

Investigating Your Health: Gratifying Grains

Name: _____

Objective: Investigate grains by comparing nutritional differences between whole and processed grains, identify if a bread is a whole grain by examining the ingredient list, and research other food sources that contain whole grains.

A **whole grain** contains all of the parts and nutrients of the entire grain seed. This includes the germ, bran, and endosperm. The **germ** is the embryo of the grain. The **bran** is the tough, protective outer layer of the kernel. The **endosperm** is the largest inner portion of the kernel, and provides the germ's food supply.

Refined grains have been milled, which removes the bran and the germ. Milling also removes the fiber, iron, and many B vitamins from the grain. Most refined grains are enriched, which means that certain B vitamins and iron are added back after processing. Unfortunately, fiber is not usually added back to enriched grains. Eating whole grains instead of refined grains can reduce your risk of stroke, type 2 diabetes, heart disease, and will help with weight management. You should be eating 6 ounces of grains every day, and half of those (3 ounces) should be whole grains.

There are many different ways to identify whole grain foods. Most foods have a stamp to identify them as whole grains. Another way to identify whole grains is to look at the ingredients. The first ingredient should contain the word "whole," for example "whole wheat flour." If there are two



grain ingredients and the second one has the word "whole," the food item is not considered 100% whole grain. The food packaging may also have key words to identify it as a whole grain. Whole grain, whole wheat, stoneground whole, brown rice, oats, oatmeal, and wheat berries are key words to look for to identify food as a whole grain.

One easy way to increase the amount of whole grains you eat is to replace half of the refined grains with whole grains. Popcorn is a whole grain, and can be a healthy snack if there isn't added salt or butter. Ask your parents to buy whole wheat pasta; at some stores it costs the same as regular pasta. Adding rolled oats to your yogurt is a very easy way to increase the amount of whole grains in your diet. There are many other ways you can add whole grain to your diet. Use the *Try This at Home* recipe to make a healthy snack with whole grains!



Comparing Bread

- Go to the grocery store and look at the Nutrition Facts label on whole grain bread and white (refined) bread. Make sure you choose bread that has the same serving size. Try to find different breads from the same brand. If you are unable to go to the grocery store, use the handout provided by your teacher or access the nutrient database on USDA's website: <http://ndb.nal.usda.gov/ndb/search/list>. Complete the table below.

	Whole Grain Bread	White Bread
Calories	100	120
Total Fat	2g	1.5g
Sodium	115mg	220mg
Fiber	4g	1g
Sugar	3g	4g
Protein	5g	4g
Folic Acid	2%	10%
Iron	6%	6%
Thiamin	6%	10%
Niacin	8%	8%
Riboflavin	4%	8%

2. What are the nutritional differences between the whole grain bread and white bread?

At first glance it may appear the white bread is a healthier option because it is higher in vitamins and minerals. However, these values are higher due to enrichment. Enrichment is the adding of vitamins and minerals that were removed during processing back into the bread. Unfortunately, the enriched white bread has less protein and more calories, sodium, and sugar. Additionally, the whole grain bread has 3 more grams of fiber than the processed bread. The best option is the whole grain bread.

3. Look at a bread label found at home or use a label provided by your teacher. Explain whether the bread is a whole grain or not.

Bread Name: Honey Wheat Bread

It is NOT a whole grain. The first ingredient is enriched flour. Whole grain would have the word "whole" in the ingredients list as well as a higher fiber content.

4. Identify 3 more food sources of whole grains other than loaf bread.

1. Multiple answers are possible. Popcorn, Bran Muffin, Whole Oats, Brown Rice, Whole Wheat Crackers, Bran Cereal, Bran Flakes, Granola

2.

3.

5. List 2 ways you can include more whole grains in your diet.

1. *Multiple answers are possible. Choose popcorn as a snack. Choose whole wheat bread (vs. white bread) when making my sandwiches. Choose whole-wheat crackers as a snack. Eat bran cereal, oatmeal, or flakes for breakfast.*

2.

6. Research 3 reasons why it is important to eat whole grains. Use the Internet and or the “Gratifying Grains” reading on page 197 to help with your search. Make sure to use reliable sources of information, for example the United States Department of Agriculture.

Multiple answers are possible. Grains are important sources of nutrients like dietary fiber, B vitamins (thiamin, riboflavin, niacin, and folate), and minerals (iron, magnesium, and selenium). Dietary fiber from whole grains may help reduce blood cholesterol levels and lower the risk of heart disease, obesity, and type 2 diabetes. Fiber-containing foods help provide a feeling of fullness with fewer calories.