



HEALTH

Native Nutrition

ESSENTIAL UNDERSTANDINGS

- History
- Lifeways

LEARNING OUTCOMES

- Students will develop an appreciation for the complexity of human nutrition.
- Students will understand energy balance and its importance to good health.
- Students will identify “first foods” that provided Native Americans in Oregon with essential nutrients.
- Students will identify how harvesting and eating first foods promoted healthy living among Native Americans in Oregon.
- Students will appreciate the deep understanding Native Americans in Oregon had of first foods and other natural resources and the care they took in sustaining them.

ESSENTIAL QUESTIONS

- What are the three energy-producing nutrients humans consume?
- How do nutrients and energy balance affect human health and wellness?
- What are first foods?

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Overview

In this lesson students will learn basic concepts about nutrition while also exploring traditional Indigenous food practices. Students will first learn about energy balance: how the human body derives energy and nutrients from food and expends it through daily activities such as exercise. Next, they will review current recommendations for eating and exercise that promote good health. Finally, they will identify plants and animals that are native to Oregon and provided a well-rounded and nutritious diet for Indigenous people since time immemorial.

In the process, students will gain some understanding of the deep knowledge and sustainable practices Indigenous people used to keep both themselves and the natural environment healthy. This lesson can be integrated into other science and/or health and wellness lessons or curricula or serve as an extension to them.

Background for teachers

Indigenous people in Oregon historically depended on a wide variety of plant and animal species for food. These traditional foods, often called “first foods,” varied by local geography, seasonality, and cultural group. A few—such as salmon, camas root, and huckleberries—were common to many tribes in Oregon.



ESSENTIAL QUESTIONS

- How did first foods promote the health and wellness of Native Americans in Oregon?
- How did Native Americans in Oregon use their deep knowledge of first foods to sustain the plants and animals they relied upon for food?

LOGISTICS

- Where does the activity take place?
Classroom
- How are the students organized?
 - Whole class Teams: 3 – 4
 - Pairs Individually

TIME REQUIRED

Depending on your students' background knowledge and skill in identifying main ideas and supporting details, the activities should take two hours of class time.

STANDARDS

Oregon health standards

HE.1.8.3 – Analyze the interrelationships of physical, mental, social, emotional, and environmental health in adolescence.

HE.1.8.7 – Analyze the physical, academic, mental, and social benefits of physical activity and the relationship to one's overall health.

HE.2.8.9 – Review how food choices are influenced by culture, family, media, technology, peers, body image and emotions.

HE.6.8.7 – Create and manage a plan that correlates a personal short term goal on healthy eating while including a specific focus on food choices, portions and nutritional guidelines.

HE.7.8.3 – Promote healthy ways to maintain a healthy body weight.

HE.7.8.5 – Conduct a personal dietary assessment using the USDA guidelines.

The Indigenous diet was nutrient rich, high in animal protein, low in unhealthy fats, and high in healthy fats. The energy spent harvesting these foods was significant, given the physical demands of hunting, fishing, trapping, growing, and gathering, but these practices were also essential to the health and well-being of Indigenous people.

Indigenous food practices were also sustainable. Native American people understood how to harvest plants and animals in seasonal rounds that not only provided peak nutrition for themselves but also ensured specific areas and plant and animal species were not overburdened or overharvested.



First foods and the lifeways and social organization it took to procure them thus helped keep Native Americans in Oregon nourished, active, and connected to each other and the natural resources they relied on for survival. Many traditional food systems and practices were curtailed or altered by colonization and the introduction of Western diets and processed foods, often with dire consequences for Indigenous people. These traditions never entirely disappeared, however, and in recent decades many Native American people—in Oregon and across the United States—have been reconnecting, reclaiming, or renewing the connection between food, health, community, tribal identity, spirituality, and the natural world.

Resources

- Earl, A.-j. (2018, April 11). Indigenous foods resurface in Portland. *Travel Portland*. Retrieved from <https://www.travelportland.com/culture/indigenous-foods/>
- Graslie, S. (2014, October 7). The ‘Sioux Chef’ is putting pre-colonization food back on the menu. *The Salt*. Retrieved from National Public Radio website: <https://www.npr.org/sections/thesalt/2014/10/07/354053768/the-sioux-chef-is-putting-pre-colonization-food-back-on-the-menu>
- O’Keefe, J. H., Vogel, R., Lavie, C. J., & Cordain, L. (2010). Achieving hunter-gatherer fitness in the 21st century: Back to the future. *American Journal of Medicine*, 123(12), 1082–1086. Retrieved from [https://www.amjmed.com/article/S0002-9343\(10\)00463-8/fulltext](https://www.amjmed.com/article/S0002-9343(10)00463-8/fulltext)

MATERIALS

What materials are needed for students to engage in this activity?

