



# My Little Greenhouse

## Background Knowledge

Greenhouses are able to grow plants, such as ornamentals (plants grown and used for decoration) and vegetables, all year long because they stay warm inside. Some greenhouses use electric heat, while others harness the sun's warmth. Greenhouses have many windows, which allow the sunlight in and then trap it, so that it stays warm. In Virginia, bedding plants are the most commonly produced greenhouse item. In addition to bedding plants and perennials, growers may plant vegetables to be used as transplants or for consumption. Many growers will start their seeds in greenhouses and then move them to the fields when the weather is warm enough. The most common vegetable grown for consumption in a greenhouse is the tomato.

## Procedure

1. Review with students the necessary conditions for seed germination – air, water, warmth.
2. Tell students that many plants need warm weather to grow and mature – such as tomatoes. How do we get these vegetables in the winter, when it's too cold to grow them outside? They are either grown in warmer locations and then shipped to us, or they can be grown in greenhouses, which are able to keep a warm, controlled climate. Use the background knowledge above to discuss how this works.
3. Students will now make their own mini-greenhouses.
4. Pass out supplies.
5. Have students color and cut out their greenhouses. Cut along the dotted lines of the greenhouse to make a window.
6. Take about 5 cotton balls and lightly spray with water.
7. Place cotton balls along the bottom of the baggie.
8. Place a seed in the middle of each cotton ball. You may choose to use different seeds if you would like to compare/contrast plant growth.
9. Seal the baggie and tape behind the greenhouse.
10. Place greenhouses in a location where seed growth can be observed – such as in a window or on a bulletin board.
11. Have students observe and report seed growth each day.

## Standards of Learning

**Science: K.7, K.9, 2.4, 2.8, 3.4, 3.8, 4.4**

### Objective

Students will be able to:

- identify plant needs for germination

### Materials

- template, attached
- cotton balls
- spray bottle with water
- seeds
- crayons, markers
- tape
- sandwich-size plastic baggie

## Extension

- After germination, seeds can be transplanted to containers to continue growing.
- Have students choose different variables to measure – such as type of seed, growing medium, or location. Chart the results.





# How Does Your Garden Grow?

## Background Knowledge

Seeds vary greatly in germination rate, amount of time needed for plant maturity, and growing conditions. Some seeds, like radishes, only need 4-6 weeks to grow to maturity, while corn and soybeans require several months. The purpose of this activity is to provide students with an opportunity to observe the germination process.

Germination is when the seed sprouts and begins to grow. It is important for your students to know that it starts right when there is a bud present from the seed. Explain to your students that their sprout will need a while to grow and that every plant is different in the amount it takes for them to get to maturity. Ask them what their plant will need to grow. All plants need water, light, temperature, time, soil (nutrients), oxygen, and space to grow to full maturity.

## Standards of Learning

**Science: 1.4, 2.4, 4.4**

### Objective

Students will

- Investigate the germination of seeds

### Materials

- Scissors
- Crayons/markers
- Cotton balls
- Water
- Seeds
- Tape
- Snack size, zip-top plastic baggies

## Procedure

1. Pass out garden template and allow students to color their garden. Cut out the rectangular window in the middle of the template.
2. Use a spray bottle to wet a cotton ball for each type of seed that you will be planting. Place 2-3 seeds on each cotton ball.
3. Place the cotton balls with seeds inside the snack sized baggie
4. Tape the bag behind the cut-out window so that the cotton balls and seeds are visible.
5. Observe your seeds and track their germination and growth.
6. Display by hanging in a classroom window.

## Extension

Tape a piece of graph paper behind the baggie to use when tracking the growth rate of the seeds.



**Use your seedlings to jump start your own school garden.  
See below for tips and planting suggestions.**

The crops listed below are cool season crops and do well in the spring and early fall.

Size listed is for mature size. Most of the crops can be harvested before they are at their mature size and served as “baby vegetables,” especially lettuce and spinach.

Vegetable crops need at least six hours of sunlight/day.

These vegetables can be grown in the ground, raised beds or in large containers.

