

# Seed Magic

GARDENING ACTIVITY #4

## Summary:

This is a 2-part activity. Everyone will dissect a seed in order to observe seed parts in three seeds. Seeds will be planted with and without the conditions they need to see how they grow.

### Why Do This?

The nature of seeds becomes much clearer when you see the parts and understand their function first hand. The things plants need to grow are evident when you look at plants that try to do without.

## Some Helpful Information:

There are two basic types of plants and seeds, **dicots** and **monocots**. “Mono” means one; these plants start life with one leaf, like a grass. “Di” means two; these plants, like beans or radishes, start life with two leaves. Monocot and dicot seeds have three things in common: a seed coat, an embryo or baby plant, and a food supply. Cotyledons are the initial seed leaves of the plant. Monocots have one seed leaf and dicots have two. When mature, the leaves of monocots are long and thin (lilies and grasses like corn, wheat and rice); dicots’ leaves are broad (almost all other plants). The seed coat is a protective layer that protects it until it is time for it to grow. (There are some lotus seeds that were over one thousand years old that grew and are growing today in Kenilworth Aquatic Gardens of Washington D.C.!) The food supply gives the tiny growing embryo enough food to sprout out of its seed coat and look for soil and water that will maintain the plant for the rest of its life. A food supply and water are what sprouts grow from when we make bean sprouts.

In the first part of this activity folks will look at seeds and see all the tiny parts that help them to grow. Everyone will draw a picture and label it to help them remember the seed parts.

All plants have the same requirements to grow into healthy plants. They all need air, water, nutrients the right amount of light and an optimal temperature. Different plants like differing amounts of water, different types of soil and grow in different temperature ranges. Broccoli grows well in cool temperatures but melons need heat. Strawberries like acidic soil; potatoes don’t thrive in it. Too much heat and sunlight will make lettuce taste bitter and go to seed; tomato plants won’t make tomatoes if they don’t get enough light and warmth.

In the second part of this session we see how seeds will grow in varied situations. Some are started without water, others without soil and some without light. Have everyone make predictions about what will happen. Make notes and keep the notes with the plant to be amended over the next two weeks.

**Time:**

1 hour

**Materials:**

seeds, soaked overnight: kidney, pinto and/or green bean  
seeds, dry: peanuts in shell, radish  
crayons and paper  
planting containers (four per group; cut-off milk cartons are fine)  
potting soil  
shoe boxes (one per group)

**Preparation:**

1. Gather materials
2. Review the activities to be clear on steps
3. Soak the seeds overnight

**Step by Step:****Activity One**

1. Have a class discussion about seeds. Where do they come from? What do they look like? Why do they look that way? What will they become? What's inside?
2. Break into groups of three or so.
3. Distribute the soaked bean seeds and peanuts.
4. Tell everyone to open them up and see if they can find similarities and differences. Have them draw pictures, one of each kind, and label their drawings, naming the different parts. (They are to decide what to call the parts.)
5. Have everyone share their drawings and labels.
6. Show them the "Seed Magic" drawings. If they like they can copy down the labeled names; Their label names are fine too.

