

Grains

K-2 Grade

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 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 know that most of their grains should be whole.
Time Materials	<p>45 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 identification worksheets• Grain Placemats (one each for corn, rice, oats & wheat)• Grain Move-Along poster• OPTIONAL- Grain grinder and whole wheat-berries as well as a bowl to catch the flour
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

	<p>nervous system. Many refined grains are enriched with these B vitamins.</p> <ul style="list-style-type: none"> • 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. 		
<p>Common Core Vocabulary</p>	<p>Nouns</p> <p>Energy: The physical and mental strength that makes you able to do things</p> <p>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.</p>	<p>Describing Words (Adjectives)</p> <p>Refined: Refined grains have been milled, a process that removes the bran and germ.</p> <p>Whole: Whole grains contain the entire grain kernel — the bran, germ, and endosperm.</p>	<p>Verbs</p> <p>Mill: to grind into flour, meal, or powder</p>
<p>Pre-Assessment</p>	<p>Repeat this assessment after completing the activities in Part 2 Ask students: "What's your favorite food made out of a grain?"</p>		
<p>Procedure (In the classroom)</p>	<p>Anticipatory Set/Hook</p> <p>On chart paper display images and labels of bread, tortillas, rice, noodles, cereal, and crackers: Do a show-of-hands of students food preferences (Optional: tally responses)</p> <p>Explain to students: 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).</p>		

Post a visual (poster and 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.

Define grains: grains are the seeds of grassy plants. All grains give us energy. Whole grains help keep the heart and stomach healthy or strong.

Grains Introduction

- Remind students of the MyPlate Food Groups and display the grains groups.
- Display a picture of the grass. Tell students that there are seeds in the grass that we use to make bread, tortillas, and cereal.
- Show the students the seeds (whole wheat grains). Tell students that the seeds are taken from the grass and then crushed by milling into flour. Show the students an example of whole grain wheat flour.
- Tell students that sometimes certain parts of the seeds are taken away when they are milled to make a softer and whiter powder. Show refined flour.
- Tell students that when they take away from the whole seed they are taking away good things that make your body strong and healthy.
- Tell students that a good food choice would be to eat foods that contains whole grains or grains (seeds) that have everything in it. Display again the whole flour. When whole grain food is displayed be sure to tell students that this will help the heart be strong and healthy.
- Using the cards for the PA activity sort examples of whole grain foods and refined grain foods with students.
- Explain that whole grains have a lot “good things” that help keep the heart and stomach healthy. Whereas refined foods do not.
- Wrap up with the following chant (model motions and use poster for visual reinforcement).

Grains are the seeds (arms up to shape a seed)
Of a grassy plant (wave arms above heads)
You take the seeds and grind them up (grind with hands)
And use the flour to make bread (bite bread) or noodles (slurp noodles) or crackers (crunch)

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) after the PA and hands-on activity is done then assess.

- 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”

Procedure (In the Garden)

Tasting Component

Opening Circle/Warm-up

- Do the physical activity with the students.
- Introduce the stations.

Stations:

- Station #1 Grain Exploration/ Page 7 ♠
- Station #2 Heart Smart / Page 8☞ ♠

Key:

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

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.
- Ask the students if they are ready to taste some plant energy. Remind students that everyone needs energy to do physical and mental activities every day.

- 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: K.7.3.N , 2.1.1.N , 2.1.2.N

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 bag (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: **Heart Smart**

Behavior Management:

- Remind students they will stay at their desks or stay in one place as they do the movements for the activity.

Materials: Pictures of food choices

- Rules/Directions:
 - Teacher will discuss the heart:
 - Ask: Where it is located? Left side of the chest. (show students)
 - What size is it? Size of a fist. (show fist and place it over your heart to show location)

	<ul style="list-style-type: none"> • Ask: "What does it do? Function? Deliver blood to the body. It keeps us alive. • Tell students that whole grains help keep our heart healthy. Refined grains do not help the heart because they do not have the part of the grain that helps keep the heart healthy. • Teacher calls out and displays a food that strengthens or weakens the heart. Show card with food picture. Model the following to students: • If the food strengthens the heart, students will respond by jumping. • If the food weakens the heart, students will respond by squatting. • Place cards faced down. Have a student come up and choose a card and show the class. The class will either jump or squat. • Discuss with students why they jumped or squatted. Make sure they understand the jumping means the heart is healthy because of eating whole grain foods.
Health Education Standards	<p>Health Education:</p> <p>K.7.3.N Choose healthy foods in a variety of settings.</p> <p>2.1.1.N Classify various foods into appropriate food groups.</p> <p>2.1.2.N Identify the number of servings of food from each food group that a child needs daily.</p>
Science Standards or other standards	<p>Physical Education:</p> <p>3.1 Participate in physical activities that are enjoyable and challenging.</p> <p>4.3 Explain that nutritious food provides energy for physical activity.</p>
Common Core Speaking and Listening Standards Grades K-2	<p><u>Kindergarten</u></p> <ol style="list-style-type: none"> 1. Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups. <ol style="list-style-type: none"> a. Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion). b. Continue a conversation through multiple exchanges. 2. Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood. <ol style="list-style-type: none"> a. Understand and follow one- and two-step oral directions.

3. Ask and answer questions in order to seek help, get information, or clarify something that is not understood.

First Grade

1. Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
 - a. Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).
2. Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
 - a. Ask questions to clear up any confusion about the topics and texts under discussion
 - b. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
 - c. Give, restate, and follow simple two-step directions.
3. Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.

Second Grade:

1. Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
 - a. 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).
 - b. Build on others' talk in conversations by linking their comments to the remarks of others.
 - c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.

a. Give and follow three- and four-step oral directions

	<p>3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.</p>		
<p>Nutrition Competencies</p>	<p>NC2.a (grades K-2)</p> <ul style="list-style-type: none"> • Know the different food groups of the current USDA guidance for daily food choices and be able to classify various foods into those groups. • Report on the number of daily servings recommended for each food group. 		
<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). • Recite familiar rhymes, songs, and simple stories. 	<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>§ Source:</p> <p>http://nutritiondata.self.com Online Longman Dictionary of Contemporary English Choose MyPlate – 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>		

	<i>Optional</i> : "The Tortilla Factory" by Gary Paulsen
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