

4 January Lesson: Identifying Whole Grains

Goals:

- Students will be able to identify foods containing whole grains
- Students will be able to distinguish between whole grains and enriched grains
- Students will learn to read nutrition labels and identify food ingredients

Audience: 4th grade

Optional Craft, Activity or Snack:

- Popcorn or other whole grain snack

Materials:

- Identifying Whole Grains Visual

Common Core Standards Taught:

- English Language Arts: Speaking and Listening: 4.1
 - Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 4 topics and texts*, building on others' ideas and expressing their own clearly
 - Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.

Lesson:

Let's begin with a review from last month. Does anyone remember the three parts of a whole grain? What are whole grains? (*Show Slide #1*)

Whole grains contain all three parts of the grain:

1. The endosperm- this is the starchy part of the grain. It contains a few vitamins, minerals and some protein.
2. The bran- this is the outer protective shell of the grain; it is rich in B vitamins and fiber.
3. The germ- this is where the seed is stored for a new plant. The germ contains B vitamins, protein, minerals and healthy oils.

What are examples of foods that contain whole grains?

Whole wheat bread, oatmeal, popcorn, brown rice, whole wheat pasta

Foods such as crackers, white breads, pastas and some cereals are refined during the manufacturing process so the only part of the grain that remains is the endosperm. (Point to Slide #1)

During the food manufacturing process, grains are put into a big machine (like a big blender). The machine separates the grain so that the only part left is the endosperm.

Companies will add back some of the vitamins and minerals that were lost during the separation process, but they usually do not add back the fiber or the healthy fats. These types of grains are called 'enriched' grains.

Why do companies 'enrich' grains?

When grains are processed, they lose most of their vitamin B. Vitamin B plays an important role in heart health and growth and development. A long time ago (in 1900), people were starting to get very sick with a disease called pellagra. Pellagra was caused by a vitamin B deficiency (Show Slide #2). Symptoms of pellagra include: black tongue, swollen limbs, dementia (or confusion), and if left untreated, death. To prevent pellagra, companies now enrich their grains with vitamins. Almost all processed grains purchased in the US are enriched with vitamin B (consequently, pellagra is very rare).

If processed grains are enriched with vitamin B, why do we need to eat whole grains? Enriched grains are missing fiber, healthy fats, and minerals.

Here are two pieces of bread (Show Slide #3). One is enriched the other is made from whole grains. Can you tell which one is the whole grain? The one on the right! Whole grains tend to be darker in color (more brown) because they contain the germ and the bran. Enriched products tend to be lighter in weight and in color because they only contain the endosperm (which is very starchy). It is important to note that just because a product looks brown, doesn't mean it is contains whole grains.

To determine if a food is a whole grain, we need to do some detective work.

Here are some clues to determine if a product contains whole grains.

Clue #1- (Show Slide #4) read the ingredient list. Look for words such as 100% whole wheat, or grains such as: barley, brown rice, bulgur, corn, millet, oatmeal, quinoa, wheat berries, and spelt.

Clue #2- (*Show Slide #5*) look out for the word 'enriched' or 'refined'. Remember, an 'enriched' food is one where the germ and bran were removed, and then vitamins were added back to the food product.

The ingredient list ranks ingredients in order from majority to minority. Therefore, focus on the first few ingredients listed on the label.

Are you ready to practice some whole grain detective work?

Bread #1: (*Show Slide #6*) is this made from whole grains or enriched grains?

(Whole grains)

Bread #2: (*Show Slide #7*) (Enriched grains)

Cereal #1: (*Show Slide #8*) (Enriched grains)

Cereal #2: (*Show Slide #9*) (Whole grains)

Crackers #1: (*Show Slide #10*) (Enriched grains)

Crackers #2: (*Show Slide #11*) (Whole Grains)

Now that we know what to look for when picking whole grain products, let's talk about how many whole grains we need to eat each day!

MyPlate recommends that half of the grains we eat should be whole grains.

Can we think of ways to incorporate more whole grains into our diets?

For Breakfast: Eat a bowl of oatmeal or whole grain cereal

For Lunch: Choose whole wheat bread or pita

For dinner: Try a new grain such as quinoa, millet, or brown rice.

Whole grains are an excellent source of energy for our bodies. Whole grains contain essential vitamins and minerals, healthy fats, and fiber that help keep our bodies healthy.

Tips/Background Information

There is whole wheat white flour. Sarah Lee has a 100% white whole wheat bread. The bran and germ of this wheat are light in color and the flavor is mild. When this wheat is converted into whole wheat flour, the flour is white. This type of flour is becoming more widely available in the United States. It's much more common in Australia. However, emphasize to students that the majority of white flour and white bread in the United States is processed to remove the bran and germ. They should assume white bread is made from only the endosperm.