

# Seed Toys

## What Is This Activity?

Plants can't travel, so how do they spread their seeds? Families will make and test toys that model two amazing ways: Seed pods that explode and those that float and twirl like a helicopter!

### Learning Goals

#### Big Science Idea:

- Plants can't move on their own. They depend on wind, water, animals, and explosive force to take their seeds to new places where they can sprout and grow.

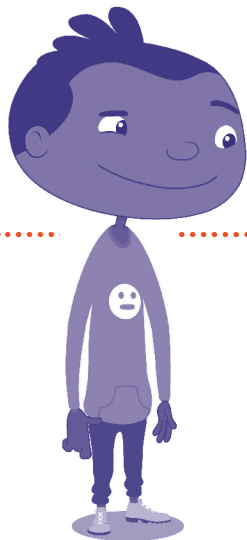
#### Skills kids will use to investigate it:

- Communicate information about the plant life cycle
- Model and test how seed pods spread their seeds (exploding, floating in the air); communicate why they do so
- Measure distances seeds need to travel to find soil
- Discuss a problem: Cities and towns with a lot of pavement provide fewer places for seeds to sprout and grow

### How Do You Get Ready?

- Read the activity and gather the materials.
- Scout out a green space, such as a city or town park or your program yard, with at least a few trees or other plants.
- Troubleshoot safety concerns (traffic, poison ivy, sharp objects, etc.).
- Make one copy for each family member of the "Seed Blaster" and "Seed Copter" handouts. Make extra copies of the "Seed Copter" handouts for families to take home.

- Make a Seed Blaster and a Seed Copter to use for demonstration (see handouts).
- If you don't plan to show the "Plant Your Socks" video that is paired with this activity on the website, watch it ahead of time and jot down concepts to share with families during the activity.



[pbskids.org/plumlanding/parents](https://pbskids.org/plumlanding/parents)

### Curriculum Topics

plants, life cycles, adaptation, human impact

### Activity Type

outdoor (all weather except rain and heavy snow)

### Group Size

whole group, small groups

### Activity Time

40–60 minutes

### Materials

- Assembled Seed Blaster and Seed Copter for demonstration (see handouts)
- Optional: Pea pod or other seed pod (see "Seed Blaster Activity" step 1 for plant names) and a two-winged seed such as a maple seed

#### One per family member:

- "Seed Blaster" handout
- Small balloon
- Toilet paper tube or one half of a paper towel tube
- About half a cup of birdseed, small dried peas, crushed pasta bits, or other small light objects
- "Seed Copter" handout
- A small paper clip
- Scissors (shared)
- Roll of masking or packing tape (shared)
- Optional: "Explore Plants Around You" handout (one per family)

### Next Generation Science Standards

#### Disciplinary Core Ideas

LS1.A: Structure and Function  
LS2.A: Interdependent Relationships in Ecosystems  
PS2.A: Forces and Motion

#### Science and Engineering Practices

Asking Questions and Defining Problems  
Planning and Carrying Out Investigations  
Obtaining, Evaluating, and Communicating Information  
Analyzing and Interpreting Data

#### Crosscutting Concepts

Patterns  
Cause and Effect: Mechanism and Prediction

## Warm-up (5-10 minutes)

(Science Skills: Communicate information about the plant life cycle)

### Bossy Gardener Game

- 1. Play the Bossy Gardener.** The families are your “Plants” and must obey your commands. Demonstrate each command and ask families to copy your actions:
  - **Plant the Seed:** Drop to the ground and do a push-up.
  - **Sprout the Seed:** Jump as high as you can, hands in the air. (Explain the verb sprout: When a seed begins to grow into a young plant.)
  - **Make a Flower:** Do a jumping jack.
  - **Make New Seeds:** Find a partner, hold both hands, and spin around together.
- 2. Shout the first three commands in random order.** At each command, if anyone does the wrong action or doesn't do anything, everyone “Makes New Seeds”!
- 3. The goal is to say 10 commands in a row without anyone making a mistake.** (Note: You may or may not reach this goal!)

