

Grains

Grades 3-6

Goals Objectives	<p>In this lesson students learn what a grain is. They learn that grains are a part of a healthy plate. Through different activities students learn the difference between refined and unrefined grains and the effects that each type of food has on our body. Students learn that whole grains provide dietary fiber, iron, and many B vitamins that your body needs. Students learn how to make healthy choices.</p> <ul style="list-style-type: none">• Students understand what a grain is and can differentiate between whole and refined grains.• Students will learn that plants including whole grains including corn, rice, oats and wheat are a better source of fiber and nutrients than refined grains.• Students will know that most of their grains should be whole.
Time Materials	<p>50-60 minutes</p> <ul style="list-style-type: none">• Garden Stretches Cards (see Carbohydrates Visuals folder)• MyPlate poster or plate example circle• Wheat flowchart poster• Grain Cards (visuals showing processing of wheat at different levels)• Grain Kit (from Operations)• Grain Placemats (one each for corn, rice, oats & wheat)• Grain identification worksheets (either individual copies or 4 in sleeve protectors)• Dry erase or Wet Erase Markers (or pencils if you're having students have their own copy)• OPTIONAL- Grain grinder and whole wheat-berries as well as a bowl to catch the flour• Grain Move Cards• Cones to delineate two lines about 15-20 feet away from each other
Background	<p>Nutrition Information:</p> <ul style="list-style-type: none">• Consuming whole grains as part of a healthy diet may reduce the risk of heart disease.• Consuming foods containing fiber, such as whole grains, as part of a healthy diet, may reduce constipation.• Eating whole grains may help with weight management.• Eating grain products fortified with folate before and during pregnancy helps prevent neural tube defects during fetal development. <p>Nutrients:</p> <ul style="list-style-type: none">• Grains are important sources of many nutrients, including dietary fiber, several B vitamins (thiamin, riboflavin, niacin, and folate), and minerals (iron, magnesium, and selenium).

- Dietary fiber from whole grains or other foods, may help reduce blood cholesterol levels and may lower risk of heart disease, obesity, and type 2 diabetes. Fiber is important for proper bowel function. It helps reduce constipation and diverticulosis. Fiber-containing foods such as whole grains help provide a feeling of fullness with fewer calories.
- The B vitamins thiamin, riboflavin, and niacin play a key role in metabolism – they help the body release energy from protein, fat, and carbohydrates. B vitamins are also essential for a healthy nervous system. Many refined grains are enriched with these B vitamins.
- Folate (folic acid), another B vitamin, helps the body form red blood cells. Women of childbearing age who may become pregnant should consume adequate folate from foods, and in addition 400 mcg of synthetic folic acid from fortified foods or supplements. This reduces the risk of neural tube defects, spina bifida, and anencephaly during fetal development.
- Iron is used to carry oxygen in the blood. Many teenage girls and women in their childbearing years have iron-deficiency anemia. They should eat foods high in heme-iron (meats) or eat other iron containing foods along with foods rich in vitamin C, which can improve absorption of non-heme iron. Whole and enriched refined grain products are major sources of non-heme iron in American diets.
- Whole grains are sources of magnesium and selenium. Magnesium is a mineral used in building bones and releasing energy from muscles. Selenium protects cells from oxidation. It is also important for a healthy immune system.

Common Core Vocabulary

Nouns

Energy: The physical and mental strength that makes you able to do things.
 Grain: Any food made from wheat, rice, oats, cornmeal, barley or another cereal grain is a grain product. Bread, pasta, oatmeal, breakfast cereals, tortillas, and grits are examples of grain products.

Describing Words (Adjectives)

Refined: Refined grains have been milled, a process that removes the bran and germ.
 Whole: Whole grains contain the entire [grain kernel](#) — the bran, germ, and endosperm.

Verbs

Mill: to grind into flour, meal, or powder

Pre-Assessment

Repeat this assessment after completing the activities in Part 2
Ask students: "What's your favorite thing made out of a grain?"

**Procedure
(In the classroom)**

Anticipatory Set/Hook

Do a hands or verbal poll of students grain preferences/likes:

- Who likes bread?
- Who likes tortillas?
- Who likes rice?
- Who likes noodles?
- Who likes cereal?
- Who likes crackers?

These are all foods made from grains, which is ¼ of MyPlate, if you remember. (Show either a myPlate poster or one of the plate example circles)

Post a visual (poster and/or cards) of grains as grass, as seed, as crop being harvested, as unrefined product and processed refined product. (flowchart)

Explain that we are going to learn about grains and whole-grains as part of a healthy plate.

Define grains: grains are the seeds of grassy plants, such as wheat, rice, corn, oats, rye, and barley.

Grains Introduction

- Remind students of the My Plate Food Groups and that grains are ¼ of that plate.
- Use the scripted grain cards or the poster to describe the field-to-plate process as well as the nutritive benefits of the grain. (You may choose to have students come to the front and read the cards in order to involve more students in the exposition.)

