

Biology Fall Final Exam Study Guide 2014

Georgia Performance Standard SB1: Students will analyze the nature of the relationships between structures and functions in living cells.

1. What are four characteristics shared by living organisms? [1.1]
2. What is homeostasis? What conditions in cells must be controlled for cells to maintain homeostasis? [1.2]
3. What are the four main groups of carbon-based molecules (macromolecules)? [2.3]
4. What smaller units (monomers) make up each of these? [2.3]
5. What is function of each macromolecule in living organisms? [2.3]
6. Which macromolecule is the primary component of cell membranes? [2.3]
7. What macromolecule is most commonly broken down to make energy? [2.3]
8. What are enzymes? What is their role in a cell? What two factors affect the action of enzymes? [2.5]
9. Why does enzyme action decrease at high temperatures, such as when you have a fever? [2.5]
10. What does the "lock and key" model tell us about enzymes and their substrates? [2.5]
11. How are prokaryotes and eukaryotes alike? How are they different? [3.1]
12. What is an example of a prokaryote? Of a eukaryote? [3.1]
13. Which organelle would you expect to find in plant cells but not animal cells?
14. What is the function of the nucleus? [3.2] Do prokaryotes have them?
15. In which organelle in eukaryotic cells is DNA found? [3.2]
16. Where is the DNA in prokaryotes found? [3.1]
17. What is the function of ribosomes? [3.2]
18. What is the function of the mitochondria? [3.2]
19. What is the function of the vacuoles? [3.2]
20. What is the main function of the cell wall? What types of organisms have them? [3.2]
21. What two structures are found in plant cells and not in animal cells? [3.2]
22. YOU WILL NEED TO IDENTIFY ALL THE ORGANELLES IN THE CELL MODELS ON PAGE 74. YOU ALSO NEED TO IDENTIFY ORGANELLES BY THEIR IMAGES FOUND BY THEIR DESCRIPTIONS IN YOUR TEXTBOOK.
23. Why is the cell membrane important? [3.3]
24. Describe the structure of the cell membrane. [3.3]
25. What types of molecules make up the cell membrane? [3.3]
26. What is passive transport? What are two types of passive transport? [3.4]
27. Describe the movement of molecules in a fluid or gas in diffusion. [3.4]
28. What is osmosis? [3.4]
29. What would happen to a cell placed in an isotonic solution? Hypotonic? Hypertonic? [3.4]
30. What would happen to a human red blood cell if placed in solution that has a higher concentration of solutes than in the cell? (Example: highly salty solution) [3.4]
31. What is the function of ATP? [4.1]
32. Describe the overall process of photosynthesis. (What is required for the reaction and what comes out) [4.2]
33. In which types of organisms does photosynthesis occur? [4.2]
34. In which organelles does photosynthesis occur? [4.2]
35. What is produced during photosynthesis? [4.2]
36. Describe the overall process of cellular respiration. (What is required for the reaction and what comes out) [4.4]
37. In which organelles does cellular respiration occur? [4.4]
38. What is produced during cellular respiration? [4.4]
39. How is energy cycled between cellular respiration and photosynthesis? Hint: reactants and products. [Page 114 and 121].

Georgia Performance Standard SB2: Students will analyze how biological traits are passed on to successive generations.

1. What is mitosis? How many daughter cells are produced after mitosis? Are the daughter cells genetically similar or different to the parent cell? [5.1]
2. In what type of cell does mitosis occur? [5.1]
3. What are differences between cancer cells and normal cells? [5.3]
4. Describe asexual reproduction. [5.4]
5. What is binary fission? What types of organisms reproduce by binary fission? [5.4]
6. What are the advantages and disadvantages of asexual reproduction as opposed to sexual? [5.4]
7. What is meiosis? How many daughter cells are produced? Are the daughter cells genetically similar or different to the parent cell? [6.1 and 6.2]
8. How are chromosome numbers changed during meiosis?
9. What types of cells in your body are produced by meiosis? [6.1 & 6.2]
10. How does meiosis produce genetic variation?
11. How many chromosomes are present in a human egg or sperm cell? How is that number compared to a human body cell? [6.1 & 6.2]
12. What were Mendel's conclusions following his experiments with pea plants? [6.3]
13. What is a gene? What is an allele? [6.4]
14. What is a trait?
15. What is the difference between phenotype and genotype? [6.4]
16. Punnett Squares: KNOW HOW TO SET UP PUNNETTS AND PREDICT PHENOTYPES FOR MONOHYBRID CROSSES FOR DOMINANT/RECESSIVE TRAITS. GO BACK AND REVIEW PUNNETT SQUARE WORKSHEETS. [6.5] THERE WILL BE NO DIHYBRID, SEX-LINKED OR INCOMPLETE/CO-DOMINANCE QUESTIONS.