

# Alaska Agriculture in the Classroom

## Greenhouse Lesson

**Concept Objective:** Greenhouses

**Time:** 40-45 minutes

**Setting:** Indoors

**Activities:** Greenhouse Construction

**Materials Needed:**

- Greenhouse containers (Salad Clamshell Containers are best)
- Plant markers (popsicle sticks)
- Spray Bottles
- Seeds

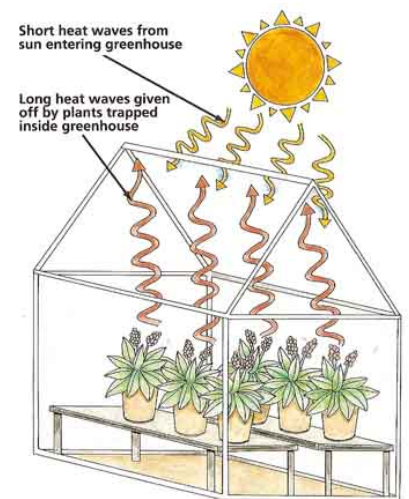


## Procedure

### 1. Discuss how a greenhouse works.

In cooler climates greenhouses are used to control the environment of plants so that they can grow in the season or in an area where they would not normally grow. A greenhouse works by taking in sunlight and heating it up. This process is the conversion of solar energy (sunlight) to thermal energy (heat). Greenhouses are designed to allow sunlight to filter through the walls and ceiling. The sunlight warms the trapped air inside, creating chemical reactions. These reactions help the plants to grow to their full capacity while protecting them from outside elements. It is a well-known fact that plants grow better when they have temperate heat and a good water source. A greenhouse gives them both.

The composition of a greenhouse is key. Typically, greenhouses are made of plastic or glass. The purpose is to trap as much light and heat as possible, which plastic and glass do. The plants and soil inside absorb all the sunlight and then reflect it back out. As the solar energy is redirected, however, it is changed. Sunlight is composed of shortwave infrared radiation that is able to pass through the greenhouse's exterior. These waves turn into longer-wave infrared radiation after absorption by the plants and they are no longer able to pass through the greenhouse's exterior



within the greenhouse. The air that is warmed near the ground is prevented from rising indefinitely and flowing away.

## **2. Make Salad Container Greenhouses**

1. Give each student a plastic salad container and a lid. Have them write their names on the bottom or side with a sharpie.
2. Fill bottom with soil around 1.5-2”.
3. Sow seeds in rows in the greenhouse. Label rows of seeds with halved popsicle sticks.
4. Water thoroughly.
5. Be sure to write names on the greenhouses.
6. Place in sunny (or lighted location).