

## Wonder Wednesday: Year 1 Compilation

These lessons are compiled straight from the Wonder Wednesday Blog Posts. If you would like them including links and illustrations, those can be found on the [blog](#) or on the [Wonder Wednesday Pinterest board](#). If you would like the Wonder Wednesday lessons delivered right to your inbox, be sure to sign up for the [newsletter](#).

### **1. How to make Seed Balls**

Seed balls are an easy way to spread seeds in tough areas. By tough I mean areas that are hard to tend or even don't belong to you. They are great fun for kids ages 3-103 and require few supplies. Before beginning, you will need to decide what type of seeds you would like to spread. Research native wildflower varieties or even hardy veggies like peas and beans that are appropriate for your zone. Choosing the right seeds for the right place is key for the seed balls to be successful. Consider the areas where you want to spread them, how much water those areas get, the time of year you will be spreading, and variables like foot traffic and public mowing.

#### **Materials**

A few packets of seeds

Self hardening clay, this can be bought at a craft store (red or gray, not the brightly colored modeling clay) or, if you are in an area with a lot of clay, dug up from the ground for free!

Potting soil

#### **Procedure**

Get a hunk of clay the size of a handful or more

Flatten the clay out into a pancake, about 1/4 inch or so thick (These are not an exact science, so the circumference of the pancake can be up to you or dependent on the developmental level of the people making it)

Firmly press a handful of potting soil into the top of the clay pancake

Flip the clay and soil pancake over

Sprinkle a mixture of the seeds you chose onto the clay pancake

Press them into the surface so they do not fall off when the clay pancake is picked up

Fold the clay, soil, and seed pancake in half and then in half again

Knead the clay, soil, and seeds together so they are fairly well blended

Roll the mixture into a ball

Pull off chunks and roll into smaller gum ball sized seed balls

Place all the seed balls on a tray to dry for a few days

Head out on the town and spread your seeds! For best long term results, spread the seed balls in areas that are not mowed regularly – don't be shy, spread lots of them!

### Follow-up

Have the children research what kind of wildlife will be attracted to the seeds they are spreading

Plant a couple seed balls in pots so the children will be able to identify the sprouts and plants coming from the seeds they spread

After a couple months, retrace your route and see if any seeds have sprouted up yet (It can take longer in the "wild" because of environmental factors such as rainfall)

Make extra seed balls and sell them at a fundraiser

Check out this great downloadable [seed balls poster](#) created by Urban Habitat Chicago

## 2. Plant Propagation

Propagation is a big word for making new plants from cuttings of an original plant. Depending on the variety, many plants can be propagated simply in water or a common medium such as perlite or gravel. Propagation is a great way to introduce children to the joys of plant sharing and giving living gifts, as well as ways to grow plants other than by seed. The varieties I am recommending for this lesson are pothos, geranium (I like rose geranium because it smells so good), coleus, begonia, and mint because each are easy to find in garden centers, at garden clubs, or at community garden plant sales and can be propagated in either water or medium.

### Materials

Plastic cups of water: each child should have 2 cups for each variety of cutting

Small pots with soil for each cutting made

Perlite or other common potting material such as gravel

A variety of the plants mentioned above for cuttings. The size of and quantity of the original plants will depend on the number of children you are working with and the number of cuttings you will be making from each plant. These plants will regenerate also and can be cut from many times once they regrow.

Scissors

Optional: powdered rooting hormone

### Procedure

Discuss with the children that there are many ways a plant can grow, not only from a seed. Explain that today they will be learning a method of propagation (or breeding of plants) where you actually cut parts off one plant that will grow roots and create a new plant.

Explain that they will be experimenting with regrowing these plants in both water and medium to see which does better.

Show the children the plants they will be making cuttings from and allow them to explore these plants observing any characteristics or scents they may have.

Show the children how to make cuttings by cutting each stalk with the scissors about 6 inches long or having approximately 3 leaves and enough stem to immerse in the water or medium.

Each child should take 2 cuttings of each plant. Have them place one in a cup of water and one in a cup of medium and water.

Place the cuttings in a sunny window or outdoors in warm weather. Check the cups each day for root growth and to be sure the cups do not dry out or water level get below the cuttings stem.

