## Pre-K 4 – Seeds: Germination & Dispersal

| **Key Questions:** | • What is a seed?  
| | • What does a seed become?  
| | • Do different seeds become different things?  
| | • What does a seed look like as it grows?  
| | • What is seed dispersal and what are the different types?  

| **Kitchen Seed Hunt:** | • Explore seeds!  
| | • What seeds can you find in the kitchen? Possibilities include beans, lentils, pumpkin seeds, fruit seeds, avocado pits, etc.  
| | • What foods can you find that grew from a seed?  
| | - What do you predict that seed looks like? Draw a picture of what you imagine it to be.  
| | - Look up what that food’s seed looks like. What is similar to your drawing? What is different?  
| | • When cutting fruits or vegetables for meals: What seeds can you find? What do they feel like? Smell like?  

| **Explore Seeds Online:** | • Visit Smithsonian’s Learning Lab and look through their seeds. What do you notice? What are similarities and differences between the seeds?  
| | [https://learninglab.si.edu/search?st=seeds&item_type=smithsonian&st_op=and](https://learninglab.si.edu/search?st=seeds&item_type=smithsonian&st_op=and)  

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## Germination:

- Germination is the process of seeds growing into new plants.
- Watch a time-lapse video of lima bean seeds sprouting over 6 days: [https://www.youtube.com/watch?v=iZMjBO6A7AE&feature=youtu.be](https://www.youtube.com/watch?v=iZMjBO6A7AE&feature=youtu.be)
- What do you notice?
  - Do you notice the seed growing roots to get water?
  - Do you notice the shoots that grow above ground?
  - Do you see the leaves growing from the shoots? The leaves will get energy from the sun to help the whole plant grow.

## The Needs of Seeds:

- What do seeds need to grow?
- Take a look at *The Farm* by Joan Miró from the National Gallery of Art collection: [https://www.nga.gov/collection/art-object-page.69660.html](https://www.nga.gov/collection/art-object-page.69660.html)
- What do you see that the seeds need?
  - Soil
  - Water
  - Sunshine (light)

## Seed Mosaic:

- Seeds come in all different sizes, shapes, and colors! Gather some seeds that are available in your kitchen (beans, sunflower seeds, popcorn kernels, etc.)
- Use paper and glue to create a design or mosaic with the seeds.
- If you do not have any seeds, print out some images of seeds, cut them out, and use the images to create a mosaic. Another option is to draw seeds and then cut them out.
### Seed Dispersal:

- Plants create seeds that will become new plants. These seeds need to travel from their original plants so that they don’t grow on top of each other and get too crowded.
- But how do seeds travel if they don’t have feet like humans? Make some predictions and then explore the various ways that seeds disperse:

| Gravity Dispersal: | Pretend to be a plant, rooted to the ground. Drop some “seeds” (can be pom poms or another light weight object). Where did they go?  
|                  | When a seed just falls to the ground, it’s called gravity dispersal and these plants tend to grow close together. |
| Wind Dispersal:   | Wind is another way that seeds disperse.  
|                  | Look up images of maple seeds, cottonwood seeds, and dandelion seeds. Notice how they are shaped, and how their shape helps them float through the air.  
|                  | To see how this works, pretend to be the wind and blow some seeds. Grab a parachute or a bed sheet, and put pom poms (or other lightweight objects) on top. Shake the fabric pretending to be the wind and watch as your “seeds” (pom poms) disperse. |
| Water Dispersal:  | Plants near water usually have seeds that float. This allows the seeds to float in the water and find a new location to grow.  
|                  | If you have any seeds at home, put them in water to see if they float or sink. Depending on what happens, can you make a prediction if the plant is a land plant or a plant that normally grows near the water?  
| Ballistic/Expulsion Dispersal: | Some plants “launch” their seeds away, kind of like an explosion or catapult.  
<p>|                  | Watch the video to see how this works: |</p>
<table>
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<tr>
<th><img src="https://www.youtube.com/watch?v=OB0P3mx_lxY" alt="YouTube Video" /></th>
<th>• Create a DIY catapult and pretend you’re a flower launching seeds. <a href="https://hative.com/catapult-projects-for-kids/">https://hative.com/catapult-projects-for-kids/</a></th>
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| **Animal Dispersal:** | • Animals spread seeds in two different ways:  
  - When animals eat the fruit off of plants they will poop out the seeds, usually in different locations than the original plant.  
  - Some plants have seeds that are sticky and will stick to animals as they walk past the plant. The seeds will then drop off in another location.  
• Can you act out this type of seed dispersal with stuffed animals? |