

Growing Sunflowers!

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TIPS

Sunflowers are among the easiest flowers to germinate, however, unless given ample light, the plants quickly become tall and leggy. A south or west window exposure is optimum, or artificial light placed 3 to 6 inches above the plants. This characteristic makes sunflowers a good example to demonstrate photo tropism.

GROWING TRANSPLANTS

Supplies:

- Sunflower seeds
- Potting soil
- Peat pots or paper pots (see page 46 in GITG, for instructions to make pots from newspaper)
- Water
- Labels - purchased wooded or plastic labels or 1" x 6" strips cut from gallon milk jugs
- Permanent marker
- Flat or tray to hold pots



Sunflowers are wonderful plants to demonstrate seed germination and growth. The large seeds are easy to handle and plant.

VARIETY. There are several different varieties that can be grown. 'Mammoth', also known as 'Mammoth Russian', or other tall-growing varieties are recommended for sunflower houses. Dwarf varieties, such as 'Teddy Bear', 'Elf', or 'Happy Face' may be better for children to plant and take at home.

PLANTING TIME. Sunflowers germinate in five to seven days and reach transplant size in about 4 weeks, so do not sow the seed more than four weeks before the average last frost date in your area.

PLANTING. Since sunflowers do not like to have their roots disturbed during transplanting, it is advisable to sow the seed in peat pots, made of compressed peat fiber and available from most garden centers, or into paper pots. These containers are degradable and can be buried in the soil at planting time, minimizing damage to the roots.

Fill the pots completely full of potting soil. Have the children poke a hole about ½-inch deep (up to the first knuckle on their index finger) and put the seed in the hole and cover it.

The children should prepare a label for their container that has their name and "sunflower" written on it with a permanent marker. Place the label near the edge of the pot. Water the soil gently but thoroughly. Place all the pots close together in a flat and set in a bright, sunny location. Once the seedlings emerge, set them in a sunny location and keep the soil moderately moist. They will be ready to plant when they have two or three true leaves.

As the plants grow, discuss the elements as they relate to the growth of their sunflowers. ("Sun, Soil, Water and Air")

FACTORS AFFECTING SEED GERMINATION

There are several factors that affect the rate of sunflower seed germination, such as water, light, and planting depth. Demonstrations and hands-on experiments are excellent ways in which children will learn more about the requirements for seed germination. Below is a simple experiment with five different treatments that can be done to demonstrate these concepts

Supplies:

- Sunflower seeds (packaged for planting)
- Potting soil
- 15, small paper cups (6 oz)
- Rulers
- Labels-masking tape, or tongue depressors
- Permanent marker

Poke a small, ¼-inch diameter hole in the bottom of nine cups. Fill the cups with potting soil. Plant one seed in three cups at least 2 inches deep; place a label in or on the cups that says "1. deep". Plant one seed in three cup ¾-inch to 1-inch deep; place a label in or on the cups that says "2. shallow". Place a seed on the surface of the soil in three cups and label them "3. not covered". Apply the same amount of water to each cup so that the excess water drains out the bottom.

Fill six cups (without a drainage hole) with potting soil. Plant one seed ¾-inch to 1-inch deep in all six cups. Place a label in or on three cups that says "4. no drainage, wet". Add enough water to three cups so that the soil is soggy. Label the remaining three cups "5. dry" and do not water these three cups.

Record the planting date and set the cups in a warm location. Keep the soil moderately moist in cups labeled 1 through 3, soggy in cups labeled 4, and do not water the cups in treatment 5. Check daily for germination. Use the following table to record the germination and growth rate. This information can then be used for exercises in charting and plotting.

Planting date: _____

Treatment	Number of days til emergence	Growth rate (stem length 3 days after emergence)	Growth rate (stem length 7 days after emergence)
1 (deep)	1		
	2		
	3		
2 (shallow)	1		
	2		
	3		
3 (not covered)	1		
	2		

	3		
4 (no drainage, wet)	1		
	2		
	3		
5 (dry)	1		
	2		
	3		

You may want to develop a graph or chart with the findings recorded on the chart. Have the students describe what they see.

What are your conclusions from this experiment?

How would you use these conclusions to start plants in pots inside or to start and transplant plants outside?

Consider how deep the seeds were planted, how long it took them to grow, how much water and sunlight they had, and so on.

Why did we plant three pots of each treatment?

Were there differences in the rate of growth between the three pots in the same treatment?

What would cause the differences between the rate of growth in the pots with the same treatment?

This experiment can be expanded to include the effects of various light levels on the growth of the seedlings. Place the three cups from treatment 2 in three different locations that receive bright, moderate, or dim light. After a week or two, observe the differences in plant growth.