

LESSON 1

POWER FOODS

FRUITS

**WHOLE
GRAINS**



VEGETABLES

PROTEIN



Lesson Plan 1: MyPlate Power Foods

The “eat more” groups - grains, fruits and vegetables



**NUTRITION
IN A BOX**

Summary of needed materials

	Station 1: Grains	Station 2: Fruits	Station 3: Vegetables
Wall	<p>Grains Fuel Your Body poster</p>	<p>Focus on Whole Fruits poster</p>	<p>Vary Your Vegetables poster</p>
Table	<ul style="list-style-type: none"> Table tent with instructions Grain photo cards small hand mill wheat stalk and corn kernels 	<ul style="list-style-type: none"> Table tent with instructions Fruit photo cards portion bowl 	<ul style="list-style-type: none"> Table tent with instructions Vegetable photo cards vegetable seeds, paper cups, peat pellets and pitcher with room temperature water
Handouts	<ul style="list-style-type: none"> “Grains Fuel Your Body” activity sheet “Use Your brain to Find Whole Grains” worksheet (for lesson extension) 	<ul style="list-style-type: none"> “Focus on Whole Fruits” activity sheet “Fruit and Vegetable Weekly Tracker” (for lesson extension) 	<ul style="list-style-type: none"> “Vary Your Vegetables” activity sheet “Fruit and Vegetable Weekly Tracker” (for lesson extension)
Resources	<p>MyPlate paper plate</p>	<p>MyPlate paper plate</p>	<p>MyPlate paper plate</p>

MyPlate Power Foods

Lesson Plan 1

The “eat more” groups – grains, fruits and vegetables

Lesson Overview

In this lesson, students will be introduced to MyPlate and given opportunities to complete activities related to whole grains, fruits and vegetables. To extend the lesson and involve their families, students will also receive a fruit and vegetable tracker worksheet and a “Use Your Brain to Find Whole Grains” worksheet which includes a recipe.

Objectives

The student will be able to:

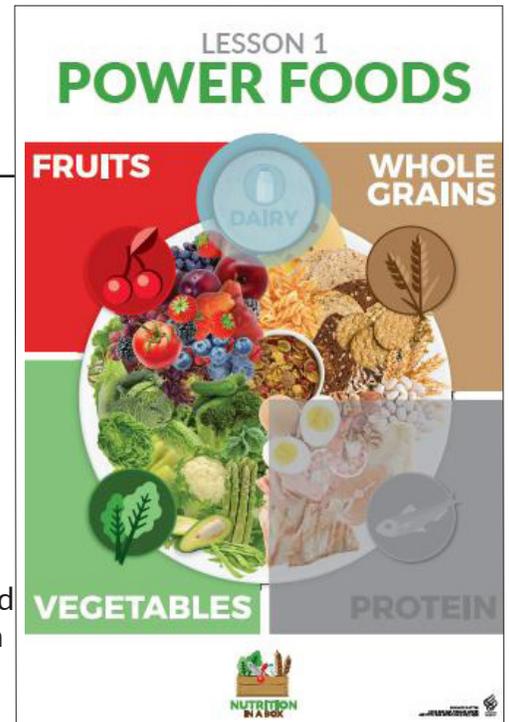
1. Recognize that the MyPlate guide includes five food groups that are important for good health.
2. Identify the difference between a whole and refined grain and explain why whole grains offer a more complete nutrient package.
3. Explain the difference between real fruit and foods that are “fruit imposters.”
4. Utilize the MyPlate subgroup classifications as a guide when choosing vegetables with different nutritional properties.
5. Develop a strategy for including more servings of fruits, vegetables and whole grains in his/her daily diet.

Academic Integration

Health, Science, Math, Language Arts, Critical thinking

Leader Background

The MyPlate food guide provides a graphic presentation of a healthful, balanced diet. It was designed as an easy tool to remind Americans to eat all five food groups in the proper proportions. By eating foods from all the food groups every day, our bodies will get the nutrients needed for growth, energy, repair and good health. The choosemyplate.gov website contains a wealth of information on food groups, serving sizes and meal plans. Individuals can enter their age, gender, height, weight and activity level and receive a recommended meal plan based on their estimated caloric need.



Lesson 1 focuses on three food groups that “power up” the body, including grains (emphasizing whole grains), fruits (emphasizing whole fruits over juice and fruit-flavored “imposters”) and vegetables (emphasizing variety within the five vegetable subgroups). Most Americans of all ages fall short when it comes to eating enough of the “power foods.” Below are highlights of these groups.

