



# Exploring 4-H at Home



Science and  
Technology

**Pillar:** Science & Technology

**Project:** Field Crops

**Activity:** Seed Germination Test (pg. 33)



CANADA  
4-H Saskatchewan

**Field Crops**

Member Manual

## Materials

- Several sheets of newspaper or paper towel
- A handful of seeds
- A shallow pan with a lid or plastic wrap
- Water

## What is Germination?

When a living seed is given the right conditions, it will begin to grow. This is called **germination**. In order for this to happen, the seed must be alive and have moisture, oxygen and warmth. If the seed germinates and has enough food for a good start, the plant will grow.

A seed germinates when the embryo begins to grow and emerges from the seed. The root begins to grow and pushes through the seed coat. It grows down into the soil and holds the plant in place. The root grows quickly and starts taking water and nutrients from the soil.

Each seed contains enough plant food to support growth for several days. However, the larger the seed, the more food and energy it can supply to the young seedling. Large seeds germinate faster, can start from greater seeding depths and produce stronger seedlings than do smaller seeds. Early seedling strength and rapid growth give the new plant better competition against weeds and seedling diseases.

## Germination Tests

A high **germination rate** (when most of the seeds germinate) is important in producing a high yielding crop. When a grower is planting, there is always some seed that will not germinate. Some seeds are dead or they may be damaged, and just barely able to sprout before dying. It is impossible to tell by looking at a seed whether it will germinate or not. If a large number of seeds that are planted fail to sprout, the crop will be thin and unable to compete with weeds growing in the field. Germination tests can tell us the quality of our seeds!

## Activity

1. Moisten a double thickness of paper and lay it in a shallow pan.



2. Space the seeds in rows.



3. Cover the seeds with another double thickness of moist paper and place a cover on the pan.



4. Place the pan where the temperature remains around 20<sup>0</sup>C (room temperature).
5. Keep the covering moist, but not too wet. Many species germinate in seven days. Others take longer, so try to choose larger seeds and/or plants that germinate quickly
6. After seven days, uncover the tests. Count only strong sprouts having both a root and a shoot.
7. Are most of the seeds strong or only some? Did they not germinate at all? Why or why not? What could you do better next time? Do you think that these seeds could fully grow?

Don't forget to post a picture of your germinating seeds on the 4-H Saskatchewan Exploring 4-H At Home Page and use #exploring4hathome