

2.5

Grade Level

6-9

Subjects

Health
Science

Time Frame

Multiple Class
Periods

Teacher Materials

- California Native Foods List
- Reservations and Food Deserts Map
- Food Insecurity Demographic Data
- My Community: Making Improvements

My Community: Food Access

In this lesson, students explore the concept of **food insecurity**, and analyze the health and food accessibility in their own communities. Students practice designing a community that provides healthy, affordable food options, places to exercise, and access to health centers.

Teacher Background

Food insecurity is a significant barrier to health in Native communities across the United States. According to the **National Institute of Food and Agriculture**, Native Americans as a group have the highest rates of food insecurity, poverty, and diet-related diseases. In the Klamath basin, in Northern California, a staggering **92%** of Native people suffer from food insecurity. Research consistently suggests that increasing access to culturally relevant foods in Native Communities is necessary for restoring healthy lifestyles across Indian Country.

As students will see in this lesson, nearly every reservation in the United States can be defined as a **food desert**. This is due to the removal and forcing of Native peoples into land that was not always their traditional land, and that often lacks the infrastructure to farm and produce food. In addition, overhunting, overfishing, extraction of natural resources, and colonist-led changes to the natural environment have greatly decreased plant and animal species populations that Native peoples rely on for food. This loss of traditional food access results in Native communities often relying on government food rations or relying on one of few grocery/corner stores within reach of their homes.



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To counter this problem, Tribal communities are working hard to increase access to traditional foods through community-based programs. For example, the **California Indian Museum and Cultural Center** in Santa Rosa, CA organizes community youth to teach them how to process and cook with traditional ingredients. The museum also conducts research and outreach to learn more about community access to Tribal foods. Recently, the museum installed an **acorn mill** to encourage community members to consume more acorn flour, a traditional staple food to the Pomo people and many other Native California tribes. Tribes in the Klamath region has also developed the **Klamath Tribes Food Security Program**, which also works to connect Native communities with traditional foods, and emphasizes the relationship between food and physical, mental, and spiritual health.

While many communities are developing food sovereignty programs such as those described above, it is important to remember that each Native community has its own individual values and traditions surrounding Indigenous foods, and so every program looks different. They range of programs are as diverse as California's Native community, incorporating varying levels of tradition.



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Vocabulary

- **Indigenous:** Produced, growing, living, or occurring Natively or naturally in a particular region or environment
- **Food Sovereignty:** To achieve independence in terms of the production and provision of food. Communities who achieve food sovereignty grow, distribute, and consume their own food from their own food sources
- **Nutrition:** Related to eating foods that provide the nutrients needed to live. Nutrients found in food and drink help provide energy to the body.
- **Indigenous Foods:** Locally grown food that is originally from the area and has been eaten by Native people for thousands of years. Food is grown with no chemicals or pesticides; food is grown in just the right amount.
- **Settler/introduced Foods:** Foods that come from other countries or from outside the local ecosystem. Foods are sometimes healthy and sometimes damaging to health. Sometimes these plants can harm the local ecosystem.
- **Processed Foods:** Foods that have been altered or changed from their original form. They often have added flavors, or artificial substances added, and might taste different than their original form
- **Whole Foods:** Foods that have very little, or no processing/have not been changed from their original form. Foods do not have additives, or any artificial substances added.
- **Affordable:** Reasonably priced, so that people have enough money to purchase something comfortably.
- **Food Desert:** An urban area or well-occupied area in which it is difficult to buy affordable food, or where food is not easily available.
- **Food Insecurity:** Having an unreliable source of food or inconsistent ability to get food due to income or other factors.
- **Poverty:** Being extremely poor.

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Engage

As a class, make a list places where students know they can buy healthy food. Circle the places that students think are affordable for the average family in their community.

Explain to students that if they have access to multiple sources of healthy, affordable food, then they have a higher chance of eating healthy.

Explain to students that if their community has one or no options for healthy, affordable food, then they might live in what is known as a food desert. Families that live in food deserts have a higher chance of eating unhealthy foods, because there may not be healthy, affordable options.

Ask students to consider the following question:

1. **What are some places that people can access healthy foods?**

Explore

Project the map **Location of Food Deserts and Reservations** for students to see.

