



Lesson # 4

Carbohydrates and Grains

Time Table

Total Time: 30 minutes

2 Minutes: Introduction to Lesson

15 Minutes: *Carbohydrate and Grains* PowerPoint Presentation

10 Minutes: Activity: *Eating the Right Carbohydrates!*

3 Minutes: Explain Take Home: *Parent Tips and Kidz Pantry*

Goal: Introduce children to the importance of grains as the base of a healthy, balanced diet and help them distinguish between the different types of carbohydrates.

Objectives:

Students will:

1. Understand the importance of carbohydrates.
2. Learn the difference between simple and complex carbohydrates.
3. Learn the difference between refined and whole grain products.
4. Be able to list carbohydrates that are healthy for them.

Materials:

- Blackboard or poster paper
- Chalk or marker
- PowerPoint: *Carbohydrate and Grains* Presentation
- Activity: *Eating the Right Carbohydrates!*
 - a. Pencils
 - b. Instructor's answer key
- Take Home: *Parent Tips and Kidz Pantry*

Instructions:

1. Begin the lesson with a quick review of the previous lesson on how to track your food intake and ask the students to give some examples of foods they commonly eat according to the FFQ they took last time.
2. Tell students that today's lesson focuses on carbohydrates and grains. They will be able to distinguish the good carbs from the bad carbs and be able to pick healthy foods with complex carbs in them.
3. Ask students if they have ever heard of the word, "carbs" or "carbohydrates" and if anyone knows what they are.
4. Explain that this lesson will give them a better understanding of what carbs are and what they can do for them.

The 6 nutrients in foods

- Macronutrients (Large nutrients)
 - a. Carbohydrates
 - b. Proteins

- c. Fats
- d. Water
- Micronutrients (Small nutrients)
 - e. Vitamins
 - f. Minerals

Food provides us six essential nutrients that keep us alive and healthy. We will talk about carbohydrates today and will cover all the other nutrients later. Carbohydrates (sugar) are in **almost** everything we eat, but some foods are sweeter and have more carbs in them than others.

The carbohydrate family includes simple sugars, complex carbohydrates (starch), and total fiber. We will cover the basics of carbohydrates and talk a little about simple carbs, complex carbs, and the grains group.

What is a carbohydrate?

Carbohydrates (carbs) are the main energy source for your body. The body breaks down the carbohydrates to make sugar. Sugar is food for the brain and your whole body.

Why should we eat carbs?

- Carbs give us **ENERGY!**
- Energy is needed to do things like: walk, swim, play, breathe and think.
- Carbs are broken down into sugar known as glucose in the body and provide us with energy.

Explain that there are two types of carbohydrates: simple and complex carbohydrates. The simple carbs such as soda and candy break down (digest) quickly in the body, while complex carbohydrates such as whole grain bread, fruits, and vegetables take a long time to break down (digest).

Simple carbohydrates are broken down quickly and contain a few vitamins and minerals. These carbs should be limited to avoid weight gain. There are two forms of simple carbohydrates. **Monosaccharides** are the simplest form and consist of one molecule. This one molecule sugar does not require digestion and is absorbed by the blood instantly. There are three types of monosaccharides and three types of disaccharides. **Disaccharides** consist of two molecules and are easily digested into its simple form.

- **Monosaccharide** –consist of one sugar
 - Glucose (Blood sugar)
 - Fructose (Fruit sugar)
 - Galactose
- **Disaccharides**- consist of two sugars
 - Sucrose (Table sugar)
 - Maltose (Malt sugar)
 - Lactose (Milk sugar)

Give the students a couple of examples of foods that are considered simple carbs.

Simple Carbohydrates: ("Bad Carbs and limit")

- Concentrated fruit juices and sodas
- White rice/ pasta
- White bread or tortillas
- Bagels, donuts, muffins, cake, etc.
- Cookies, chips, and candy
- French fries or hash browns

A high-sugar diet may lead to weight gain and can also lead to tooth decay.

Complex carbohydrates are considered “good” carbs because they take longer for your body to break them down (digest) and are usually packed with fiber, vitamins and minerals. Complex carbs are many sugars linked together into a chain.

