

Handout 2.1: Taken from the *HealthierUS School Challenge Whole-Grains Resource*

The HealthierUS School Challenge Whole-Grains Resource outlines the HealthierUS School Challenge (HUSSC) whole-grains criteria and offers additional background information to help school food authorities (SFAs) identify whole-grain products and offer them more frequently in their menus. Food and Nutrition Service (FNS) has updated this resource to reflect the *2005 Dietary Guidelines for Americans* (DGAs), which recommend that children and adults consume at least half of their grains as whole grains. These criteria are not required for school meal programs; they apply only for those elementary schools that submit an application for a HealthierUS School Challenge award. Portions of the Whole-Grains Resource will be used to assist with the training.

2008 HUSSC Whole-Grain Criteria:

- **Gold/Gold of Distinction**
At least one serving of a whole-grain food must be offered each day in the National School Lunch Program (NSLP).
- **Bronze/Silver**
At least one serving of a whole-grain food must be offered three (3) or more times (days) per week in the NSLP.

Whole-grain food is defined as “whole grain as the primary ingredient by weight,” (i.e., whole grain listed first in the ingredient statement). Serving is defined by the USDA *Food Buying Guide*.

What is a Whole Grain?

Whole grains consist of the entire cereal grain seed or kernel. The kernel has three parts—the bran, the germ, and the endosperm. Usually the kernel is cracked, crushed, or flaked during the milling process. If the finished product retains the same relative proportions of bran, germ, and endosperm as the original grain, it is considered a whole grain.

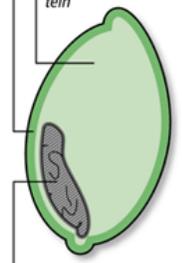
When you see the following words, you will know that, by regulation (Food and Drug Administration (FDA) Standards of Identity), they describe whole grains that are used as ingredients:

- Cracked wheat
- Crushed wheat
- Whole-wheat flour
- Graham flour
- Entire-wheat flour
- Bromated whole-wheat flour
- Whole durum wheat flour

Whole grain kernel

Bran
“Outer shell” protects seed
Fiber, B vitamins, trace minerals

Endosperm
Provides energy
Carbohydrates, protein



Germ
Nourishment for the seed
Antioxidants, vitamin E, B-vitamins

Common and usual names for other whole grains are noted below:

- The word *whole* listed before a grain, for example, *whole* corn
- The words *berries* and *groats* are also used to designate whole grains, for example, wheat berries or oat groats
- Rolled oats and oatmeal (including old-fashioned, quick-cooking, and instant oatmeal)
- Other whole-grain products that do not use the word “whole” in their description, for example, brown rice, brown rice flour, or wild rice

A more comprehensive list of whole grains is provided as Attachment A.

Grain products (ingredients) that are not whole grains:

Flour has been designated by the FDA as the term for refined wheat flour. The following ingredients are not whole grains:

flour	phosphated flour	hominy grits
white flour	self-rising flour	hominy
wheat flour	self-rising wheat flour	farina
all-purpose flour	enriched self-rising flour	semolina
unbleached flour	bread flour	degerminated corn meal
bromated flour	cake flour	enriched rice
enriched bromated flour	durum flour	rice flour
enriched flour	corn grits	couscous
instantized flour		

Grain products that may or may not be whole-grain:

- “Pot” or “Scotch” barley and “pearl” or “pearled” barley are *not* whole grains because bran has been removed. Look for the words whole barley or whole-grain barley on the product label or in the ingredient statement. However, the FDA has recognized that “dehulled barley” is a whole grain.
- “Stone ground” does not necessarily mean that the product is whole-grain. “Stone ground” describes the process used for making the flour or meal. Look for “whole” in combination with “stone ground” in the ingredient statement.
- Whole corn “treated with lime” (often used in tortilla products, and may be called “masa”) would only be a whole grain if documentation from the manufacturer indicates that the manufacturing process used to prepare the corn with lime retains the pericarp, or bran layer.
- When a grain name, such as corn, oats, or rye flour, is listed in the ingredient statement, but no descriptor (such as “whole grain” for corn or “brown” for rice) is listed, the SFA needs to obtain further documentation from the manufacturer before purchasing the food product to meet the HUSSC criteria.

Attachment A: List of Common Whole Grains

While this list is extensive, it is NOT comprehensive and therefore may not contain all possible representations of whole-grain ingredient names on food labels.

WHEAT (RED) – the most common kind of wheat in the U.S.

- wheat berries
- whole-grain wheat
- cracked wheat or crushed wheat
- whole-wheat flour
- bromated whole-wheat flour
- stone ground whole-wheat flour
- toasted crushed whole wheat
- whole-wheat pastry flour
- graham flour
- entire wheat flour
- whole durum flour
- whole durum wheat flour
- whole-wheat flakes
- sprouted wheat
- sprouted wheat berries
- bulgur (cracked wheat)
- whole bulgur
- whole-grain bulgur

WHEAT (WHITE)

- whole white wheat
- whole white wheat flour

OATS

- whole oats
- oat groats
- oatmeal or rolled oats
- whole-oat flour

BARLEY

- whole barley
- whole-grain barley
- whole-barley flakes
- whole-barley flour
- whole-grain barley flour
- dehulled barley
- dehulled-barley flour

CORN

- whole corn
- whole-corn flour
- whole-grain corn flour
- whole-grain cornmeal
- whole cornmeal
- whole-grain grits

BROWN RICE

- brown rice
- brown-rice flour

WILD RICE

- wild rice
- wild-rice flour

RYE

- whole rye
- rye berries
- whole-rye flour
- whole-rye flake

LESS COMMON GRAINS: to be whole grains, “whole” must be listed before the grain name.

- einkorn
- Kamut®
- emmer (farro)
- teff
- triticale
- spelt
- buckwheat
- amaranth
- sorghum (milo)
- millet
- quinoa

How Can Schools Comply With the HUSSC Whole-Grain Criteria?

