GREENHOUSE GERMINATION

Become a botanist with your own miniature greenhouse

What you'll need:

- Paper (or construction paper)
- Scissors
- Markers, crayons or stickers
- A plastic sandwich bag
- 5-6 cotton balls or 1 paper towel sheet
- Seeds or dried beans*
- Tape

*Try fruit or vegetable seeds, such as watermelon, cantaloupe, squash or pumpkin, or use dried kidney beans. Note that the beans will take longer to germinate.

Create:

1. Draw the outline of a greenhouse on a piece of regular paper or construction paper. The greenhouse should be a little bigger than your plastic sandwich bag.
2. Cut the greenhouse shape out, then cut a large square hole in the centre of it.
3. Decorate your greenhouse using markers, crayons or stickers. Optional: Write the name of the plant you will be growing.
4. Dampen 5-6 cotton balls (enough to line the bottom of the sandwich bag) or 1 folded sheet of paper towel. Place your dampened cotton balls or paper towel inside the bag.
5. Place 3-5 seeds or dried beans in the bag on top of the damp cotton balls or paper towel.
6. Seal the bag shut and tape it to the back side of your greenhouse. You should be able to see the bag and its contents through the hole you cut in the greenhouse.
7. Find a window in your home that gets lots of sunlight, and tape your greenhouse to it.
8. Leave your greenhouse taped to the window until your plants begin to sprout. The length of time will depend on what type of plant you are growing in your greenhouse. Most seeds begin to germinate after about five days, while dried beans take a few days longer.
9. Observe your greenhouse every day and write or draw what you see. Is there condensation inside the bag? What other changes do you notice? How tall will your sprouts get?
10. After about 7-10 days (or a few days longer, if using kidney beans), once your seedlings have visible roots and a stem, carefully remove your sprouts from the greenhouse and plant them in soil to continue growing your plants.

Play:

You have just become a **botanist**! A botanist is a scientist who studies plants.

What type of seed did you plant, and what part of the plant do you think you will see first? Visit your plant every day and observe how it has changed. Try drawing pictures of what you see as your plant changes. Or, pretend to be a seed by rolling yourself into a ball—then slowly stand and reach your arms up to imitate a growing seedling!

ONTARIO SCIENCE CENTRE
An agency of the Government of Ontario

GREENHOUSE GERMINATION

Here's a song you can sing while you play! Try singing these words to the tune of "Mary Had a Little Lamb."

