Chapter 40 Study Sheet **Name_____**
Period____
Date_____

I will not cover Chapter 40 in class. It is your responsibility to read it and learn the material on your own. If you have questions please see me during tutorial. This worksheet is designed to focus your attention on the most important information in the chapter and material on which you may be tested. Note: The CD ROM is too detailed for Chapter 40 and is not very useful for our purposes. Check it out however if you are interested

1. Read the italicized introduction to chapter 40 and write down the two core themes that your book and this course are trying to have you learn. We will come back to these two themes again and again in this course.

2. One of the keys to success in life is staying organized. The key thing that keeps things organized in an office environment is the **file folder**. The famous saying, "divide and conquer", applies here. If you consider the variety of different papers that exist in an office, without an organizational system there would be complete chaos. File folders create order out of what might be chaos. These files in turn are organized into similar categories in drawers in a file cabinet in a hierarchical system.

This same idea applies to your computer. You create folders to organize documents on your computer. You even create folders in which to store similar folders in a hierarchical fashion.

Living things use a similar system. All life is based on an organizational scheme which centers on **membrane bound structures**. A **membrane bound structure** can thought of as being analogous to a **folder**. The most basic **membrane bound structures** are called **organelles** (such as endoplasmic reticulum, nucleus, mitochondria, golgi apparatus, etc). These

"folders" are enclosed within a larger **membrane bound structure** called the **cell.** This system of **membrane bound structures** within **membrane bound structures**, that is, organelles within cells, very similar to folders within folders on a computer, keeps things organized in a hierarchical system and prevents chaos from reigning in living systems. It increases efficiency since similar functions are grouped in similar "folders".

Up until this point in the course we have examined these two levels of organization- the organelle and the cell: "folders within a folder". In chapter 40 we move to the next hierarchical level of organizational structure. It turns out that the human body has over 200 different kinds of cells. These cells are organized into groups of cells that have similar functions. This next level of organizational structure, what might be termed, "the next folder", we call **tissue**. Cells of similar function are grouped into a particular **tissue**. The body has many different types of tissues. If you go to medical school, dental school, or veterinary school you will learn about the many different kinds tissues. In this beginning biology course you are only expected to know four different kinds of tissue. According to your book, what are these four different tissues?

3. a. Where is epithelial tissue found? (give several examples of epithelial tissue)

b. Describe a couple of its functions.

4. a. What is the main function of connective tissue?

b. Where is connective tissue found? (give several examples of different kinds of connective tissue)

5. a. Describe the three different kinds of muscle tissue. Where are they found and how do they differ from one another?

6. a. If organelles are organized in “folders” called the **cells**, and if cells are organized into “folders” called **tissues,** what are tissues organized into? (see page 783-784)

b. What is the next higher level of organization that includes the answer to question “a”?

c. Give an example of “a” and an example of “b” that includes the example from “a”. (see Table 40.1- it is a very cool since it synthesizes a lot of information in one place)

7. The energy stored in organic molecules in food is transferred to ATP in animals. Not all the energy is transferred into ATP. What happens to some of this energy- where does it go? (see figure 40.7)

8. Organisms can be divided into two categories: those that produce their own heat as a result of their own metabolic processes, and those that obtain their heat from the external environment. What are the technical names for these two different strategies? (see page 785)

9. What is the technical term for the minimum amount of energy an endotherm uses everyday?

a. What is the minimal amount of energy that an adult male uses every day?

b. What is the minimal amount of energy that an adult female uses every day?

10. Read pages 788-790 very carefully. Explain what Claude Bernard learned. Be sure to use the words **homeostasis** and **negative feedback.**