

Montshire at Home: Teacher Guide

WEEKLY THEME: SEEDS – Most plants have seeds. The seed provides the energy for a new plant to begin to grow.

MONTSHIRE AT HOME is a series of learning activities, resources and short videos, developed, hosted and curated by the Montshire's Education team. It's designed to support children, families, and teachers with easily accessible concepts, content, and materials while learning at home.

Teachers can use these materials to support remote science learning opportunities for their students at home. Below is a suggested learning progression using this week's theme, activities, and resources found on the Montshire's Online Resource web page.

SUGGESTED LEARNING PROGRESSION

Day 1: Seed Sprouting Experiment Set Up

EXPLORE

- ▶ What is a seed?
- ▶ What is inside of a seed?

DISCOVER

- ▶ A seed is mostly food for a new plant.
- ▶ A seed is packaged in a seed coat that contains an embryo which is what will start making roots, stems and leaves.
- ▶ The biggest part of the seed is the endosperm that is the food and energy to get the plant started before it can start making its own food through photosynthesis.
- ▶ To sprout a seed all you need is water and a little warmth!

Day 2: Seed Scavenger Hunt in Your Kitchen

EXPLORE

- ▶ What makes something a seed?
- ▶ What kinds of ingredients come from seeds? (Hint: oats, corn, wheat, rice and chocolate all come from seeds!)
- ▶ Which part of a plant do the spices or pantry items come from?
- ▶ How many things in your kitchen are seeds?
- ▶ How many different seeds can you find as a class/ among your friends? Compare!

DISCOVER

- ▶ Seeds are a large part of our diet and come from flowering plants and trees (even conifers!).

Day 3: Seed Scavenger Hunt Outside

EXPLORE

- ▶ How many different seeds can you find outside?
- ▶ Do you find the same seeds in the woods as you do in a field or in your yard?
- ▶ How many different seeds can you find as a class among your friends? Compare!

DISCOVER

- ▶ Now is a great time to look for seeds and seed pods before things start to leaf out in the spring!
- ▶ Find an oak tree with lots of fallen acorns. Last year was what is called a mast year for oaks.
- ▶ A mast year is when the trees in an area produce a huge number of seeds in one year. Oaks have a mast year every 2 to 5 years. If you find a good tree, you might find thousands of seeds under it!

Day 4: Sprouting Seeds Experiment Check-In

EXPLORE

- ▶ What do you notice about your sprouting seeds?
- ▶ How are your seeds the same or different?
- ▶ What seeds didn't sprout? Why?
- ▶ Did your friends seeds sprout in the same ways yours did? Why do you think that is?

DISCOVER

- ▶ As the seed absorbs water, it first begins to grow root and then a stem with leaves that turn green. Once the plant has used up the food in the seed it will begin photosynthesis to make its own food.

Day 5: Sorting!

EXPLORE

- ▶ What's the same about your items?
- ▶ What's different about your items?
- ▶ What more do you notice about your items now that you've sorted them?
- ▶ Can you sort these items in a different way? By shape, by size, by color, etc!

DISCOVER

- ▶ Just about anything can be sorted – seeds, socks, crayons, rocks and more.
- ▶ Sorting makes you look at how things are the same or different and then allows you to make decisions about which of those characteristics are important. This is an important skill scientists use all the time!

EXTENSIONS

- ▶ Continue to monitor sprouting seeds. What do you notice after a week, after 10 days, etc?
- ▶ Plant some seeds! If students have access to a pot and soil (a plastic cup or recycled plastic container with a hole or two poked in the bottom left on a lid or saucer works just fine) have them plant any of the seed types they have found inside that sprouted and see what grows.
- ▶ Consider the diverse ways to facilitate and connect with students through these activities, such as independent exploration, small group comparison, and large group discussion.



