

Wisdom of the Trees

Instructor material and lesson setup

Arizona Earth and Space Science Standard 8.E1U3.7

Obtain, evaluate, and communicate information about data and historical patterns to predict natural hazards and other geological events.

Diné Content Standard

7th-8th Culture Standard

Concept 1: I will develop an understanding of Diné way of life.

Performance Objective 1: I will engage in activities that will increase my sense of self-worth.

NGSS Performance Expectation

Students will use data from tree cookies and tree cores to determine patterns of drought and wet cycles.

Instructor Set Up

Materials

Tree cookies (6-9 cm diameter)

Hand lens (magnifying glass)

Ruler (30 cm)

Mobile device with access to the world wide web

Do Now

Provide students with 5 minutes to complete this activity. Once they have completed the activity, discuss student responses without addressing correctness.

Distribute tree cookies (1-2 per group)

Go over how to count tree rings.

Part I: Tree Cookie Analysis

Students write down a response about the age of their tree cookie(s) and respond to the questions about patterns and about thickness of the rings.

Part II: Tree Core Analysis

Students analyze the tree core in their worksheet and determine the length using their rulers and the age. Students will find which rings are thinnest and infer drought years.

Discussion

Students discuss the core's ring spacing and patterns, and potential events or environmental changes over the years.

Understanding from Nature – Traditional Knowledge

In Navajo and Hopi cultures, traditional knowledge is vital in living among all beings in their ecosystem. The carbon cycle has and continues to be part of these cultures. Cycles in nature are an aspect of reciprocity, where one gives to receive, while to receive one gives.

Expand the Rs of traditional knowledge: reciprocity, respect, and responsibility.

Ask students to discuss about how might studying tree rings and their patterns connect to their cultural values of patience and respect for nature's teachings.