FNS realizes that some schools may face challenges in finding products that meet the criteria above. Menu planners should count whole grains to meet the criteria as follows:

1. For a Bronze or Silver Award, a whole-grain food must be offered 3 or more days per week. For Gold or Gold Award of Distinction, a whole-grain food must be offered every day. Menu planners are encouraged to serve a variety of whole-grain foods and may not serve the same whole-grain product every day to count for the HUSSC criteria.
2. Whole-grain food products must be at least the portion size of one Grains/Breads serving as defined in the *USDA Food Buying Guide for Child Nutrition Programs*.
3. Whole-grain foods that meet the HUSSC criteria are categorized into two groups:

Group A: Food products with whole grain(s) as the primary ingredient by weight

Group B: Food products with whole grain(s) as the primary *grain* ingredient by weight

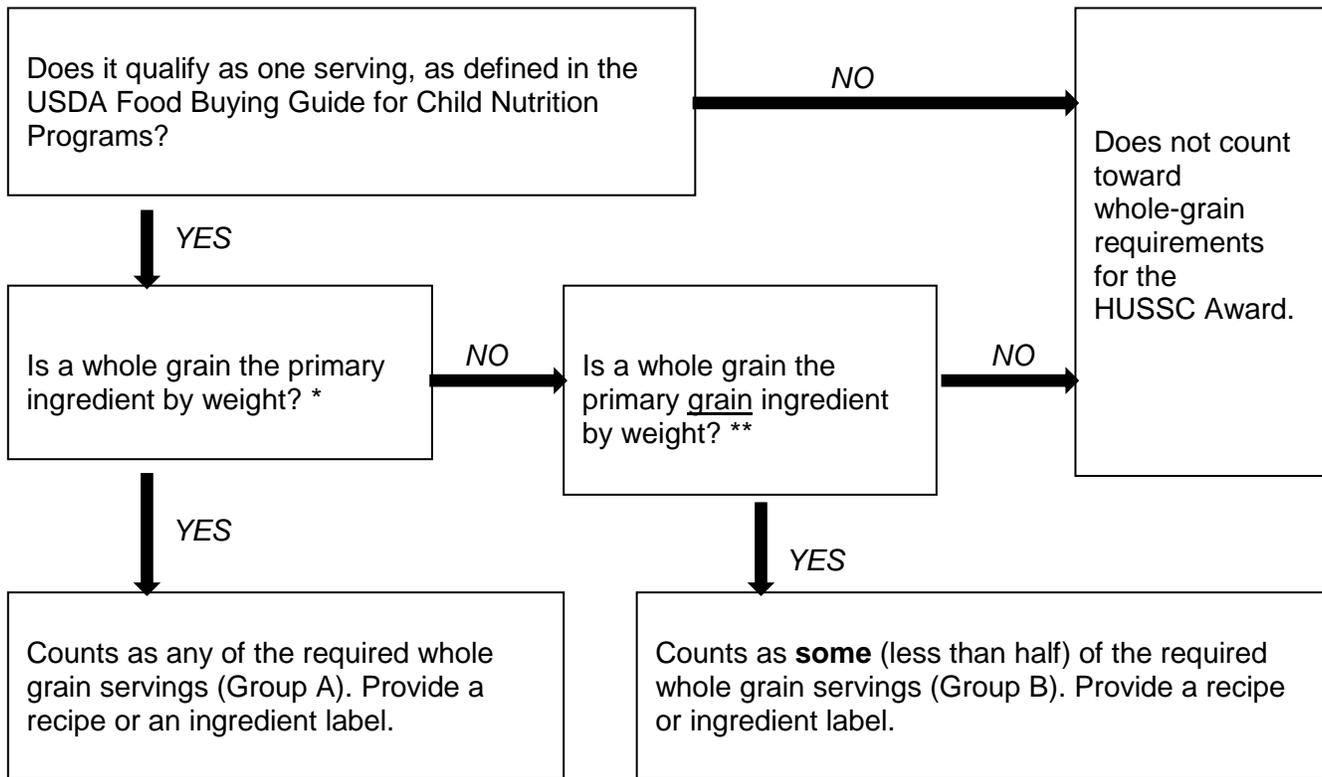
When a school-made recipe contains multiple whole grains, it will qualify under Group A if the total weight of the whole grains is more than the weight of any other ingredient. A recipe will qualify under Group B if the total weight of whole grains is more than the weight of the primary grain ingredient. The same principle applies to purchased products that contain multiple grains. Use Attachment B for required documentation for multiple-grain products.

4. Whole-grain products from Group A must be the majority of whole-grain foods offered each week. For example, for a Gold or Gold of Distinction award, a food product meeting Group A would need to be offered 3 or more days each week; and for a Bronze/Silver award, 2 or more days each week. A whole-grain food from Group B may be counted as a whole-grain food for the remainder of the days in each week. Foods from Group A may be used to meet all the required Grains/Breads.

How Do I Know If a Whole-Grain Product Meets HUSSC Criteria?

There are many foods labeled as whole grains, such as pizza crusts, buns, breads, tortillas, and other products. It is helpful to know which products meet the HUSSC criteria. The chart below will assist you in determining if your whole-grain product meets the HUSSC criteria.

HealthierUS School Challenge Criteria for Whole-Grain Products



* Includes products with a total whole-grain weight that exceeds the weight of any other ingredient.

** Includes products with a total whole-grain weight that exceeds the weight of the primary refined grain ingredient.

How Do I Purchase Whole-Grain Products or Develop Whole-Grain Product Descriptions (Specifications)?

Use the following information to guide your decisions.

- A. Whole grains as the primary ingredient by weight of the product.** Specify that a whole grain will be the first ingredient on the ingredient label or the primary ingredient by weight. Ask that food product labels and ingredient statements be submitted with the vendor's bid on whole-grain products. If the first ingredient is not a whole grain, and there are multiple whole grains in the ingredient list, request documentation from the manufacturer as to the weight of the first ingredient and the total weight of all of the whole-grain ingredients. If the total weight of the whole-grain ingredients is greater than the weight of the first ingredient, the food product would meet Group A.
- B. Whole grains as the primary grain ingredients of the product.** Specify that a whole grain be the first grain ingredient of the product. Ask that food product labels and ingredient statements be submitted with the vendor's bid on whole-grain products. If the first grain ingredient is not a whole grain but there are multiple whole-grain ingredients in the product, require the manufacturer to complete a product formulation statement documenting the weight of the first (refined) grain ingredient and the total weight of the whole grains. If the total weight of the whole-grain ingredients is greater than the weight of the first grain ingredient, the food product would meet Group B.
 - **Flour blends of whole-grain and enriched flours**—Some manufacturers make products using a specialty blend of two or more flours that is part whole grain and part refined flour. In this case, the manufacturer must provide documentation to show that the primary grains in the product are whole grains to meet Group B.

