Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_\_\_\_

**Unit 3 Study Guide**

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| **Topics:** Classification & Taxonomy, Transport in Cells, Diffusion, Cellular Respiration, Photosynthesis |

***Directions:*** Use the following as a **guide** when you are studying. Be sure to references class notes, the textbook, distributed worksheets and handouts, labs, notes from lecture, etc. as you study.

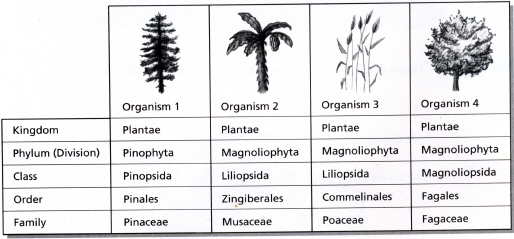
**Relevant Vocabulary:**

You should be familiar with the following vocabulary terms taken from the textbook, from worksheets, and from lecture for this unit. All or some of these terms may end up on your exam. There may be some terms covered in class or in the textbook that are not listed below that may also show up on your exam. Add vocabulary to this list as needed as we progress through the unit.

|  |  |  |  |
| --- | --- | --- | --- |
| Eubacteria | Archaebacteria | Nucleus | Membrane-bound organelles |
| Bacteria | Eukaryotes | Prokaryotes | Archaea |
| Plants | Chloroplast | Mitochondria | Animals |
| Class | Order | Family | Fungi |
| Classification | Carolus Linnaeus | Taxonomy | Binomial Nomenclature |
| Genus | Lipid bilayer | Selectively permeable | Species |
| Domain | Kingdom | Phylum | Diffusion |
| Concentration of a substance | Osmosis | Hypertonic | Hypotonic |
| Isotonic | Passive transport | Active transport | Endocytosis |
| Exocytosis | Pigment | Chlorophyll | Stomata |
| Aerobic respiration | Anaerobic respiration | Fermentation | Alcoholic fermentation |
| Lactic acid fermentation | Multicellular | Unicellular | autotroph |
| Protists | heterotroph |  |  |
|  |  |  |  |

**Objectives & Practice Questions:**

You should be able to answer the following questions covered in the textbook, on worksheets, and in lecture for this unit. ***Do not forget to review previous quizzes, handouts, classwork, labs, etc. for practice problems when studying.***

1. Be able to describe how Biologists use classification to organize living things.
2. What is binomial nomenclature? Be able to identify what the two parts of the name represent.
3. Know the levels of classification: domain 🡪 kingdom 🡪 phylum 🡪 class 🡪 order 🡪 family 🡪 genus 🡪 species and be able to work with examples and compare how related two organisms are based on their taxonomic classification.
4. How are organisms placed into domains and kingdoms? What characteristics are used?
5. Compare and contrast the three domains: Bacteria, Archaea, Eukarya.
6. Be able to use a dichotomous key.
7. *Use the diagram below to answer the questions to the right.*
   1. Which two organisms are most closely related and why?
   2. Which organism is least related to the others and why?
   3. Is organism 2 more closely related to organism 3 or organism 4? Why?
8. Which level of taxonomic classification is most inclusive? Which is least inclusive?
9. How do we define the term *species*?
10. What causes diffusion?
11. Draw a red blood cell in hypertonic, hypotonic, and isotonic solutions. Draw an arrow to show the direction of movement of water molecules by osmosis.

|  |  |  |
| --- | --- | --- |
| **Hypertonic** | **Hypotonic** | **Isotonic** |
|  |  |  |

1. What is the chemical equation for photosynthesis? What are the reactants? What are the products?
2. Why are plants green?
3. What organelle is responsible for photosynthesis?
4. What is the chemical equation for cellular respiration? What are the reactants? What are the products?
5. What organelle is responsible for cellular respiration?
6. Cellular respiration stores energy in the form of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Illustrate the relationship between photosynthesis and cellular respiration:

