LESSON 2
BUILD FOODS

FRUITS

WHOLE GRAINS

DAIRY

VEGETABLES

PROTEIN

DEVELOPED AT THE
OHSU BOB AND CHARLEE MOORE
INSTITUTE FOR NUTRITION & WELLNESS
Lesson Plan 2: MyPlate Build Foods
The “Build Your Body” groups - protein and dairy

Summary of needed materials

<table>
<thead>
<tr>
<th></th>
<th>Station 1: Protein</th>
<th>Station 2: Dairy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall</td>
<td>“Power up With Protein” poster</td>
<td>“Pass the Milk, Yogurt, Cheese, Please!” poster</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table</td>
<td>• Table tent with instructions</td>
<td>• Table tent with instructions</td>
</tr>
<tr>
<td></td>
<td>• Protein photo cards</td>
<td>• Dairy photo cards</td>
</tr>
<tr>
<td></td>
<td>• “Protein Pursuit Trivia” flip deck</td>
<td>• Materials to measure bone calcium at different ages and stages: white cornmeal, measuring cups, bags, marker)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Osteoporosis disk set</td>
</tr>
<tr>
<td>Handouts</td>
<td>• “Power up With Protein” activity sheet</td>
<td>• “Pass the Milk, Yogurt, Cheese, Please!” activity sheet</td>
</tr>
<tr>
<td></td>
<td>• “The Protein Scene” worksheet (for lesson extension)</td>
<td>• “Are you a BBB (Best Bone Builder)?” worksheet (for lesson extension)</td>
</tr>
<tr>
<td>Resources</td>
<td>MyPlate paper plate</td>
<td>MyPlate paper plate</td>
</tr>
</tbody>
</table>
Lesson Plan 2
The “Build Your Body” groups – protein and dairy

Lesson Overview
In this lesson, students will be introduced to MyPlate and given opportunities to complete activities related to dairy, protein and physical activity. To extend the lesson and involve their families, students will also receive the “Are you a BBB (Best Bone Builder)?” self-assessment activity sheet and “The Protein Scence” puzzle 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 a variety of both animal and plant sources of protein contained in both the protein and the dairy group.
3. Identify that protein plays a role in growth, development, building and repair of body cells and tissues.
4. Describe the role dairy foods play in building a strong skeleton.
5. Recognize that foods in both the protein and dairy group provide a number of key nutrients important for good health.
6. Describe how physical activity is also an important component of building bones, skeletal muscles and strengthening the heart muscle.
7. Develop a strategy

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 2 focuses on the two food groups that build the body, including protein and dairy. The lesson stations are designed to emphasize the diversity among protein sources and emphasize the role that dairy plays in bone building. Both groups also contribute additional key nutrients to the diet and these will be highlighted as well. Since physical activity is an important component of building bones (through weight bearing activities), skeletal muscles (through resistance/strength activities) and the heart muscle (through cardio-based activities), there will also be a physical activity component to this lesson. Below are overviews of the protein and dairy groups.

Protein

The protein group encompasses a diverse group of foods that are rich in nutrients such as protein, B vitamins, iron and zinc. Foods included in the protein group are from both animal and plant sources. Protein is vital because it contains essential amino acids, the building blocks for growth, development and repair. Most kids and teens between the ages of 10-14 require around five to seven ounces of meat or meat equivalents each day. To maximize nutrition, choose seafood, lean meats, poultry without the skin, beans, nuts and seeds. The 2015-2020 Dietary Guidelines for Americans recommend that seafood should be the protein on your plate twice each week. Most Americans of all ages eat an adequate amount of total protein, but do not always distribute intake throughout the day. Newer research indicates it may be helpful to include a protein source with most meals and snacks. Eating protein throughout the day helps to regulate appetite and blood sugar.

Choose For Today:
Eating iron-rich foods is important for maintaining the red blood cells that deliver oxygen throughout your body. Iron deficiency anemia is associated with low energy, difficulty concentrating and even lowered math scores!