Transition:

- Explain that whole grains have a lot of nutrients like vitamins, minerals and fiber that keep us full and help with digestion.
- Assess- "Which card has the whole grain options?" (or "Who is holding the whole grain card?")
- Explain and teach the message "Make half your grains whole"

Split the class into two groups for the hands-on activity and the PA (You may choose to keep the class together for the entire lesson)

**Procedure
(In the Garden)**

An alternate way to do this is to give a brief introduction of the stations and then do the stretches.

Tasting Component

Opening Circle/Warm-up

- Do the physical activity (proceed with garden stretches for younger kids) with the students.
- Introduce the stations.
- Divide students into two groups.

Stations:

- Station #1 Grain Exploration/ Page 7 ♣
- Station #2 Move / Page 8 ☞♣

Key:

- ☞ Possible teacher led stations. Prepare a short handout for the teacher on how to lead their station
- ♣ Possible rainy day station

Closing Discussion/Assessment:

Materials

- Hand sanitizer: order from Operations
- Tasting: order from Operations
- Bowl
- Tongs
- Compost container

Behavior Management Tips:

- Review tasting etiquette. Students can use their senses to explore the tasting but they can't taste it until everyone has their tasting. If they don't like it they can say to themselves that they are glad that they tried it but it's not their favorite and they should quietly set it aside and wait until the teacher says that it is okay to put the leftovers in the compost.

Tasting / Discussion

- Transition back to a whole group.
- Have students wash or sanitize their hands. Review the importance of cleaning off germs to be healthy.

- Review tasting etiquette.
- Hand out the tasting.
- Lead a closing discussion while the tasting is handed out.
- What is a grain?
- What are the 4 grains we looked at today?
- What do grains have that is good for us?
- Why are whole grains better for us than refined grains?
- What is one whole grain food you can switch to?
- How much of the grains you eat in a day should be whole-grain?
- Everyone counts to three and takes a bite together.
- After the students are finished with the tasting, remind them that this could be a great healthy snack at home. If they have leftovers they can put them in the compost.

Modifications/Extensions:

- Students keep a record or a chart for a day/week to show how many whole and unrefined grains they ate. They make a plan for the following day/week to replace foods with healthier choices.
- Students design a daily menu incorporating healthy whole grain choices.

Station #1: Grain Exploration ♦

Objectives:

- Students explore the difference between whole and refined grains by color and texture.

Standards:

- Health: 4.1.1.N, 4.4.2.N, 4.5.1.N, 5.1.6.N, 5.5.1.N, 5.5.2.N
- PE: 4.4.

ELL:

- Show pictures of different grains and foods that contain the grains.

Behavior Management:

- Explain that the grain station materials need to be handled with care.

Materials:

- Grain Placemats (see Carbohydrates Visuals Folder)
- Grain Samples: Use the grain kit from Operations
- Grain identification worksheets
- OPTIONAL- Grain grinder and whole wheat-berries

Procedure:

- Restate: Grains are the seeds of grassy plants such as wheat, rice, corn, oats, rye and barley. Show pictures or samples of each grain followed by pictures of foods we eat that have each of the grains.
- Break the students into four groups.
- Place one grain type (containing grains at different stages of refinement) and a grain placemat and a grain identification worksheet with a wet-erase marker at each station (4 different places around the room.)
- Have students explore the grain stations
 - OPTIONS- (use your teacher-sense to decide which option is most appropriate based on class-level, time, etc.).
 - Arrange bags of grain products from least to most refined.
 - Use grain exploration worksheet to explore differences
 - Find and get ready to describe differences between the bags.
- Conclusion/Assessment (Pick up a sample of refined flour and unrefined from grain stations and ask - Which one is the whole grain, which one is refined, if students don't have concept yet, use this opportunity to reteach).
- OPTIONAL- If you have time, space, resources, and inclination: use grain grinder or have students use grain grinder to demonstrate grinding whole wheat berries into flour. Discuss/reinforce why it looks different than the flour most of them are used to seeing.

Station #2: Grain Move ☞

Objectives:

- Students will learn that foods with whole grains have different effects on our bodies as sources of nutrients and fiber.
- Students will be able to identify foods that are whole grains.

Standards:

- Health: 2.1.1.N, 2.1.4.N, 2.1.7.N, 2.1.9.N, 2.5.2.N, 2.7.4.N
- ELA: 1.1.17.R, 1.1.1 L&S, 1.1.3.L&S, 2.1.9.L&S
- PE: 1.1.1, 1.3.1, 1.4.3, 2.4.1, 2.4.5
- Science: 3.1.b, 3.1.c

ELL:

- Model walking slowly and then squatting.

Behavior Management:

- Remind students to move safely, stay out of each other's way and to keep their hands and feet to themselves.

Materials:

- Grain Move Cards:
- Cones to delineate two lines about 15-20 feet away from each other.

