

Sunflower growing - Group experiment

(requires outdoor space available for planting)

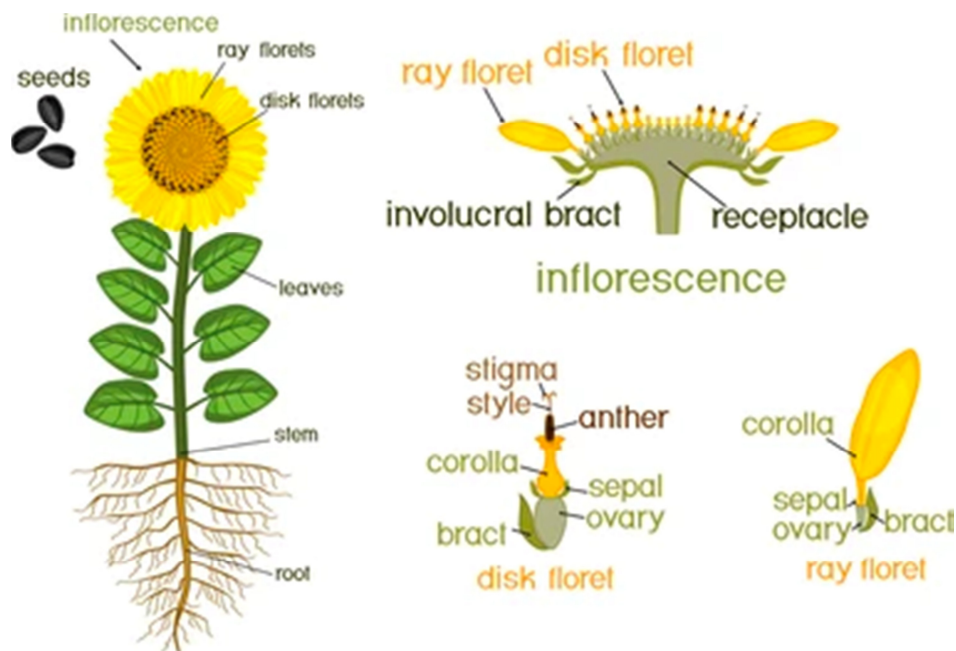
Equipment

- Spade or trowel
- Sunflower seeds (provided by us)
- Watering can
- Multipurpose compost

Objectives

- Identify the basic parts of a seed and plant
- Observe how a sunflower grows
- Identify what conditions a sunflower grows best in

Parts of a sunflower



Experiment steps

1. In spring, choose an outdoor location that receives plenty of sun
2. If your soil has a lot of clay or sand in it, your sunflowers will do a lot better if you mix in some compost before planting. It's also best to water the area before planting
3. Use the trowel to dig small holes between 1 and 2 inches deep (as many holes as you have groups)
4. Place the sunflower seeds into the hole 8 inches apart and gently cover back over with soil. Water straight after planting also

5. Water regularly if the weather is dry. Generally, for established plants, a deep watering once a week will suffice. If you are experiencing a heat wave, it is best to increase the frequency
6. You should see the sunflower sprout in 10-14 days and after 75 days your sunflower should be fully grown, note down its final height
8. You can either leave the sunflowers in place to feed the birds or you can collect the seeds to eat

To collect sunflower seeds, wait until the petals start to dry and fall off and the stem turns yellow or brown. The seeds should be starting to become loose. Then you can cut the head off the stem, and rub the center to dislodge the seeds from the flower.

[Recipe here for roasted sunflower seeds.](#)



Observation points:

1. Try to observe when the stem first sprouts from the soil, can you see the seed casing? What does that tell you or demonstrate?
2. Once grown, try to observe the plant at different times of the day. Does its face change direction? What do you think it's following?
3. *[On page 5 of this document there is a sheet for students to sketch the plant at regular intervals and observe how it changes in more detail. Older children could draw a bar graph with an x-axis showing the number of days and a y-axis showing the height of your plant.]*
4. Which plant has grown the tallest after 75 days?