Once the plants have grown a few roots a couple inches long, plant them into the small pots with soil and water.

After new growth is witnessed on the potted plants they can be transplanted into larger more decorative pots, into a garden or given as gifts.

The rate at which each cutting will sprout new roots will depend on temperature and the particular variety, but generally they should have roots in a couple weeks at most.

### Optional:

If you are working with older children, try dipping the end of the cutting into powdered rooting hormone before placing it in the medium. Observe whether the plant without hormone in water or the one in medium with the hormone grows roots more quickly or vigorously. \*\*Follow all manufacturer instructions and warnings on the rooting hormone bottle and remind children that it is important to wash their hands well after use and not to touch their faces until their hands are washed.

Repot the cuttings into terra cotta pots that the children have painted. Then, give these plants as gifts.

### 3.Reusable Bags

In honor of Sprout Up and Ryland King's inspiring work and interview, I decided to borrow his idea and help spread enthusiasm about reusing. So here is an adapted version of the lesson Ryland described to us in his interview. I hope after you create these bags with your students that you overhear a conversation spreading the positive message of environmental connection and responsibility in the grocery line too! Enjoy and don't forget, the kind message on the bag is the most important part!

#### Materials

Cloth markers

Paint pens

Puffy pens for fabric

Canvas or cloth reusable grocery bags

#### Procedure

Engage the students in a discussion about why it is important to reuse items. Here are some book suggestions to assist with these concepts you could use:

*Don't Throw That Away!: A Lift-the-Flap Book about Recycling and Reusing* by Lara Bergen and Betsy Snyder

*My Bag and Me!* By Karen Farmer

*The Three R's: Reuse, Reduce, Recycle* by Nuria Roca, Rosa M. Curto

Explain to the students that they are going to create a bag that will inspire and teach the grown ups in their lives the importance of reusing.

Show them where on the bag they will be drawing and any special info needed for using the fabric pens and markers.

Recommend a good space on the bag for writing their kind message to their grown up and first have students brainstorm their message and write it on paper. They may want to write the message on the bag in pencil first and then trace over it with the fabric pens, but that may depend on the age and skill level of the students.

Have the children create their bags and send them home with enthusiasm!

## 4. Flower Fairy Garden Lights

[edited from Notebook Magazine, January 2007]

### Materials

Fairy lights

Vellum paper in a variety of colours

Scissors

### Procedure

Cut 15cm squares of vellum paper in a variety of colours. You will need two or three squares of paper for each fairy light. Fold paper square in half diagonally to form a triangle.

Fold the left and right corners up to meet at the centre, forming a diamond shape. Fold in half to form a small triangle. [see image left]

Cut curves along the open edges to form a heart-shaped top and create the petal effect. You might like to choose different petal shapes for each colour. Layering them, the variety of shapes will add depth.

Cut across the bottom point to create a small opening to slip the light bulb through. Unfold.

Layer a few paper petals in different colors on each fairy light. Attach the flowers above the bulb on the plastic wire so the bulb is left exposed.

While vellum paper is a lot less flammable than ordinary paper, but don't leave the lights on unattended. We can see these looking amazing during a casual summer cocktail party in the garden- exactly what we're planning for the upcoming months.

## 5. Give Peas a Chance!

### Supplies:

Nature journals, rulers, pencils and/or crayons

Book: *First Peas to the Table: How Thomas Jefferson Inspired a School Garden* by Susan Grigsby

Pea seeds to plant in the garden. You may want to choose a variety of types

Optional: Fresh pea pods to taste after the story

### Procedure:

Begin by asking the children some questions about peas and engage a short discussion: Do they like them, what color are they, have they tried them before, how do they grow - on a vine, bush, or stalk, inside a pod or from a flower, or both? This discussion will of course be modified for the various age groups as necessary. Remember flexibility within structure. Go with your instincts and follow the child's curiosity!

Show them the book and read the story .

Explain that, like the characters in the book, they will plant pea seeds and observe how they grow documenting their observations in their nature journals.

Pass a seed to each child and have the child use the magnifying glass to closely observe the qualities of the seed and then draw the seed in the journal. Depending on the child they may want to also write "pea seed" on the page.

Once the child has documented their seed, they may plant it in the garden or designated space for the peas. Show them how to make a little hole with their finger, drop the seed in, and cover it back up, then water.