## Activity

### Seed Blaster (20-25 minutes)

(Science Skills: Model and test how seed pods explode to spread their seeds)

- 1. Ask families if anyone has heard of these plants:** Pansies, geraniums, California poppies, touch-me-nots (impatiens), violets, lilacs, lupines, peas, okra, squirting cucumbers, or firecracker plants. *What might they have in common?* (The names of the last two provide a hint.)
- 2. Explain that these plants all have seed pods that explode!** Point out that some seeds are covered—meaning they grow inside a case, called a pod, or inside a fruit. If you have a pea pod or other seed pod, open it and pass it around.
- 3. Wonder aloud:** *How do seed pods explode? Why do they explode?* Let those questions hang as you **demonstrate a Seed Blaster**.
- 4. Ask:** *What does the “balloon” do?* Explain that the walls of the pod tighten as they dry up, building up tension. A hot day or a touch makes the pods spring open—with force! The balloon causes the “seeds” to explode out.
- 5. Have families act out exploding like a seed pod.**
- 6. Pass out on the “Seed Blaster” handout and review directions with families.**
- 7. Pass out the materials:** balloons, tubes, scissors, tape, and seeds.
- 8. Ask adults and older siblings to make their own Seed Blaster and to help younger children make theirs,** using the instructions on the handout. Walk around the groups to ask and answer questions and encourage families.

### Why Seeds Explode!

The walls of the seed pods tighten as they dry up, building up tension. A hot day or a touch makes the pods spring open—with force!

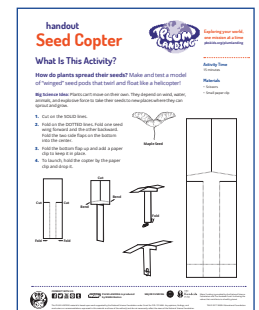
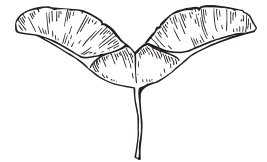


9. Hold a **Seed Blaster Contest** (see handout for directions)! Families can try to beat their own records or play against each other.

### Seed Copter (10–15 minutes)

(Science Skills: Model and test seeds that float and twirl in the air)

1. **Point to a tree and ask:** *How do you think it got there? How could it spread its seeds far away?* Exploding seed pods (as in the Seed Blaster activity) are only one method out of many. Have the families to act out these seed dispersal methods (Adults may be hesitant to do some of these. That is okay):
  - Float in the wind (families pretend to float).
  - Roll on the ground (families roll five times).
  - Get carried away by water (families do three somersaults).
  - Stick to an animal's fur (families hug themselves).
  - Get eaten by an animal. Animals drop and “plant” the seeds when they poop (families fall to the ground over and over again).
2. **Demonstrate the Seed Copter. Ask families to twirl like the Copter,** with arms outstretched. **Ask:** *How does the wind feel on your arms? Does anyone know a seed that twirls like that?*
3. **Optional: Show the group the two-winged seed,** if you have one. Drop it to the ground so they can see how it twirls. Open the seed pod to reveal the seeds inside.
4. **Pass out the “Seed Copter” handout and review directions with families.** Point out the maple seed drawing, which is what the Copter models.
5. **Pass out scissors and paper clips. Ask adults and older siblings to make their own Seed Copter and to help younger children make theirs,** using the instructions on the handout.
6. **Circulate to support and encourage families.**
7. Hold a **Seed Copter contest** (see handout). Families can try to beat their own records or play against each other.
8. **If you have extra time:** Challenge families to experiment with and improve the design—the proportions, the weight, the tilt of the wings, and so on.



