

Cloverbud Investigators: STEM for Every Season

May

Balloon Greenhouse**Background:**

In the spring and summer we can grow many fruits and vegetables for food in our gardens. At that time of year the ground is just the right temperature for plants to grow because the Earth is tilted so that we have more sunshine hitting the ground for an extended amount of time, making the soil warm. In the fall and winter we have shorter days and long nights so the ground is too cold for most plants to grow. So how do we get fruits and vegetables in the winter time? Some producers or farmers use a greenhouse to grow plants inside during the colder months.

What is a greenhouse? To put it simply, it is a house for plants. Many greenhouses are made of large panes of glass or plastic. Greenhouses have walls, a roof, and doors just like a house, and some even have windows to help regulate the temperature. The greenhouse helps protect the living plants inside from the damaging effects of the cold outside. Inside the greenhouse, you can hang potted plants, put plants on a shelf, or plant them in a raised bed. Sometimes they even have their own watering system set up to give them water and nutrients as needed.

How does the greenhouse help plants grow? The clear walls of the greenhouse allow the sunlight to shine in through the glass or plastic but trap the energy from the sun as heat, so the greenhouse stays warm in the winter. The greenhouse acts like a protective layer that gathers the warmth during the daylight hours and holds it in at night. The clear walls and roof allow the plants to start or maintain their growing process. Remember in our previous lesson we learned the basic needs of plants, and the process that plants use to make food is called photosynthesis.

Other than growing food in the winter months, why would someone want to grow plants in a greenhouse? A greenhouse creates an environment that can be controlled, so this can help us grow different kinds of plants and flowers that may not normally live here. Another advantage to having a greenhouse is that you can start your garden seeds anytime you want during the year. Some farmers and producers like to start their plants in the greenhouse so they can avoid late frosts or the harsh temperatures of spring weather and still get a jump on the growing season.

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In today's investigation, we are going to make your very own little greenhouse from a balloon. The balloon will do all the things a greenhouse can do.



May's Mystery: How does a greenhouse work to grow and protect plants?

Supplies:

- ♣ Clear Balloon (If not available white balloons will work)
- ♣ Funnel (Large)
- ♣ Soil (Fine)
- ♣ Sugar Snap Pea Seeds
- ♣ String or Cup
- ♣ Water
- ♣ Paper Towels



Science Behind Balloon Greenhouse: A greenhouse shelters the plants inside by blocking out some of the more damaging aspects of the environment like severe winds, heavy rains, or extreme temperature variations. It also traps the warm air inside and keeps the air around the plants moist and humid, making it the best environment for the plants to excel.

What to Do:

Step 1: With some help, wrap the neck of the balloon around the funnel.

Step 2: Measure out about a $\frac{1}{4}$ cup of soil and pour into the balloon using the funnel.

Step 3: Measure $\frac{1}{8}$ or less cup of water and add it using the funnel.

Step 4: Drop 5 Sugar Snap Pea seeds through the funnel into the balloon.

Step 5: Remove the funnel from the balloon.

Step 6: Hold it gently by the neck and blow air into the balloon.

Step 7: With help, tie a knot in the neck to keep air in the balloon.

Step 8: Measure out 3 feet of ribbon, then tie the ribbon around the knot.

Step 9: Hang the balloon in the window or set on a cup, then sit back and watch the peas grow. The seeds may take up to 7 days to sprout.

Step 10: Once the peas are about 3 inches tall, place on a plate or piece of paper and carefully cut the top of the balloon, open it up and plant your pea plants as directed on the seed packet.



Go Over Findings:

What is a greenhouse?

When can we use it and how does it work?

Could we use other things to make a greenhouse?

How is growing plants in a greenhouse helpful?

What kind of career might involve growing plants?

Investigate, Create, & Take: Investigators can take with them:

- ✓ Greenhouse balloon

Sources:

National Aeronautics and Space Administration, “What is the Greenhouse Effect?”
<http://climatekids.nasa.gov/greenhouse-effect/>

Additional Links or Resources:

Video: Greenhouse Effect for Kids, https://www.youtube.com/watch?v=x_sJzVe9P_8

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