

# activity 9

## Introduction to seed germination



Age 8-12



### Time

Preparation - 30 minutes  
Germination - 1 week  
Activity - 30 minutes

### Materials

Seeds.  
Filter paper circles.  
Low level clear dish or Petri dishes.  
A plastic measuring syringe or 4 ml teaspoon.  
Clear polythene bags plus tape or wire to secure.

Through these activities children can learn:

- that certain conditions are necessary for germination (including warmth and moisture)

Skills developed:

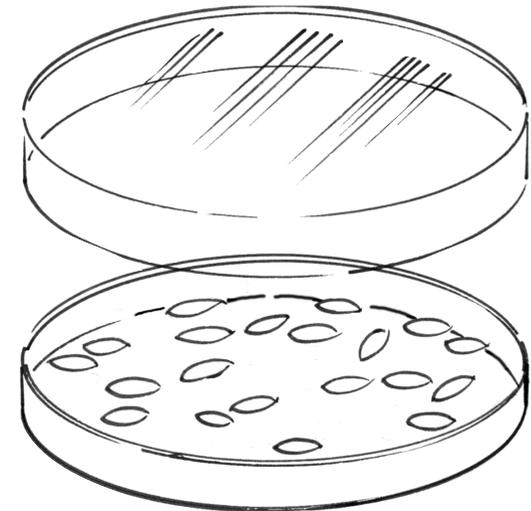
- prediction
- hypothesis
- investigation
- recording
- formulation of conclusions

How to begin:

- Show the children the seeds which they are going to grow.
- Tell them that when seeds begin to grow this is known as germination. Ask two questions: "Why aren't the seeds growing now?" and "How could we help these seeds to begin to grow or germinate?" (Q1 & 2).
- Take the children's ideas and then impose the constraint of having to be able to see the seeds germinate - remind the children that if the seeds are planted in soil, they will not be able to see root and initial shoot growth.
- If the children's ideas are appropriate use them. Alternatively, you might like to use the activity directions which follow.

Key questions:

- Q1. Why aren't these seeds growing now?
- Q2. How could we help these seeds to begin to grow or germinate?
- Q3. What will happen to the seed when it starts to grow or germinate?
- Q4. How long do you think this will take?
- Q5. Which seed sample do you think will show the best growth and why?





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## continued

### Activity directions:

In this activity you will be considering two variables - temperature and water. To do this you will set up four Petri dishes in all.

- Line four Petri dishes *each* with four filter paper circles. Scatter twenty seeds into each dish.
- Take two of the lined Petri dishes containing seeds and add 8 ml of water to each of them using a plastic measuring syringe or two x 4 ml teaspoons of water. The remaining two dishes should not be given water. Put each dish into its own small, clear polythene bag and tie up the mouth of each bag.
- Check the 'wet' dishes each day to make sure the filter paper is moist. This is best done by tilting the Petri dish and seeing if a small 'tear-drop' of water appears at the lower edge of the dish. If it does, there is enough water in the dish. If a droplet does not appear, add an extra 1 to 2 ml of water (this amount of water will probably be needed after the first day, but it is important to check the dishes for water every day). Take care not to flood the dishes - overwatering will result in poor germination.
- Place two dishes - one 'with water', one 'without water' - in the same cold environment (e.g. outside the building in Winter or Spring, or in a fridge but not in the freezer!); and the remaining two dishes in a medium to warm environment (a classroom table or shelf).
- Through discussion, ask the children to predict which seed sample will show the most growth within a week. (Q3-5).
- Record growth and formulate conclusions.

### Expected results:

The seeds which have been given 8 ml of water and placed in the warm environment should germinate in around a week. It is best therefore to observe these dishes every day. If the seeds which have been given water and placed in the cold environment germinate, growth will be slower. The seeds which have not been given any water will not germinate.

### Teachers' note:

Germination in some plant species is helped along if they are left exposed to the light, while some prefer to germinate in darkness (any light/dark preference is normally indicated on the seed packet).

### Extension activities:

- Compare the speed of germination of *different* seed species using the directions given above.
- Using *different* seed species, test for light or dark germination preferences e.g. freshly collected *dandelion* seed prefers to germinate in the light.

