

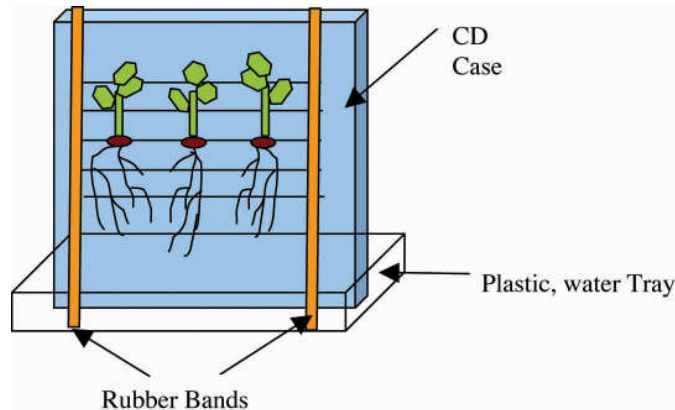
# Seed Germination Competition

**LEVEL:** Grades PreK – 6  
**SUBJECTS:** Science, Math  
**SKILLS:** Observing, Comparing, Measuring  
**MATERIALS:** Old CD cases, coffee filters, plastic tray, rubber bands, scissors ruler, permanent marker, seeds, water  
**PRE-TEACH:**  
Seeds come from a parent plant that develops a flower which is then fertilized. Seeds are embryos with a food supply. They wait inside their coats until the conditions are right...then they sprout!  
Germination is the name of this process.

To germinate a seed needs air, water and warmth, but not light. To develop into a seedling light is needed for photosynthesis. Once the plant matures it can produce more seeds (learn the importance of saving seed, pollination & plant reproduction). As the seeds sprout, different parts of the plant develop. The roots, the underground part of the plant, take up water and nutrients. The stem supports the leaves and flowers. The leaves, process sunlight through photosynthesis and transpire or exchange Carbon Dioxide for Oxygen that we need to live.

## PROCEDURE:

- First divide the class into pairs or teams with a set of materials for each.
1. With the hinge of the closed CD case at the top, take the ruler and permanent marker and draw a straight line across the case to mark where the seeds will be placed. (see illustration)
  2. Along one side of the case, start at the line drawn in step 1 and use the ruler and marker to draw a vertical ruler, marking each centimeter above and below the line.
  3. Mark the section above your seed line as “Shoot Growth” and below the seed line as “Root Growth”.
  4. Cut a paper coffee filter to fit inside the CD cases and place inside with about 1 cm folded over and hanging out from the bottom of the case.
  5. Wet the coffee filter and place 5-6 small seeds of different types on the coffee filter along the seed line you drew on the case. The seeds will stick to the wet filter.
  6. Stand the CD case on end inside the plastic tray and use the rubber bands to hold it in place. Place ½ inch of water in the tray. Be sure not to run out of water in the tray during the experiment.
  7. Have the students choose where they think the best place is to put their tray(s). Discuss the different variables (light, temperature, etc) and make it a friendly competition to see which seeds germinate quickest, grow the farthest, during the germination trial.
  8. Make a data collection sheet and measure both root and shoot growth each day at the same time. Include pictures, written observations, and/or graphs.



## BRIEF DESCRIPTION

Students will sprout seeds in different conditions to learn how seeds germinate.

## OBJECTIVES

The students will:  
-- Describe the changes in external features and behaviors of a plant during its life cycle.  
-- Collect data using measurement and scientific method  
-- Explain how changes in an organism's habitat can influence survival

## ESTIMATED TEACHING TIME

45-60 minutes plus 15 min. investigations

## MAINE LEARNING RESULTS

Grades 3-4  
Science: E1, E2  
Math: B4

Some information from: RAFT Resource Area For Teachers, San Jose, CA and Project Food, Land & People [www.foodlandpeople.org](http://www.foodlandpeople.org) adapted by Maine Agriculture in the Classroom 2010.