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EDIBLE
EDUCATION

AMARANTH

LESSON PLAN



BY LA SEMILLA FOOD CENTER



Introduction

Greetings, teachers! Welcome to this lesson on amaranth! This Lesson Plan offers you an overview of the activities, with additional information, sources, and optional activities that you might choose to include around the lesson. The lesson consists of a series of 15-20 minute activities lasting 60 to 120 minutes, depending on the child's reading speed and how many breaks they take. Students are encouraged to take breaks in between activities.

Optional Pre-Work: Intro to Amaranth

Prior to beginning this lesson, consider having an initial conversation about amaranth. Here are some ideas:

- Create curiosity with a poll. Ask students how many of them have heard of beans? Corn? Tomatoes? Squash? The plant this lesson is about was once as common on the menu and backyard garden as these staples of the Mexican diet. The lesson will explain the story.
- Have a direct conversation. Has anyone heard of amaranth? Has anyone eaten it? Grown it?
- Discuss drought tolerant plants. Ask students if they can name some plants that can survive without a lot of water. They might mention cacti. Amaranth also has this ability, which is needed in the Chihuahuan desert region as water becomes more scarce.

Links to videos on amaranth are available on the last page of this packet.





AMARANTH LESSON - CONTENT OVERVIEW

Learning Objectives

By the end of this lesson, students will be able to:

- Write the Nahuatl name of amaranth.
- List one way amaranth is good for our bodies.
- Compare the nutritional qualities of amaranth to other foods.

Ground Rules & Safety

The section “Get Ready to Explore Amaranth” lists safety and behavioral expectations.

Baseline Assessment

This optional activity (“Amaranth and Me”) aims to engage students by identifying what they already know. The lesson will then reaffirm, complement, and clarify their existing knowledge.





Background for teachers: Amaranth

This is an extended version of the "Story and Uses of Amaranth" section in the student booklet. Have students read the "Story and Uses of Amaranth" independently or out loud with the class.

Amaranth is a traditional food of Mexican people [1]. Its original name in Nahuatl is Huautli. It was part of the daily diet in pre-Hispanic Mexico. Prior to the Spanish invasion of 1492, about 20 thousand tons of amaranth were harvested there every year [2].

Spanish colonizers banned amaranth. The primary reason for doing so was its use in Indigenous spiritual ceremonies. They considered amaranth a heretical plant [3]. Amaranth was also one of the primary foods of the diet of the Mexica warrior class. Hence, it was also banned as part of the Spanish military strategy to weaken the warriors.

In the 1500's, Hernan Cortes ordered the burning of all amaranth fields. Growing amaranth became illegal. People were not allowed to grow it, or even to possess its seeds. The penalty for having amaranth seeds was mutilation (cutting off of the hand) or death. In order to survive, most people had to stop growing amaranth in their home gardens and community farms (milpas).

Some people grew amaranth in hiding in various regions across Mexico. These brave seed-keepers not only ensured that amaranth remain, but also helped nourish popular movements of resistance and sovereignty. Amaranth helped nourish the





rural, agricultural communities who fought to liberate Mexico in the War of Independence from Spain (1810-1821), as well as the Mexican Revolution (1910-1917) [4-6].

Uses & Benefits of Amaranth

Today, amaranth is recognized for its potential to alleviate hunger and malnourishment, as well as to provide economic security for people impacted by colonialism all over the world [7-9]. Both the leaves and seeds are edible and highly nutritious [10]. Its leaves and seeds contain calcium and iron. The seeds are also a great source of magnesium, which helps the body absorb calcium. Amaranth also offers protein and folate.