### Wrap-up (5–10 minutes)

(Science Skills: Communicate why plants spread their seeds; Measure distances seed need to travel to find soil; Discuss a problem: Cities with a lot of pavement provide fewer places for seeds to sprout and grow)

**Gather around a plant near pavement** (if possible) and ask what kids thought of the toys. **Ask:** *How far would these plants need to fling their seeds to find open soil? How far to find soil with sunlight and room to grow? What if the seeds hit pavement or a very shaded or crowded area?*

- **Measure:** Ask families to pick a path the plant's seeds could go to get to soil and measure the distance, walking heel-to-toe. *Would their Seed Blaster or Seed Copter cover that distance?*

- **Discuss:** *Why do plants fling their seeds so far?* (Spreading lots of seeds, far away, means more of the seeds will land in good places to sprout and grow. If seeds land right next to the parent plant, they might not have enough space, light, nutrients or water to grow because the parent plant needs those resources too.)
- **Discuss a problem:** *How do city structures (sidewalks, streets, buildings) affect a seed's chances of growing?* (The city has fewer places with open soil for seeds to sprout and grow than the country. It can also have more shade because of buildings and other large objects.)
- **Encourage families to take home the “Seed Blaster” handout** and give them extra copies of the “Seed Copter” handout to repeat the activities in their neighborhoods. Point out the “Explore Some More” activities as well. If you like, **give families the “Explore Plants Around You” handout** to provide them with more ideas on how to continue investigating plants together.



## Explore Some More

### Seed Racer

Play this PLUM LANDING game, in which Plum explains how plants spread their seeds to new places using wind, water, and animals. Plum then challenges kids to collect a variety of seeds over a series of timed missions. Encourage kids to look for the fun facts that pop up as they play the game. Have them pay attention to how shape and other features affect how seeds travel.



**VISIT [pbskids.org/plumlanding/parents](http://pbskids.org/plumlanding/parents) to find more activities, games, and videos.**



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Major Funding is provided by the National Science Foundation and The Kendeda Fund: furthering the values that contribute to a healthy planet

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# handout

# Seed Blaster



Exploring your world,  
one mission at a time  
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## What Is This Activity?

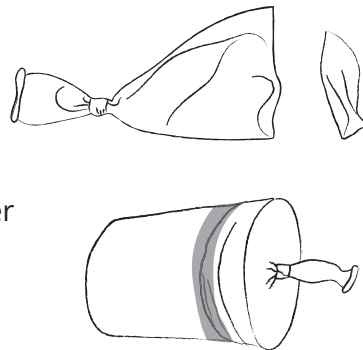
**How do plants spread their seeds?** Make and test a model of one forceful strategy: Seed pods that explode!

**Big Science Idea:** Plants can't move on their own. They depend on wind, water, animals, and explosive force to take their seeds to new places where they can sprout and grow.

## Go Outside

### How to Make a Seed Blaster

1. Tie off the neck of a deflated balloon.
2. Cut off the tip (opposite the neck) of the balloon.
3. Wrap the balloon around one end of a toilet paper tube. Be sure it's snug.
4. Tape the balloon firmly in place.



### How to Test a Seed Blaster

1. Sprinkle a few seeds into the balloon.
2. Pull back the balloon as far as you can. Let go!
3. Hold a Seed Blaster Contest:
  - How far can you blast the seeds? Can you beat that record?
  - Can you jump as far as the seeds travel?
  - Can you run faster than the seeds fly?
  - How could you boost the Seed Blaster's range? (Lighter weight seeds, super stretchy balloon, blast in the direction of wind, etc.)

### Activity Time

15 minutes

### Materials

*Per person*

- Small balloon
- Toilet paper tube or paper towel tube cut in half
- Scissors
- Roll of masking or shipping tape
- About half a cup of birdseed (or small dried peas or crushed pasta bits)

### Cool Fact

Some exploding seed pods can launch seeds up to 200 feet—as long as two basketball courts!

### Outdoor Family Fun with Plum APP

This app gets families outdoors exploring the world. Every day, the app offers five outdoor missions to get everyone thinking and talking about nature and the science that's all around us.

Find the app and more fun resources on [pbskids.org/plumlanding](http://pbskids.org/plumlanding).

## Explore Some More

### Slow-Motion Explosions

If you have internet access, search for “exploding seed pods” and watch a nature video of seed pods exploding. The Smithsonian Channel has an amazing slow-motion one on YouTube, for example.



