

# Seed pods & Greenhouses!

Grade: 1-2

Time: 1 hr

## Activity Overview :

Today we are going to be environmental scientists and you will learn all about how greenhouses work and what they are used for. You will also learn about condensation, the conditions required for a plant to grow, and why seed pods are useful for growing plants. Before we begin, think about the following questions:

- What can we grow inside of greenhouses?
- Can we use greenhouses all year round?
- What do seeds need to grow?

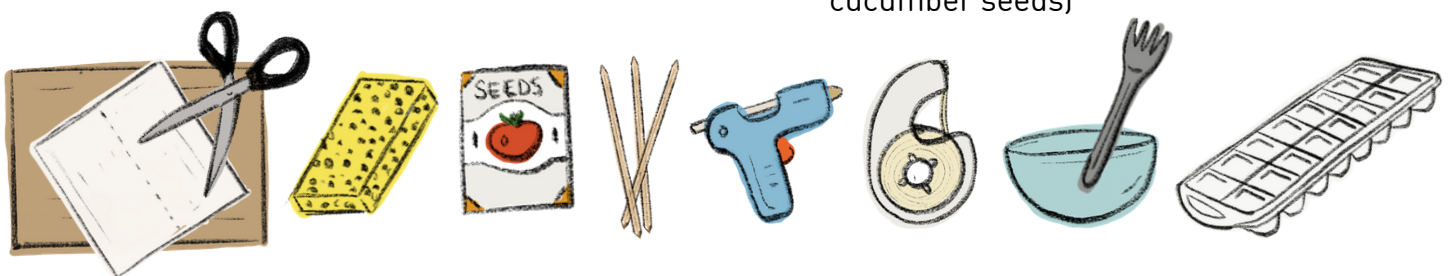
## Materials:

### For Greenhouse

- A flat surface for the base (e.g. cardboard from a cereal box)
- Straws or large skewers or pencils
- Plastic wrap
- 1 sheet of paper towel
- Tape or hot glue (optional)
- scissors

### For Seed Pods

- Newspaper and/or scraps of paper
- Fork or blender and a bowl
- 2 cups of hot water
- Food colouring (optional)
- A mold or ice cube tray (optional)
- Sponge
- Seeds (can be any you find at home such as: pepper seeds, tomato seeds, beans, lentils, cucumber seeds)

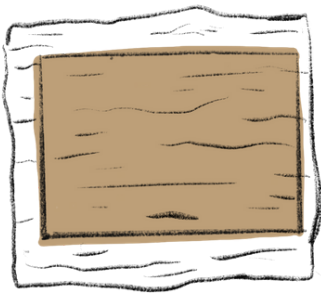


**Don't worry if you don't have all these supplies. Experiment with other everyday items and see what you can build!**

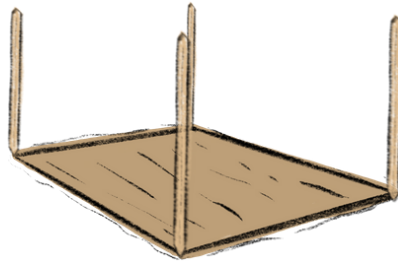
## Activity (Greenhouse):

- 1 Cut out a rectangular piece of cardboard. Cover the piece of cardboard in plastic wrap (so it doesn't get soggy).
- 2 Attach straws or skewers to the four corners of the cardboard using tape or hot glue (making columns).
- 3 Attach four straws or skewers horizontally to the top of the columns (making beams)