Grains

Grains are loaded with carbohydrates, the body’s main source of energy. Whole grains include the entire grain kernel, resulting in food that is more fiber and nutrient dense than refined grains. Important nutrients found in grains include fiber, B vitamins and iron. Children between the ages of 10-14 need about five to eight ounces of grains every day. Since grains provide fuel, more servings are needed when kids are active in sports, exercise and play.

For a complete background on whole grains, see **Supplement: The Whole Story About Grains** at the end of this lesson.

Choose For Today:

The primary source of fuel for the brain are carbohydrates. In order to think, concentrate, pay attention and learn, students are advised to fuel their brains at breakfast with a serving of whole grains.

Choose For Tomorrow:

Studies show that choosing whole grains over refined grains on a daily basis is protective against cancer, cardiovascular disease, diabetes and obesity. Eating whole grains has even been shown to promote healthier teeth and gums. dramatically reduce the risk that their baby will be born with a serious birth defect.

Choose For Today:

Many of the nutrients and plant chemicals found in fruits and vegetables promote healthy skin, hair and eyes.

Choose For Tomorrow:

Folate is an important nutrient found in many fruits and vegetables, especially dark greens, legumes and citrus fruit. Studies show that women who have healthy levels of folate in their blood during early pregnancy dramatically reduce the risk that their baby will be born with a serious birth defect.

Fruits and Vegetables

The nutrients found in fruits and vegetables contribute to good health, a strong immune system, and bright eyes, skin and hair. Some of the important nutrients found in fruits and vegetables include vitamin A, vitamin C, potassium, folate and fiber. Fruits and vegetables are also rich in many healthy plant chemicals, known as phytonutrients. Brightly colored fruits and vegetables are often the richest in nutrients and antioxidants. For instance, the anthocyanins found in blueberries are both a pigment (blue color) as well as an antioxidant. Children between the ages of 10-14 need about two cups of fruits and three cups of vegetables every day.

There are many products on the market that appear to contain fruit but are actually mostly sugar with fruit flavoring. These are known as “fruit imposters.”

Vegetable Subgroups

The MyPlate guide divides vegetables into five subgroups and encourages consumption from all five groups in order to optimally meet nutrient needs. For a typical 2,000 calorie diet, the recommendations from the subgroups are listed below. To learn more about the vegetables in each subgroup, visit <https://www.choosemyplate.gov/myplate/vegetables/gallery>.

- Dark Green Vegetables = 1.5 cups weekly
- Red and Orange Vegetables = 5.5 cups weekly
- Dry Beans and Peas (legumes) = 1.5 cups weekly
- Starchy Vegetables = 5 cups weekly
- Other Vegetables = 4 cups weekly

Glossary/Vocabulary:

- **Antioxidant:** Substances that protect the body's cells by absorbing oxygen
- **B vitamins:** Eight vitamins that help release the energy from food (niacin, thiamine, riboflavin, vitamin B6, vitamin B12, folate, pantothenic acid and biotin)
- **Carbohydrates:** The body's major source of energy, carbohydrates are found in grains, starchy vegetables, legumes, fruits, milk and sugar
- **Fiber:** An indigestible carbohydrate that promotes healthy digestion
- **Folate:** B vitamin that is needed for growth and keeping blood cells healthy; synthetic form is known as folic acid
- **Iron:** Carries oxygen in red blood cells and muscle cells
- **Nutrients:** Over 40 different compounds found in food that the body needs to live, grow and stay healthy
- **Phytonutrients:** Non-nutrient plant compounds with multiple health promoting roles, including the protection of body cells and prevention of chronic disease
- **Potassium:** Mineral that maintains heart beat, regulates body fluids and helps nerves and muscles function
- **Vitamin A:** Plays a role in keeping skin, mucous membranes, eyes and bones healthy
- **Vitamin C:** Helps hold cells together, heals cuts and broken bones, and helps fight infection
- **Whole grain:** A food product made from the entire grain kernel or seed (including bran, germ and endosperm)

Teaching the Lesson

1. Introduce students to the lesson by providing a brief overview of the MyPlate guide (e.g. the plate shows the food groups we need and the proportion that each group should make to our diet each day). Remind students that we don't always eat foods separately divided on a plate. Ask them to think of mixed foods that may not be served on a plate (e.g. bowl, smoothie, combination foods that include whole grains, fruits and vegetables).
2. Lesson 1 focuses on three of the MyPlate groups. Whole grains, fruit and vegetables are foods that are often lacking in our diet, yet they make up a big area of the MyPlate guide. This is why Lesson 1 is referred to as the "eat more" groups. The three featured groups also provide many nutrients that "power" and protect our bodies. (see glossary above)
3. Explain to students that as they travel through the lesson, they will complete an activity at each station and also complete an activity sheet that corresponds to each station. Encourage students to read the information and follow the instructions on the instructional poster and table tent for each station.