**Activity Two**

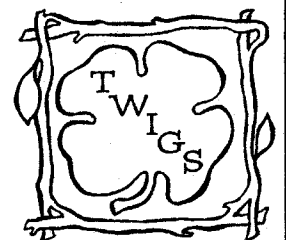
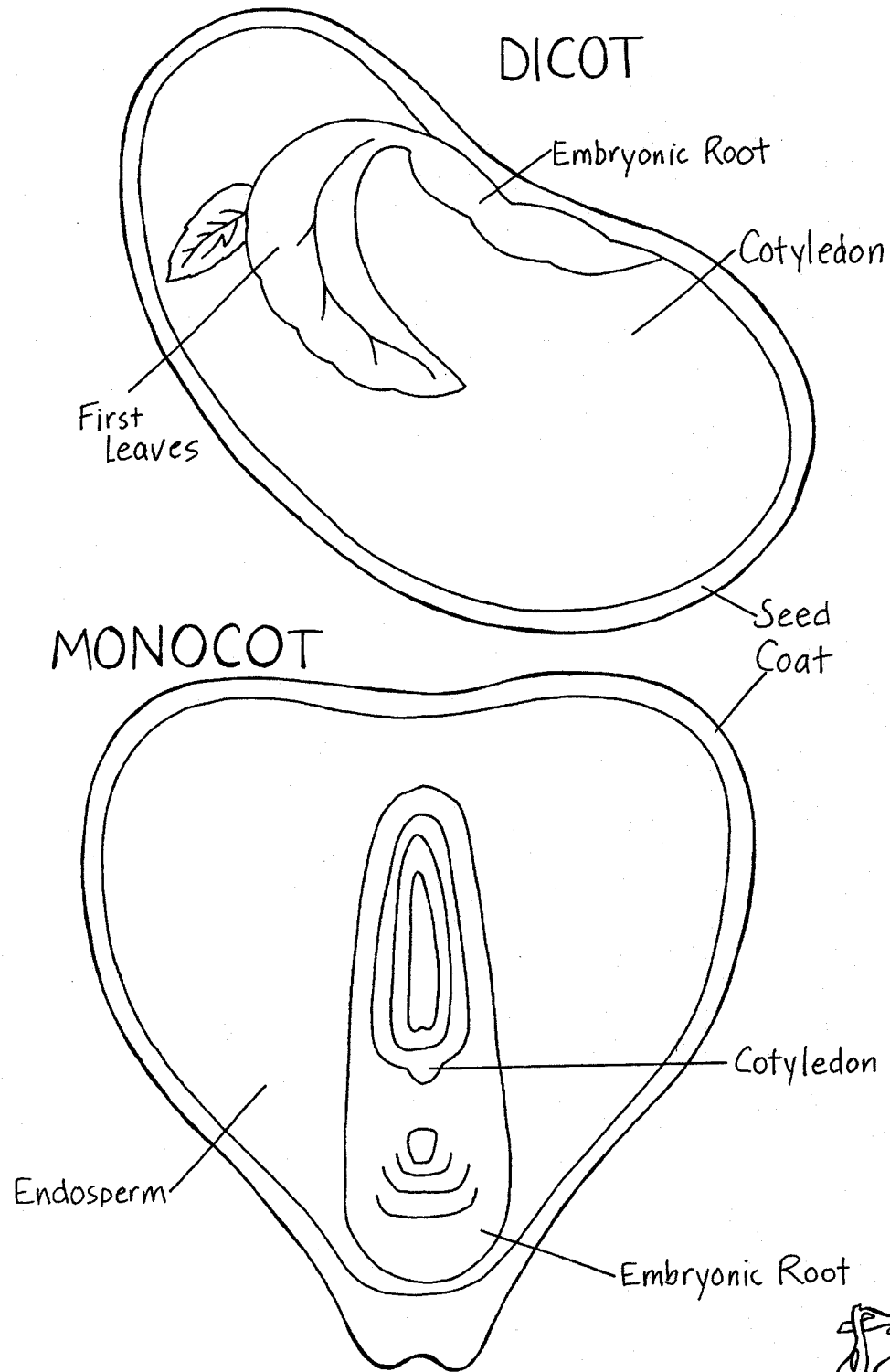
1. Discuss: What do seeds need to grow? What if they didn't have water? Soil? Light? It was very cold?
2. Explain that they are going to try growing plants with these varied conditions. Show them the directions and materials.

ALTERNATE PLAN: If you don't have enough materials for each group to do all four growth scenarios, you can assign one scenario to each group. At a later date have everyone compare results.

**Extensions:**

- Pack dry peas into a small container with water. Cover with a snap-on lid or a rubber band over plastic wrap. (They will swell up and pop off the lid.)
- Go outside and collect any seeds you can find. How do they travel? Stick to socks or pet fur? Flying in the breeze? Floating on water? In animals' or people's tummies? Have folks design a "traveling seed" on paper.