Regardless of the type of whole-grain food purchased, ensure in your specification that the serving size of the whole-grain food is equal to a serving of Grains/Bread as defined in the *Food Buying Guide*, pages 3.15-3.16.

Looking at the Whole Product:

Before purchasing new products containing whole grains, look carefully at the whole product, not just the whole grains. In keeping with the 2005 Dietary Guidelines for Americans (DGA) recommendations, SFAs should offer whole-grain products that are low in sugars and/or fat. The goal is to offer nutritious whole-grain foods that students can enjoy. Including a dessert on a limited basis as an element of a reimbursable meal can have the positive effect of increasing acceptance and encouraging children to more fully participate in the meal service. We do not support using dessert items to meet the bread requirement in every meal, but we do acknowledge the benefit on occasion.

Storing Whole Grains:

As with all foods, use FIFO (First In, First Out) principles when storing whole grains. Because whole-grain ingredients (e.g., whole-wheat flour, brown rice) retain the bran and the oil-rich germ, these items may turn rancid when stored in warm areas. To increase

the shelf life, store these products in a cool, dry place in airtight containers. If the whole-grain products will not be used within a short period of time, they should be stored in the refrigerator or freezer.

Taste-Testing of Whole-Grain Products:

Some students may not be familiar with whole-grain products. To encourage them to try different products, schools can have student taste tests to select products that have the most student appeal. By documenting the taste tests and student preferences, SFAs may develop a list of approved whole-grain products for purchase.

Introduce whole grains in student favorites, such as pizza or spaghetti, and gradually increase the amount of whole grains in recipes over the school year as students adapt to the changes.

Ideas for Adding Whole Grains to Menus in Child Nutrition Programs:

Whole-grain ready-to-eat cereals	Whole-grain crackers or cookies
Whole-grain cooked breakfast cereals	Whole-grain side dishes (e.g., brown rice, wild rice, cracked wheat, whole-grain bulgur or barley, whole specialty grains)
Granola made from whole grains	Whole-wheat pasta, such as macaroni, spaghetti, vermicelli, or whole-grain noodles
Whole-grain cereal or granola bars	Whole-grain salads (cracked wheat, whole-grain bulgur, whole specialty grains)
Whole-grain pancakes or waffles	Other uses of whole grains (soups, casseroles, combination dishes)
Whole-grain bagels or muffins	Soba noodles (with whole buckwheat flour as primary ingredient)
Whole-wheat breads, rolls, or buns	
Other whole-grain breads, rolls, or buns	
Whole-grain tortillas, taco shells	
Whole-grain chips/pretzels	
Whole-grain pita pockets	
Whole-grain cornbread	

Handout 2.2: *Identifying Whole Grains Activity*

Instructions: Determine whether each of the following is a whole grain. Discuss with a partner why the item is or is not a whole grain.

1. Whole wheat flour
2. Instant oatmeal
3. White whole wheat flour
4. Degerminated cornmeal
5. Long-grain white rice
6. Brown rice
7. Wheat flour
8. Graham flour
9. Grits
10. Semolina
11. Pearled (also called pearl) barley
12. Whole-grain barley
13. Couscous
14. Bulgur (cracked wheat)
15. Buckwheat groats
16. Rolled oats
17. Rye berries
18. Millet flakes
19. Amaranth

Handout 2.3: FCS Instruction 783.1 Rev 2: Exhibit A

FCS Instruction 783.1 Rev 2: Exhibit A GRAINS/BREADS FOR THE FOOD-BASED MENU PLANNING ALTERNATIVES IN THE CHILD NUTRITION PROGRAMS^{1, 2}

Group A	Minimum Serving Size for Group A
<ul style="list-style-type: none"> • Bread type coating • Bread sticks (hard) • Chow mein noodles • Crackers (saltines and snack crackers) • Croutons • Pretzels (hard) • Stuffing (dry) Note: weights apply to bread in stuffing. 	1 serving = 20 gm or 0.7 oz 3/4 serving = 15 gm or 0.5 oz 1/2 serving = 10 gm or 0.4 oz 1/4 serving = 5 gm or 0.2 oz
Group B	Minimum Serving Size for Group B
<ul style="list-style-type: none"> • Bagels • Batter type coating • Biscuits • Breads (white, wheat, whole wheat, French, Italian) • Buns (hamburger and hot dog) • Crackers (graham crackers - all shapes, animal crackers) • Egg roll skins • English muffins • Pita bread (white, wheat, whole wheat) • Pizza crust • Pretzels (soft) • Rolls (white, wheat, whole wheat, potato) • Tortillas (wheat or corn) • Tortilla chips (wheat or corn) • Taco shells 	1 serving = 25 gm or 0.9 oz 3/4 serving = 19 gm or 0.7 oz 1/2 serving = 13 gm or 0.5 oz 1/4 serving = 6 gm or 0.2 oz
Group C	Minimum Serving Size for Group C
<ul style="list-style-type: none"> • Cookies³ (plain) • Cornbread • Corn muffins • Croissants • Pancakes • Pie crust (dessert pies³, fruit turnovers⁴, and meat/meat alternate pies) • Waffles 	1 serving = 31 gm or 1.1 oz 3/4 serving = 23 gm or 0.8 oz 1/2 serving = 16 gm or 0.6 oz 1/4 serving = 8 gm or 0.3 oz

¹The following foods are whole-grain or enriched or made with enriched or whole-grain meal and/or flour, bran, and/or germ.

²Some of the following foods, or their accompaniments may contain more sugar, salt, and/or fat than others. This should be a consideration when deciding how often to serve them.

³Allowed only for desserts under the enhanced food-based menu planning alternative specified in 7CFR Part 210.10 and supplements (snacks) served under the NSLP, SFSP, and CACFP.

⁴Allowed for desserts under the enhanced food-based menu planning alternative specified in 7CFR Part 210.10 and supplements (snacks) served under the NSLP, SFSP, and CACFP, and for breakfasts served under the SBP, SFSP, and CACFP.

Handout 2.3: FCS Instruction 783.1 Rev 2: Exhibit A (cont.)