- PowerPoint presentation: If using this presentation, be sure to load it prior to the lesson to ensure it is displaying properly.
- Poster paper and markers
- Blackboard or whiteboard
- Native Nutrition worksheet (one per student group of three to four): Students will use this worksheet to assess and make predictions about the nutrient value of multiple Native American first foods.
- Native Nutrition worksheet answer key (one copy per student group of three to four): Use this answer key to help student groups assess their work on the Native Nutrition worksheet.

VOCABULARY

Calorie – A measurement of the energy value of food.

Carbohydrates – Organic compounds in foods that can be broken down by the human body to release energy. They consist of sugars, starches, and cellulose.

Colonization – Settling among and establishing control over the Indigenous people of an area.

Fats – Long-chain fatty acids found in foods that are used by the human body to absorb nutrients and as a backup energy source.

First foods – Foods eaten by Indigenous people prior to contact with or colonization by non-Indigenous people.

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U.S. Department of Health & Human Services, Centers for Disease Control and Prevention, Native Diabetes Wellness Program. (2018). *Traditional Foods Project, 2008–2014*. Retrieved from <https://www.cdc.gov/diabetes/ndwp/traditional-foods/index.html>

Considerations for teachers

Assessment

Students should be assessed both formatively and summatively. The formative assessment will be teacher observation of student participation in class and group discussions. Summative assessment can be provided by having students complete an exit ticket or writing exercise in which they answer the Essential Questions for the lesson.

Practices

- The teacher must be prepared to activate engagement strategies, such as think-pair-share and group discussion.
- The teacher should be conversant with essential information about health and fitness principles, such as the importance of a healthy diet and exercise.

Learning targets

- I can identify the three essential nutrients found in foods.
- I can describe how energy balance (and imbalance) affects human health.

VOCABULARY Continued

Hunting and gathering – Obtaining food by harvesting wild plants and animals.

Indigenous – Native to an area; living in an area prior to the arrival of later inhabitants.

Proteins – Long chains of amino acids used by the human body to build body tissues (for example, muscle, hair, and collagen) and as enzymes to breakdown food and antibodies to fight disease.

Seasons – One of four divisions of the year marked by specific weather and nature patterns.

Seasonal rounds – A pattern of moving from one location to another throughout the seasons of a year in order to hunt and gather food and other resources without overburdening a particular area.



- I can identify native plants and animals that provided essential nutrients for Native Americans in Oregon.
- I can describe how the harvesting and eating of first foods contributed to healthy lifestyles for Native Americans in Oregon.
- I can describe how tribes had a deep understanding of first foods and other natural resources and took care to sustain them.

Options/extensions

- Have students bring in their favorite packaged snacks and analyze their food labels for calorie amounts and composition (carbohydrate, protein, fat), or have them apply a similar analysis to their favorite home-cooked or restaurant entrée. Students can consult online nutrition calculators such as the following:
 - US Department of Agriculture, Food Composition Database: <https://ndb.nal.usda.gov/ndb/search/list?home=true>
 - Nutritionix, Restaurant Brands: <https://www.nutritionix.com/brands/restaurant>
 - MyFitnessPal, Food Analysis: <https://www.myfitnesspal.com/food/search>
- Have students find and prepare a recipe based on Native American first foods and/or inspired by Indigenous food practices. For example:
 - Prepared from local ingredients that are in season.
 - Contain no “Old World” foods (no fried foods, pasta, pies, cakes, or any other dishes containing wheat, flour, domestic sheep, beef, pigs, goats, milk, cheese, chicken, butter, or refined sugar) or other foods introduced by non-Natives.
 - The American Indian Health and Diet Project maintains a recipe database at <http://www.aihd.ku.edu/recipes/index.html>.
- If one is available in your community, have students visit a farmer’s market and make a list of Oregon-grown first foods (raw or prepared) they can find for sale. Encourage them to speak to vendors to confirm whether plant or animal products are from species native to Oregon.



Reflection/closure

Sum up the lesson by reviewing the learning targets. Have students provide two or three sentences that identify examples of Oregon first foods and explain how food-gathering practices promoted a healthy energy balance and lifestyle for Native Americans in Oregon as well as sustainability for the natural environment. Share the final slide and discuss the takeaways with students.