Explain to students that when the American government seized Native traditional lands, they signed agreements/treaties with Tribal groups that promised them specific areas of land where tribes could live and govern themselves without intervention from the US Government. Ideally, tribes would be able to completely support themselves. In most cases, the government broke those treaties, reducing the amount of land given to tribes, or taking the land away entirely. While the government claimed to support Native independence, it did/does little to actually support tribes in building economies and infrastructure needed to be successful.

Explain to students that the **orange parts** on the map represent **Native American reservations**. The **blue** represents **food deserts**, meaning places where there are little to no stores or food sources.

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Ask students the following questions:

1. **What do you notice about the relationship between food deserts and Native American reservations?**
2. **How do you think communities that live in food deserts are impacted?**
3. **Why are Native Reservations often also food deserts?**

Explain that much of making healthy eating decisions depends on the accessibility of foods that are healthy for our bodies and environment.

Note: If you used the **ecosystem/food web health lessons**, this may be a good time to introduce the concept of making healthy food choices for the Oak Woodlands ecosystem as well as for one's body

Explain to students that not having enough food can lead to many health problems, including stress.

Project the **Food Insecurity Demographic Data** for students to see. Walk students through each piece of data, asking them who experiences the worst rates of food insecurity in the United States.

Students should notice that adults and many children experience food insecurity, as well as single mothers, people living below the poverty line, and many nonwhite groups.

Explain

Explain to students that having little access to nutritious, affordable food can lead to many deadly diseases.

The activity students work on in this lesson refer to three major diseases related to poor nutrition and little healthy food access.

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The three diseases mentioned are:

- **Type 2 Diabetes:** Occurs when a person eats too many sugary foods for a long time, and their body can no longer digest the sugar. The sugar they eat then builds up in their blood. High levels of sugar in a person's blood can damage their kidneys, liver, and other important organs.
- **High Cholesterol:** When a person eats too many fatty foods, plaque can build up in their arteries and veins, stopping blood from getting where it needs to go.
- **Coronary Heart Disease:** When the arteries in your heart become clogged and full of plaque. This is due to a diet high in calories and cholesterol. It can lead to heart attacks and can require major surgery to alleviate.

When communities have little access to healthy food options and do not have spaces to exercise, rates of these three diseases rise.

Elaborate/ Extend

Pass out the **My Community: Food Accessibility worksheet**. Allow students time to explore the map linked in the worksheet, and answer questions about their community and food accessibility.

Point out the map provided information related to three categories:

- **Diet/nutrition**
- **Physical activity/exercise**
- **Diseases**

Explain to students that communities that experience food insecurity continue to find ways to combat the problem. Many Native communities combine traditional ways of growing food with modern technology in order to develop Food Sovereignty. Food Sovereignty is when communities are self-reliant and are able to grow and provide food to their communities without the support of the federal or state government, or major corporations.

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Choose one of the following short videos highlighting ways Native peoples use traditional methods to provide healthy food options to their communities:

Look at community examples of local food sovereignty:

- <http://www.cafreshworks.com/hoopavalley/>
- <https://www.youtube.com/watch?v=aDjSLxHoo5E>
- <https://www.youtube.com/watch?v=OMYk6J13htw>

Here is an example of non-Native communities working to promote food security: <https://www.youtube.com/watch?v=mjD-dYeSaEog>

Evaluate

On the **My Community: Making Improvements**

notetaker, ask students to draw out a community that has multiple healthy food sources (restaurants, gardens, and stores) as well as at least two places for community members to exercise, and any other elements they think support health (ie. a hospital, recreational spaces, parks, etc.)

When students are finished, have them share with a partner.

To wrap up the lesson, as a class, explore the questions below. Encourage students to refer to data and information from the lesson.

1. **What are some challenges that people have when it comes to accessing healthy food?**
2. **When designing a community, what elements should be included to support people's health?**
3. **What are some ways that Native and non-Native peoples work to promote healthy eating in their communities?**



My Community: Food Access

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Lesson Resources

Supporting resources for educators:

- <https://hungerandhealth.feedingamerica.org/understand-food-insecurity/hunger-health-101/>

Sources::

- <https://fdc.nal.usda.gov/fdc-app.html#/food-details/826128/nutrients>
- <http://www.cafreshworks.com/hoopavalley/>
- <https://www.youtube.com/watch?v=aDjSLxHoo5E>
- <https://www.youtube.com/watch?v=OMYk6J13htw>
- <https://www.youtube.com/watch?v=mjDdYeSaEog>
- [National Institute of Health](#)
- [U.S. Department of Agriculture](#)
- [Oxford Dictionary](#)
- [Dictionary.com](#)



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Learning Standards

CA Indian Essential Understandings

Essential Understanding 4: California Indian peoples' histories and cultures have been and continue to be impacted by foreign, state, and federal policies.

