

POWER OF PLANTS!

ACTIVITY GUIDE



**WHAT MAKES
PLANTS SO SUPER?**
JOIN ME TO EXPLORE THE
POWER OF PLANTS!

GET READY TO EXPLORE!

KIT MATERIALS — Many of the items you need are included in this kit.

ADDITIONAL SUPPLIES — You will need to gather a few items from around the house and outside.

YOUR TEAM — This is a family adventure! Enjoy the activities together and remember that the youngest explorers will need help.

EXPLORATION TIME — The activities can be done in any order and spread out over multiple days. Some are quick and others take a bit more time.

CURIOSITY — Have fun investigating plants!

INSTITUTE of
Museum and Library
SERVICES

**MUSEUM
OF NATURAL
AND CULTURAL
HISTORY**

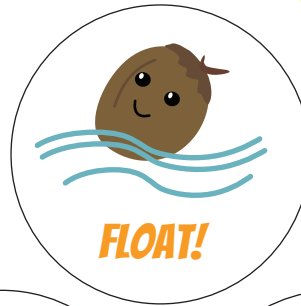
O UNIVERSITY OF
OREGON

SUPER SEEDS!

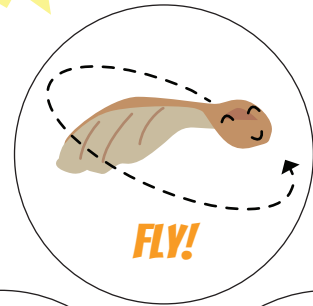
THE
AMAZING FEATS
OF SEEDS!



WHEN PLANTS ARE
TOO CLOSE TOGETHER, THEY
COMPETE FOR SUNLIGHT, WATER,
AND NUTRIENTS. HOW DO PLANTS
SPREAD THEIR SEEDS?



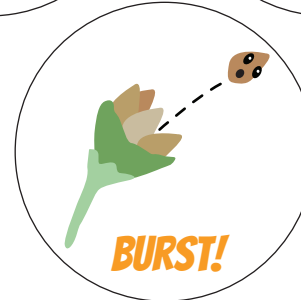
FLOAT!



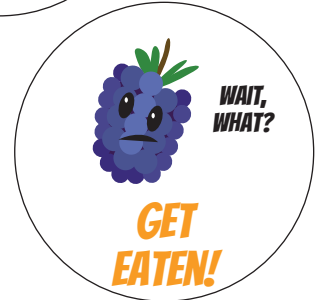
FLY!



STICK!



BURST!



WAIT,
WHAT?

GET
EATEN!

WHAT TO DO:

PRETEND YOU ARE A PLANT AND NEED TO
SPREAD YOUR SEEDS. USE POM-POMS TO
DESIGN SEEDS THAT CAN MEET THE CHALLENGE.

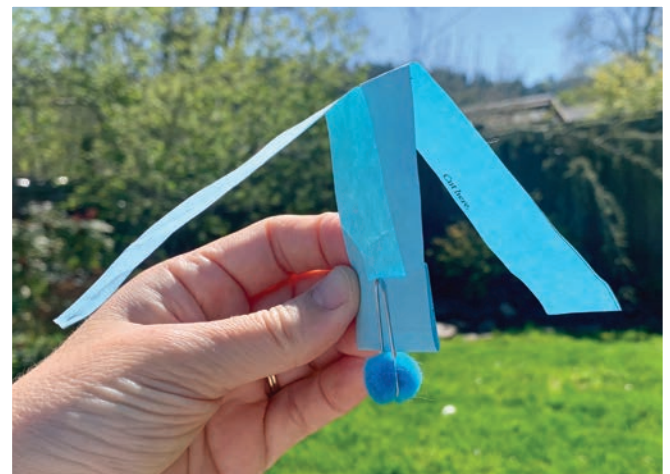
WHAT YOU'LL NEED:

- | | |
|---|--|
| ☐ 5 small pom-poms ("seeds") | ☐ Paper |
| ☐ Helicopter template | ☐ Scissors |
| ☐ Paperclip | ☐ Toilet paper tube |
| ☐ Velcro | ☐ Optional: other |
| ☐ Balloon | craft or recyclable |
| ☐ Ruler | materials |

CHALLENGE 1: FLY FAR

DESIGN A SEED THAT FLIES THROUGH THE AIR,
LANDING AT LEAST ONE FOOT AWAY.

1. Use the template to make a paper helicopter.
2. Push a pom-pom into the end of a paperclip and attach it to the bottom of the helicopter.
3. Hold the "seed" as high as you can and drop it. What happens? Where did it land? Would it go farther if you were outside on a windy day?



