

PLANTS

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The activities in this book explain elementary concepts in the study of the plants, including seeds, seedling germination and growth, roots and stems, flowers, trees, leaves and photosynthesis, and seasons and plants. General background information, suggested activities, questions for discussion, and answers are included. Encourage students to keep completed pages in a folder or notebook for further reference and review.

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PLANTS

A BEGINNING LOOK AT PLANTS (DICOTS)

Green plants are probably the most important living organisms on Earth. Plants are the basis for all food. Life could go on without people, or dogs, or butterflies, or sharks, but if all the green plants were gone, life on Earth would soon cease to exist.

On the other hand, as long as plants have enough sunlight, water, air, and some minerals, they could get along nicely without animals.

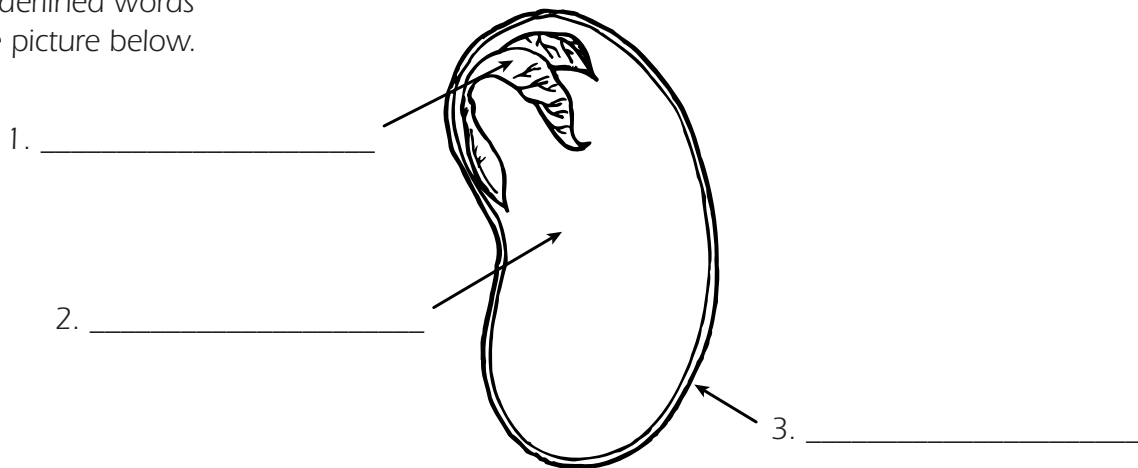
Begin the study of plants by looking closely at a bean seed that has been soaked in water. Does it have an outside skin or covering?

This is the **seed coat**. This coat will probably slip easily off the seed. Do you see a slit running around the seed? Carefully slide your fingernail into this slit, and the seed will split into two parts. Look for the tiny plant inside the seed. This is the **embryo**, or baby plant. Use a hand lens if you have one. Can you see the two small leaves?

The large part of the seed is called the **cotyledon**. It supplies food to the young plant when it starts growing. The bean seed has two cotyledons. Therefore, it is called a **dicotyledon** or **dicot**, for short. **Di** comes from the Greek word **dis** meaning two.

ACTIVITY

Use the underlined words to label the picture below.



4. A bean seed is a _____.

ACTIVITY

Find other seeds to examine. If they split naturally into two parts, they are dicots.

NOTE

Dicots are flowering plants. Their leaves have branching veins. Their flowers usually have four or five petals or multiples of those numbers. There are about 200,000 species of dicotyledons.

PLANTS

A BEGINNING LOOK AT PLANTS (MONOCOTS)

Look closely at a corn seed that has been soaked in water. Does the seed coat slip off easily like the bean covering did? Does this seed split naturally into two pieces like the bean did?

