

What does a plant need?

K to 2, ages 5 to 8. 20 minutes to set up, then five minutes a day for six weeks.

Children plant milkweed seed, control one variable, and watch what happens. It is the whole scientific method in a cup of soil, and at the end of it the class has plants to put in the ground.



Shadowmeld Photography. CC BY-SA 4.0. Wikimedia Commons.

What students will be able to do

- Name the four things a plant needs: light, water, air and something to grow in.
- Make and record a prediction, then compare it with what happened.
- Observe carefully over weeks rather than minutes.

Materials

- Milkweed seed, cold-stratified for 30 days beforehand (see the seed guide)
- Clear plastic cups, four per group, with drainage holes
- Potting mix
- Labels and a marker
- A sunny windowsill and a dark cupboard

How it runs

1. Two weeks before: put damp seed in a labeled bag in the staff-room fridge. This is the winter the seed is waiting for, and it is worth telling children exactly that.
2. Fill four cups per group. Sow three seeds in each, no more than a quarter inch deep, and water gently.
3. Label the cups: light and water, light, no water, water, no light, no light, no water.
4. Ask every child to draw what they think each cup will look like in three weeks. Keep the drawings.
5. Water the two watered cups twice a week. Put two cups on the windowsill and two in the cupboard.
6. Each Monday, one child per group measures the tallest shoot with a strip of paper and sticks it in a chart. Paper strips work better than rulers here, because the chart becomes a bar graph on its own.
7. After five or six weeks, compare the results with the predictions.

Discussion questions

- Which cup grew best? Was that what you thought would happen?
- The seeds in the dark cupboard with water may have sprouted and then gone pale and floppy. Why would a plant do that?
- Milkweed seed will not sprout at all until it has been cold. What is it waiting for, and why is that useful to the plant?

Taking it further

Plant the survivors outside in a sunny spot, and put a stake by each one. Milkweed comes up very late in spring, so the class the following year can go looking for it.

Safety

Milkweed sap irritates skin and is genuinely dangerous in eyes. Seedlings this small barely bleed, but make handwashing after handling the rule from day one.

NGSS alignment

Code	Performance expectation
K-LS1-1	Use observations to describe patterns of what plants and animals need to survive.
2-LS2-1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.

<https://milkweedusa.com/learn/what-a-plant-needs/>