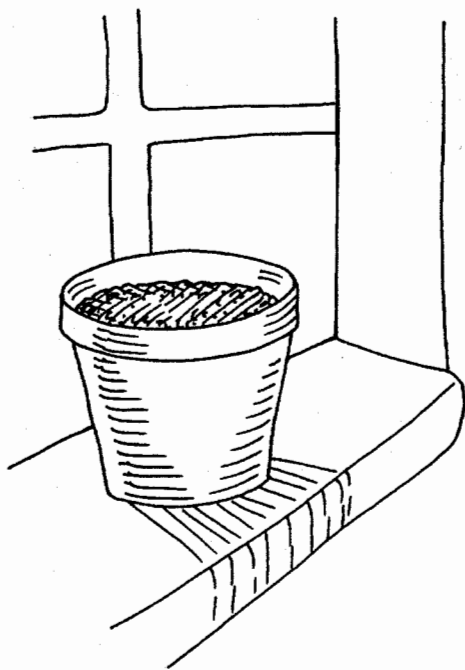
Handout #1 • Gardening Activity #4  
**SEED MAGIC**



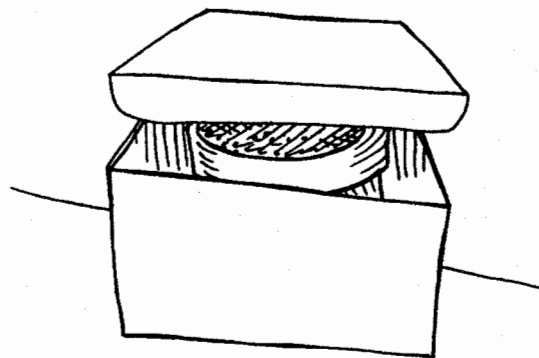
Handout #2 • Gardening Activity #4

**GROWING SEEDS**

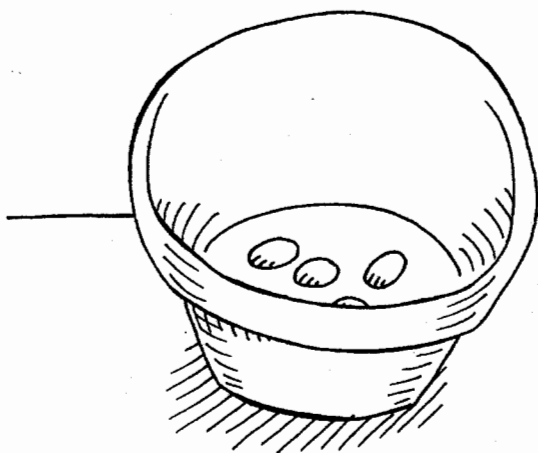
without WATER



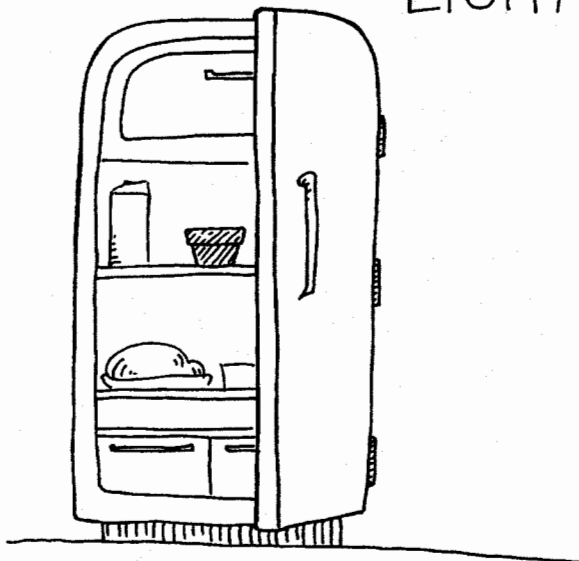
without LIGHT



without SOIL



without WARMTH  
or  
LIGHT



CREDITS (ideas from) *The Growing Classroom* by Roberta Jaffe and Gary Appel, Addison Wesley 1990