Group D	Minimum Serving Size for Group D
<ul style="list-style-type: none"> • Doughnuts⁴ (cake and yeast raised, unfrosted) • Granola bars⁴ (plain) • Muffins (all, except corn) • Sweet rolls⁴ (unfrosted) • Toaster pastries⁴ (unfrosted) 	1 serving = 50 gm or 1.8 oz 3/4 serving = 38 gm or 1.3 oz 1/2 serving = 25 gm or 0.9 oz 1/4 serving = 13 gm or 0.5 oz
Group E	Minimum Serving Size for Group E
<ul style="list-style-type: none"> • Cookies³ (with nuts, raisins, chocolate pieces and/or fruit purees) • Doughnuts⁴ (cake and yeast raised, frosted or glazed) • French toast • Grain fruit bars⁴ • Granola bars⁴ (with nuts, raisins, chocolate pieces and/or fruit) • Sweet rolls⁴ (frosted) • Toaster pastries⁴ (frosted) 	1 serving = 63 gm or 2.2 oz 3/4 serving = 47 gm or 1.7 oz 1/2 serving = 31 gm or 1.1 oz 1/4 serving = 16 gm or 0.6 oz
Group F	Minimum Serving Size for Group F
<ul style="list-style-type: none"> • Cake³ (plain, unfrosted) • Coffee cake⁴ 	1 serving = 75 gm or 2.7 oz 3/4 serving = 56 gm or 2 oz 1/2 serving = 38 gm or 1.3 oz 1/4 serving = 19 gm or 0.7 oz
Group G	Minimum Serving Size for Group G
<ul style="list-style-type: none"> • Brownies³ (plain) • Cake³ (all varieties, frosted) 	1 serving = 115 gm or 4 oz 3/4 serving = 86 gm or 3 oz 1/2 serving = 58 gm or 2 oz 1/4 serving = 29 gm or 1 oz
Group H	Minimum Serving Size for Group H
<ul style="list-style-type: none"> • Barley • Breakfast cereals (cooked)^{5,6} • Bulgur or cracked wheat • Macaroni (all shapes) • Noodles (all varieties) • Pasta (all shapes) • Ravioli (noodle only) • Rice (enriched white or brown) 	1 serving = 1/2 cup cooked (or 25 gm dry)
Group I	Minimum Serving Size for Group I
1 serving = 3/4 cup or 1 oz, whichever is less	<ul style="list-style-type: none"> • Ready to eat breakfast cereal (cold dry)^{5,6}

³ Allowed only for desserts under the enhanced food-based menu planning alternative specified in 7CFR Part 210.10 and supplements (snacks) served under the NSLP, SFSP, and CACFP.

⁴ Allowed for desserts under the enhanced food-based menu planning alternative specified in 7CFR Part 210.10 and supplements (snacks) served under the NSLP, SFSP, and CACFP, and for breakfasts served under the SBP, SFSP, and CACFP.

⁵ Refer to program regulations for the appropriate serving size for supplements served to children aged 1 through 5 in the NSLP; breakfasts served under the SBP; and meals served to children ages 1 through 5 and adult participants in the CACFP. Breakfast cereals are traditionally served as a breakfast menu item but may be served in meals other than breakfast.

⁶ Cereals may be whole-grain, enriched, or fortified.

Handout 2.4: *Evaluating Whole-Grain Product Ingredient Statements Activity*

Sample Product Ingredient Statements

Label #1

Whole wheat flour, enriched flour, water, nonfat dry milk, wheat gluten, yeast, oil, xxx, xxx, xxx,

Label #2

Water, enriched flour, whole wheat flour, oatmeal, flaxseed, nonfat dry milk, corn syrup, wheat gluten, yeast, xxx, xxx, xxx,

Label #3

Whole wheat flour, reconstituted potato flour, oats, whole barley, nonfat dry milk, wheat gluten, water, yeast, oil, xxx, xxx, xxx,

Please answer these questions regarding the above sample ingredient statements.

1. Which ingredient statement(s) indicate a whole grain is the primary ingredient by weight (Group A) of the product?
2. Which ingredient statement(s) would you need further documentation from the product manufacturer? Why?
3. Which of these products must be the majority of whole grain products offered each week (Group A) of the submitted menu?
4. If you're going for a Gold Award, how many times must you offer a Group A product in a week?
5. If you're going for a Silver or Bronze Award, how many times must you offer a Group A product in a week?

Handout 2.5



Fact Sheet

Serve More Whole Grains for Healthier School Meals

KEY ISSUES:

- Whole grains contain fiber, vitamins, minerals, and antioxidants.
- Whole grains may reduce the risk of several chronic diseases including coronary heart disease, and may help maintain a healthy weight.
- The *2005 Dietary Guidelines for Americans* recommend we consume at least half of our grains as whole grains (3 or more ounce-equivalents per day).
- Offer one or more whole-grain products every day in your school meals.
- The Food and Drug Administration (FDA) has developed draft guidance on whole-grain label statements. At this time, foodservice personnel should still read the ingredient statement on grain products and choose those with whole grains as the first ingredient.



Although some students may not be familiar with the color, taste, and texture of whole grains and whole-grain products, they can enjoy these good-for-you foods if you gradually add them to your menus.

Recognizing Whole Grains Is Easy!

Read the *ingredient statement* for the products you purchase. Manufacturers must list ingredients in descending order by weight. Look for products that list whole grains first. If your students aren't used to eating whole grains, start with products that list whole grains further down the list and make a plan to gradually offer more whole grains throughout the school year.

For many whole grains, the word "whole" usually is listed before the type of grain, such as "whole-wheat flour," "whole durum flour," "whole-grain barley," "whole cornmeal," or "whole white wheat." Other ways to identify whole grains are:

- Some whole grains have a *standard of identity* and do not include the word "whole," such as "cracked wheat," "crushed wheat," and "graham flour."
- The term "berries" or "groats" indicate a whole, unrefined grain – for example, rye berries or buckwheat groats.
- Rolled oats, oatmeal, brown rice, brown rice flour, and wild rice are also whole grains.

Easy ways to follow the *2005 Dietary Guidelines for Americans*

Recipe for Success

- Compare Nutrition Facts labels and the ingredient lists for similar foods. Choose the food with whole grains as the first ingredient. Check the Nutrition Facts label for the lowest amount of *trans* fat, saturated fat, sugar, sodium, and cholesterol. Some manufacturers add whole grains to foods that otherwise are not good choices for students. For example, some grain products contain a lot of added sugars (sucrose, honey, high-fructose corn syrup, glucose, or corn sweetener). Choose these products less often.