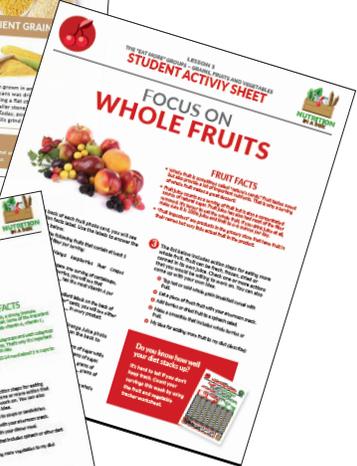
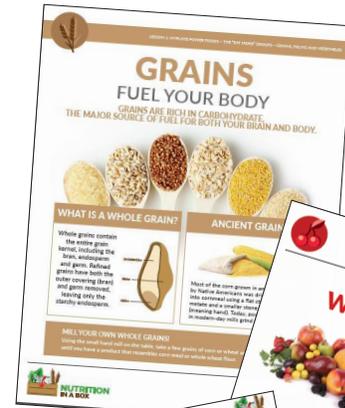
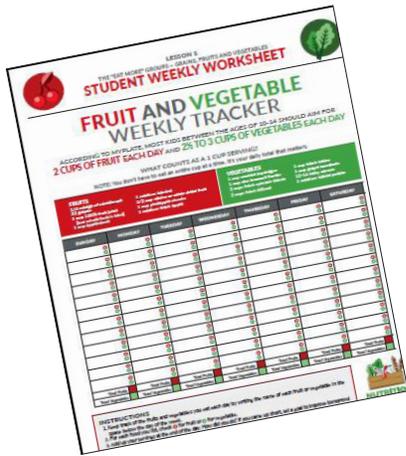
Sample dialogue

- The first group that you will study is the *grain group*. Grains provide the body with energy from carbohydrates and are also a good source of B vitamins, iron and fiber. Whole grains include all parts of the grain kernel and provide more nutrients while refined grains have had the bran and germ removed (refer to wheat kernel on poster). In this station, you will grind whole grain kernels into flour using a small hand mill. Next, you will use the In A Box food photo cards to identify, compare and learn more about whole and refined grains.
- The next station focuses on *fruits*. Fruits contain several important nutrients including vitamins A and C, folate, potassium and fiber. Fruits are naturally sweet and make a great choice for snacks, meals or for dessert. There are many products that pose as fruit (fruit imposters) but actually contain very little fruit. Imposters get their flavor from sugar and artificial ingredients. You will learn to identify a few examples of fruit imposters.
- At the third station, you will learn more about *vegetables*. Vegetables are packed with many nutrients (and phytonutrients) that are important for good health such as vitamins A and C, folate, potassium, magnesium, iron and fiber. There are five subgroups of vegetables, including dark green, red and orange, starchy, beans and peas (legumes), and others. These subgroup classifications serve as a guide when choosing vegetables with different nutritional properties.
- At the vegetable station, students will have the opportunity to plant and grow a vegetable. For this activity, the student will place a peat pellet into a paper cup, fill halfway with water, and let sit for a few minutes until the peat pellet "grows." Drain off most of the excess water. Once the peat pellet is about 1.5 inches high, the student can place 2-3 seeds into the small opening. Place in a sunny window. In a few days, one or more of the seeds should germinate. When the plant is 2-3 inches high, the student can place it in an outside garden or a larger pot filled with planting mix.

Activity Sheets

Students will complete the activity sheet corresponding to each station using information from the lesson station as well as the summary information included on the activity sheet.

Ask students to take the “Fruit and Vegetable Weekly Tracker” and “Use Your Brain to Find Whole Grains” weekly worksheet. These activity sheets can be assigned as a lesson extension, homework or shared with families.