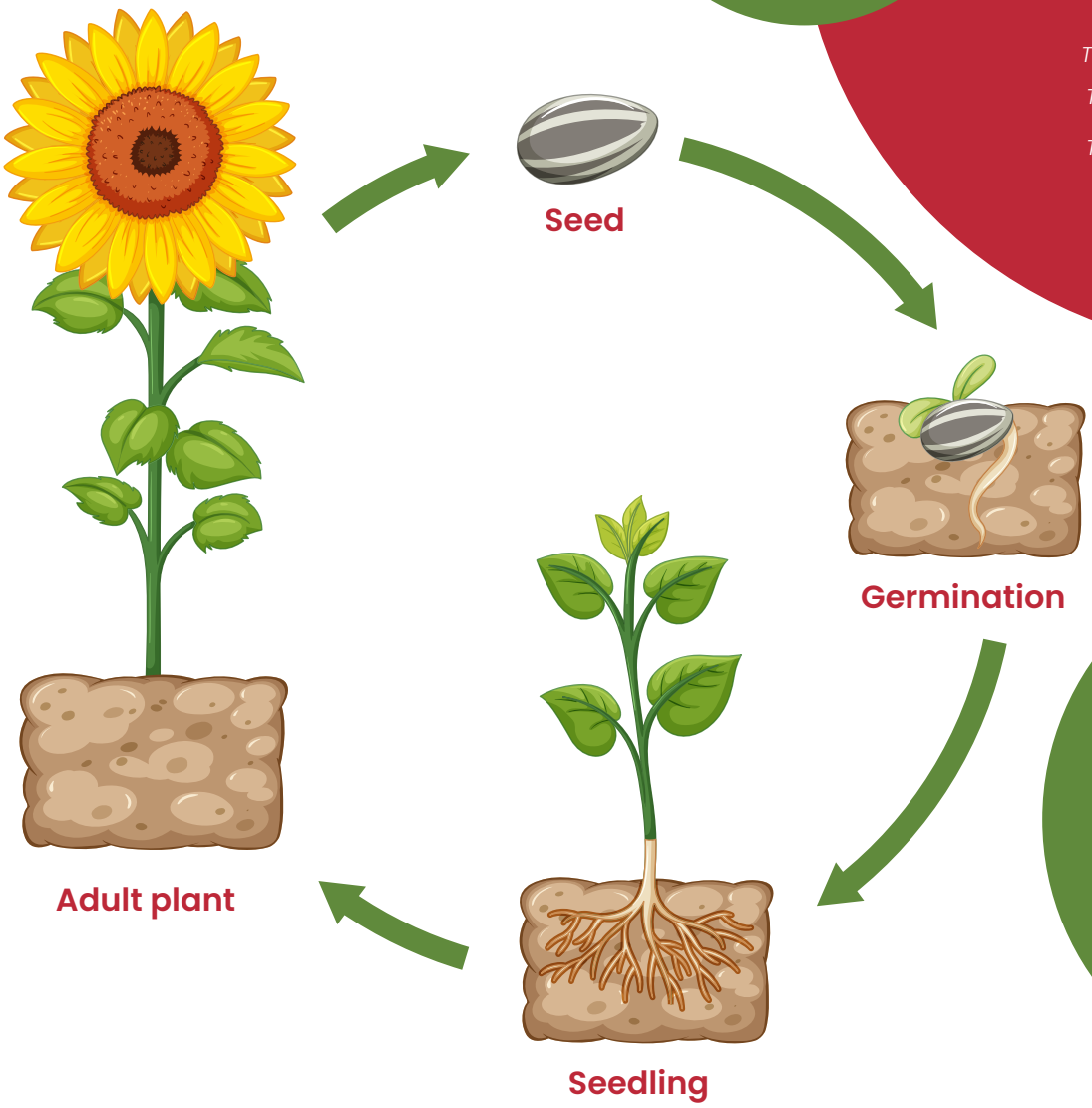
Here is my little seed,
Little seed, little seed.
Here is my little seed,
Our roots begin to grow.

Our roots begin to grow down strong,
Grow down strong, grow down strong.
Our roots begin to grow down strong,
Let's see what grows out now.

Out will come the little stem,
Little stem, little stem.
Out will come the little stem,
That grows and grows and grows.

Then the leaves will pop out next,
Pop out next, pop out next.
Then the leaves will pop out next,
And grow towards the sun.

Now the plant goes in the soil,
In the soil, in the soil.
Now the plant goes in the soil,
To grow outside with friends.



Did you know?

Sometimes, a new seed will sprout very far away from the adult plant it came from. Seeds are **dispersed** (moved) in many ways, including blowing in the wind, floating on rivers and streams, sticking to the fur of animals, and being eaten by animals and left in their waste.

Learn:

What is the plant life cycle?

Plants have a **life cycle**, which means they go through different stages of growth.

For most plants, the first stage of the life cycle is the **seed** stage. The seed has a protective **seed coat**. Inside this seed coat, the seed contains everything it needs to grow into a plant.

Once the seed gets enough oxygen, warmth, sunlight and water, it begins the second stage of the life cycle, which is called **germination**. The seed begins to sprout, and its roots push through the seed coat and grow downward.

In the third stage, the seed develops into a **seedling**. If the seed has been planted in the ground, the seedling will begin to pop out of the soil towards the sunlight. It also absorbs nutrients from the soil through its roots to grow even bigger.

The stem and leaves of the plant keep growing towards the sun as the plant enters the fourth stage of the life cycle as an **adult plant**. The adult plant's leaves make food, and its flowers make new seeds—and just like that, the whole life cycle starts over again!

ONTARIO SCIENCE CENTRE
An agency of the Government of Ontario