**SCIENCE 8: CHAPTER 1 STUDY GUIDE NAME:**

**THE CELL IS THE BASIC UNIT OF LIFE DATE:**

**BLOCK:**

**Tips for studying for the Ch. 1 Test:**

1. Re-read your notes and use your Cornell-questions to quiz yourself.
2. Re-read pages 6 – 45 of your textbook.
3. Be able to define the key vocabulary from the chapter.
4. Review your assigned textbook questions and Work Book, making sure all is complete.
5. Be able to answer the questions below. They are a guide for your studying.
6. Do the section 1.1, 1.2, and 1.3 online quizzes at <http://www.bcscience.com/bc8/>

**VOCABULARY** Study the key vocabulary. It may be helpful to make vocab cards.

* **compound light microscope**
* **magnification power**
* **resolving power**
* **organelle**
* **cell membrane**
* **cytoplasm**
* **nucleus**
* **DNA**
* **mitochondria**
* **cellular respiration**
* **metabolism**
* **proteins**
* **ribosome**
* **endoplasmic reticulum**
* **Golgi body**
* **vesicle**
* **vacuole**
* **lysosome**
* **cell wall**
* **chloroplast**
* **photosynthesis**
* **cell theory**
* **prokaryotic cells**
* **eukaryotic cells**
* **bacteria**
* **viruses**
* **diffusion**
* **concentration**
* **selectively permeable membrane**
* **equilibrium**
* **osmosis**
* **reverse osmosis**

**1.1 Characteristics of Living Things**

1. What is a difference between unicellular and multicellular organisms?
2. List the 5 characteristics of living things and give an example of each.
3. What is a stimulus? Give an example.
4. What kind of microscope will we use in class to investigate living things?
5. What is the name of the more powerful type of microscope that scientists use for scientific research?
6. Who was one of the first people to build a microscope? About how many times could it magnify things?
7. Know the names and functions of the parts of a compound light microscope. Be able to label a diagram.
8. When you look through a microscope, the image is \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Draw how the letter “e” would appear.
9. Complete the following table.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Objective Lens | Ocular Lens | Total Magnification |
| Low Power |  |  |  |
| Medium Power |  |  |  |
| High Power |  |  |  |

1. Differentiate magnification power and resolving power.
2. Complete Quiz 1.1 online at <http://www.bcscience.com/bc8/>

**1.2 Cells**

1. What is an organelle? Give an example.
2. How much of a cell is taken up by organelles? What is most of a cell made up of?
3. What is the job of the cell membrane? Do both plant and animal cells one?
4. What does the cytoplasm contain?
5. What organelle controls all the activities within the cell?
6. What is DNA? What does it carry and where is it found?
7. What is the process called that produces energy for the cell? In what organelle does it occur and what is the equation for the chemical reaction? (Figure 1.16)
8. Describe the difference in the shape between an animal and plant cell.
9. Be able to differentiate and label the organelles of an animal cell and plant cell (Fig 1.17).
10. What are proteins and where are they made?
11. Differentiate endoplasmic reticulum from the Golgi body.
12. Compare and contrast vesicles and vacuoles.
13. What organelle contains digestive chemicals that break down food particles, cells wastes and worn out cell parts?
14. What two cell parts are found in plant cells but not animal cells?
15. What is the process called in which plant cells trap energy from the Sun and change it into chemical energy? In what organelle does it occur and what is the equation for the chemical reaction? (Figure 1.23)
16. Name four scientists whose ideas eventually became the basis of the modern cell theory.
17. List the three points of the cell theory.
18. Differentiate prokaryotic and eukaryotic cells.
19. Are bacteria prokaryotic or eukaryotic cells?
20. What are three different shapes of bacteria?
21. Are viruses living or non-living? What do they require in order to reproduce?
22. Complete Quiz 1.2 online at <http://www.bcscience.com/bc8/>

**1.3 Diffusion and Osmosis**

1. Compare and contrast diffusion and osmosis. (Using a Venn diagram may be useful).
2. Would diffusion of food colouring happen faster in a beaker of hot water or cold water? Explain.
3. The cell membrane is a selectively permeable membrane. What does this mean?
4. When equilibrium of particles is reached, do particles stop moving? What happens?
5. Give an example of diffusion in your body.
6. Describe the movement of water through a membrane when there are equal concentrations of water inside and outside the membrane. Refer to Ex 1 on p. 45.
7. Describe the movement of water through a membrane when there is a higher concentration of water outside the cell than inside. What happens to the cell? Refer to Ex 2 on p. 45.
8. Describe the movement of water through a membrane when there is a higher concentration of water inside the cell than outside. What happens to the cell? Refer to Ex 3 on p. 45.
9. How does penicillin use osmosis to destroy harmful bacteria?
10. What is reverse osmosis used for?
11. Complete Quiz 1.3 online at <http://www.bcscience.com/bc8/>