Explain that it is important to give the seeds something to climb reminding them of the previous conversation of how a pea is a vine. Then describe the ways you have decided to trellis the peas whether tunnels or teepees, on a fence or up a traditional trellis.

Have the children water the seeds daily and once they sprout, begin to document the pea plant regularly.

\*\*If there is a possibility of a freeze, the peas may need to be covered at night.

### Extension Activities:

Review the story *First Peas to the Table* and have them describe the “contest” to you. Keep pea seeds watered and watch for sprouts. Count the number of sprouts, if any and measure them. Document this information in the nature journals. Now it is a race to see which plant gets tallest and which one will bring “peas to the table” first, just like in the story!

Have the students sketch and then build the trellis' for the peas incorporating a geometry lesson on topics such as cones, arcs, and lines (convergent, divergent, parallel)

Have the students research Thomas Jefferson and his historic agricultural accomplishments and how pea seeds are still being saved at Monticello today. This is a great lesson to do in February for Presidents Day.



## **6. Features of Civilization and Letterboxing, Created by Samantha Hutchinson**

**Day One:** Features of Civilization Lecture/Discussion. Here's a link to a great slideshow: <http://www.slideshare.net/gutzy6/8-features-of-a-civilization>

**Day Two:** Explain to the students that they will be creating their own civilization. Facilitate brainstorming session. Accept and write down all suggestions on a large sheet of paper or designate a student to take notes. (Asking the students to select three or five features to focus on makes this project manageable without compromising the integrity of the lesson.)

**Day Three:** More class-wide brainstorming and then students work in small groups focused on one feature. For example, if the students decide to focus on government, religion, and writing; there will be a group that will focus on government, another group will focus on religion, and then a group for writing.

**Day Four:** Groups take turns presenting their ideas to the class. Students work in their group to develop their ideas further.

**Day Five:** Explain letterboxing and geocaching to students. This is when you let them know that they will create letterboxes that present information about their civilization. Students decide how they want to compile the boxes. For example, the boxes could be themed as the government letterbox, the religion letterbox, and writing letterbox; or each box can be a hodge-podge of the different features. (I limit the number of boxes to the number of features that we choose to study)

**Day Six:** Provide materials for the student work groups to create their letterboxes. (choose water-tight containers!)

**Day Seven:** Work on letterboxes.

**Day Eight:** Develop the clues to find the letterboxes.

**Day Nine:** Plant letterboxes (If it is difficult to take the class off campus, letterboxes could be placed entirely on campus)

**Day Ten:** Plant letterboxes and share the clues with others. Clues can be posted online at: <http://www.letterboxing.org/>

**Follow-up:** This can be a great collaborative project with other classrooms! Other classrooms can discover the letterboxes and attempt to describe the created civilization. This is a great opportunity for several classes to gain an experiential knowledge of how archeologists and historians use ancient material culture to develop a hypothesis.

### Resources

<http://www.p12.nysed.gov/ciai/socst/ghgonline/projects/8FeaturesCivilization.pdf>

<http://quizlet.com/3023259/8-features-of-a-civilization-flash-cards/>

## 7. Leaf Splatter Prints

This is an easy type of print that can be done with children young and old using regular materials found around the home or classroom. I recommend correlating this activity with a study on abstract expressionism and Jackson Pollock for older children and as an extension for my "Leaf Matching" lesson from the Worms "On the Soil" chapter. It also can be a good intro for the Cyanotype lesson (my favorite way to make prints.)

### Materials

Tempera, acrylic, or liquid watercolor paint. Paint should be very thin and runny, but mixed well and not watery. The thinner the paint the easier it will spray and flick off the toothbrush. This will create more defined edges around the leaves almost like an airbrush. A little thicker paint can be used for flicking off the regular brush for added interest.

A palette or little bowls that brushes can be dipped into.

Brushes- both old toothbrushes and paintbrushes for creating different effects (If you really want to get technical, harder grade toothbrushes create a better spray than soft, but really just use what you have.)

Paper

Leaves

Push pins

Pieces of cardboard slightly larger than your paper

A large drop cloth if you are doing this inside or on a surface you don't want covered in paint!