This "seed" spins like a helicopter propeller. What if it was a different shape? Try changing the design to make it travel farther.

CHALLENGE 2: STICK TO IT

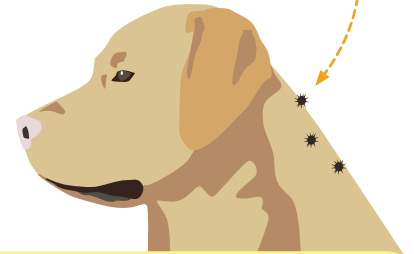
DESIGN A SEED THAT STICKS TO A PERSON'S CLOTHING AND TRAVELS AT LEAST FOUR FEET.

1. Peel a Velcro piece off the paper and stick it to a pom-pom.
2. Try attaching this Velcro "seed" to a person's clothing or hair and observe.
3. How long did it stay on? How far did it travel?



DID YOU KNOW

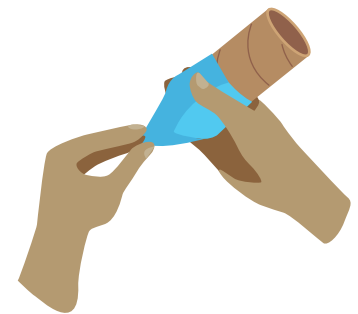
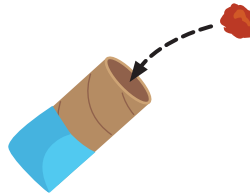
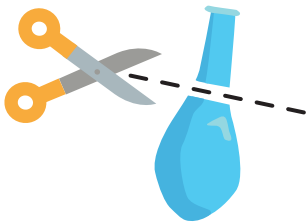
that the inventor of Velcro was inspired by **burdock seeds** that stuck to his coat and to his dog?



Try using other materials or designs that could help the "seed" stick and travel.

CHALLENGE 3: BURST OUT

DESIGN A SEED THAT CAN BURST OUT AND TRAVEL MORE THAN THREE FEET.



1. Cut off the open end of a balloon.
2. Stretch the balloon over the end of a toilet paper tube and insert a pom-pom "seed."
3. Pull back the balloon and let go. What happens? How far did the "seed" travel?

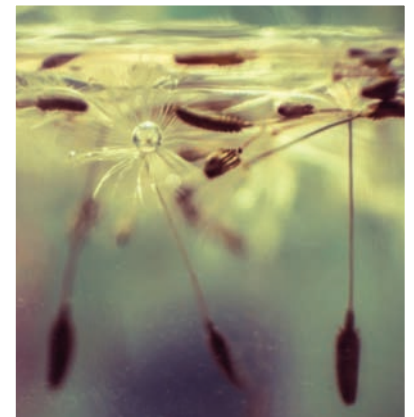
Try using "seeds" of different sizes, shapes, or weights. Can you make lots of them burst at once? Try using many small pieces of crumpled paper. Be sure to clean up!



CHALLENGE 4: STAY AFLOAT

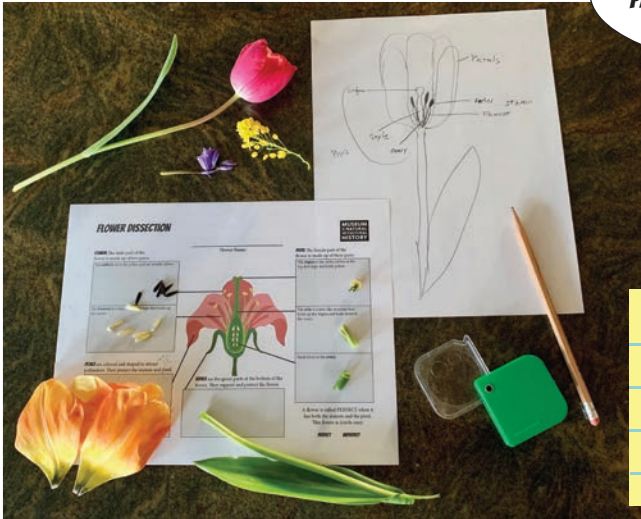
DESIGN A SEED THAT FLOATS IN WATER FOR AT LEAST THREE MINUTES.

1. Place a pom-pom in a cup of water. What happens?
2. Can you change a pom-pom "seed" so it will float? Experiment by adding different materials to the pom-pom and see what works.



FLOWER POWER!

