High School Science Virtual Learning

General Biology

Macros: Carbohydrates and Lipids

April 28, 2020

High School General Biology
Lesson: April 28, 2020

Objective/Learning Target:
Students will be able to describe the key features to carbohydrates and lipids.

1. What are nutrient cycles?

2. Name 3 main nutrient cycles found in nature.

1. Nutrient cycles are naturally occuring cycles that happen in nature that move important elements (nutrients) from one reservoir to another.

2. Carbon, nitrogen, phosphorous, sulfur, etc.

Lesson Activity:

Directions:

1. Create the diagram below on your own piece of paper. This will serve as your notes sheet for the second part of the lesson activity.

Macromolecule	Function	Monomer	Elements	Examples	Different Classifications
Lipids					
Carbohydrates					

Lesson Activity:

Directions:

1. Watch both of these videos linked below, carefully listening for the key details concerning each of of the macromolecules.
2. Fill in the chart you made from the previous slide, filling in each of the key details.
3. Use this information and more from the video to answer the following questions.

Link(s):

Carbohydrates Video
Lipids Video

How well did you listen?

Macromolecule	Function	Monomer	Elements	Examples	Different Classifications
Lipids	Long-term energy	Fatty acid chain	Carbon, hydrogen, oxygen	Oils, waxes, butter, cell membrane	Unsaturated and saturated
Carbohydrates	Short-term energy	monosaccharides	Carbon, hydrogen, oxygen	Rice, bread, candy	Complex and simple sugars

Practice

You will use the information from the activity on slide 5 to answer the following questions.

Practice Questions

1. What are the monomers for both carbohydrates and lipids?
2. What is the function of carbohydrates?
3. What is the function of lipids?
4. What elements are found in carbohydrates?
5. What elements are found in lipids?
6. What is an example of a carbohydrate?
7. What is an example of a lipid?

Answer Key

Once you have completed the practice questions check with the work.

1. The monomer for carbohydrates are called monosaccharides and the monomer for lipids is called a fatty acid.
2. Carbohydrates provide the quick energy for the body.
3. Lipids provide the long-term storage of energy in the body.
4. Carbohydrates are made up of carbon, hydrogen, and oxygen.
5. Lipids are made up of carbon, hydrogen, and oxygen.
6. An example of a carbohydrate include bread, rice, candy, soda, etc.
7. An example of a lipid include oil, butter, cell membrane, etc.

More Practice

You will use the information from the activity on slide 5 to answer the following questions.

More Practice Questions

1. What is the structure of a lipid?
2. What is the difference between saturated fatty acids and unsaturated fatty acids?
3. What is the difference between saturated and unsaturated fatty acids?
4. What are the three classes of carbohydrates?
5. What type of carbohydrate is involved in food storage for plants? Which one for animals?
6. What is the polymer called for carbohydrates?
7. What are the two classifications for carbohydrates? Which one is better for the body?

More Practice Questions Answer Key

Once you have completed the practice questions check with the work.

1. Lipids structure is a fatty acid chain with a hydrophilic (polar) head and a hydrophobic (nonpolar) tail.
2. The head of saturated fats have two carbons attached to each other, resulting in a straight tail and unsaturated lipids have a kink in their tail shape due to a missing hydrogen.
3. Unsaturated fats are liquid at room temperature and are healthier, saturated fats are solid at room temperature and are less healthy.
4. Starches, glycogen, and cellulose.
5. Starch is food storage in plants and glycogen is food storage in animals.
6. The polymer for carbohydrates are called polysaccharides.
7. Simple sugars like candy or soda and complex sugars like bread and rice. Complex sugars are better for the body.

Extra Resources

Here is more information on carbohydrates:Carbohydrates Reading

Here is more information on lipids: Lipids Reading

Here is a virtual lab that can help you explore more about macromolecules. The instructions and link can be found in the link provided. Answer the questions on your own paper or print this out: Macromolecules Lab (worksheet)
Macromolecules Lab activity