

# Make It Monday: Helicopter Seed Challenges

## Overview

Seeds are very competitive and must fight their parents and siblings for resources like sunlight and nutrients in order to grow up strong and healthy. Therefore, seeds generally travel some distance away from the parent plant (this distance can range from inches to miles). The movement of seeds away from their parent plant is called seed dispersal. Studying seed shapes shows us that plants have evolved many different strategies for dispersing seeds.

## Suggested Materials

For Real Seed Experiment	For Paper Helicopter Seeds
<ul style="list-style-type: none"> <li>• A location with pine trees...If you go for a hike, remember to stay safe and always hike with a friend)</li> <li>• Pinecone (If you can, try to find a brown cone that is opened up)</li> <li>• A bowl of water</li> <li>• Alternative: You can also just look for different types of seeds (seeds that fly, seeds that stick like Velcro, or seeds that travel another way)</li> </ul>	<ul style="list-style-type: none"> <li>• Paper</li> <li>• Pencil</li> <li>• Ruler</li> <li>• Scissors</li> <li>• Paperclips</li> <li>• Safe Test Location→               <ul style="list-style-type: none"> <li>○ You could try dropping them from a set of stairs (you need to be at least seven feet off the ground—remember to test with a friend)</li> <li>○ You could try “floating” them above a small room fan. Remember: Adults need to help you use electrical devices like fans!</li> </ul> </li> </ul>

## Pinecone Helicopter Seeds—Experiment at Home!

1. Most Pine trees have seeds that “helicopter” down out of pinecones. We can do an experiment to see how parent pine trees help their seeds travel far away.
2. If you can find one, try dropping a brown, dry, “open” pinecone (it doesn’t need to have seeds inside of it anymore) into a container of water to model a damp, rainy day.
3. What do you think might happen?
4. Notice how the pinecone closed up in the water. Why might this help with seed dispersal? (Answer: seeds need to be completely dry in order to sail!) The amount of time it takes for the pinecone to completely close up depends on variables such as temperature and humidity.
5. Watch this YouTube video of a pinecone closing up [Pinecone in Water Time-Lapse Video](#)

# Make It Monday: Helicopter Seed Challenges

## Paper Seed Design Challenge:

1. Seeds can have many different shapes. A seed's shape and any specialized structures it might have like papery wings or feathery fronds affect how it travels once it leaves its parent plant.
2. Try making the "paper" seeds on the following page(s).
3. Test how they move by letting them fall from a height (We recommend climbing a set of stairs and dropping them over the railing) or turning on a fan so the air blows straight up (vertically) and gently dropping the seeds into the air column. Make sure to test them at least FIVE times each.
4. Think about the way the seeds moved... How were they alike? How were they different?
  - a. Maybe you noticed that they moved differently: flutters, floats, twirled, helicopter-like, tumbles, etc.
  - b. Maybe you noticed that the same seed shape didn't always move the same way
5. Did it seem like some seed shapes descended more quickly (or slowly) to the ground? Why might that be helpful?
  - a. Answer: The longer a seed is in the air, the more chance it has to be caught and carried by the wind (it will be dispersed away from its parent and siblings)
6. Can you make a new seed design that can fly even farther?
7. Share your designs and experiments with us:
  - [facebook](#)
  - [instagram](#)
  - [twitter](#)

## And Now For Something Completely Different

There are several methods plants use to fling their seeds out of the seedpod. All of them rely on the effect of evaporation of water in the seedpod, so this method of seed dispersal usually takes place in the sun.

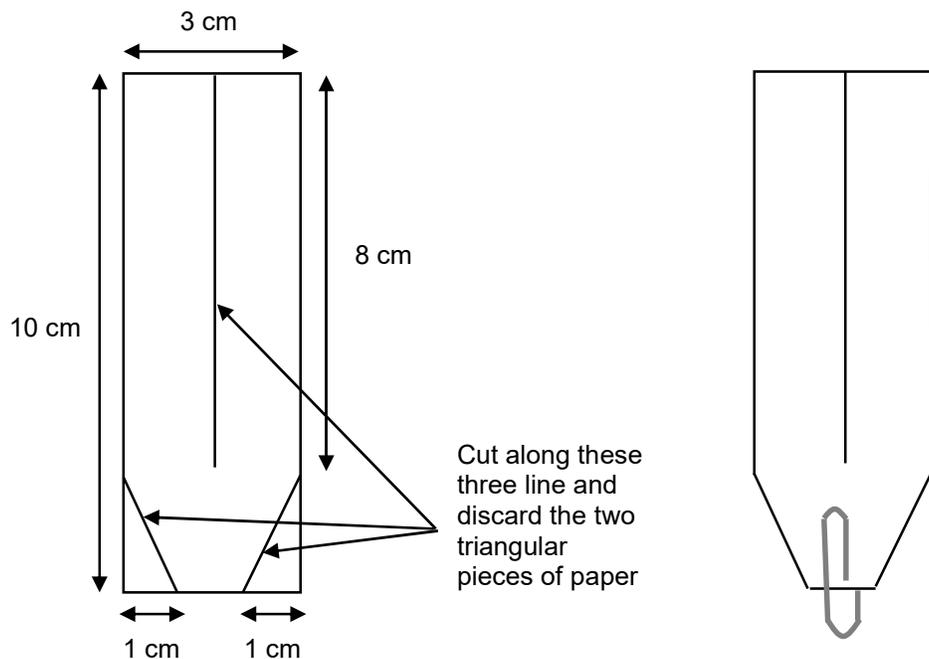
- Impatiens are also known as touch-me-nots (Impatiens)—for good reason! The fruit swells and any mechanical stimulation—the touch of a finger, the bump of a bumblebee, a drop of rain—all will lead to the tissues popping and recoiling to propel the seeds away from the plant. Check out this YouTube video: [Impatiens \(Touch Me Nots or Jewelweed\)](#)
- Erodium (Cranesbill or Storksbill Geranium) The group of capsules are attached to a length of tissue called the column or carpellary beak. Under tension as the fruiting structure dries, the attached capsules spring away from the column and catapult the seeds away from the mother plant. Changes in humidity, cause the seed to eventually drill itself into the ground.

Check out this YouTube video: [Storksbill \(or Cranesbill\) Geranium](#)

# Make It Monday: Helicopter Seed Challenges

## How to Make a Model Seed (Example One)

### 2 Winged Samaras (Helicopter Seeds)



# Make It Monday: Helicopter Seed Challenges

## Parachute Seed (Dandelion) Model

- Cut a piece of paper 14 cm x 7 cm.
- Draw a pencil line 3 cm from one of the 7 cm edges.
- Using a pair of scissors cut strips about 2-3 mm wide down 11 cm down to the line.
- Roll the paper to make a 14 cm long tube, allowing a slight overlap. Gently splay out the thin strips.