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# Seed Copter



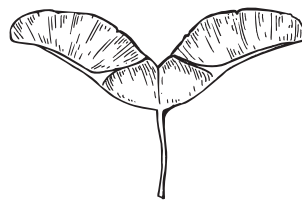
Exploring your world,  
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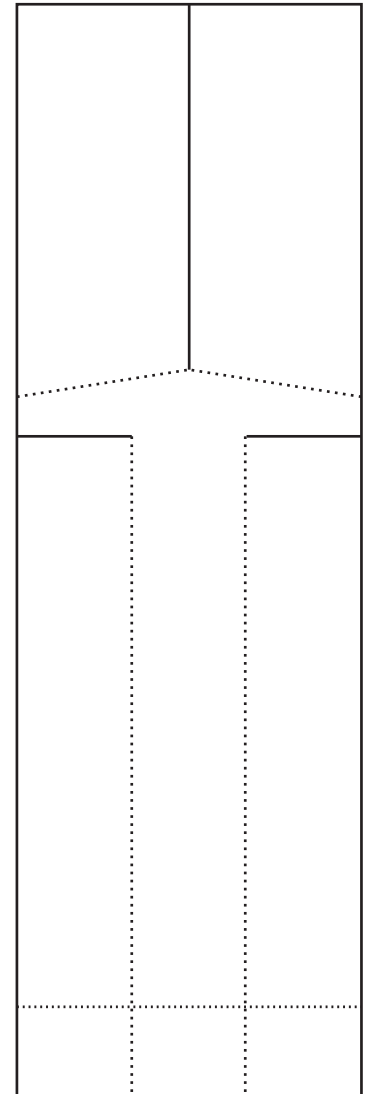
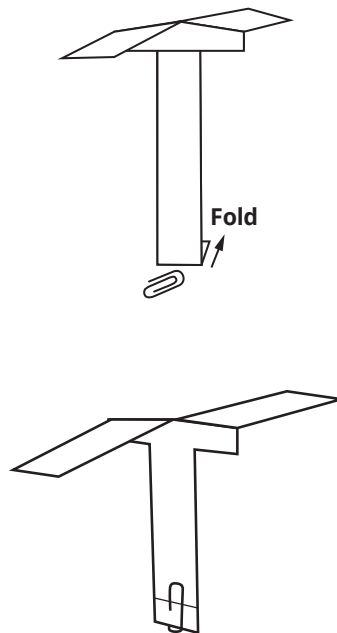
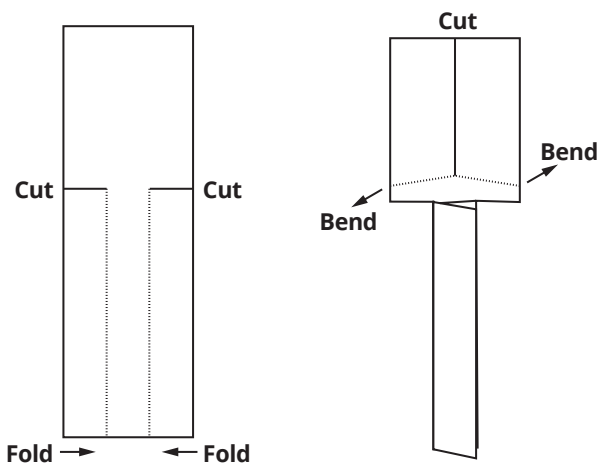
**How do plants spread their seeds?** Make and test a model of “winged” seed pods that twirl and float like a helicopter!

**Big Science Idea:** Plants can't move on their own. They depend on wind, water, animals, and explosive force to take their seeds to new places where they can sprout and grow.

1. Cut on the SOLID lines.
2. Fold on the DOTTED lines. Fold one seed wing forward and the other backward. Fold the two side flaps on the bottom into the center.
3. Fold the bottom flap up and add a paper clip to keep it in place.
4. To launch, hold the copter by the paper clip and drop it.