Appendix

Materials included in the electronic folder that support this lesson are:

- Slides.PPT
- Materials.NativeNutritionWorksheet
- Materials.NativeNutritionWorksheetAnswerKey

Activity 1

Activate Prior Knowledge

Step 1:

Ask students the following questions to get them thinking. Ask for a few responses and use the suggested answers below, if necessary, to confirm understanding.

What provides energy for our bodies? (Everything we eat and drink.)

How do we measure the energy in our food? (Calories.)

What compounds in our foods provide calories? (Carbohydrates, protein, and fat.)

Activity 2

Energy Balance

Step 1:

Show the slide with the table of important nutrients and review with students. Define any unfamiliar terms using the definitions provided in this lesson.

Say:

Carbohydrates, protein, and fat are the nutrients in food that provide us with energy. These are called essential nutrients, because we must have all of them in our diets.

Step 2:

Ask students, “How do we use the energy that we get from food?”

Step 3:

Show the slide that describes the main ways the human body uses energy. Review with students.

Step 4:

Show the energy balance slide. Ask for one or two volunteers to describe what the slide is depicting.

Say:

As human beings, we have to balance the energy we take in from food with the energy we use to keep our minds and bodies functioning and doing the activities we want to do. If we take in more energy from food than we use, our bodies store the extra energy as fat, and we gain weight. If we use more energy than we take in from food, we lose weight. Ideally, we balance the two as much as possible. The right energy balance is specific to each person; some people are naturally larger or smaller than others, or their bodies process and use energy differently. But in general, for most people, the key to staying healthy is eating a variety of healthy foods to get a good mix of carbohydrates, proteins, and fats and then combining that with a variety of physical activity.



Activity 2 (Continued)

Step 5:

Ask students the following questions to get them thinking about the effect on the body of energy imbalances (either not enough taken in or not enough used up).

If your body didn't get enough energy and nutrients from food, what do you think would happen?

If you had enough food but didn't stay very active, what do you think would happen?

Step 6:

Show the two slides illustrating health risks and conditions caused by poor nutrition and lack of activity. Define any terms or conditions for students if they have questions about them.

Say:

Staying healthy is a balancing act. If you don't get enough food or eat a wide variety of foods, your body won't have enough energy and vitamins and minerals. You won't have enough energy to do what you want to do, and are more likely get sick. If you are not active, your body will hold onto extra energy and store it as fat.

Step 7:

Show the "My Native Plate" slide and ask students to review it.

Say:

So, what does a balance of healthy diet and exercise look like? This is one recommendation for healthy eating that is meant to be respectful of the food traditions of Native Americans.



Activity 2 (Continued)

Step 8:

Ask students the following questions to help them interpret the slide. Ask for a few responses and use the suggested answers below, if necessary, to confirm understanding.

What types of food take up half of the plate? (Fruits and vegetables.)

Is physical exercise mentioned? (Yes.)

What foods are missing? (Milk products, foods made with flour, dessert.)

Why do you think those foods are not shown here? (They were not first foods for Native Americans; they were introduced by outsiders.)

Step 9:

Show the “What’s Missing?” slide and review student answers to the last question above.

Say:

Truly traditional Indigenous foods contain no foods introduced by non-Natives. These include “old world” foods introduced to Oregon by Europeans and European-Americans, such as breads, pasta, pies, cakes, any other dishes containing wheat, domestic sheep, beef, pigs, goats, milk, cheese, chicken, butter, or refined sugar. It is also missing fruits and vegetables that are not native to Oregon, including asparagus, broccoli, Brussels sprouts, and apples.

Activity 3

The Oregon Native Plate

Step 1:

Show the slide providing the definition of first foods. Define any unfamiliar terms using the definitions above and confirm students' understanding.

Step 2:

Display the slide with photos of some of the first foods of Native Americans in Oregon. Ask students if they have seen or eaten any of the foods listed.

Say:

Each group of Native Americans in Oregon ate a different mix of plants and animals depending on where they lived and what was in season. They also consumed many more types of food than are shown here. For example, tribes living along the coast were able to harvest and eat clams, oysters, and other sea-foods, and tribes living in Eastern Oregon ate rabbits and pronghorn antelope. The slide shows some foods that were eaten by many tribes.

Step 3:

Display the slide depicting a seasonal round calendar for Indigenous people of the Pacific Northwest. Confirm students' understanding of seasonal rounds using the definitions provided above. Again, explain that this calendar is meant to summarize hunting and gathering practices of multiple tribes; individual tribes may have eaten more, fewer, or different plants and animals than are depicted on the calendar.

Say:

Tribes took care to harvest plants and animals in seasonal rounds that not only provided peak nutrition for themselves but also ensured specific areas and plant and animal species were not overburdened or overharvested.



