



NEW MEXICO
FARM & RANCH
HERITAGE
MUSEUM

WAFFLE GARDEN



NEW MEXICO DEPARTMENT OF
CULTURAL AFFAIRS





Waffle Garden

Grades 3-5

Vocabulary:

Waffle Garden

Zuni

Latdekwi:we

Berm

Landscape

In this activity, students will learn about the agricultural technique of waffle gardening. Students will also understand how desert landscapes require different agricultural practices due to lack of rainfall and how we overcome those obstacles.





Agricultural Technique: Waffle Gardening

What is a waffle garden? A waffle garden is a traditional agricultural practice of the Zuni people of the Southwest. This agricultural practice follows a sunken grid pattern (similar to a waffle) garden bed that is beneficial for dry and arid landscapes that have limited water resources.

Who are the Zuni people? The Zuni are Native American Pueblo peoples who are native to the Zuni River valley in western New Mexico. The Zuni have been farmers and cultivators of their land for the last 3,000-4,000 years. Since New Mexico receives very little rain annually, the Zuni perfected a dry-farming method called Latdekwi:we, also known as waffle gardening, that is still being used today.

How does a waffle garden work? Due to little rainfall and a dry climate, water for agriculture is very limited in the desert regions of New Mexico. In order to save as much water as possible, gardens are made from grids of squares, with each square being surrounded by berms, or raised dirt mounds. This design helps the gardens to trap and retain moisture in the square areas, either through watering or rainfall, causing any water flow to go directly to the plants.

Many people assume that gardening in the more arid regions of New Mexico is next to impossible. With thanks to the Zuni peoples, we can continue to create lush and healthy gardens in our region today. Although some people have incorporated some modern elements, such as drip irrigation where water drips slowly from a source directly onto the roots of a plant, the foundation still remains as a waffle garden.

Activity: Sketch out your own waffle garden design! What will you grow? What conditions do your plants need? Where is your water and how will you access it?



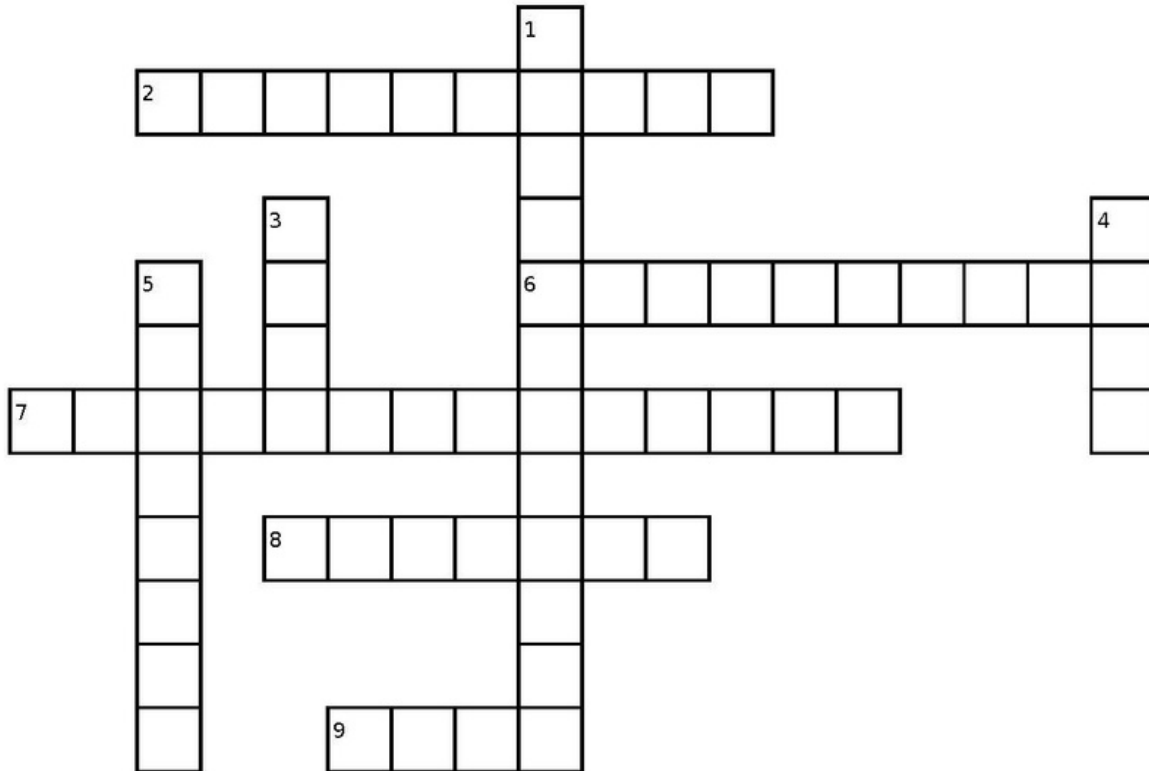
DIY Activity: Make your own waffle garden!