USDA Commodity Food Program

Schools can order brown rice, rolled oats, whole-wheat flour, whole-grain dry kernel corn (for processing), and whole-grain pastas (spaghetti and rotini) through the USDA Commodity Food Program. Check the list of available whole-grain items at: www.fns.usda.gov/fdd/programs/schcnp/.

- **Introduce whole grains** in popular products like pizza crust, breads and rolls, hamburger buns, pasta, mixed dishes such as meatballs, and breakfast foods. For more variety, include some less common whole grains and offer different whole-grain products to your students.
- **Write specifications that clearly describe the product** you want to offer. If possible, buy products that contain whole grain as the primary ingredient by weight.
- **Modify recipes to add more whole grains.** For example, start with smaller amounts of whole-wheat flour (33 percent) in your favorite roll recipe and work up to at least 51 percent. Share your recipes with other schools to help them offer their students tasty, nutritious whole-grain products.
- **Continue to offer some enriched grain products**, which are fortified with folic acid, an important nutrient for our diets.
- **Suggest Food Service Management Companies use the above tips** when writing specifications, and preparing or selecting grain products for menus.

Messages for Students

- Make half your grains whole!
- Try something new – whole-grain pasta or brown rice pilaf.
- Be “label able” – Look for whole grains in the ingredient statement and choose foods that list whole grains first.
- Choose a whole-grain cereal for breakfast!

Did You Know?

Whole Grains consist of the entire cereal grain seed or kernel. The kernel has three parts—the bran, the germ, and the endosperm. Usually the kernel is cracked, crushed, or flaked during the milling process. If the finished product retains the same relative proportions of bran, germ, and endosperm as the original grain, it is considered a whole grain.



Refined grains are milled to remove part or all of the bran and/or germ. Most refined grains are “enriched” to add back some of the iron, thiamine, niacin, and riboflavin that were lost in the milling process. Enriched grains also have folic acid added to increase this important nutrient in our diets.

Terms that indicate refined grains, not whole grains: flour, enriched flour, wheat flour, bread flour, durum flour, grits, hominy, farina, semolina, cornmeal, degerminated cornmeal, corn flour, rice, rice flour, couscous, pearled barley, Scotch barley, pot barley.

For more information:

www.MyPyramid.gov

www.cfsan.fda.gov/~dms/flqragui.html

Contact the National Food Service Management Institute (NFSMI) at www.nfsmi.org or 1-800-321-3054, if you have questions about whole grains, need recipes or additional information.



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Food and Nutrition
Service

Handout 2.6: Recipe for Whole Wheat Bread

Bread

Ingredients	300 Servings		Directions
	Weight	Measure	
Margarine Milk, low-fat	2 pounds, 1 ounce 9 pounds, 9 ounces	1 gallon, 2 cups	1. Combine margarine and milk and heat until margarine is melted.
Sugar, granulated Yeast, baker's, instant dry Water	10 ½ ounces 7 ½ ounces 4 pounds, 8 ounces	2 quarts, 1 cup	2. Heat water until warm (no more than 110° F) and stir in sugar and yeast. Hold for 5 minutes until mixture bubbles to allow yeast to activate. 3. Mix together the milk mixture and the water and yeast mixture in the mixer. (Be sure neither is too hot; this will kill the yeast.)
Flour, whole wheat Flour, all-purpose, white, enriched Sugar, granulated Salt, iodized	12 pounds, 6 ounces 11 pounds, 10 ounces 2 pounds, 10 ounces 3 7/8 ounces		4. In a large mixing bowl or pan, combine the flours, sugar, and salt and add to liquid mixture. 5. Mix to form dough. 6. Place dough in a large lightly greased mixing bowl or pan; cover and let rise until double in bulk.
			7. Punch dough down and knead. 8. Roll out dough on a floured surface. Form rolls from dough by pinching off 2 ounce pieces and shaping or use a roll cutter. Place on greased sheet pan. 9. Let rise again. 10. Bake at 325° F in a convection oven for 10 to 15 minutes or until golden brown. Spray top with margarine mist spray. 11. Portion: (1) 2 oz roll per serving.

Serving Size: 1 2-oz roll

1 serving provides: 2 servings grains/breads

Yield: 300 rolls

Handout 2.7: Recipe for White Whole Wheat Roll

Bread

Ingredients	100 Servings		Directions
	Weight	Measure	
White Whole Wheat Flour	3 lb 12 oz		<ol style="list-style-type: none"> Place flour, dry milk, sugar, yeast and salt in mixer bowl. Blend with dough hook for approximately 2 minutes on low speed.
All-purpose Flour, enriched	3 lb 8 oz		
Dry Milk, instant, nonfat	7 oz		
Sugar, granulated	11.5 oz	1 3/4 cup	
Yeast, <i>instant</i> , dry	3 oz	1/2 cup	
Salt	1.75 oz	2 Tbsp + 2 tsp	
Vegetable Oil		1 2/3 cup	<ol style="list-style-type: none"> Add oil and blend for approximately 2 minutes on low speed.
Water (Calculate water temperature by subtracting the temperature of the dry ingredients from 145°)	4 lb 5 oz	2 qt + 1/4 cup (+ up to 1 cup if dough is stiff)	<ol style="list-style-type: none"> Add first amount of water to the dry ingredients. If dough appears too stiff, add up to 1 cup extra water per 100 servings. More or less water can be added as needed. Mix for 1 minute on low speed or until all water is mixed with the dry ingredients. Knead dough on medium speed for 8-10 minutes until dough is properly developed. Use the gluten stretch test. (At 8 minutes, stretch the dough like a rope. If it breaks, continue to mix 2 additional minutes).
Non-stick Cooking Spray		As needed	<ol style="list-style-type: none"> Form dough into two pound balls and spray with non-stick cooking spray or cover with plastic wrap. Once all dough balls have been formed, begin shaping.
			<ol style="list-style-type: none"> Form rolls from dough by pinching off 2 oz pieces and shaping. Place rolls in rows of 7 across and 10 down on sheet pans (18" x 26" x 2") which have been lightly coated with non-stick cooking spray.
			<ol style="list-style-type: none"> Place in a warm area (about 90° F) until double in size, approximately 45-60 minutes.