Maple Seed



### Activity Time

15 minutes

### Materials

- Scissors
- Small paper clip



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# hoja para repartir

# Lanzasemillas



Exploramos tu mundo,  
una misión a la vez  
[pbskids.org/plumlanding](http://pbskids.org/plumlanding)

## ¿De qué trata esta actividad?

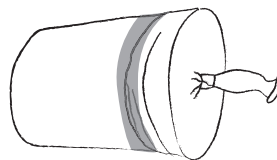
¿Cómo esparcen sus semillas las plantas? Hagan un modelo y pongan a prueba una estrategia poderosa: vainas de semillas que explotan.

**Megaconcepto científico:** Las plantas no pueden ir por su cuenta de un sitio a otro. Dependen del viento, el agua, los animales y la fuerza explosiva para llevar sus semillas a sitios nuevos donde pueden germinar y prosperar.

## Salgamos al aire libre

### Cómo se hace un lanzasemillas

1. Corten y quítenle el cuello a un globo desinflado.
2. Corten la punta (el extremo opuesto al cuello) del globo.
3. Envuelvan el globo alrededor de un extremo del rollo de papel higiénico. Asegúrense de que quede bien apretado.
4. Con cinta adhesiva, pegue el globo en su sitio.



### Cómo se prueba el lanzasemillas

1. Coloca unas semillas en el globo.
2. Estira el globo hasta el máximo que puedas. Suéltalo.
3. Organicen un concurso de lanzasemillas:
  - ¿A qué distancia puedes lanzar las semillas? ¿Puedes batir ese récord?
  - ¿Puedes saltar la distancia que recorren las semillas?
  - ¿Puedes correr más rápido de lo que vuelan las semillas?
  - ¿Cómo podrías aumentar las distancias que lanzas las semillas? (Semillas más livianas, globo que se superestire, lanzar en el sentido que sopla el viento, etc.)

## Duración de la actividad

15 minutos

## Materiales

Por persona

- Globo pequeño
- El tubo de un rollo de papel de baño o la mitad de tubo de toallas de papel
- Tijeras
- Rollo de cinta de enmascarar o de empaque
- Una media taza de semillas de alimento para aves (o pequeñas arvejas secas o trocitos de pasta triturada)

### Dato genial

Ciertas vainas explosivas pueden lanzar sus semillas hasta 200 pies de distancia: más o menos el equivalente de dos canchas de baloncesto.

### Diversiones familiares al aire libre con el app de Plum

Este app invita a las familias a salir al aire libre a explorar el mundo. Cada día, el app ofrece cinco misiones al aire libre que ponen a todos a pensar sobre la naturaleza y las ciencias que tenemos a nuestro alrededor. Disponible en inglés solamente.

Encuentren el app y más recursos divertidos en:  
[pbskids.org/plum](http://pbskids.org/plum).

## Exploremos más

### Explosiones en cámara lenta

Si tienen acceso a internet, busquen “vainas de semillas que explotan” y vean un video de vainas que explotan. El canal Smithsonian, por ejemplo, tiene un video increíble en cámara lenta en YouTube.



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aportan a tener un planeta saludable.

