**Dehydration Synthesis – Hydrolysis Reactions Lab (CARBOHYDRATES)**

DEHYDRATION SYNTHESIS - simple sugars combine to form disaccharides and polysaccharides.

HYDROLYSIS - Complex carbohydrates can be broken down to form simple sugars.

A. Color each glucose blue. Color each fructose red. Cut each puzzle piece out along the solid lines *only.*

1. What indication in the names of these molecules tells you they are sugars?

2. What 3 elements are present in all of the sugars?

3. What is the ratio of hydrogen atoms to oxygen atoms in each puzzle piece?

4. How do these sugar ratios compare to the hydrogen oxygen ratio in water?

B. Cut along the dotted lines of two monosaccharides (glucose) and tape them together to show the disaccharide maltose, the sugar found in malt (used in brewing beer). Label the molecule maltose.

5. What size of carbohydrate is maltose?

6. What had to be removed from the puzzle pieces in order to make maltose?

7. What two monosaccharides are used to make maltose?

8. What term refers to the hooking together of the two monosaccharides to form the maltose?

9. What is formed from putting the two monosaccharides together besides maltose?

C. Tape/glue one glucose to one fructose. Label this sucrose. Sucrose is table sugar that you put on cereal.

10. What is the ratio of Hydrogen to Oxygen?

11. Is the ratio the same in one glucose and the sucrose when it's reduced?

12. What is the name of the process demonstrated by taking out water to make sucrose?

F. On your typing paper, tape/glue three glucose molecules together. Label this

new molecule a starch.

13. What process would this be called if you had a starch like above and added

water to it so it broke down into the simple sugars the starch is made of?

14.What building blocks are starches made of?

15. What is the difference between sugar and starch?

16.What term describes the size of a starch?

17. What molecule has to be added to a starch to break it down?

18. Where in your body would starches start being broken down when eaten?

19. What process was being demonstrated when you put the three glucose's together?

20. What general term refers to monosaccharides, disaccharides, and

polysaccharides because when they break down they give our body quick

energy that used to be in the chemical bonds?