Seed Sprouting Experiment

A seed is mostly food for a new plant. It is packaged in a seed coat that contains an embryo which is what will start making roots, stems and leaves. The biggest part of the seed is the endosperm that is the food and energy to get the plant started before it can start making its own food through photosynthesis. To sprout a seed all you need is water and a little warmth!

MATERIALS NEEDED

- ▶ Seeds (a few of each type).
Garden seeds or dry seeds from the kitchen are all possible options
- ▶ Small plastic bag
- ▶ Wet paper towel
- ▶ Magnifying glass (optional)
- ▶ Observation sheets

TO DO

1. Examine your seeds. Make note of size, color, shape, hardness, and where you think it might start growing from.
2. You may want to soak your seeds, especially any big ones, for an hour or so before putting them in the bag. This is to give them a head start in absorbing water.
3. Fold the wet paper towel so it lays flat in the plastic bag.
4. Place the paper towel into the plastic bag.
5. Add a couple of each seed onto the paper towel.
6. You don't want the bag to be completely sealed, but also not wide open. Gently fold over the open edge to help keep the moisture in.
7. Place your bag somewhere you'll remember to look at it. It helps if it is in a warmish spot, but it doesn't need sunlight yet.

EVERYDAY

1. Check on your plastic bag. Feel free to pull out a seed so you can look at it closely.
2. Record what you notice. Is it the same size? Has the seed coat split? Is anything growing? Can you identify a root or stem?
3. At some point you may want to split one of the seeds open and see what the inside is like.
4. Add water to the paper towel if it is drying out (most likely you won't need to do this)

NOTES

- ▶ Sometimes seeds just don't sprout. They may be too old, need warmer conditions, or are sterile.
- ▶ Occasionally mold starts to grow on the seeds or paper towel. This in itself is a different interesting experiment, but for us, this probably means it's time to end our experiment.

FOLLOW-UP: *Summer is coming! Think about what you can plant in your garden. Now is a great time to plan our your summer garden.*



Observation Sheet

Date _____

I looked at a _____

A picture of what I observed

I noticed _____



Seed Scavenger Hunt

How many things do you think you have in your house that are seeds?

What if you included the seeds in your neighborhood?

Seeds are part of what we eat, flowering plants, and trees (even conifers!). These all make seeds to make new plants.

Ideas for Scavenger Hunts

OUTSIDE!

- ▶ How many different seeds can you find? Now is a great time to look for seeds and seed pods before things start to leaf out in the spring.
- ▶ You can divide the hunt even further by thinking about how those seeds move around (i.e. wind, sticking to animals, getting eaten by animals)
- ▶ Do you find the same seeds in the woods as you do in a field or in your yard?
- ▶ Find an oak tree with lots of fallen acorns. Last year was what is called a mast year for oaks. A mast year is when the trees in an area produce a huge number of seeds in one year. Oaks have a mast year every 2 to 5 years. If you find a good tree you, might find thousands of seeds under it.

INSIDE!

- ▶ Find how many things in your pantry, spice cabinet, or refrigerator have seeds.
- ▶ Read the ingredients on different foods such as cereal, bread, hummus, cookies, and any prepared food. How many of the ingredients come from seeds? (Hint: oats, corn, wheat, rice and chocolate all come from seeds!)



Sorting

About anything can be sorted; seeds, socks, crayons, rocks and more.

Sorting makes you look at how things are the same or different and then allows you to make decisions about which of those characteristics are important. This is an important skill scientists use all the time!

SOME TOOLS FOR ORGANIZING

- ▶ Ice cube tray
- ▶ Egg carton
- ▶ Loops of string for each category
- ▶ Tweezers

SOME IDEAS FOR SORTING

- ▶ 15 bean soup
- ▶ Your own seed mixture
- ▶ Crayons
- ▶ Junk drawer
- ▶ Toys
- ▶ Buttons
- ▶ Stuffed animals
- ▶ Assorted hardware
- ▶ Clothing
- ▶ Things you have collected from nature
- ▶ And anything else you can think of!