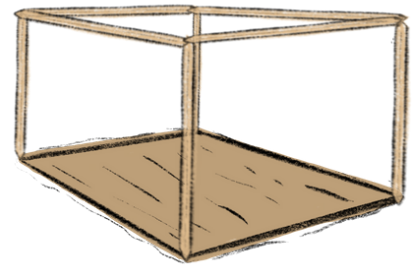
**Step 1**



**Step 2**

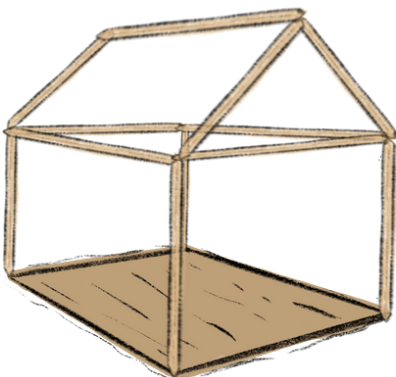


**Step 3**

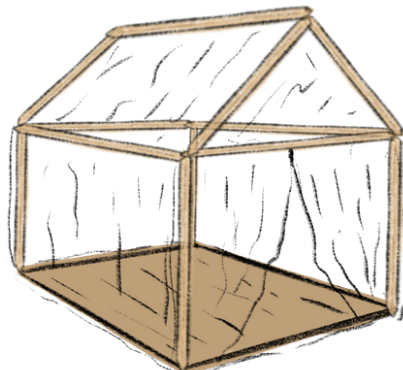


- 4 Now that you have made a frame for your greenhouse, you can get creative with other shapes! Make a shape out of straws or skewers to attach to the top of your frame, this can be a triangle, arch (semi-circle), or any other shape you can think of!
- 5 Make the walls and roof of your greenhouse by cutting out pieces of plastic wrap and taping it to the frame. Cut out a flap in one of the walls big enough so you can place things inside of your greenhouse.
- 6 Soak a piece of paper towel in water, fold it into a square, and place it into your greenhouse and close the flap.

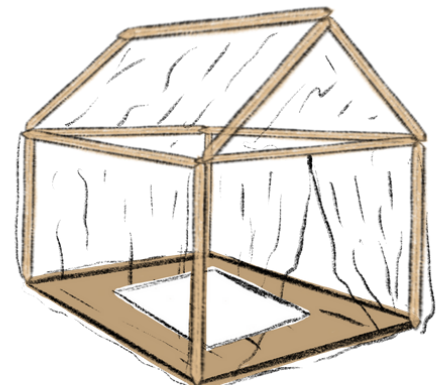
**Step 4**



**Step 5**



**Step 6**



## Activity (Seed pods):

- 1** Rip up very small pieces of newspaper or scrap paper into a bowl
- 2** Pour hot water into the bowl, soaking all of the paper
- 3** Using a fork, mash up the paper until a pulp forms, make sure there are little to no clumps in the mixture. You can also use a blender to make the pulp and get rid of clumps (optional).
- 4** Mix seeds into the paper pulp. If you want, you can add a few drops of food colouring to the pulp mixture at this step (optional).
- 5** Carefully pour out the excess water from the mixture then take the mixture in your hands and carefully squeeze as much of the water as you can.
- 6** Roll the pulp mixture into balls or other shapes, if you have a mold or ice cube tray, you can press the mixture into the molds Using a sponge, gently press on the seed pods to soak up any excess water.

**Step 1**



**Step 2**



**Step 3**



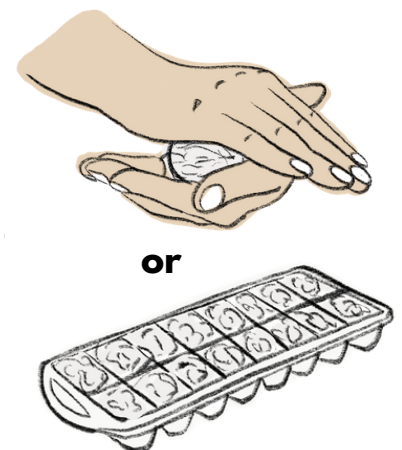
**Step 4**



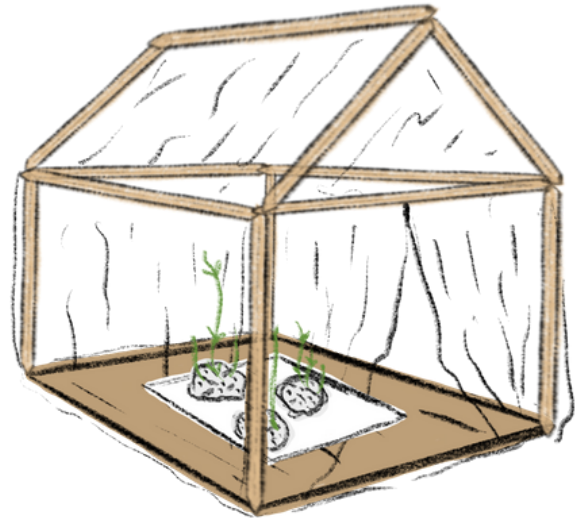
**Step 5**



**Step 6**



- 7 Let the seed pods dry overnight.
- 8 Place your seeds pods in your greenhouse or plant them in your garden and watch them grow! Make sure to keep a wet paper towel in the greenhouse to keep their air humid.



## Engineering and Science Connections

**Environmental Science** combines other types of science such as biology, ecology, chemistry and many more, to study the world around us and its relationship with animals and their surroundings.

**Greenhouses** are used to grow certain plants all year such as lettuce, broccoli, tomatoes, carrots and many more as greenhouses protect such plants from too much heat or from cold temperatures and pests.

Plants need 7 conditions to grow: sunlight, proper temperature, room to grow, water, nutrients, air and time. Plants start as seeds. **Seeds** keep the plant embryo safe before it starts to grow. Greenhouses are built to have glass or plastic walls to trap sunlight from outside and to turn it into heat which keeps the plants fed and warm, allowing plants to grow by extending their growing season.

**Condensation** is the formation of water droplets from water vapour when it touches a cool surface. Condensation happens inside a greenhouse when it touches the wall of the greenhouse, this keeps the air inside humid so plants can grow.

**Seed Pods** are little balls made up of a combination of compost, clay and seeds. The compost and clay or newspaper, keep the seeds in place and allow the seeds to be thrown over walls or fences to areas that are hard to reach. Since seeds are very light they risk being blown away by wind if they were thrown long distances so seed pods are used instead.

## Extensions:

### For the Greenhouse:

- Greenhouses are a great place to germinate seeds. [Germination](#) is the process seeds undergo when they first sprout. It can be helpful to germinate seeds before you plant them in the garden or in a flower pot. If you have plans to start an indoor or outdoor garden this spring or summer, use your greenhouse to germinate your seeds before you plant them. Place the seeds in a damp paper towel (or make some more seed pods!) and keep the seeds warm and moist inside your greenhouse until they sprout. Once the seeds have sprouted, plant them in a pot of soil or in your garden and watch them grow!

### For the Seed pod:

- If you have other fruit, vegetable, or flower seeds at home, make more seed pods for each type of seed that you can then plant in your garden in the summer.
- If you want to make more seed pods to grow in your garden this summer, you can use another method to make them. Combine equal parts soil and clay (kitty litter works great!) with water to make a thick paste, make a ball (or other shape) out of the mixture and place a few seeds of the same kind inside. Let the pods dry, these will provide a safe space for your seed to grow when it is planted.

## Share your creations!

Don't forget to share your experiments and creations with us! We would love to see what you've made. You can Email us at: [esqinfo@uwaterloo.ca](mailto:esqinfo@uwaterloo.ca) or send us a message/tag us on our social media!

**Facebook:** @uwengoutreach

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**Thanks for exploring, discovering, and learning with us!**

# 3, 2, 1 Done!

**3 - Write or draw 3 things you learned from this activity**

**2 - Write or draw 2 things you found super interesting or cool and want to learn more about**

**1 - Do you have any questions about the activity? Did something make you wonder...what if? how? or why?**