Introduction

In this series of 3 videos, Noah interviews Mark Ruben, who is the director for Gilcrease Orchards in Las Vegas, Nevada.

View or download videos [online](https://www.youtube.com/playlist?list=PLGdlCTs4dQTdFThAVQn_yZYcp_8ZMbTLf) at: <https://www.youtube.com/playlist?list=PLGdlCTs4dQTdFThAVQn_yZYcp_8ZMbTLf>

Video 1: Growing food in the desert (2:22)

Video 2: Irrigation tools (2:24)

Video 3: Working at Gilcrease Orchard (1:58)

These videos support the following lesson plans in this unit:

* History of Nevada Water
* Importance of Water to Agriculture
* Irrigating Desert Land
* Conservation Aware

Grade Level(s)

3 - 5

Estimated Time

10 minutes per video

Purpose

Students will be able to understand the challenges of growing food in different ecosystems, how advancements in technology and engineering allow farms to conserve water, methods of farming in urban areas, and careers in food and agriculture.

**Materials**

* Videos 1-3
* Student worksheets to accompany each video

Instructions

In this document you will find a set of comprehension questions for each of the videos and an accompanying answer sheet. It is suggested that the teacher reviews the questions with the class before watching a video, so they can be active listeners during the video clip. Students may write answers to the questions and then watch the video again to go over the answers. You may also need to stop at various points throughout the clip to allow time for students to process what they are hearing and complete the worksheet.

Educational Standards Addressed

**Nevada Academic Content Science Standards/Next Generation Science Standards**

5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

Nevada Academic Content Standards for Social Studies

SS.4.24. Examine how and why Nevada’s landscape has been impacted by humans.

SS.4.25. Analyze how technological changes have impacted the environment and economy of Nevada.

**National Agricultural Literacy Outcomes**

T1.3-5b Explain how the interaction of the sun, soil, water, and weather in plant and animal growth impacts agricultural production.

T1.3-5e Recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants and fuel.

T4.3-5b Describe how technology helps farmers/ranchers increase their outputs (yields) with fewer inputs (less water) while using the same amount of space.

T4.3-5d Provide examples of science being applied in farming for food, clothing, and shelter products.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gilcrease Orchard video series: *Growing food in the desert*

1. How did the Gilcrease Orchard originally get started?

2. Why is the orchard open to the public today?

3. Why is water important to the Gilcrease Orchard?

4. What experiment did the Gilcrease family do with their crop?

Gilcrease Orchard video series: *Growing food in the desert*

ANSWERS

1. How did the Gilcrease Orchard originally get started?

 The Gilcrease family moved from Reno to Las Vegas in the 1920’s and

 purchased 900 acres. There was a natural stream running through the property which allowed
 them to grow alfalfa and water farm animals like chickens and goats.

2. Why is the orchard open to the public today?

 Most of the original land the Gilcrease’s owned is now surrounded by houses.

 The family feels that a lot of people do not know where their food comes from

 and by having the orchard open to the public people can see how agriculture

 works and pick some of their own food to eat. They also have field trips for

 **school students.**

3. Why is water important to the Gilcrease Orchard?

 Water is vital to growing crops, especially in the desert where water is scarce.

 If they did not have the natural spring flowing through the property, the family

would not have been able to keep their orchard going.

4. What experiment did the Gilcrease family do with their crop?

 They experimented with different types of fruit trees to see which varieties were

drought and heat tolerant.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gilcrease Orchard video series: *Irrigation tools*

1. Where does the water come from today that the orchard uses to irrigate?
2. What two methods of irrigation does the orchard use today? Briefly explain how each one works.
3. What is an aquifer?

Gilcrease Orchard video series: *Irrigation tools*

ANSWERS

1. Where does the water come from now that the orchard uses to irrigate?

 There is a well about a mile and a half from the property. They have drilled

 down to an aquifer which the water is then pumped out so the water can be

 used to help grow the crops.

1. What two methods of irrigation does the orchard use today? Briefly explain how each one works.

 The bubbler system is used for the trees: water goes through a series of pipes

 and at each tree part of the pipe is above ground and the water fills the area

 around the tree soaking its root system. The water is turned off after a couple

of hours. Wood mulch is also placed around the trees to reduce loss of water through evaporation.

The drip tape system is used for the vegetable and row crops. It uses a type of

 hose that is flat when no water is running through it. There are holes every 8

 inches and the water drips to water the vegetables. It takes about 3 hours a day

to water but there is very little run off and the water goes right into the soil where the plant’s roots are.

1. What is an aquifer?

 An aquifer is an underground layer of water from which groundwater can be

extracted using a water well.

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gilcrease Orchard video series: *Working at Gilcrease Orchard*

1. What does Mr. Mark do at his job?
2. What were the school subjects that help Mr. Mark most in his current job?
3. What is Mr. Mark’s favorite part of his job?
4. What is fertilizer?

**Gilcrease Orchard video series: *Working at Gilcrease Orchard***
ANSWERS

1. What does Mark do at his job?

 Mr. Mark does the hiring and the training of employees. He also figures out the

 timing of the planting and the harvesting of crops and what varieties of trees

 the orchard will use.

1. What were the school subjects that helped him the most in school?

 Mr. Mark uses math and science to help figure out how much water and fertilizer the plants

 need, and what types of fertilizer is needed to get the plants to do what he

 wants them to do.

1. What is Mark’s favorite part of his job?

 Mr. Mark’s favorite part of his job is pruning the trees. Pruning is needed to keep

 trees to a size where you can pick the fruit and it helps control the size of the

 fruit. He likes pruning for the artistic aspect of it and it lets him enjoy the

 outdoors.

1. What is fertilizer?

 Fertilizer is a substance (such as manure or a special chemical) that is added

to the soil or to plants to supply nutrients that help the growth of plants.

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