Smocks (optional)

Palette knife (optional for those that don't want to get paint on heir hands)

### Procedure

Take a nature walk and collect a variety of leaves.

Upon returning, research the types of leaves collected and the shapes and margins of each leaf. Record this in nature field journals. This can be the beginning of a more in-depth research project on a specific type of tree.

Pin the piece of paper to the cardboard.

Arrange the leaves and then carefully pin them down to the paper.

Choose a color scheme of around 3 colors. Paint should be very thin and runny, but mixed well and not watery. The thinner the paint, the easier it will spray and flick off the toothbrush. This will create defined, ore detailed edges around the leaves almost like an airbrush. A little thicker paint can be used for flicking off the regular brush for added interest.

Bring paper, brushes, and palette to the drop cloth or outside, set the cardboard/pinned paper down, dip the brush into the paint and flick paint off the brush onto the paper. If using a toothbrush, with bristles facing up but aiming the brush toward the paper, use your thumb or a palette knife to scrape the bristles TOWARD you (or UP if the brush is turned sideways as in this pic), flicking paint onto the paper in a finer spray. (Scraping away from you will flick the paint onto you!)

Focus on getting a lot of paint around the outer edges of the leaves so the margins come out clearly.

Once the paper is covered in a way that is aesthetically pleasing, yet clearly defines the leaves, set the cardboard/paper out to dry.

Once dry, remove the pinned leaves and unpin the paper from the cardboard.

At this point, you may want to mount the print onto a larger piece of coordinating color construction paper as a frame to create a defined border around the print and add visual stability.

Use this abstract expressionist print as an illustration for the leaf or tree research work and create a display or group presentation that beautifully teaches about art and nature!

## 8. Bagel Bird Feeders

### Supplies:

Nature journals, rulers, pencils and/or crayons

Scissors and yarn

Book: My First Book of Birds by Sharon Lovejoy, this is a great book because it is part bird fact book, part field guide, and part bird food recipe book! It is great just like all her other books and can be used at various stages of this project. (Don't let the name fool you. This book isn't for babies. It also comes with a recycled birdfeeder as an added bonus.)

Bagels- halved or uncut you can decide depending on the # of students vs bagels you have. Also, many bagel shops and bakeries are happy to donate day old bagels. Just arrange with them a couple days ahead of time.

Peanut butter, large size, cheap kind is fine

Bag of Birdseed

Plastic knives or spreaders

2 trays- for the birdseed and bagels

### Preparation:

Familiarize yourself with the story and lesson plan

Gather journals, pencils, yarn, scissors from Jordan and bring to picnic table

Arrange bagels on a tray, spreader knives, the peanut butter, and the birdseed poured in the tray on the picnic table

### Procedure:

Ask them if they have noticed all the birds around lately. Have them close their eyes and listen to hear birds. Remind them to save their observations until after the observation time. We must be silent to carefully hear the birds.

Read story to group and engage students in the lives and needs of birds.

Explore the role of birds in the garden. How do birds help the garden? Why do we want to attract them? Do you think wildflowers and flowers will attract birds? Why? (ex. because they provide seeds for the birds to eat)

Today we are going to make bird feeders to attract birds to our garden.

Explain the process: Tie the string around the bagel through the hole, use the spreader to apply peanut butter to the sides of the bagel, then dip the bagel into the birdseed.

Have the children find places, anywhere they like, around the garden to hang their feeders.

Get their journals and draw the feeder and draw any birds they see in the area.

#### Extra Idea:

Because kids love to eat, you may also want to bring some fresh bagels and sunflower seeds to let the children make bird feeders for themselves to eat also following the same procedure, but using sunflower seeds or a trail mix instead of birdseed.

## 9. Putting the Beds to Bed: What is Cover Cropping?

This is a basic lesson structure into which you can add your own twist and specifics to based on your region, garden size, volunteer quantities, and needs. It requires a little specific local research, but don't worry, not too much! You may even use this as an excuse to get an extension agent to come out and speak on the topic.

Introduce the children to the concepts introduced above as to why we would need to put the garden to bed and how the qualities of a particular season make cover cropping a good idea. (Ex: summer is too hot or because no one is at school, winter is too cold)

Explain to the students how they will wake the garden back up when they return to school in the fall by shoveling up their cover crop and either burying it back into the soil or composting it to "feed" the new plants and the soil- this will depend on which cover crop plant variety is chosen. You will have to develop this part of the lesson for your region and needs specifically.