Going Further

Resources:

1. Choose MyPlate section on grains - <http://www.choosemyplate.gov/food-groups/grains.html>
2. Choose MyPlate section on fruit - <http://www.choosemyplate.gov/food-groups/fruits.html>
3. Choose MyPlate section on vegetables - <http://www.choosemyplate.gov/food-groups/vegetables.html>
4. Choose MyPlate SuperTracker self-assessment tool - <https://supertracker.usda.gov/>
5. Bob's Red Mill - The Whole Truth about Whole Grains - <http://www.bobsredmill.com/natures-super-foods-whole-grains.html>
6. Supplement: The Whole Story About Grains (included below)
7. Oregon Harvest for Schools (ODE) - <http://www.oregon.gov/ode/students-and-family/childnutrition/F2S/Pages/OregonHarvestforSchools.aspx>
8. Oregon Nutrition Education Program, Extension Family & Community Health, College of Public Health and Human Sciences, Oregon State University <http://extension.oregonstate.edu/nep/>
9. Oregon Ag in the Classroom Foundation - My Oregon Grown plate - <https://oregonaitc.org/resources/lesson-plans/oregon-plate-nutrition-lessons-2/>
10. Oregon Food Corps - <https://foodcorps.org/apply/where-youll-serve/oregon/>
11. Produce for Better Health Foundation - <http://www.fruitsandveggiesmorematters.org/>
12. U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015 - 2020 Dietary Guidelines for Americans. 8th Edition. December 2015. Available at <http://health.gov/dietaryguidelines/2015/guidelines/>.

Lesson 1 Supplement

The Whole Story About Grains

Rich in fiber, complex carbohydrates and nutrients, whole grains provide energy for moving bodies and thinking brains.

Americans eat an abundance of refined grains (think “white” as in flour, rice, pasta, most pastries and desserts) and too few servings of whole grains. Because of tricky labeling, it sometimes takes detective work to figure out if a grain product is indeed “whole” or not.

While MyPlate (<http://www.choosemyplate.gov>) recommends “make at least half of your grains whole,” it is best to over-achieve when it comes to this recommendation and eat most of your grain servings as whole grains. For a typical 2,000 calorie diet, this amounts to six small (one ounce equivalent) servings of whole grains each day.

While all grains supply energy in the form of carbohydrates, whole grains also supply fiber, trace minerals, additional protein and hundreds of disease fighting phytonutrients. Regular consumption of whole grains is important for digestive health, weight control and a reduced risk of coronary heart disease and several types of cancer. Whole grains literally come from the “whole” grain seed, which includes the nutrient-rich kernel and bran. Refined or “enriched” grains have the outer covering (bran) and germ removed, leaving only the starchy endosperm. Because refining results in nutrient loss, grains are frequently enriched by adding back iron and four of the B vitamins (niacin, thiamin, riboflavin and folic acid).

Children also benefit from the nutrient boost that whole grains provide. Most American kids eat very few servings of whole grains and prefer products made from refined flours. When children are offered whole grains beginning at a young age, they are more accepting of the coarser texture of whole-grain breads and cereals.

Examples of whole-grain ingredients

- whole wheat
- oatmeal
- brown rice
- wild rice
- quinoa
- amaranth
- millet
- spelt
- faro
- buckwheat
- whole corn (not degerminated)
- popcorn
- barley
- spelt
- buckwheat
- triticale
- sorghum
- whole rye
- teff



What's a serving?

One serving of whole grain weighs about one ounce (approximately 28 grams). Below are some examples of one ounce (or equivalent) servings:

- 1 *small* slice of whole-wheat bread (most commercial bread weighs closer to 1.5 oz/slice)
- 1 cup of whole-wheat flakes cereal
- ½ cup cooked oatmeal
- ½ cup of brown or wild rice
- ½ cup of quinoa
- ½ cup of whole-wheat pasta
- 3 cups of air-popped popcorn
- 1 small (6 inch) whole corn tortilla
- 5-7 squares whole-wheat crackers

Getting to Six Servings: Tips for Consumers

- Begin by reading product labels. The first ingredient should be one of the whole grains listed above. The word “enriched” is code for “white and refined.” Don’t be fooled by products that are brown or have names such as “multi-grain” or “wheat.” The only way to be sure is to read the ingredient label.
- Start each day with a whole grain at breakfast. You can find virtually any breakfast food in a whole grain form. Choose whole grain versions of toast, waffles, pancakes, French toast, and hot or cold cereal.
- Try using whole-wheat pastry flour in baking. It is very fine in texture and produces baked goods that are well accepted by children.
- There are many ways to make your family’s diet more “whole.” Experiment with whole grain versions of pasta, rice, couscous and cornmeal. Quinoa is a grain that is only available in its whole form.
- For more information on using and choosing whole grains, visit the grain section of MyPlate at <https://www.choosemyplate.gov/grains>