Essential Understanding 5: Land and place are unique and inextricably tied to Tribal cultures.

CA Content Standard

California Health Standards

1.1.N Describe the short- and long-term impact of nutritional choices on health.

1.10.N Identify the impact of nutrition on chronic disease.

Common Core:

CCSS.ELA-LITERACY.RI.7.1

Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CCSS.ELA-LITERACY.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

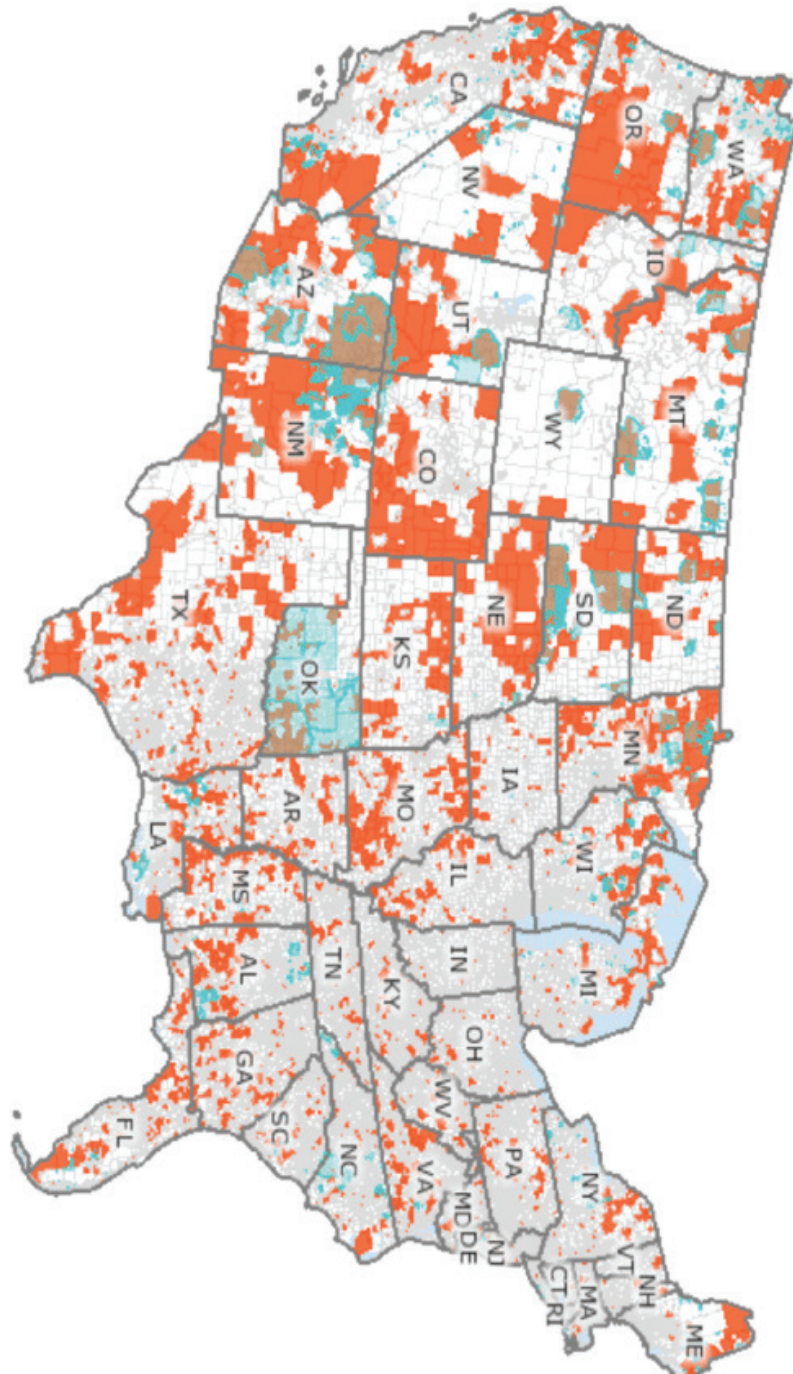
CCSS.ELA-LITERACY.RST.6-8.9

Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

Name: _____

Date: ____/____/____

Reservations and Food Desert Map

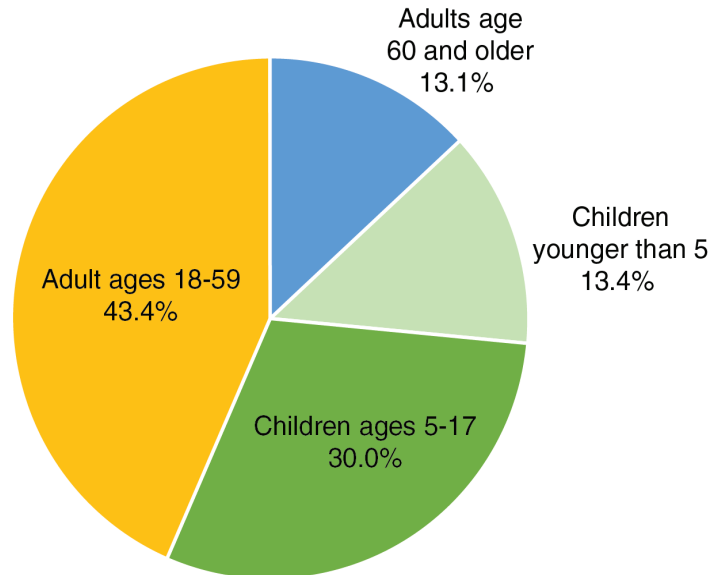


Name: _____

Date: ____/____/____

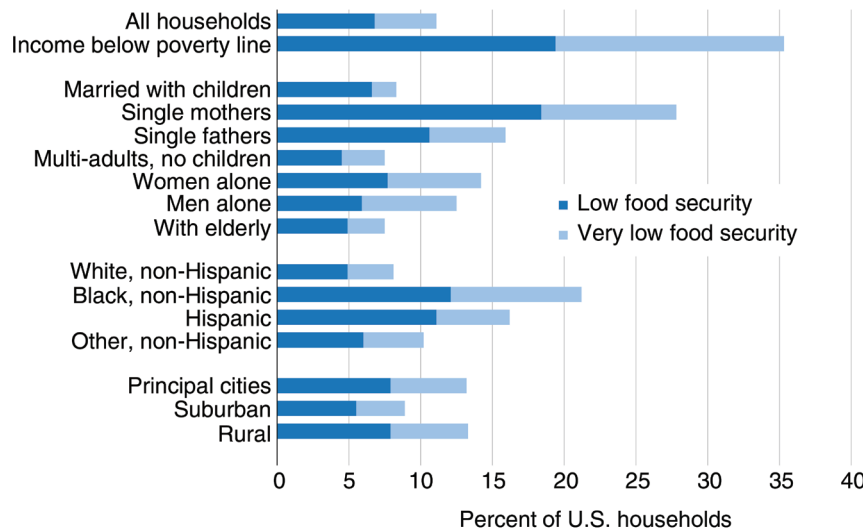
Food Insecurity Demographic Data:

Distribution of SNAP participants by age, fiscal 2017



Source: USDA, Economic Research Service using data from USDA, Food and Nutrition Service.

Prevalence of food insecurity by selected household characteristics, 2018



Note: Food-insecure households include those with low food security and very low food security.

Source: USDA, Economic Research Service using data from the 2018 Current Population Survey Food Security Supplement, U.S. Census Bureau.

Name: _____

Date: ____/____/____

My Community: Food Access:

Introduction:

We know that eating Indigenous, whole foods helps support a resilient ecosystem and a healthy community. Eating foods that are from our local area reduces the pollution required to transport food from one place to the next and can also promote a better relationship with “Good Fire”. Good fire promotes growth of many Indigenous, whole foods, that nourish our bodies and prevent disease.

One reason that communities today have such high rates of disease is poor nutrition/ eating habits. Due to relocation of communities away from the natural environment and into built urban environments and the neglect of forests and other ecosystems, access to healthy traditional foods has lessened, leaving Native communities to rely on grocery stores.

Today, you will explore your state and local communities to determine whether or not your community has enough access to healthy foods.

