

Units 1-3 EOC ReviewUnit 1-Chapter 1; Pages 5-24

1. What are the appropriate SI Units for:
 - a. Length: Meter
 - b. Mass: Gram
 - c. Time: Second
 - d. Temperature: Kelvin
2. Convert the following problems:
 - a. 7 kg = 700 grams
 - b. 125 liters = 125,000 mL
 - c. 10 m = 1,000 cm
3. Calculate the mean of a set of values: The mean is just the average of the numbers. (Add the numbers up and divide by how many numbers there are.)

3, 5, 7, 13, 20, 23, 39, 23, 40, 23, 14, 12, 56, 23, 29

Mean = 22

4. What is an independent variable?
variable that is manipulated
5. What is a dependent variable?
variable being measured
6. What is a control group?
provides a normal standard against which the researcher
7. List the biological criteria that need to be met in order for an organism to be considered living. can compare results to
 - a. organization/cells
 - b. Response to stimuli
 - c. Homeostasis
 - d. Energy/Metabolism
 - e. Growth/development
 - f. Reproduction
 - g. Adaptation/evolution
 - h. DNA/Hereditary Info
8. What are the steps of the scientific method?
 - a. State the problem.
 - b. Form a hypothesis.
 - c. Perform an experiment to test the hypothesis.
 - d. observe, measure, and record data from experiment
 - e. Form a conclusion based on observations from the experiment.
9. What is the difference between a theory and a law?

Theory: an explanation based on a large body of scientific evidence that can be changed as new evidence is presented.

Law: fact in nature

Circle the best possible answer.

10. What is the best definition of a scientific theory?
- An explanation of how and why a natural phenomenon behaves the way it does
 - A description of an invariable relationship that exists in nature
 - A speculation or guess about how nature works
 - An unproven fact
11. Chan wants to determine how much the mass of fungus growing on a nutrient agar plate changes over an 8 hr. period. What is the most appropriate unit of measure for him to use?
- Kilogram
 - Kilometer
 - Milligram
 - Millimeter

Unit 2-Chapter 2 and 3; Pgs.31-61

12. Name the 3 subatomic particles, including the charge and their location in an atom.
- Proton (+), nucleus
 - Electron (-), electron cloud
 - Neutron (neutral), nucleus
13. If you are given the atomic mass of an element, you are told the amount of which 2 subatomic particles? Protons + Neutrons
14. The element's atomic number is telling you how many you have of which subatomic particle? Protons OR electrons
15. If you subtract the atomic number from the atomic mass, you can calculate the amount of which subatomic particle? Neutron = Atomic Mass - Atomic #
16. What is an isotope? Atoms of the same element with different numbers of neutrons
17. What is the difference between a covalent and ionic bond? covalent bond: atoms share electrons, ionic bond: atoms transfer electrons
18. What element must a compound have to be organic? Carbon

An **acid** is a substance that donates hydrogen ions. Because of this, when an acid is dissolved in water, the balance between hydrogen ions and hydroxyl ions is shifted. Now there are more hydrogen ions than hydroxyl ions in the solution. This kind of solution is acidic.

A **base** is a substance that accepts hydrogen ions. When a base is dissolved in water, the balance between hydrogen ions and hydroxyl ions shifts the opposite way. Because the base "soaks up" hydrogen ions, the result is a solution with more hydroxyl ions than hydrogen ions. This kind of solution is alkaline.

19. Which range of the pH scale is Acidic? 0-6
20. Which range of the pH scale is Basic? 8-14
21. Acids have a higher concentration of H⁺. Bases have a higher concentration of OH⁻.

22. Fill in the chart below. You may use pages 62-83 in your textbook.

Organic Molecule	Elements found in molecule	Subunit- building blocks (monomer)	Function	Example/where it's found
Carbohydrates CHO	Carbon Hydrogen Oxygen H:O 2:1	Monosaccharides	• energy source • structural materials	Glucose Starch Fructose
Lipids CHO	Carbon Hydrogen Oxygen	Glycerol and Fatty Acids	• store energy • Make-up cell membrane	oils Fatty Meats
Protein CHON	Carbon Hydrogen Oxygen Nitrogen	Amino Acids	Structural Defensive Catalysts	Soy beans cheese Enzymes
Nucleic Acid CHONP	Carbon Hydrogen Oxygen Nitrogen Phosphorus	Nucleotide	• Genetic info/DNA • Energy source	DNA RNA ATP

23. Enzymes are what type of organic molecule? Protein

24. What is the reactant called that an enzyme binds and reacts with? Substrate

25. Why can an enzyme only work on one type of substrate?

Enzymes are uniquely shaped to fit one substrate.

Unit 3-Chapter 4 and 5, Pgs. 68-107

26. What does the Cell Theory say?

1. All living things are made of cells
2. Cells are the basic unit of structure/function in organisms
3. Cells must come from pre-existing cells.

27. What 2 things do prokaryotes lack that make them different from eukaryotes?

Nucleus and membrane-bound organelles

28. What is an example of a prokaryote? Bacteria

29. Prokaryotes have a nucleoid region (pg. 90), in which their genetic material is concentrated.

30. Name 3 organelles that are found in plant cells and not in animal cells.

- a. Chloroplasts
- b. cell wall
- c. central vacuole

31. What is a chloroplast and what type of cell are they found in?

contain chlorophyll and is the site of photosynthesis, found in plant cells

32. Briefly tell the function of the following organelles:

- a. Nucleus: controls cell function/has DNA
- b. Endoplasmic Reticulum: transports materials through cell
 - i. What are the two types? smooth and rough (has ribosomes)
- c. Ribosomes: protein manufacturing site
- d. Mitochondria: changes glucose to ATP to make energy
- e. Lysosomes: cleans the cell
- f. Cell Membrane: barrier between inside/outside of cell
- g. Golgi Apparatus: packages proteins for export from the cell
- h. Cytoskeleton: gives the cell its shape
 - contains microtubules/microfilaments

33. Fill in this chart:

	DIFFUSION	OSMOSIS	ACTIVE TRANSPORT	FACILITATED DIFFUSION
What is it? (Definition)	Movement of particles from areas of high concentration to areas of low concentration	diffusion of water only	movement of particles from low to high concentration	movement of particles from high to low with the help of a carrier protein
Concentration Gradient (How does it travel-High to Low or Low to High)				
Does it require energy? (Yes or No)	NO	NO	yes	NO