



Application of Concepts

LESSON 7 ENGINEERING CHALLENGE

Task | Engineering Challenge

Phenomenon Question | How can we help archaeologists feel cooler when they work?

OVERVIEW

Previously we developed an understanding of the warming effect of sunlight.

In this lesson we apply our knowledge of the warming effect of sunlight to solve a problem during an Engineering Challenge. We start by identifying a problem and wondering how we could help archaeologists feel cooler when they work. Using the engineering design process, we build a model of a shelter that would protect archaeologists working at a dig site from the warming effects of sunlight. We conclude that shelters are designed for many purposes, including protection from weather.

Later we will analyze weather data to determine whether we notice patterns.

Lesson Objective

Define a problem (SEP.1) caused when **sunlight warms Earth's surface (PS3.B)**, and **record observations (SEP.4)** of **a solution (ETS1.A)** that includes a **shade structure that can block sunlight (CC.6)**.

Performance Descriptors

Part 1: **Define the problem of (SEP.1)** archaeologists feeling **too warm (CC.3)** in **the sunlight (PS3.B)**.

Part 2: **Record observations (SEP.4)** of a **roof structure that could function (CC.6)** to **provide shade (ETS1.A)** when **sunlight warms the Earth's surface too much (PS3.B)**.

Part 3: Describe how the **shape and stability of a structure (CC.6)** will help to **solve the problem (SEP.1)** of **sunlight warming a dig site (PS3.B)**.

Part 4: **Record observations (SEP.4)** to determine how well **the shape and stability of a structure function (CC.6)** to **block the sunlight (PS3.B)**.

Part 5: **Redefine the problem (SEP.1)**, and then **describe how the solution could help (ETS1.A)** an **archaeologist feel cooler (CC.3)** while **working outside in the sunlight (PS3.B)**.