Procedure:

- Students turn to a neighbor and say one activity that they love to do when they go outside. Give examples of hop scotch, jump rope, running, etc. Call on a few students to share their answers.
- Explain that for us to do these activities we need to eat foods that have carbohydrates and nutrients for energy and health.
- There are two kinds of grains. Whole grains that help the heart live long and aid digestion and refined grains that do not help the heart live long.
- Hold up a card with a food that is an example of an unrefined grain. Explain that these have little nutrients and do not help the heart be strong and the body feel healthy. Teach the following chant for foods with unrefined grains "Oh No! There goes the heat! Boom!" as your hand goes up steeply, then down steeply and you squat.
- Hold up a card with a whole grain on it. Explain that foods with whole grains have a lot of nutrients. These foods give people a strong heart and healthy stomach. Teach the following chant for whole grains. Say "Chuga-chuga-chuga! I'm healthy!!" as your hand goes up, stays up and moves forward.
- Practice with a few cards, having the student do the chant for the kind of energy the food contains.
- Next divide students into two groups to perform a relay.
- Explain that they will move from one side of the field or class to the other depending on the type of card that they pick.

	<ul style="list-style-type: none"> • When a student pulls a whole grain food card, students skip or hop across the room to the other side performing the whole grain chant. Students remain there until the end of the relay race. • When a student pulls a card with a food with refined grain, students will do 10 jumping jacks in and perform the refined grain chant and squat staying on the same side of the room. • The team that can get the most students across the room to the other side wins. • After each round, reinforce that both refined and whole grains give us energy but whole grains provide us with a healthy heart and stomach. • Ask students what foods they will eat when they do their favorite physical activity and why?
<p>Health Education Standards</p>	<p>Health Education:</p> <p>4.5.1.N Describe how to use a decision-making process to select nutritious foods and beverages.</p> <p>5.3.2.N Interpret information provided on food labels.</p> <p>4. 6.1.N Make a plan to choose healthy foods and beverages.</p> <p>5.1.6.N Differentiate between more-nutritious and less-nutritious beverages and snacks.</p> <p>5.5.1.N Use a decision-making process to identify healthy foods for meals and snacks.</p>
<p>Science Standards or other standards</p>	<p>Physical Education:</p> <p>4.4.4 Identify healthful choices for meals and snacks that help improve physical performance.</p>
<p>Common Core Speaking and Listening Standards Grades 3-6</p>	<p>Third Grade- Fifth Grade</p> <p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade level topics and texts, building on others’ ideas and expressing their own clearly:</p> <p>Third Grade</p> <ol style="list-style-type: none"> Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others. Explain their own ideas and understanding in light of the discussion

- d. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail

Fourth Grade

- a. Follow agreed-upon rules for discussions and carry out assigned roles.
- b. 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.
- c. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion

Fifth Grade

- a. Follow agreed-upon rules for discussions and carry out assigned roles.
- b. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
- c. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from

Sixth Grade

Listening and Speaking

Comprehension and collaboration

- 1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
 - b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.
 - c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.

	<p>2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.</p>		
<p>Nutrition Competencies</p>	<p>NC2.a (grades 4-6)</p> <ul style="list-style-type: none"> • Illustrate appropriate serving sizes for foods in each food group of the current USDA guidance for daily food choices. • Compare nutritional values of a variety of similar food items. 		
<p>ELD Standards</p> <p>Listening and Speaking</p>	<p><u>Beginning/Early Intermediate</u></p> <ul style="list-style-type: none"> • Ask and answer simple questions with one- to two-word responses, phrases or simple sentences. • Respond to simple directions and questions by using physical actions and other means of nonverbal communication (e.g., matching objects, pointing to an answer, drawing pictures). 	<p><u>Intermediate</u></p> <ul style="list-style-type: none"> • Ask and answer instructional questions by using simple sentences. • Listen attentively to stories and information and identify important details and concepts by using both verbal and nonverbal responses. • Retell stories and talk about school-related activities by using expanded vocabulary, descriptive words, and paraphrasing. • Participate in social conversations with peers and adults on familiar topics by asking and answering questions and soliciting information. 	<p><u>Early Advanced/Advanced</u></p> <ul style="list-style-type: none"> • Listen attentively to stories and information on new topics and identify both orally and in writing key details and concepts. • Narrate and paraphrase events in greater detail by using more extended vocabulary. • Negotiate and initiate social conversations by questioning, restating, soliciting information, and paraphrasing the communication of others.
<p>References:</p>	<p>http://nutritiondata.self.com Online Longman Dictionary of Contemporary English Choose My Plate – www.choosemyplate.gov Project Food Land & People: Breads Around the World TWIGS: Wonderful World of Wheat The Growing Classroom, "Processed or Not?" adapted from SPARK Curriculum http://www.choosemyplate.gov/food-groups/grains-why.html</p>		