_\_\_ Flat worms. Only one body opening for digestive tract C. Nematoda

\_\_\_\_ Round worms. First group with 2 body openings. D. Arthropoda

\_\_\_\_ Segmented worms. First group with complete Digestive system. E. Porifera

\_\_\_\_ Snails, squid, clams, oysters, slugs. Soft-body and muscular foot. F. Cnidaria

\_\_\_\_ Jointed appendages and exoskeletons. Contains insects and crustaceans. G. Annelida

\_\_\_\_ Spiny skin. Contains starfish, sea urchins. H. Echinodermata

\_\_\_\_ Notochord, gill slits, tail. Contains the subphylum vertebrata. I. Mollusa

8. In the table below, write in the correct Vertebrate class.

|  |  |
| --- | --- |
| Class | Description |
|  | Must return to water to reproduce. Obtain oxygen with gills when young and with lungs and through skin as an adult. |
|  | Have hollow bones & feathers. Hagfish and lamprey are examples. |
|  | Are jawless fish with skeletons made of cartilage. |
|  | Have skeletons of cartilage. Sharks, skates and rays are examples. |
|  | The first group to produce an amniotic egg. Have tough scaly skin. |
|  | Feed their young milk. Have hair as a body covering. |
|  | Bony fish. |

9. Organisms that can maintain a constant body temperature regardless of external temperature are known as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Also known as warm-blooded)

10. Organisms whose body temperature is similar to the temperature of the environment are known as

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Also known as cold-blooded)

11. Give an example of an animal with radial symmetry? With Asymmetrical symmetry?

12. Which organisms are segmented?

**Plants**

13. Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have no vascular tissue, no roots, stems, or leaves, and reproduce by spores. Ex. Mosses

14. Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have vascular tissue to transport food and water, but still reproduce by spores.

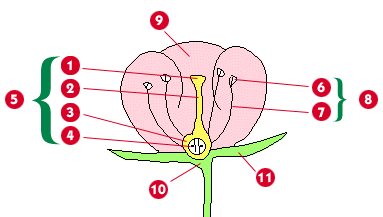
Ex. Ferns

15. Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have vascular tissue to transport food and water, and reproduce by seeds in cones. Ex. Gymnosperms like pine trees and spruce trees.

16. Phylum \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have vascular tissue to transport food and water, and reproduce by seeds in flowers and fruits. Ex. Angiosperms like sunflowers and apple trees.

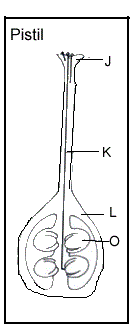
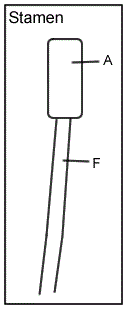
17. The type of vascular tissue that conducts water from the roots to the leaves is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

18. The type of vascular tissue that conducts sugar from the leaves to the roots is known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

19. Label the flower below using the following terms:

Petal, Carpel, stamen, ovary, ovule, sepal

20. Label the 3 parts of the pistil, and the 2 parts of the stamen in the drawings below.



**Fungi**

Match the Fungi Phyla with their proper description.

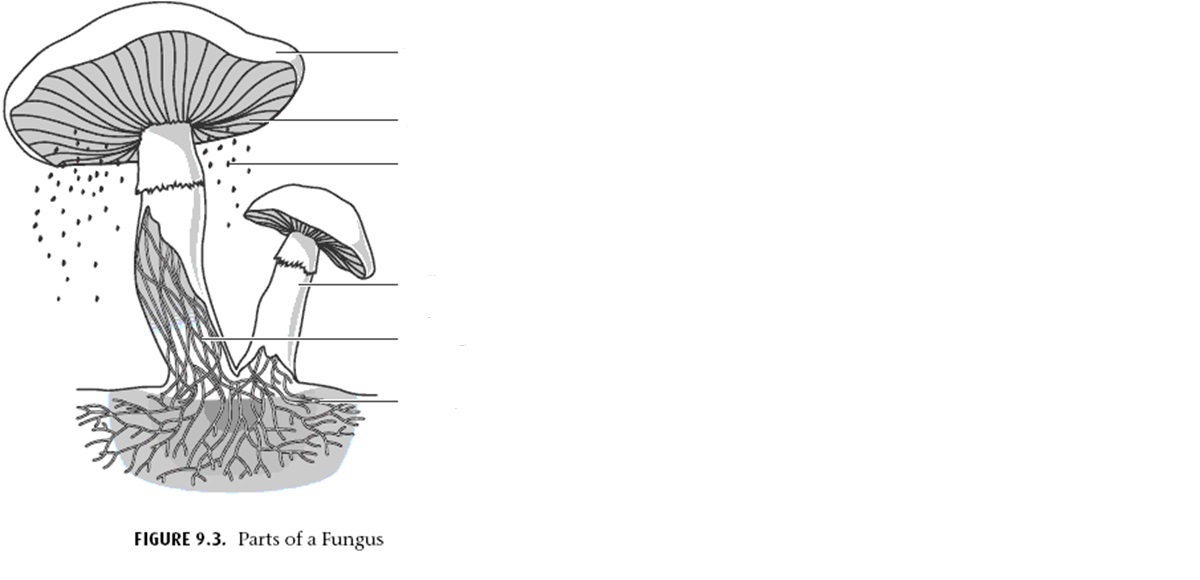
\_\_\_\_\_\_ 21. Bread mold; reproduces with zygospores. A. Basidiomycota