White Whole Wheat Roll, Continued

Ingredients	100 Servings		Directions
	Weight	Measure	
			9. Bake until lightly browned: Conventional oven: 400° F for 18-20 minutes Convection oven: 350° F for 12-14 minutes 10. Recommended internal temperature for baked whole wheat rolls is 196-198°F.
			11. Rolls will have a better appearance if lightly sprayed with non-stick cooking spray when they come out of the oven.

Serving Size: 1 2-oz roll

1 serving provides: 2 servings grains/breads

Yield: 12.5 lbs dough (100 rolls)

Nutrients Per Serving

Calories	167	Vitamin A	2 IU	Iron	1.41 mg
Protein	4.67 gm	Vitamin C	3.51 mg	Calcium	33.13 mg
Carbohydrate	28.75 gm	Fiber	2.5 gm	Cholesterol	0 mg
Fat	4.12 gm	% Fat	22.17 %	Sodium	205 mg
Saturated Fat	0.61 gm	% Saturated Fat	3.29 %	Trans Fat	0 gm

Note: Dough made with whole wheat flour will absorb more water and requires increased rising/proofing time. Mixing time is less because the bran from the whole grain cuts through developing gluten strands with increased mixing resulting in a product with low volume. Even an additional one minute mixing time with whole grains can make a difference in quality. Figuring water temperature so that the final dough temperature is ~80°F is essential for quality bread products.

Handout 2.8: Label Literacy for Whole Grains

Introduction

An ingredient statement is required on all food products that have more than one ingredient. Manufacturers must list ingredients in descending order by weight, so that there is more of the first ingredients listed in a product and less of the latter ingredients listed. **The easiest way to determine if a product contributes significantly to consumption of whole grains is to look at the product's ingredient statement.**

Here Are the Facts

1. Look for products that list whole grains *first* on the ingredient statement. Some examples of whole grains are:

- Any grain with “whole” listed before the grain (whole-grain corn or whole cornmeal, whole wheat flour, white whole wheat flour, whole-grain barley, whole rye, whole amaranth, whole buckwheat, whole quinoa, whole sorghum, whole spelt, etc.)
- Various grains with “groats” listed after the grain (oat groats, buckwheat groats, etc.)
- Various grains with “berries” listed after the grain (wheat berries, rye berries, etc.)
- Cracked wheat, crushed wheat
- Graham flour
- Oatmeal or rolled oats (regular, quick, or instant)
- Brown rice (regular or quick), wild rice

2. After identifying the first ingredient, look at the other grain ingredients that follow.

Some products have a whole grain listed as the first ingredient but have refined grains and/or a large number of ingredients listed afterwards. The first ingredient weighs more than any other ingredient, but the ingredient list does not provide the weight or percentage of any ingredient. A large number of different ingredients increase the likelihood that the first listed whole-grain ingredient makes up at least 51% of the total weight in the product.

3. Focus on the whole food, not just the whole grain.

Some manufacturers add whole grains to foods that otherwise are not good choices for students, such as adding a small amount of whole grain to a ready-to-eat cereal, dessert, or other product that is high in refined grains, added sugars, salt and/or fat. Simply adding whole grains does not make an undesirable product into a desirable product. Compare Nutrition Facts labels and the ingredient lists for similar foods. Choose the food with a whole grain as the first ingredient *and* the lowest amount of *trans* fat, saturated fat, sugar, sodium, and cholesterol.

4. Be aware of misleading terminology that may appear on product labels with whole-grain ingredients.

There are terms that manufacturers may use to make a product *appear* to contribute a significant amount of whole grain when it actually does not. For example, products labeled with the following words are usually *not* products that contribute a significant amount of whole grains. [Note: A product labeled “100% wheat” may not contain *any* whole grains.]:

- Made with whole grains
- 100% wheat
- Multi-grain
- Contains whole grain
- Cracked wheat bread
- Made with whole wheat

5. Don't depend on color.

Dark color is not an indication that a product is whole grain. Manufacturers may use molasses or other ingredients to make a grain product appear darker and more nutritious.

Reference:

National Food Service Management Institute. *Whole Grains in Child Nutrition Programs*. Lesson 2. In draft.

Handout 2.9: Evaluating Whole-Grain Product Labels Activity

Product	Product Serving Size	Primary or First Ingredient Listed	Whole-grain Ingredients	Whole Grain(s) Primary Ingredient by Weight (Group A)? Y or N <i>(majority of servings)</i>	Whole Grain(s) Primary Grain Ingredient (Group B)? Y N <i>(other servings)</i>	Product meets Challenge criteria?	Product Requires Manufacturer Documentation?
1. Whole Wheat Bread							
2. Whole Grain Chips							
3. Seven Grain Bread							
4. Bread Dough Sticks							
5. Pizza with Whole Grain Crust							
6. Wedge Cheese Pizza with Whole Wheat Crust							

Product	Product Serving Size	Primary or First Ingredient Listed	Whole-grain Ingredients	Whole Grain(s) Primary Ingredient by Weight (Group A)? Y or N (majority of servings)	Whole Grain(s) Primary Grain Ingredient (Group B)? Y N (other servings)	Product meets Challenge criteria?	Product Requires Manufacturer Documentation?
7. Honey Graham Crackers							
8. Wheat Crackers							
9. Whole-Grain Pasta							
10. Whole-Grain White Bread							
11. Whole-Grain Hamburger Buns							

Handout 2.10: Product Label #1, Whole Wheat Bread

Whole Wheat Bread

Diets rich in whole-grain foods and other plant foods, and low in saturated fat and cholesterol, may help reduce the risk of heart disease.

Meets American Heart Association food criteria for saturated fat and cholesterol for healthy people over age 2.

Nutrition Facts

Serving Size: 1 slice (28 g)

Calories	69
Protein (g)	4
Carbohydrate (g)	12
Dietary Fiber (g)	2
Sugars (g)	2
Total Fat (g)	1
Saturated Fat (g)	0
Trans Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	132
Vitamin A	0%
Vitamin C	0%
Iron	4%
Calcium	3%

Ingredients: Whole wheat flour, water, corn syrup, wheat gluten, yeast, contains 2% or less of each of the following: honey, partially hydrogenated soybean oil, salt, dough conditioners (may contain one or more of each of the following: mono- and diglycerides, ethoxylated mono- and diglycerides, calcium and sodium stearoyl lactylates, calcium peroxide, calcium carbonate), whey, yeast nutrients (mono-calcium phosphate, calcium sulfate, ammonium sulfate), distilled vinegar, cornstarch.

