### Week 6

| Parent Information | All living things are composed of combinations of four basic types of molecules. These macromolecules (macro = large) include: proteins, lipids, carbohydrates and nucleic acids (DNA & RNA). Macromolecules are polymers, meaning they are large structures composed of repeating small units called monomers. This lesson focuses on one macromolecule, carbohydrates. They are composed of mono- and disaccharides. Carbohydrates are the main source of energy for all living things. Glucose, (a monosaccharide) is produced by plants during photosynthesis and broken down by all living things to release the stored energy. Sucrose (table sugar) is a disaccharide composed of glucose and another monosaccharide, fructose. Simple sugars are usually mono or disaccharides, while complex carbohydrates (fiber, whole grains) are longer chains of the same monomers. |
| Benchmark | SC.912.L.18.2 Describe the important structural characteristics of monosaccharides, disaccharides, and polysaccharides and explain the functions of carbohydrates in living things. |
| Objective | Student will be able to explain the structure of carbohydrates, and how they function in living things. |
| Duration | 1 hour |
| Materials | 1. 5 Nutrition Labels from different boxes of cereal.  
2. Science Notebook and pencil  
3. Graph Paper |
| Procedures | 1. Predict: which of your cereals will contain the most sugar, fiber, and total carbohydrates,  
2. Read each label and record the total carbohydrates, fiber and sugar.  
3. Create a bar graph for your data. Each cereal will have three bars, for each category on the label. |

**Discussion Questions:**
1. Which cereal had the most simple sugars?  
2. Which had the most fiber?  
3. Which had the most total carbohydrates?  
4. Which cereal do you think is the healthiest?  
5. Were any of your cereals advertised as healthy? Based on your research, do you agree with their claims? Explain your reasoning.
1. During photosynthesis, plants capture energy and store it in a single molecule of glucose. Based on this, which of the following carbohydrates would be BEST for a marathon runner to eat before a race?
   A. Complex Carbohydrates
   B. Simple Sugars
   C. A monosaccharide
   D. Glucose

For more food science activities: