**Carbohydrates Guided Notes**

1. Carbohydrates are compounds made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The general formula for carbohydrates is \_\_\_\_\_\_\_\_\_\_\_\_\_\_, where a 1-2-1 ratio of carbon to hydrogen to oxygen exists. Many carbohydrate names end in \_\_\_\_\_\_\_\_\_. Examples of carbohydrates include: \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. There are four main functions of carbohydrates:

 (1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for metabolism (glucose)

(2) \_\_\_\_\_\_\_\_\_\_ term energy storage (glycogen/starch)

(3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_: plants – cell wall animals – exoskeleton

3. Living things use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (simple sugars) as their main source of energy. The breakdown of sugar provides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy for all cell activities.

4. Plants store extra sugar as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (many sugars), known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The monomers that make up starches are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules. Examples of foods that contain high amounts of starch include: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, wheat, \_\_\_\_\_\_\_\_\_\_\_, and rice.

5. Glycogen is a polymer made up of glucose monomers. Animals store extra sugar in a molecule called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Glycogen is stored in the \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The glycogen molecule is more highly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than starch, which means that it contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_ stored energy.

6. Cellulose is found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_. The tough, flexible cellulose fibers provide the plant with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Cellulose is composed of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ monomers, and is also used in \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is difficult to digest, and animals can’t break the bonds between the glucose molecules. Cellulose acts as a dietary \_\_\_\_\_\_\_\_\_. Animals that eat plants have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in their stomachs that can break the bonds of cellulose and allow their hosts to \_\_\_\_\_\_\_\_\_\_\_\_ the plants.

8. \_\_\_\_\_\_\_\_\_\_\_\_, another important structural, is a polymer of a form of glucose. It is found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of arthropods – gives the “crunch” sound when you step on a cockroach!

9. Differences in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_ give the molecules different functions.

10. Several tests exist to determine the presence of carbohydrates:

(1) \_\_\_\_\_\_\_\_\_\_\_\_ test –used to test for the presence of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (complex sugar). Iodine reacts with starch to produce a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ color

(2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_ test – used to test for the presence of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Brick red or brown color indicates \_\_\_\_\_\_\_\_\_ glucose content, while blue indicates \_\_\_\_\_\_ glucose

Vocabulary to know:

* Carbohydrate
* Monosaccharide
* Glucose
* Polysaccharide
* Starch
* Glycogen
* cellulose
* Chitin
* Additional flashcards

 - 5 functions of carbohydrates

 - 3 elements found in carbohydrates

 - Iodine test- positive test and what molecule it indicates

 - Bendict’s test –positive test and what molecule it indicates