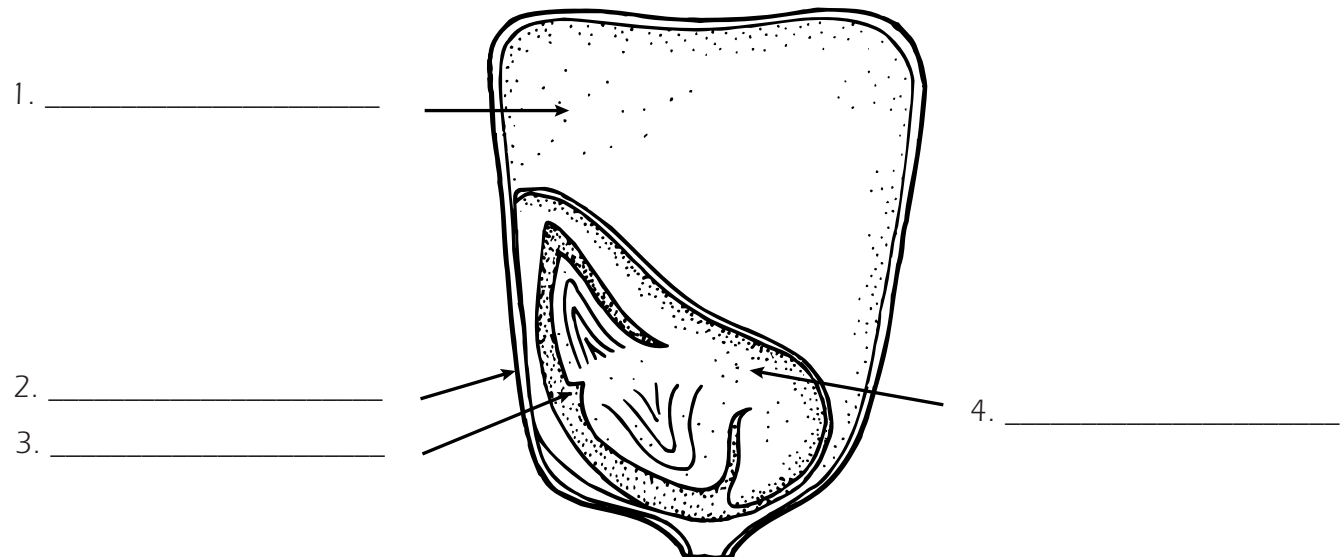
The corn seed does have an outside covering or **seed coat**, but it doesn't slip off and it may be difficult for you to tell it is there. The corn seed does not split naturally at all. In fact, you will need to cut it in half.

Even when the seed is cut, it is often difficult to see the tiny embryo. Use a hand lens to try to see the part that will become the leaves. One **cotyledon** will surround the **embryo**. It is a lighter color than the rest of the seed. The remainder of the seed is called the **endosperm**. It provides food for the developing plant.

The corn seed is a **monocotyledon** or **monocot**. **Mono** comes from the Greek word **monos** meaning one.

ACTIVITY

Use the underlined words to label the picture below.



1. _____

2. _____

3. _____

4. _____

5. A corn seed is a _____.

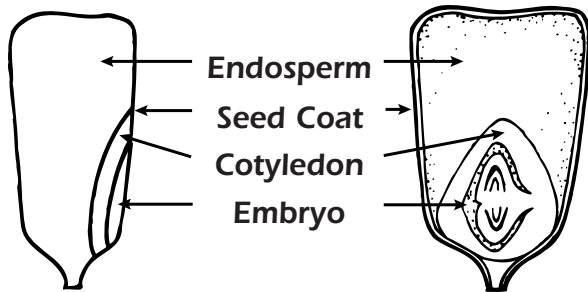
NOTE

Monocots are also flowering plants. Their leaves usually have parallel veins. Their flowers usually have three petals or multiples of three. There are more than 50,000 species of monocotyledons.

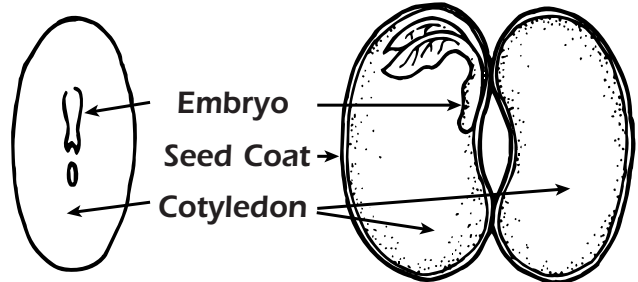
PLANTS

COMPARING MONOCOTS AND DICOTS

Is it a dicot (**D**) or a monocot (**M**)? Label each picture.

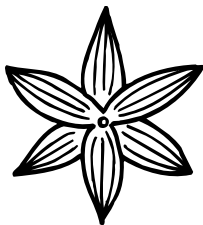


1. _____ CORN SEED

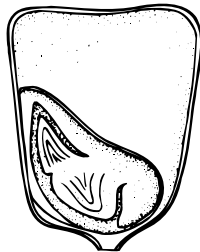


2. _____ BEAN SEED

3. _____ About 200,000 Species



4. _____ Petals in Multiples of 3



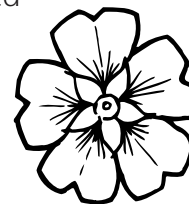
6. _____ One Cotyledon in Seed



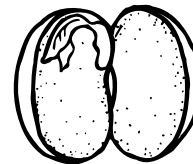
5. _____ Branching Veins



7. _____ Parallel Veins



8. _____ Petals in Multiples of 4 or 5



10. _____ Two Cotyledons in Seed

9. _____ More than 50,000 Species