MUSEUM
OF NATURAL
AND CULTURAL
HISTORY



WHAT ARE THE DIFFERENT
PARTS OF A FLOWER? TRY DISSECTING A
FLOWER TO FIND OUT.



WHAT YOU'LL NEED:

- | | |
|--|--------------------------------------|
| ☐ Flower dissection sheets | ☐ Pencil |
| ☐ Magnifying glass (optional) | ☐ Blank paper |
| ☐ Flowers | |

Dissection means to take something apart to study it.

WHAT TO DO:

1. Look at the poster and flower dissection sheet to learn about the parts of a flower.
2. Explore outside and gather a few different types of flowers. Only pick one or two from each plant so it can stay healthy and have flowers for others to enjoy.
3. Look closely at a flower with the magnifying glass and then draw the flower. Can you label the flower's parts on your drawing?
4. Gently take the flower apart. Identify each part and place it in the labeled box on the dissection sheet.
5. Repeat with another flower.



Imperfect flowers have either the male or female parts.



Perfect flowers have both the male and female parts.

**COMPARE THE FLOWERS. WHICH PARTS ARE
SIMILAR? WHICH PARTS ARE DIFFERENT? ARE
YOUR FLOWERS PERFECT OR IMPERFECT?**

PERFECT FLOWERS!

Some flowers have only one of the two parts they need to spread pollen and reproduce. But most flowers are **perfect**, which means they have both the stamen and pistil and can reproduce on their own.

ATTRACTING ATTENTION

MUSEUM
OF NATURAL
AND CULTURAL
HISTORY



WHY ARE PLANTS SO
COLORFUL? HOW DOES IT HELP
THEM SURVIVE?

WHAT YOU'LL NEED:

- ☐ Light colored bandana or cloth
- ☐ Leaves, flowers, and berries
- ☐ Plastic trash bag
- ☐ Cardboard to protect work surface
- ☐ Rolling pin

RECOMMENDED:

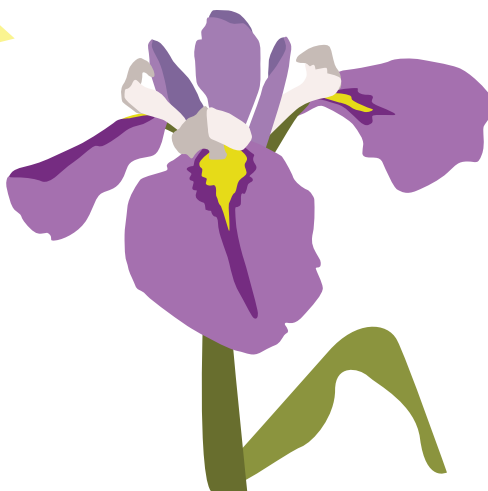
WHAT TO DO:

1. Gather some colorful leaves, flowers and berries.
2. Put cardboard on the ground or floor. Lay the bandana flat on top.
3. Cover half of the bandana with leaves and flowers. Fold the other half over the plants.
4. Lay a plastic bag on top of the bandana.
5. Crush the flowers and leaves using a rolling pin or by stomping on it (wear shoes!). Try different methods to find what works best to transfer the colors from the plants onto the bandana.
6. Unfold the bandana to see the shapes and colors you created.



PIGMENT POWER!

Pigments are the substances that make color. Plant pigments are beneficial for plants and animals, including humans!



CREATING ART!

People use plant pigments for colorful dyes.



Note: Colors will fade and run if washed. When needed, hand wash separately and hang to dry.

ATTRACTING ATTENTION!

Colorful flowers attract birds, bees, and other animals who eat pollen and nectar. These animals—called pollinators—help plants reproduce by spreading pollen to other flowers.

DEFYING GRAVITY!



YOU GET NUTRIENTS FROM
WHAT YOU EAT AND DRINK. HOW
DO PLANTS GET THE NUTRIENTS
THEY NEED?

WHAT YOU'LL NEED:

- | | |
|---|---|
| ☐ Tea bag or food coloring | ☐ 2 similar sized cups, jars, or bowls |
| ☐ 2 paper towels | ☐ Optional: clock or stopwatch, camera |
| ☐ Hot water | |