(This could be a good time to review soil structures and how soil is living if you are working with older children.)

This is the part the kids always love because so often they have to be so careful in the garden. They get to pull out the plants!! WARNING: the children can get wild during this! Be very aware of energy levels and before the pulling begins you must explicitly explain which plants are to be pulled. You could even mark the plants to be removed with a ribbon as a visual cue because without fail, a plant that is not supposed to get removed gets pulled by someone who wasn't paying attention or who got caught up in the frenzy of pulling out plants. I have no idea why they tend to get wild when they pull out plants, but it always seems to happen no matter how prepared I am!

Have the children dispose of the pulled plants in the appropriate way for your school or garden. This may involved either chopping them with shovels to prepare for putting them in the compost pile or putting the plants in a designated yard waste disposal area. The garden should look as tidy afterward as it did when they arrived.

This part may be day 2 of the lesson or done with a different class

After the designated plants are removed, have the children rake the garden soil flat again and perhaps add in a layer of compost if you have it to get the soil ready.

Then have them plant the cover crop seeds. I usually let them do this in a scattering way.

Press the seeds into the soil gently and then cover them with another layer of compost generally about a half an inch thick or so.

Have the students water the cover crop seeds each day until the end of school. If using different types of cover crop seeds you could have them track and graph which ones sprouted first.

### In the fall (or next season)

Depending on what crop you chose and your particular situation, chop up the cover crop with shovels and either "turn in" or pull out and put into your compost bin.

Rake your soil to make it nice and smooth and tidy.

Then, either let your beds rest for 3-4 weeks if you turned in your cover crop or if you decided to put the removed crop into your compost pile, add a layer of fresh compost and begin your fall planting! You have come full circle now!

### Summer Schedules

For my classroom/school garden, about a month before school lets out, we would create a calendar for the summer. Just the regular old style of months with squares, one page for each month of summer vacation. Then, we (as in my co-teacher and I) would give these sheets to the room mother and have her organize parents to volunteer a week at a time to come over the summer and water. With the calendar sheets, we would give her an instruction sheet so she could describe what the job entailed and make clear that they are only responsible for watering. No big deal if anything dies, they aren't responsible for anything more than watering. (Some parents were quite worried about their perceived "brown thumbs.")

Some parents volunteered for more than one week and some for no weeks, but it always worked out and the garden, in whatever state of totally cover cropped to none at all, got watered 2-3 times a week. The room mother would return the sheets to us and we would verbally confirm with the parents the last week of school in person or by phone and give the volunteers a copy of the instruction sheet. You can never have too many reminders! We always received great feedback from the volunteer parents about how their children



were very excited to come and tend the garden over the summer. I always had an open harvest policy also for the volunteers. If you see it over the summer, pick it and enjoy!  
Just a little perk!

## 10. From Kitchen Scraps to Sprouts

This one is an oldie but goodie and can be done any time of year indoors or out. Don't let its simplicity fool you, it never fails to impress when a kitchen scrap sprouts up into a new plant! It can also be an experiential initial lesson for discussions on plant physiology, sprouting, and anatomy.

### Materials

Glass jars, one for each sprout

Toothpicks

Water

Avocado seed

Top end of a carrot

Sweet or white potato

### Procedure

Fill the jars with water

Insert 3-4 toothpicks into the sides of the vegetables. (Sometimes the girth of the potato is larger than that of the jar's mouth so toothpicks are not necessary. You will have to see about your particular potato)

Carrots can be done with toothpicks or simple set into a saucer.

Place the toothpicks so they rest on the mouth of the jar suspend the vegetable a little into the water. You may need to add more water, or remove some at this stage.

Place jars on a tray in a sunny window and watch them sprout!

Be sure the plants stay touching the water so they will not dry out.

### What you can expect

They can take anywhere from 1 to 2 weeks to begin sprouting so be patient.

The carrot will begin to sprout green from the top! This will grow in the dish for a little while, but will not grow a new carrot. If you use the dish, rather than the toothpick method, once the greens grow the carrot can become top heavy and tip out of the water.