Activity 3 (Continued)

Step 4:

Organize students into groups of three to four using your preferred method. Distribute a copy of the Native Nutrition Worksheet to each group. Have each group appoint a facilitator, notetaker, and timekeeper. Provide instructions for the activity.

Say:

In this activity, you'll assess the nutrient value of some Indigenous first foods. Together, review each plant or animal listed and make your best guess as to which of the three essential nutrients we've been discussing—proteins, carbohydrates, and fats (or combinations thereof)—each one provided to the Indigenous people of Oregon. You have 10 minutes to work on this. Good luck!

Step 5:

Give students 10 minutes to work together on the activity in their groups. Circulate among the groups to make sure they stay on task and to answer any questions that come up.

Step 6:

After 10 minutes, reconvene the students, distribute the answer key to each group, and have them check their work.

Step 7:

Discuss and debrief the results with the students. Answer any questions and debrief answers that students found confusing or feel should have been correct.

Step 8:

Ask students to remain in their groups. Display the "A Salmon Dinner" slide.



Activity 3 (Continued)

Say:

Suppose your group wanted to cook some fresh salmon for dinner. I know salmon is not everyone's favorite food, but it was an important source of food for Native American in Oregon and throughout most of the Pacific Northwest. With your group, list all the steps it would take for you to acquire, prepare, cook, and eat a piece of salmon. Please provide as much detail as you can think of, such as, "Get money," "Go to store," "Turn on oven," and so on. Let's assume that salmon are in season and that we want fresh salmon. Native Americans in Oregon did preserve salmon by smoking or drying it to save for eating later, but let's assume that we want freshly caught salmon.

Step 9:

Give groups five minutes to build their lists of steps to cooking salmon. Debrief responses with students and create a master list all groups can agree on using chart paper and markers.

Step 10:

Next, invite the groups to think about what the process for cooking a piece of fresh salmon would have been for Native Americans in Oregon prior to contact with non-Natives. Again, ask them to list the steps and to provide as much detail as possible.

Step 11:

Give groups five minutes to build their lists of steps to cooking salmon as a Native American in Oregon might have done. Using a second piece of chart paper and markers, debrief responses with students and create a master list that all groups can agree on. Highlight the following if students do not identify them as different from how Native Americans in Oregon would go about the process compared to how the students would today:

- Prepare equipment (net, hook, spear, fish basket) to catch a salmon.
- Walk to the river, lake, or ocean.



Activity 3 (Continued)

- Fish for and catch a salmon.
- Carry the salmon back home.
- Prepare the salmon for cooking (cleaning, gutting, filleting, staking, and so on).
- Gather cooking supplies and materials (depending on cooking method, this could include stakes, leaves/seaweed, steaming baskets, stones, and more).
- Gather firewood.
- Light and prepare a fire.
- Cook salmon.
- Eat salmon.

Step 12:

Prompt students to think about which of the two methods of preparing a salmon dinner—the one they might use and the one a Native American in Oregon might use—would require more effort and activity. Which would use more energy? Highlight that the Indigenous method generally involved more physical activity in food preparation.

Say:

This thought experiment was a bit oversimplified. In reality, Native Americans in Oregon had a very sophisticated process for harvesting salmon that involved people working together to harvest a bunch of salmon at one time, dividing up the labor of preparing and cooking the salmon, and preserving excess salmon so that it could be stored and eaten at times when food was scarce. But in general, hunting animals for food and gathering plants—also called hunting and gathering—takes more time, planning, and energy than going to the store and buying them. It kept people active and connected to each other and the natural resources they relied upon for survival.

Activity 3 (Continued)

Step 13:

Show the slide describing common hunter-gatherer activities and their relative energy use for men and women. Ask students to review the information on the slide and describe what they think it means.

Say:

A group that survives by hunting and gathering puts more energy into collecting and preparing foods than a group that stays in one place and raises crops and animals. While the hunting and gathering lifestyle is not always easy, it does mean people are constantly moving, working, and interacting with other members of their tribe or band. It gives people a purpose, keeps them active, and keeps them connected to others, all of which doctors today recommend for people to stay healthy. Native American people also held a deep appreciation and respect for these food sources. They were careful not to take too many plants or animals for food at one time. These sustainable practices are still in place for many Native American people today, and tribes in Oregon are working on many projects to restore access to first foods and to reconnect to traditional food practices. This approach offers many ideas and inspiration all Oregonians about how to make our food system and environment more sustainable. First foods and Native Americans in Oregon nourish and sustain each other.