You can make a Waffle Garden simply by digging a garden area big enough for at least three squares across and three squares down. It will look like a tic-tac-toe board of dirt! Use various garden tools and dig down about one foot. The soil should be broken down into the consistency of brownie mix, with very few clumps. Break up any clumps that remain with your hands.

Then go to the upper left corner of your plot. Drag a ruler toward you and back away from you, and then from side to side. You will end up with one square foot of soil on a lower level, with a ridge of dirt on all four sides. Now move to the right, and make another square in the same way. See how you are forming a grid that's like a waffle? Keep going until you have the number of squares you want. Then plant your seeds! When you water your garden, simply hold the hose inside each square of the grid for a few seconds and let the water sink in.



Waffle Garden



Down:

1. a traditional agricultural practice of the Zuni people of the Southwest.
3. Native American Pueblo peoples who are native to the Zuni River valley in western New Mexico.
4. raised dirt mounds.
5. waffle gardens help retain water from watering and _____.

Across:

2. waffle gardening is beneficial for dry and arid _____.
6. the traditional name for waffle gardening.
7. a type of irrigation where water drips slowly from a source directly onto the roots of a plant.
8. waffle gardens are made in grids in the shape of _____.
9. what New Mexico receives little of annually.

Answers to puzzle:

Waffle Garden

Zuni

Berm

Rainfall

Landscapes

Latdekwiwe

Drip Irrigation

Squares

Rain

3-5 Standards:

Social Studies

Strand - Geography

K-4 Benchmark II-B: Distinguish between natural and human characteristics of places and use this knowledge to define regions, their relationships with other regions, and patterns of change.

3 - 1. Describe how human and natural processes can sometimes work together to shape the appearance of places (e.g., post-fire reforestation).

2. Explore examples of environmental and social changes in various regions.

4 - 1. Identify a region as an area with unifying characteristics (e.g., human, weather, agriculture, industry, natural characteristics).

2. Describe the regions of New Mexico, the United States, and the Western Hemisphere.

3. Identify ways in which different individuals and groups of people view and relate to places and regions.

K-4 Benchmark II-C: Be familiar with aspects of human behavior and man-made and natural environments in order to recognize their impact on the past and present.

3 - 1. Identify personal behaviors that can affect community planning.

2. Identify ways in which people have modified their environments (e.g., building roads, clearing land for development, mining, and constructing towns and cities).

3. Describe the consequences of human modification of the natural environment (e.g., use of irrigation to improve crop yields, highways).

Strand - History

5-8 Benchmark 1-B. United States: analyze and interpret major eras, events and individuals from the periods of exploration and colonization through the civil war and reconstruction in United States history:

5 - 4. identify the interactions between American Indians and European settlers, including agriculture, cultural exchanges, alliances and conflicts (e.g., the first Thanksgiving, the pueblo revolt, French and Indian war).

Literacy

CCSS.ELA-LITERACY.RI.4.3

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

CCSS.ELA-LITERACY.RI.4.5

Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

Science

5-LS1-1. Matter and Energy in Organisms and Ecosystems

Support an argument that plants get the materials they need for growth chiefly from air and water.

