

Worksheet: Fall Final Review

HONORS BIOLOGY: UNITS 1-4

Directions: Draw and label a diagram as directed in the questions below. Use your notes and textbook (Units 1-4)

<p>1. Diagram an example of negative feedback utilized in the process of homeostasis. <i>(i.e. thermoregulation)</i></p>	
<p>2. Draw examples of dehydrations synthesis and hydrolysis. <i>(Show chemical equations and label monomers and polymers. Also label which is catabolism or anabolism)</i></p>	
<p>3. Draw the pH scale and label acids, bases, and neutral.</p>	

4. Draw and label the **Lock and key model of enzymes** (label the enzyme, substrate, and active site. Also list factors that affect enzyme function)

5. Draw and label a typical graph showing the **x and y axis**, and label the **dependent** and **independent variables**.

6. Draw a simple drawing of the building of a **polymer** from **monomers** of a carbohydrate

7. Draw and label the parts of a **nucleotide** and identify the variable portion

8. Draw and label a **water molecule** and describe why it is described as being a **polar molecule**. List the special properties of water (3) due to its polarity.

9. Draw a typical cell and show what happens to its **surface area to volume ratio** as the cell increases in size. What significance does this have on cell division?

10. Draw a typical **cell membrane** and label the following: phospholipids and protein channels. (*Show unsaturated fatty acid tails and describe how this effects the cell membrane*)

11. Draw and diagram a cell membrane showing examples of **diffusion**, **facilitated diffusion**, and **active transport** (*show which require an input of energy and which do not*)

12. Draw a typical **prokaryote** and **eukaryote** and describe the major differences between them

13. Draw a diagram of the **endosymbiotic theory** and describe details that support this theory

14. Diagram examples of a **hypertonic, hypotonic, and isotonic solutions** (*show the flow of water molecules*)

15. Draw a typical **animal cell** and label the following:
Nucleus, cell membrane, cytoplasm, rough ER, smooth ER, Golgi apparatus, mitochondria, lysosomes, centrosomes

16. Draw a typical **plant cell** and label the following:
Nucleus, cell membrane, cell wall, cytoplasm, rough ER, smooth ER, golgi apparatus, mitochondria, chloroplasts, large central vacuole

17. Diagram the process of **photosynthesis**. Label the following: chloroplast, thylakoids and membrane, stroma, light dependent reaction (with molecules in and out), light independent reaction (with molecules in and out)
What powers each stage?

18. Diagram the process of **cellular respiration**. Label the following: glycolysis (with molecules entering and exiting), mitochondria, Krebs cycle (with molecules entering and exiting),, electron transport chain (with molecules entering and exiting), show the number of ATP generated in each step,

19. Draw a diagram of an **ATP molecule**. Show what happens with ATP gives up its energy (*what happens to the ATP molecule and what does it turn into?*)

20. Draw a diagram of the **cell cycle**. Label the stages and describe what happens in each stage.

21. Draw a diagram of a **DNA molecule**. Show parts of nucleotides that make up DNA “backbone” and “rungs” of DNA molecule. Also show types of bonds in “backbone” and “rungs” of DNA

22. Draw and diagram the process of **DNA Replication** (*show why it is described as being a “semi-conservative” process*)

23. Show examples of **hydrogen, ionic, and covalent bonds**. Describe the “**Octet**” rule