# hoja para repartir

## Semillas helicóptero



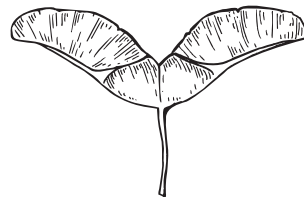
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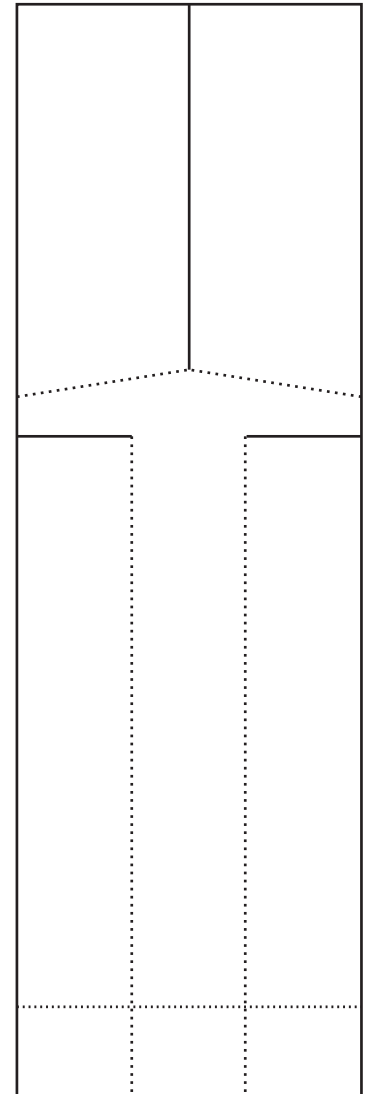
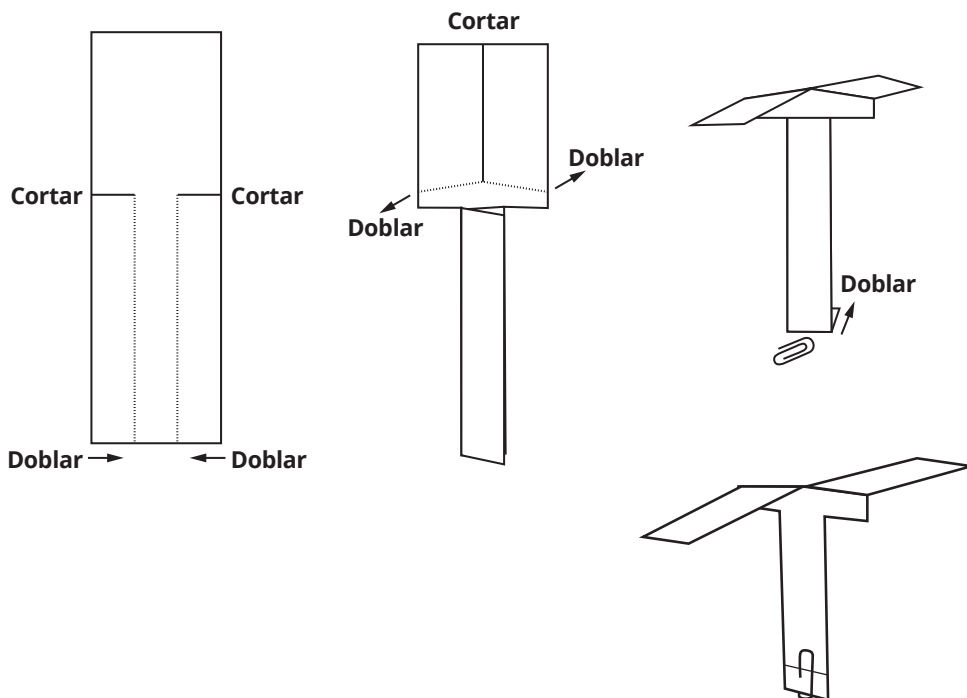
¿Cómo esparcen sus semillas las plantas? Hagan una vaina de semillas con alas que gire y flote como un helicóptero.

**Megaconcepto científico:** Las plantas no pueden ir por su cuenta de un sitio a otro. Dependen del viento, el agua, los animales y la fuerza explosiva para llevar sus semillas a sitios nuevos donde pueden germinar y prosperar.

1. Corten en las líneas CONTINUAS.
2. Doblen en las líneas punteadas. Doblen un ala de semilla hacia adelante y la otra hacia atrás. Doblen las dos aletas laterales de abajo hacia el centro.
3. Doblen la aleta de abajo hacia arriba y pongan el gancho para sujetarla en su sitio.
4. Para lanzarlo, sujeten el helicóptero por el gancho y déjenlo caer.



Semilla de arce



### Duración de la actividad

15 minutos

### Materiales

- Tijeras
- Pequeño gancho sujetapapeles



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