Handout 2.11: Product Label #2, Whole-Grain Chips

Whole-Grain Chips

Made with Whole Grains to Support Heart Health

30% Less Fat than Regular Potato Chips

Diets rich in whole grain foods and plant foods and low in saturated fat and cholesterol may help reduce the risk of heart disease

Nutrition Facts

Serving Size: 1 oz (28 g)

Calories	140
Protein (g)	2
Carbohydrate (g)	19
Dietary Fiber (g)	2
Sugars (g)	2
Total Fat (g)	6
Saturated Fat (g)	1
Trans Fat (g)	0
Sodium (mg)	115
Iron	2%
Calcium	0%
Vitamin A	0%
Vitamin C	0%

Not a significant source of vitamin A and vitamin C.

Ingredients: Whole corn, sunflower oil, whole wheat, rice flour, whole oat flour, sugar, and salt. CONTAINS A WHEAT INGREDIENT.

Handout 2.12: Product Label #3, Seven Grain Bread

Seven Grain Bread

Made with whole grains

8.5 g whole grains per serving

No trans fat

Seven wholesome grains with a touch of molasses

Nutrition Facts

Serving Size: 1 slice (41 g)

Calories	109
Protein (g)	5
Carbohydrate (g)	20
Dietary Fiber (g)	2
Sugars (g)	3
Total Fat (g)	2
Saturated Fat (g)	0
Trans Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	172
Vitamin A	0%
Vitamin C	0%
Iron	6%
Calcium	4%

Ingredients: Enriched wheat flour [flour, malted barley flour, reduced iron, niacin, thiamin mononitrate (vitamin B1), riboflavin (vitamin B2), folic acid], water, whole wheat flour, soy high fructose corn syrup, cracked wheat, molasses, raisin juice concentrate, soybean oil, yeast, whole-grain barley, salt, nonfat milk, whole rye flour, wheat gluten, whole-grain triticale, whole-grain millet, oats, ground corn, monoglycerides, soybeans, brown rice, grain vinegar, calcium sulfate, flaxseed, ascorbic acid (dough conditioner), soy lecithin.

Handout 2.13: Product Label #4, Bread Sticks Dough

Wheat Bread Stick Dough

Nutrition Facts

Serving Size: 1 breadstick (1 oz/29 g)

Calories	70
Protein (g)	3
Carbohydrate (g)	13
Dietary Fiber	2
Sugars (g)	1
Total Fat (g)	1
Saturated Fat (g)	0
<i>Trans Fat</i> (g)	0
Polyunsaturated Fat (g)	1
Monounsaturated Fat	0.5
Cholesterol (mg)	10
Sodium (mg)	170
Vitamin A	0%
Vitamin C	0%
Iron	25%
Calcium	2%

Ingredients: Water, white whole wheat flour, enriched bleached flour (bleached wheat flour, malted barley flour, niacin, reduced iron, thiamine mononitrate, riboflavin, folic acid), contains less than 2% of sugar, yeast, high heat milk solids (milk protein concentrate, lactose), cream, salt, egg, less than 2% sodium silico-aluminate added as an anti-caking agent, vital wheat gluten, datem, dextrose, soybean oil, ascorbic acid, enzyme, natural & artificial flavor, xanthan gum, propylene glycol, less than .1% sodium benzoate added to protect flavor, alcohol, less than .1% turmeric, less than .1% beta carotene, tocopherols (a natural source of vitamin E used to protect freshness), sodium steryl, lactylate, contains: wheat, milk, egg, may contain soy.

Handout 2.14: Product Label #5, Pizza with Whole-Grain Crust

Pizza, Whole-Grain with Cheese

1 slice: 4.8 oz.

Note: This product did not have the weight in grams; 28.3 grams = 1 oz: (136 g)

Nutrition Facts

Serving Size: 4.8 oz

Calories	280
Calories from Fat	80
Protein	18 g
Total Carbohydrate	31 g
Dietary Fiber	3 g
Sugars	3 g
Total Fat	9 g
Saturated Fat	4 g
<i>Trans</i> Fat	0 g
Cholesterol	25 mg
Sodium	600 mg
Vitamin A	8%
Vitamin C	0%
Iron	1.8%
Calcium	20%

Ingredients: Toppings: Low moisture part-skim mozzarella cheese (cultured pasteurized part-skim milk, salt, enzymes), reduced fat mozzarella pasteurized part skim milk, non-fat milk, modified food starch, cheese culture, potassium chloride, natural flavors, Vitamin A palmitate, enzymes; Crust: White whole wheat flour, enriched wheat flour (contains niacin, reduced iron, thiamine mononitrate; riboflavin, folic acid, malted barley flour, ascorbic acid), water, contains 2% or less of: yeast, soybean oil, sugar, dough conditioner (vegetable gum L-cysteine, enzymes), calcium propionate to maintain freshness; Sauce: Tomatoes (water, tomato paste [not less than 31% soluble solids]), modified food starch, sugar, dextrose, spices, salt, onion, dehydrated Romano cheese (sheep's and cow's milk, cheese cultures, salt, enzymes), garlic powder, paprika, citric acid, beet powder (dehydrated). Contains milk, wheat.

Handout 2.15: Product Label #6, Wedge Cheese Pizza with Whole Wheat Crust

One 5.0 oz. Wedge Cheese Pizza with Whole Wheat Crust provides 2.0 oz equivalent meat alternate; 2 servings of Bread Alternate, and 1/8 cup vegetable for the Child Nutrition Meal Pattern Requirements. (Use of the logo and statement authorized by the Food and Nutrition Service, USDA x-xx)

Wedge Cheese Pizza with Whole Wheat Crust

Nutrition Facts

Serving Size: 1 slice, 5 oz (142 g)

Calories	320
Protein (g)	21
Carbohydrate (g)	30
Dietary Fiber (g)	2
Sugars (g)	6
Total Fat (g)	12
Saturated Fat (g)	7
<i>Trans Fat</i> (g)	0
Cholesterol (mg)	30
Sodium (mg)	550
Vitamin A	8%
Vitamin C	10%
Iron	10%
Calcium	10%

Ingredients: CHEESE: Low Moisture-Part Skim Mozzarella Cheese (cultured pasteurized part skim milk, salt, enzymes). CRUST: Water, Whole Wheat Flour, Enriched flour (Wheat flour, niacin, iron, thiamine mononitrate, riboflavin, folic acid, enzyme), sugar, palm oil with lecithin, soybean oil, yeast, salt, sodium bicarbonate, sodium aluminum phosphate, dough conditioners (wheat flour, datem, dextrose, soybean oil, ascorbic acid, enzymes, L-cysteine). SAUCE: Tomatoes (water, tomato paste [not less than 31% soluble solids]), contains 1% or less of onion, salt, spices, garlic powder, soybean oil, xanthan gum.