Talking points:

1. Why does a sunflower's face follow the sun?
2. How much does it grow each day? Does it grow quicker at the start or at the end of the 75 days it takes to reach maturity?
3. Knowing which plant grew the tallest, what conditions do you think sunflowers like best?

Light energy - is required for photosynthesis, in which plants make sugars in the leaves. Light also triggers changes, particularly flowering, in certain plants.

Water - is necessary to carry dissolved nutrients into the plant through the roots. It is one of the key ingredients in the process of photosynthesis, and helps the plant release energy from stored food when needed. Water transports nutrients and gasses into, around, and out of the plant. It is an important component in the cells of all living things.

Air - Plants use carbon dioxide to make food (photosynthesis), and they use oxygen, as do humans and other animals, to release the energy from that food (respiration).

Mineral nutrients are essential for growth, repair, and proper functioning. Minerals are formed by the breakdown of rocks and other materials in the earth, plants take these minerals from the soil (dissolved in water).

Although these minerals are important supplements for health and maintenance, they cannot replace the sugars produced in the leaves through photosynthesis, which can also be stored as carbohydrates, fats, and proteins.

4. Do you notice any birds or insects around the sunflowers? What do you think they need the sunflower for?

Birds and bees should be attracted to your sunflowers, birds eat the seeds directly and bees need its pollen for protein and to feed their larvae.

Experiment Variations

You could ask student groups to decide on and note down their own plan for growing the plant, choosing conditions like where it should be planted based on where the sun is and how often they water it etc. Or you could assign different conditions to each group to monitor how variations affect growth. Variations could include:

- **Less water:** One group could try halving the amount of water they give each time in comparison with the other groups
- **No compost:** Try leaving one patch of soil without compost, label the area or specific plant growing in this space for future reference
- **Less sunlight:** Identify the area that gets the least sunlight, label the area or specific plant growing in this space for future reference

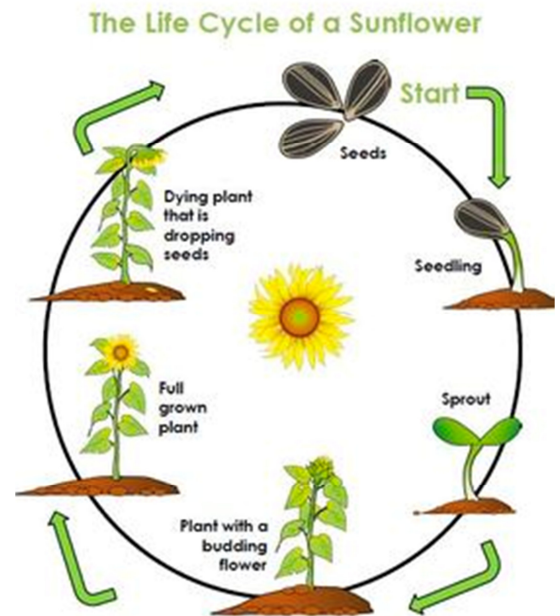
Other learning opportunities with sunflowers:

Lifecycles

Sunflowers are grown from seed. Like most crops, they are planted in the spring and harvested in the fall. Their life cycle begins and ends with a seed. The seed is planted, germinates, grows to maturity, and then flowers. The head of the flower contains many seeds. At the end of the life cycle the head of the flower becomes heavy and drops. At this time the flower is harvested and the seeds are collected for processing and either human or animal consumption.

Art project

Sunflowers are a beautiful plant and often easier to draw given their size and format. We would love to see any interpretation of a sunflower and perhaps we could make a collage with everyone's work.



Recording Sheet

Here is what my plant looks like:

<p>Date:</p>	<p>Date:</p>	<p>Date:</p>	<p>Date:</p>
<p>Date:</p>	<p>Date:</p>	<p>Date:</p>	<p>Date:</p>
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