Map Exploration:

1. Click on the link: <https://www.healthyfoodaccess.org/access-101-research-your-community>
2. In the search bar, type in the name of your county (ex: Sonoma County)
3. Click on the button in the top left that says “**New Map**”.
 - a. When the choice bar comes down, click “**Health**”
 - b. Click “**Fruits and Vegetables**”, “**Fewer than 5 a day**”
 - c. Using the data key on the map, what percentage of people eat less than 5 fruits or vegetables a day?
 - d. What percentage of people eat less than 1 fruit or vegetable a day?
4. Click “**Physical Inactivity.**”
 - a. Using the data key on the map, what percentage of people in your county have been physically inactive (did not exercise or move very much).
5. Click “**Diabetes.**”
 - a. Using the data key on the map, what percentage of people in your county have been diagnosed with diabetes.

Name: _____

Date: ____/____/____

6. Click **“Deaths from Coronary Heart Disease”**
 - a. Using the data key on the map, what percentage of people in your county have died of heart disease.
7. Zoom in to your city (or type your city name into the search bar.)
 - a. What do you notice about the disease rates now? Is every place in your city the same?
 - b. Why do you think there are health differences between the neighborhoods and areas of your city?
8. Click on **“Community Health Centers”**
 - a. How many health centers are in your city?
 - b. Are the health centers in your city spread out or centralized in one place?
 - c. Are there some people in your city that would have to travel a long way to get to a health center if they needed care?
9. Click on **“Grocery Retail Locations.”**
 - a. How many grocery retail locations are in your city?
 - b. What are some common Grocery Stores you notice on the map? (Click the orange squares for info.)
10. Do you think these stores sell **Indigenous foods**? Which ones might they sell? Which ones do they probably not sell?
 - a. Click on **“People”** then **“Families in Poverty.”**
 - b. What kinds of Grocery Store do you notice in the dark green areas? How about the light green areas?
 - c. Why do you think the grocery stores in these areas are different?

My Community: Food Access

Name: _____

Date: ____/____/____

11. Click on **“Farmers Markets.”**

- a. How many Farmers Markets are in your city?
- b. Do you think the vendors at the market sell Indigenous foods? Which ones might they sell? Which ones do they probably not sell?

Reflection:

If you were to give your community a “grade” for food access, what would you give it?

1
Very little access
to healthy foods

2

3

4
Easy access to
healthy foods

Explain the grade you gave your community:

Name: _____

Date: ____/____/____

My Community: Making Improvements:

Directions: Design a community in which all people have access to healthy foods, including all of the requirements listed.

Design Requirements:

- Multiple healthy food options of your choice (stores, restaurants, markets, etc.)
- Gym/parks/places to exercise
- Places to grow food
- Access to local, Indigenous foods (use your **California Native Foods list** for reference)

Name: _____

Date: ____/____/____

My Community: Making Improvements:

Using the materials from this lesson, answer the following reflection questions:

1. What are some challenges that people have when it comes to accessing healthy food?

2. When designing a community, what elements should be included to support people's health?

3. What are some ways that Native and non-Native peoples work to promote healthy eating in their communities?

Name: _____

Date: ____/____/____

California Indigenous Foods

Below is an incomplete list of foods Indigenous to California. All Tribal communities have different traditions and norms regarding what they eat, how, and when. Just because one tribe consumes one food does not necessarily mean another tribe does.

Fruits and Vegetables:

tarweed
wild grapes
cacti
cherries
wild plums
wild strawberries
wild raspberries
wild blackberries
wild apricots
thimbleberries
sourberry
Manzanita
California fan palm
prickly pear cactus
elderberry
huckleberry
wild onion
agave
yucca
Dandelion
wild celery
clover
cattail
milkweed
Indian rhubarb
Watercress
water parsley
bracken fern

Proteins:

walnut (fat, protein)
hazelnut (fat, protein)
buckeye (fat, protein)
acorn (fat, protein)
pine nut (fat, protein)
deer
elk
antelope
mountain sheep
quail
grasshoppers
salmon
mussels
seaweeds
clams
scallops
trout
sturgeon
abalone

Grains and starches:

brome grass (carb, whole wheat)
oats (carb, whole wheat)
ricegrass (carb, whole wheat)
chia seeds
Buckwheat
Bear-grass
yampah