KEY Monocots and Dicots

20 minutes

Learning Objective(s): Participants will…

- Understand the differences between monocots and dicots
- Identify different parts of a seed.

Supplies:

Handouts:

- Monocots and Dicots graphic

Materials:

- Bean and corn seedlings
- Soaked corn and bean seeds
- Microscope
- Hand lenses

Instructions:

Divide people into small groups. Each group will have examples of bean and corn seedlings, soaked seeds to observe and dissect, and a worksheet on which to write their answers.

Seed Activity Worksheet

1. Observe the seedlings in the cell packs – which are monocots and which are dicots? Explain why.

I started corn and bean seedlings for this activity. The bean plants have two cotyledons and the true leaves have netted veins. The corn plants have no visible cotyledons and the veins are parallel.

2. Locate the cotyledon leaves and the true leaves on the dicot seedlings. How do the vein patterns differ?

There are no visible veins on the cotyledons, and the true leaves have netted veins.

3. Where is the meristematic tissue located on the dicot seedlings? On the monocot seedlings?

Dicots: at the top of the plant, where new leaves will emerge
Monocots: at the base of the plant

4. Explain why monocots but not dicots can be grazed (or mowed) without harming the plant.

In monocots the meristematic tissue is located at the base of the plant, so it can be grazed or mowed and will regrow. If dicots are eaten to the ground they will not resprout because the meristematic tissue is at the tip.

5. Dissect a sprouted bean seed and a sprouted corn seed and locate the following parts:
_____Seed coat
_____Radicle
_____Epicotyl
_____Cotyledons

6. Summarize the four main ways in which monocots and dicots differ.

   a. *Pattern of leaf veins*

   b. *Number of cotyledon leaves*

   c. *Monocots: Flower parts in multiples of 3; Dicots: flower parts in multiples of 4 and 5*

   d. *Monocots: vascular bundles scattered throughout stem; Dicots : vascular bundles arranged in a ring near the outside of stem or trunk*

7. Name three important food crops that are monocots:
   Corn
   Rice
   Wheat

8. The most common stimulus for breaking seed dormancy is *Moisture*.

9. When a seed breaks dormancy and starts to grow this is called *Germination*.

10. Some seeds of perennials and woody plants need to go through a period of wet cold to break dormancy. This is called *Stratification*.

11. Some seeds have a very tough seed coat – in order for these seeds to germinate the seed coat must be weakened or broken. This is called *Scarification*.

Date Published: April 2019
Author(s)/Contributor(s): Chrys Gardener, CCE Tompkins Community Horticulture Educator
Reviewer(s): Fiona Doherty