Ask students if they can list examples of complex carbohydrates. Give the students a chance to answer and then state some food choices that are considered complex carbs as listed below.

Complex Carbohydrates: (“Good Carbs”)

- Fruits and vegetables
- Whole grain bread or cereal
- Whole wheat and corn tortillas
- Brown rice
- Lentils and beans

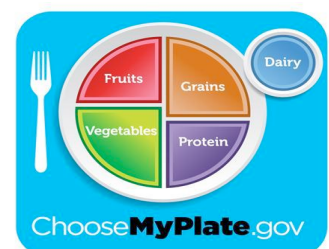
We like carbohydrates that take **a longer time** to break down or digest because this slowly releases energy throughout the day so we do not feel hungry all the time. Think of it this way, when there is not enough sugar in the blood we feel hungry because the blood wants more sugar to keep everything normal. If we eat complex carbohydrates, sugar is released into the blood in little portions over a longer period of time so we will stay full for a longer time.

Does anyone in this class have lactose intolerance? Lactose intolerance is quite common in the world and around 80% of the people have it. Does anyone know what it is and what it does to you? Lactose intolerance is when the body cannot break down the lactose molecule into its simpler form because the body lacks an enzyme called lactase which acts like a “saw”. This saw breaks the bond between the two sugars to separate them and convert them into the simplest form for the body. Dairy products contain high amounts of lactose and since the body can not break it down, it causes diarrhea, stomach cramps, nausea, and sometimes vomiting. If you have lactose intolerance, you can still consume dairy products such as cheese and yogurt because they are more tolerated than milk. Growing children need calcium so it is important you consume dairy products, but you might have to talk to your out the type of milk that is best for you in order to help you avoid diarrhea and cramps.

High-Fructose Corn Syrup- a liquid sweetener used in many sodas, sport drinks, iced teas, soups, yogurts, cookies and cakes. High-fructose corn syrup is a simple carbohydrate made from corn. This should be limited or reduced from the diet because it can cause weight gain if consumed in large quantities. The best way to avoid consuming high-fructose corn syrup is by reading the food labels and the ingredient list for each food you buy at the grocery store.

What are grains and how do they give us complex carbohydrates?

Grains are the largest and widest part of the USDA’s MyPyramid and is about ¼ of the food groups in MyPlate. This is the foundation of our diet and we should have a large amount of this food in our diet. Grains should comprise the second largest part of our meal. Children your age need around 6 ounces of grains each day. An easier way of determining if you are getting the right amount of grains per day is to cover around ¼ of your plate with grains during your meal. Sources of grains: bread, crackers, pasta, rice and cereal.



Examples of grains and carbohydrates: Choosing white bread or white pasta vs. whole grain bread or brown pasta? These foods are part of the grains group in the food guide, MyPlate. How can you tell if they are a complex or simple carbohydrate.

- **Refined grain products** are usually white or light in color. They are mostly made of simple carbohydrates and will not make you feel full for a long time.
- **Whole grain products** are usually brown or darker in color. They are mostly made up of complex carbohydrates and keep you feeling full for a long time. They also have other nutrients in them such as fiber, vitamins and minerals.
- Which ones do you think are better for you?
 - The whole wheat grains (brown or tan colored).

The best thing for your body is to eat a variety of grains to give your body long lasting energy. You will feel full and get the best energy this way.

Student's Goal:

Eat more whole-grain products! Try going shopping with your parents and help them pick whole grains and complex carbohydrates. Avoid high-fructose corn syrup in your food products.

Activity: *Eating the Right Carbohydrates!*

- Print the *"Eating the Right Carbohydrates!"* worksheet for each student.
- Provide students with a pencil and a worksheet.
- Students will have to decide if a particular food should be part of the simple carbs or complex carbs category with the knowledge they learned in class or the PowerPoint.
- After the students have completed the activity, share the answers with them. The instructor's answer key is provided on the website.
- Collect the activity sheets and put them into each student's personal *Fit4kidz* binders or folders.

Take Home: *Parent Tips and Kidz Pantry*

- Print a *"Parent Tips and Kidz Pantry"* worksheet for each student.
- This activity will be sent home with the students to be completed and viewed by the parents.