\_\_\_\_\_\_ 22. Yeast and mildew; sac fungi; reproduces with ascospores. B. Deuteromycota

\_\_\_\_\_\_ 23. Mushrooms; club fungi; reproduces with basidiospores. C. Ascomycota

\_\_\_\_\_\_ 24. Orange mold *Penicillium*; only group to reproduce asexually only without spores. D. Zygomycota

25. Label the following typical mushroom. What is the difference between hyphae and mycellium?

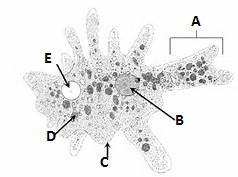
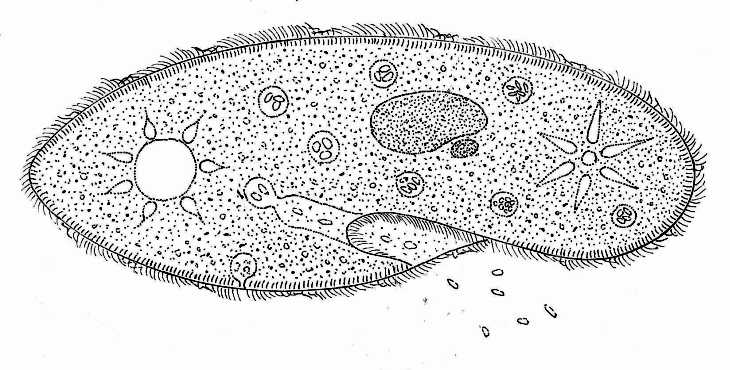


**Protista**

26. Organisms from Kingdom Protista can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-like because they are heterotrophs and do not have cell walls, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-like because they are autotrophs and have cell walls of cellulose, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-like because they are decomposers.

27. Label the structures on the typical animal-like protists below.

*Amoeba Paramecium*

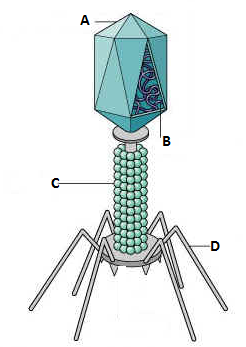
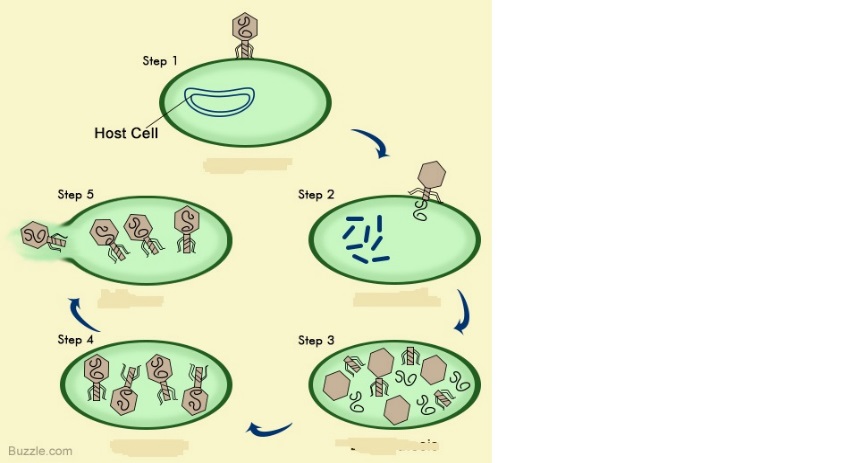
**Eubacteria and Archaebacteria**

28. Write three differences between Kingdoms Eubacteria and Archaebacteria based on the table below.

|  |  |  |
| --- | --- | --- |
|  | **Eubacteria (modern bacteria)** | **Archaebacteria (ancient bacteria)** |
| **Cell Wall Components** |  |  |
| **Where Found** |  |  |
| **Examples** |  |  |

**Viruses (Not Found in Any Kingdom Because They Are NOT \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

29. Label the parts of the bacteriophage below. 30. Label the parts of the Lytic cycle below.

31. How is the lytic cycle above different from the lysogenic cycle?