Handout 2.16: Product Label #7, Honey Graham Crackers

Honey Graham Crackers

Now more whole grains

Nutrition Facts

Serving Size: 2 squares (14 g)

Calories	59
Protein (g)	1
Carbohydrate (g)	11
Dietary Fiber (g)	0
Sugars (g)	4
Total Fat (g)	1
Saturated Fat (g)	0
<i>Trans</i> Fat (g)	N/A
Cholesterol (mg)	0
Sodium (mg)	85
Vitamin A	0%
Vitamin C	0%
Iron	6%
Calcium	0%

Ingredients: Enriched flour (wheat flour, niacin, reduced iron, thiamine mononitrate [vitamin B1], riboflavin [vitamin B2], folic acid), sugar, graham flour (whole-grain wheat flour), soybean oil, high fructose corn syrup, partially hydrogenated cottonseed oil, honey, leavening (baking soda, calcium phosphate), salt, artificial flavor, soy lecithin- an emulsifier, cornstarch.

Handout 2.17: Product Label #8, Wheat Crackers

Whole-Grain Crackers

Made with whole grains

5 g whole grain per serving

0 g trans fat per serving

Nutrition Facts

Serving Size: 7 crackers (31 g)

Calories	140
Protein (g)	2
Carbohydrate (g)	21
Dietary Fiber (g)	1
Sugars (g)	4
Total Fat (g)	6
Saturated Fat (g)	1
Trans Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	260
Vitamin A	0%
Vitamin C	0%
Iron	6%
Calcium	2%

Ingredients: Enriched flour (wheat flour, niacin, reduced iron, thiamine mononitrate [vitamin B1], riboflavin [vitamin B2], folic acid), soybean oil, whole-grain wheat flour, sugar, defatted wheat germ, cornstarch, malt syrup (from barley and corn), high fructose corn syrup, salt, monoglycerides, leavening (calcium phosphate and/or baking soda), vegetable color (annatto extract, turmeric oleoresin), soy lecithin. BHT added to packaging material to preserve freshness.

Handout 2.18: Product Label #9, Whole-Grain Pasta

Whole-Grain Pasta

Excellent source of fiber

While many factors affect heart disease, diets low in saturated fat and cholesterol may reduce risk of this disease.

Meets American Heart Association food criteria for saturated fat and cholesterol for healthy people over age 2.

Low in fat

No sodium

Nutrition Facts

Serving Size: 2 oz (dry)

Calories	180
Protein (g)	6
Carbohydrate (g)	42
Dietary Fiber (g)	6
Sugars (g)	1
Total Fat (g)	1
Saturated Fat (g)	0
<i>Trans</i> Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	0
Iron	10%
Thiamin	35%
Riboflavin	15%
Niacin	20%
Folate	30%

Not a significant source of vitamin A, vitamin C, and calcium.

Ingredients: Semolina, whole wheat flour, soybean oil, wheat fiber, salt, monoglycerides.

Handout 2.19: Product Label #10, Whole-Grain White Bread

Whole-Grain White Bread

Excellent source of calcium

No trans fat

Good source of whole grain

Now with 25% more whole grain

Nutrition Facts

Serving Size: 1 slice (28 g)

Calories	75
Protein (g)	3
Carbohydrate (g)	14
Dietary Fiber (g)	2
Sugars (g)	3
Total Fat (g)	1
Saturated Fat (g)	0.5
Trans Fat (g)	0
Cholesterol (mg)	0
Sodium (mg)	125
Iron	4%
Thiamin	8%
Riboflavin	4%
Niacin	5%
Folate	8%
Calcium	15%

Not a significant source of vitamin A and vitamin C.

Ingredients: Enriched bleached flour [wheat flour, malted barley flour, niacin, iron, thiamine mononitrate (vitamin B1), riboflavin (vitamin B2), folic acid], water, whole grains [whole wheat flour, brown rice flour (rice flour, rice bran)], high fructose corn syrup, whey, wheat gluten, yeast, cellulose. Contains 2% or less of each of the following: honey, calcium sulfate, vegetable oil (soybean and/or cotton-seed oils), salt, butter (cream, salt), dough conditioners, guar gum, calcium propionate (preservative), distilled vinegar, yeast nutrients (monocalcium phosphate, calcium sulfate), corn starch, natural flavor, beta-carotene (color), Vitamin D3, soy lecithin, soy flour.

Handout 2.20: Product Label #11, Whole-Grain Hamburger Buns

Whole-Grain Wheat Buns

Made with whole grains

Brown wheat bun with grain topping

Nutrition Facts

Serving Size: 1 bun (1.9 oz. or 53 grams)

Calories	140
Protein (g)	6
Carbohydrate (g)	25
Dietary Fiber	2
Sugars (g)	4
Total Fat (g)	2
Saturated Fat (g)	0
<i>Trans Fat (g)</i>	0
Polyunsaturated Fat (g)	1
Monounsaturated Fat	0.5
Cholesterol (mg)	0
Sodium (mg)	240
Vitamin A	0%
Vitamin C	0%
Iron	4%
Calcium	6%
Thiamin	10%
Riboflavin	4%
Niacin	6%
Folate	0%

Ingredients: Water, stone 100% ground whole wheat flour, wheat flour, high fructose corn syrup, wheat gluten, yeast, soybean oil, contains 2% or less of the following: salt, dough conditioners (sodium stearoyl lactylate, mono & diglycerides, calcium peroxide), calcium propionate (preservative), yeast nutrients (calcium sulfate, ammonium chloride), corn starch.