The avocado seed may crack open partially or completely and will sprout roots and a shoot and leaves. This sprouted seed can then be planted into the ground or pot depending on where you live and will grow into a large or small tree.

The potatoes will sprout leaves and roots and can either be planted into a small pot to become a house plant (sweet potatoes are especially nice for this as they grow into long vines I once grew one in college that was 7 feet long) or they can be planted into the garden to grow more potatoes.

## 11. Writing With Your Senses, Created by Joanna Tebbs-Young

Go outside. Look around and choose one thing to focus on: the big shade tree, the worm wiggling in the soil, the soil itself, the water in the watering can...

**Look** at it for a while: What does it look like? What shape do you see? What colors? Does it remind you of anything else? Write it down.

**Touch** it. Hold it if you can, feel it in/on your fingers, your toes: What does it feel like? Does it feel like anything else? Write it down.

**Smell** it. What does it smell like? Yucky? Sweet? Like nothing at all? Does it smell like anything else you know of? Write it down.

**Listen** to it: Put your ear close. Do you hear anything? Is it buzzing or slushing or squeaking? Is there no noise at all? Write it down?

**Taste** it: DON'T taste anything unless you have checked with an adult that it is ok! If it is... What does it taste like? What does it feel like on your tongue? Write it down.

**Feel** it: What do YOU feel like inside when you look at it, touch it, smell it, listen to it, and taste it? Happy, calm, excited, curious...? Listen to the words inside your body and write them down (or draw a picture of you showing how you are feeling).

Remember that journaling can be done with all ages, in many different places indoors and out, and can also encompass drawings. The journal can be handmade or store bought, but the most important thing is that it is visually and texturally inspiring to the journaler.

## 12. Place-based Scavenger Hunt Research Project

This isn't your average scavenger hunt. It is for teams, so divide the group or class appropriately into groups of 4 or so.

### Materials

Paper

Clipboards

Pencils, colored and/or regular

Crayons for rubbing

Field bags (including but not limited to: tape measures, magnifying glasses, & bug boxes)

Optional: Digital camera

Field guides

Local history and natural history resources

Presentation materials such as posters, markers, rulers, glue, print offs

### Preparation

Create these simple scavenger lists that will be assigned 1 to each team. You may need to chose the list topics depending on the what is available in your environment, the age of the children, and skill level so use them as a jumping off point and customize.

Depending on how many students you have and the age of the children, you may choose to assign each group 2.

Scavenger group hunt topics:

Insects

Fish

Amphibians

Reptiles

Birds

Mammals

Fungi

Flowering Plants

Trees

### Procedure

Part 1: Explain that they will be going out into a designated environment (schoolyard?) to discover what type of life lives in the area. While scavenger hunting, they will need to try to discover 3-5 different types of plants or animals from their topic. When they find them they should document as much information as possible including size, color, what is it doing, where did you find it, what was the surrounding habitat like, was it alone? Then as appropriate, take photos, rubbings, and make drawings of the discoveries. Remind them of safety precautions when dealing with wild animals and that the regular rules apply such as no picking.

Part 2: After they have collected enough data. Provide local field guides and resource materials for the groups to compile a research presentation of the species they discovered in the area. Explain that they will be presenting their findings and that the presentations should include the common and latin names of the species they found, habits, habitat, food sources, needs, is the species native to the area, predators, is it migratory, if it's a plant is it: annual, perennial, deciduous, poisonous, does it have a use for humans, and any other history or culturally relevant information that may be interesting about their species.

Have them create a visual aid to accompany their presentation including pictures, drawings, rubbings, a quick fact chart, or whatever is appropriate.

Part 3: Have each group present their findings on their place-based discoveries to the group. After every group has presented, go back outside for a nature walk and see if the group can identify each other's discoveries. After the walk, create space for an outdoor

circle time where everyone can share what they observed, discovered, and noticed new based on their peers' presentations

### Extension Activities

During Part 2, take a field trip to a local natural history museum to speak with experts, discover more about species and topics, and spark enthusiasm during the research phase.

Have the students continue to nature journal during this entire project on anything they choose so they don't feel trapped in their own topic.

Have the students present their findings to other classes or to parents in a special "get to know your backyard" type of event.

After the presentations, create a local field guide that can be distributed to parents and/or the community.