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- [1] Cardona, G. *Delicias Vegetarianas de Mexico*. Editorial Pax Mexico. 2007.
- [2] Amaranth: Modern Prospects for an Ancient Crop. Report of an Ad Hoc Panel of the Advisory Committee on Technology Innovation Board on Science and Technology for International Development, Office of International Affairs, National Research Council. Available [online](#).
- [3] Gaitan, Maria Elena. "Foods from the Americas: Amaranth, The Outlaw Grain." *East of the LA River: Obsessions and Musings from the Heart of the Universe*. May 1, 2008. Available [online](#).
- [4] Dimas Gonzalez, A. *Huazulco y el Amaranto, Una historia de Resistencia y un aporte a la soberanía alimentaria*. 18 feb 2017. *La Jornada del Campo*. Available [online](#).
- [5] *Breve cronología de la lucha por la Independencia de Mexico*. Milenio. 16 Sept 2020. Available [online](#).
- [6] *Revolución Mexicana: en qué consistió y quiénes fueron los principales líderes*. BBC News Mundo. 18 Nov 2018 Available [online](#).
- [7] Amaranth: Sustainable crop for the 21st century: food properties, and nutraceuticals for improving human health. Chapter in *Sustainable Protein Sources*, First Edition, Edited by S Nadathur. Oct 2016. Available [online](#).
- [8] Aderibigbe, OR, OO Ezekiel, SO Owolade, JK Korese, B Sturm, & O Hensel. Exploring the potentials of underutilized grain amaranth (*Amaranthus* spp.) along the value chain for food and nutrition security: A review. In *Critical Review in Food Science and Nutrition*. 6 Oct 2020. Available [online](#).
- [9] *Puente a la salud comunitaria*, AC. Available [online](#).
- [10] USDA. *FoodData Central*. Available [online](#).





Activity - Nutritious Amaranth

This is from the section "How does amaranth help our bodies?" in the student booklet.

In this activity, students will compare the nutrient content of amaranth to different foods.

In this activity, we will compare the amount of protein, calcium and iron in different foods. Protein helps our bodies make healthy muscles. Calcium helps us make strong bones. Iron helps us have healthy blood. See the nutrient content of the following foods.

Raw Amaranth Greens (100g)

Protein: 2.46 grams
Calcium: 215 milligrams
Iron: 2.32 milligrams

Cooked Amaranth Greens (100g)

Protein: 2.11 grams
Calcium: 209 milligrams
Iron: 2.26 milligrams

Nonfat Milk (100 ml)

Protein: 3.33 grams
Calcium: 125 milligrams
Iron: 0 milligrams

Cooked Amaranth Grain (100g)

Protein: 3.80 grams
Calcium: 47 milligrams
Iron: 2.10 milligrams

Pinto Beans (100g)

Protein: 20.45 grams
Calcium: 91 milligrams
Iron: 4.09 milligrams

Cooked Spinach (100g)

Protein: 2.98 grams
Calcium: 124 milligrams
Iron: 1.48 milligrams

- From the list above, which food has the most **calcium** to help us make strong bones?
- From the list above, which two foods have the most **iron** to help us have healthy blood?
- From the list above, which two foods have the most **protein** to help us make healthy muscles?





Food Sample - Alegría

Important note: *Alegría bars may contain milk and may have been processed in a factory containing nuts. Please share this information with students to avoid any possible reactions from food allergies.*

When amaranth is placed on a hot clay skillet, it jumps and puffs up. People say that it is jumping with joy, and call it 'alegría.' You are about to enjoy a traditional Mexican candy made out of puffed amaranth called 'dulce de alegría' – which means, 'candy of joy.'

This candy has roots in ancient Mexico when people made figurines with puffed amaranth as part of special celebrations.

As you eat it, we invite you to watch two videos to learn how amaranth is helping Mexican people stay connected to their history, improve their health, and help create economic opportunities.



Go to YouTube and search for:

- "10 Years Working with Amaranth in Oaxaca" by Puente Mexico (4 minutes, 17 seconds).
- "El Otro Mexico: El Amaranto" by Carolina Rocha Menocal (5 minutes, 33 seconds). This video is in Spanish. If you don't understand Spanish, you will still be able to appreciate how amaranth is traditionally grown and transformed into alegría.





Closing Activity

In the final handout "Amazing Amaranth," two questions assess if Learning Objectives were met:

- Write the original name of amaranth.
- List one way amaranth is good for our bodies.
- Describe why amaranth is an important plant for people living in desert ecosystems.

An additional journal prompt is included to support students in articulating their reaction to the amaranth story.

Additional Resources and Ideas

Dual-language (Spanish) classes

These three videos are in Spanish; the last has English subtitles.

- *Amaranth farming*. [This](#) 10-minute video shows traditional amaranth farming in Mexico.
tinyurl.com/amaranth2
- *Amaranth popping demonstration*. [This](#) 2-minute video is mostly instrumental and shows the traditional way of making puffed amaranth.
tinyurl.com/amaranth3
- *Amaranth Empowers Rural Women*. [This](#) 7-minute, Spanish-language video provides testimonials of women working with amaranth in Mexico.
tinyurl.com/amaranth4

Growing Amaranth

Ready to grow amaranth in school or home gardens? Amaranth seeds can be planted after the last frost. A starter set of amaranth seeds can be purchased at www.nativeseeds.org/collections/amaranth





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