Choose For Tomorrow:
Iron-rich foods such as meat, poultry, seafood and legumes are important for building healthy babies. Women who begin their pregnancy with adequate iron stores are more likely to avoid anemia and will also have babies born with adequate iron stores.
Dairy foods provide a nutrient-rich package containing calcium, protein, vitamin A, vitamin D, vitamin B12, riboflavin, niacin, potassium and phosphorus. Children and teens ages 9-18 require three servings of dairy daily, but surveys show that many children and teens fall short in their consumption of dairy foods. A serving of dairy is 8 ounces or 1 cup of yogurt, milk or 1½ ounces of cheese. To cut down on saturated fat, a switch to fat-free or low-fat milk is recommended for adults and children ages two and up. Fat-free and low-fat milk have the same key nutrients as whole milk, but fewer calories and fat. In the MyPlate guide, calcium-fortified soymilk also counts as a dairy serving. Dairy foods such as butter, sour cream and cream cheese are classified as fats in the MyPlate guide.

Glossary/Vocabulary:

- **Amino acids**: See protein definition below
- **Calcium**: A mineral needed for the development and maintenance of healthy bones and teeth
- **Iron**: A mineral found in the protein group, 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
- **Protein**: Provides the building blocks needed for growth, replacement and maintenance of body tissues. Protein is made of smaller units known as amino acids. There are 20 total amino acids, nine of which are considered “essential” because they must be supplied from the foods we eat. Non-essential amino acids can be made by our bodies. Animal proteins are considered “complete” proteins because they contain all nine essential amino acids. Plant-based proteins are often lacking in one or more amino acids so vegetarians need to eat a variety of plant-based foods to take in all 9 essential amino acids.
- **Vitamin A**: Plays a role in keeping skin, mucous membranes, eyes, and bones healthy
- **Vitamin B12**: Found in animal products and some fortified cereals, B12 is important in red blood cell formation and also works with other B vitamins to help release the energy in food.
- **Vitamin D**: A partner with calcium in building and maintaining strong bones
- **Zinc**: A mineral found in the protein group, necessary for healing, taste perception, growth and development
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 which include protein and dairy).

2. Lesson 2 focuses on the two MyPlate groups that build the body, including protein and dairy. The lesson stations are designed to emphasize the diversity among protein sources, teach key facts about protein and emphasize the role that dairy plays in bone building. Dairy foods contribute a number of key nutrients, yet are often lacking in the diets in children ages 10-14. Total protein intake is generally adequate in this age group, though not always optimally distributed throughout the day. This is especially true for kids and teens who skip meals.

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.

4. Below is sample dialogue that you can use when explaining the activities to the students:

   • The first station in this lesson focuses on the protein group. The protein group is the only group in MyPlate that is named after a specific nutrient instead of a food. That is because there are many different foods from both animal and plant sources that supply protein to our bodies. Protein is needed for growth, development, building and repair of body cells and tissues. Proteins are made up of 20 units called amino acids, nine of which are considered “essential” because they must be supplied from the foods we eat. Protein foods also include other key nutrients such as iron, zinc and vitamin B12. In this station, you will test your knowledge of protein by playing a trivia game. Next, you will sort the In A Box food photo cards into plant and animal based protein sources.

   • Included in the protein station is a “Mix up Your Movement” chart, which highlights different physical activities and how they also play an important role in building bones, skeletal muscles and the heart muscle. Different areas of fitness are highlighted in the chart. Encourage students to spend three to five minutes engaging in a physical activity such as marching, hopping or jogging in place. If students prefer, they can instead set a goal for physical activity on their activity sheet.

   • The second station focuses on dairy foods. Dairy foods are best known for providing the calcium and vitamin D which are important for building a strong skeleton. It is important to consume adequate dairy foods when you are young because that is the critical time period when you are building your skeleton. Children and teens ages 9-18 require three servings of dairy each day. A serving of dairy is 8 ounces or 1 cup of yogurt, milk or 1½ ounces of cheese. Dairy foods also provide many other key nutrients such as protein, vitamin A, vitamin B12, riboflavin, niacin, potassium and phosphorus. At this station, you will measure the amount of calcium found in the body’s skeleton from newborn to adult. You will also get the opportunity to examine sample bone disks which show what a normal bone looks like and how it looks as it loses mineral content. This illustrates why it is so important to build strong bones now that will carry you through your entire life.

5. Ask students to take a copy of the “Are you a BBB (Best Bone Builder)?” self-assessment activity sheet and “The Protein Scene” puzzle/recipe worksheet. These sheets can be assigned as a lesson extension, homework and/or shared with families.
Activity Sheets

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

“The Protein Scene” and the “Are You a BBB (Best Bone Builder)?” activity sheets are designed to extend the lesson from classroom to home.

Going Further

Resources:

2. Choose MyPlate section on dairy – https://www.choosemyplate.gov/dairy