Crop	Days to Harvest	Size	Comment
Beets	50-70	2-3” diameter	Harvest small outer leaves to use in salads.
Broccoli	50-65*	6-7” across	Side shoots may be harvested after main head is removed.
Cauliflower	55-80*	6-8” across	Tie leaves over head when head is 2-3” across.
Lettuce	45-60	4-6” tall	Harvest outer leaves first. Hot weather causes bitterness.
Peas	55-85	3” pods	Harvest when seeds are plump in the pod.
Radish	25-45	1/2”-1 1/2	Harvest before they become too large.
Spinach	45-60	6-8” tall	Can be harvested smaller. Eat cooked or raw.
Turnip	45-70	2-3” diameter	Greens can also be cooked and eaten.

\*From transplants



# Seed Buddy

## Background Knowledge

You may choose to punch the holes in the jewelers' bags and cut the string before beginning this activity.

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Germination is when the seed sprouts and begins to grow. It is important for your students to know that it starts right when there is a bud present from the seed. Explain to your students that their sprout will need a while to grow and that every plant is different in the amount it takes for them to get to maturity. Ask them what their plant will need to grow. All plants need water, light, temperature, time, soil (nutrients), oxygen, and space to grow to full maturity. However, it is important to note that the seeds do not need all of these things to sprout but they will need them to grow to maturity. The process that their plant is going to go through is also something that should be talked about and monitored for a few weeks. All plants go through about the same cycle of sprout, growth, flower, and fruit.

## Standards of Learning

Science K.1, K.7, K.9, 1.1, 1.4, 2.1, 2.4, 2.8, 3.1, 3.8, 4.1, 4.4

### Objective

Students will

- Investigate the germination of seeds
- Investigate plant needs

### Materials

- Seeds, any type will work
- Small baggie (jewelry size – one per student)
- Cotton balls (one per student)
- Yarn cut to “necklace size” or pipe cleaners for bracelets (recommended)
- Hole punch
- Water

## Procedure

1. Define the term germination. “ To sprout or begin to grow”
2. Show the class a variety of seeds and brainstorm what a seed needs to germinate.
3. Instruct the children that they will be conducting an experiment to see which things from their brainstorming list a seed actually needs to germinate.
4. Provide each student with a small baggie. Punch a hole at the top of a small baggie, above the zipper.
5. Wet a cotton ball and squeeze out the excess.
6. Place the cotton ball inside the small baggie.
7. Place two seeds on the dampened cotton ball.
8. Tie a string through the hole punched in the top of the small baggie.

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9. Using the string and baggie like a necklace, place the baggie under your shirt.
10. The seed should soon swell up from moisture and germinate in about 3-5 days.
11. Over the next 3-5 days make observations and record in a science journal.
12. Have students raise right hand and repeat the pledge.

### **Pledge**

I, (state your name), promise to care for my seed buddy day and night. I will keep him close to my heart. I will carry him with me at all times.

### **Extension**

Tape a piece of graph paper behind the baggie to use when tracking the growth rate of the seeds.





# Germination Journal

## Background Knowledge

Seed packets are readily available and inexpensive. Planting seeds with students has long been a favorite activity for teachers and students the paper packets are often left out of the equation. With a little effort these packets can be transformed into booklets useful for a number of activities. Seed journals can serve as poetry books, a place for a new story, a log book, or event place to create word problems.

## Procedure

1. Provide each student with a packet of seeds. This activity works best when seed packets are paper rather than see through plastic.
2. Cut open the top of packet. Remove seeds.
3. Cut open the bottom and right side of packet. The open packet will form a book cover.
4. Provide each student with a 8 ½ by 11 piece of paper.
5. Fold paper in half horizontally. Fold in half vertically. Open the paper and cut on the folds.
6. Stack the four pieces of paper and fold in half to form a book.
7. Insert book pages into seed packet book cover. Staple in the center.
8. Use book to record the steps of the germination process.

## Extension

- Use the journal to write a garden story.
- Journals can be used to write a lab from the garden.

## Standards of Learning

**Science: 1.4, 4.4**

**Language Arts: 2.11, 3.9, 4.7**

## Objective

Students will be able to:

- Describe the growth of a plant from a seed
- Observe and record data from a germination experiment

## Materials

- Seed packets
- Paper
- Scissors
- Stapler
- Markers



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