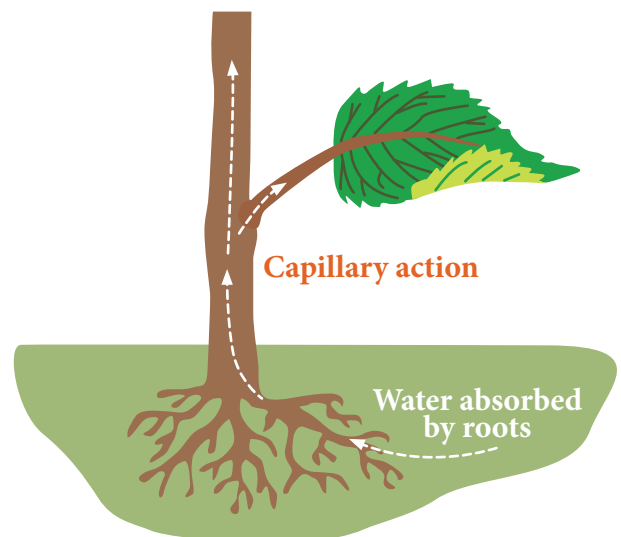


WHAT TO DO:

1. Make colored water by putting the tea bag, which is made from a plant, in a cup of hot water—ask an adult to help! After a few minutes, remove the tea bag and stir. You can also use food coloring to color the water.
2. Fold the paper towel into a long, thin rectangle and then fold the rectangle in half.
3. Place the empty cup next to the cup of water. Put one end of the paper towel in each cup. If needed, cut or tear the ends of the paper towel so it just touches the bottom of the cups.
4. Observe regularly over the next 2-4 hours. If you have a camera or phone, take pictures every 15 minutes to document the process. What happened to the water?

PLANTS DEFY GRAVITY!

Like the paper towels, plants use **capillary action** to transport water and nutrients up through the plant. **Capillary action** happens because water molecules are attracted to each other and to the plant tissues, which forces the water to keep moving up the plant.



GROWING STRONG!



HOW DOES A
PLANT'S ENVIRONMENT AFFECT
HOW IT GROWS? LET'S DO AN
EXPERIMENT!

WHAT YOU'LL NEED:

- | | |
|--|---|
| ☐ Bean seeds | ☐ Soil |
| ☐ Experiment sheet | ☐ Water |
| ☐ Ruler | ☐ Pencil |
| ☐ 3 small containers
(cups, egg cartons,
yogurt containers, etc.) | ☐ Plate
Optional: materials
to test a variable |

WHAT TO DO:

1. Plan your experiment using the experiment sheet.

2. Plant your seeds in three containers.



Poke 5-6 small holes in the bottom of container for water to drain.



Add soil and make a 1-inch-deep hole in center. Add 2-3 seeds.

Repeat for all plants.



Cover seeds with soil and place the containers on a plate in a sunny place. Wet the soil until water drains out the bottom. Lightly water whenever the soil feels dry.

Don't forget to label your containers!

Testing a variable? Change the planting steps as needed.

3. Conduct your experiment over two weeks. What did you learn? What could you test next time?

4. After your experiment is over, you can replant your plants in a garden or a bigger container. Your plant may start producing beans after 2 months!

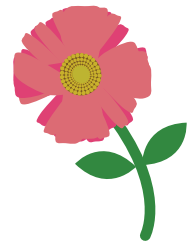
ADAPT TO SURVIVE!

All plants need water, sunlight, and nutrients to live. But, over millions of years, plants have adapted to different environments. The result is that plants grow nearly everywhere on Earth, from cold mountaintops to the dry, hot desert.





KEEP ON EXPLORING!



HOW DO YOU USE PLANTS?

Plants are an important part of our everyday life. Use the scavenger hunt page to explore your home and find all the ways that plants are used, from food to fun!



BUILDING WITH NATURE

Can you build a miniature home made only from plants? Explore your yard, a park, or other natural area to collect sticks, leaves, bark, and other plant materials. Use them to construct a tiny house.



PLANT OBSERVATIONS

Scientists make observations every day and use words or drawings to document their discoveries. Find a plant to observe closely and write or draw what you notice about it, what you wonder about it, and what it reminds you of. Return to the plant in different seasons and observe how it changes.

PLANTS POWER OUR WORLD

Plants are a vital part of the environment—without them, nothing else could survive.

Let's count the ways that plants are important.



**BE A
SUPERHERO
FOR PLANTS!**

Keep on learning about plants
and find ways to support healthy
plants in your community.



- Volunteer for neighborhood cleanup projects.
- Plant native trees and flowers, especially ones that attract pollinators.
- Compost in your yard or a community garden.
- Take care of the environment by making less waste and recycling more.

**MUSEUM
OF NATURAL
AND CULTURAL
HISTORY**

**STAY CONNECTED.
STAY CURIOUS.**

Learn more and find
additional activities on
the museum's website.
mnch.uoregon.edu