# SELF-WATERING TERRARIUM ELEMENTARY SCHOOL LEVEL 2

A terrarium is a sealed container that can be opened to access the plants inside. Closed terrariums create a unique environment for plants, as the clear walls trap heat inside and promote plant growth. In this project, students are gods of their own environments as they learn about photosynthesis, evaporation, and how plants live.

### **EDUCATIONAL STANDARDS:**

#### **NGSS CONNECTION:**

**2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.

#### **COMMON CORE CONNECTION:** ELA/Literacy

**W.2.7** Participate in shared research and writing projects (e.g., read a number of books on this topic to produce a report; record science observations).

**W.2.8** Recall information from experiences or gather information from provided sources to answer a question.

#### Mathematics

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

MP.5 Use appropriate tools strategically.

#### DOK:

Level 2: Concept Level 3: Strategic Thinking Level 4: Extended Thinking

#### **MATERIALS NEEDED:**

- Plastic or glass container
- Sand
- Potting soil
- Seeds
- Water

### **DIRECTIONS**:

- 1. If your container has a closed top, cut it open for access.
- 2. Add a layer of sand to the bottom of the container.
- 3. Add a layer of potting soil to the container, on top of the sand.
- 4. Add seeds, whatever you plan to grow in the container.
- 5. Water the seeds, moisten the soil but don't over-water.
- 6. Cap the container.
- 7. Place in direct sun and let it grow.

As the water evaporates inside of the bottle, it forms condensation. That moisture falls back to the soil in the form of rain. You may need to periodically add a small amount of water to keep the plant healthy, but this terrarium will mostly support itself.

## **OBJECTIVE**:

Students will be able to conduct an experiment to see if plants need both water and sunlight to grow.

## **ESSENTIAL QUESTION:**

• What do plants need to grow?



#### **ENGAGE / EXPLORE:**

- 1. Students will be presented with the essential questions and the terrarium build instructions.
  - Ask students to design an experiment using terrariums to provide a scientific response
  - b. Teacher facilitates students' learning but does not direct:
    - i. Use reflective questioning
    - ii. Encourage students to make progress
    - iii. Good scientific practices for experimental design
      - 1. Planned experiment
      - 2. Variables & control (language may be too advanced)

#### 2. Evaluate

- a. Student teamwork
- b. Experimental design
- c. Ability to identify the question
- d. Communicating their plan and its intended purpose

### EXPLAIN:

- 1. Students conduct their experiment over the course of several days
  - a. Multiple terrariums should be used i. Water and light
    - ii. No light, only water
    - iii. No water, only light
    - iv. No water, no light
    - v. Glass or plastic
  - b. Students record observations of growth and health of plant
- 2. Teacher facilitates
  - a. Good observation techniques
  - b. Asks reflective questions
- 3. Evaluate
  - a. Experimental process
  - b. Data collection process

### ELABORATE:

2.

- 1. Students make a conclusion from their evidence
  - Report out on their findings to the class
    - a. They may do a small presentation
    - b. Teacher may select on groups to share out and discuss each group's findings
- 3. Evaluate
  - a. Conclusion from evidence
  - b. Communication of their findings

## **SELF WATERING TERRARIUM**

**STUDENT HANDOUT** 

## NAME:\_\_\_\_\_

## EXPERIMENT

Purpose	Materials
I wonder	
Hypothesis	
I think	
Procedure	Results
Conclusion	
I learned that	

