# GRADE 2 | *Garden*

## SCOPE & SEQUENCE

### GRADE 2 STANDARDS

At the end of Grade 2, students will be able to:

- Identify elements in a food web.
- Demonstrate understanding of the role of plants in the food web.
- Demonstrate knowledge of the structure and functions of plant parts, specifically stems and leaves.
- Demonstrate knowledge of planting seeds, transplanting seedlings and seed saving.
- Demonstrate knowledge of how soil is made.
- Demonstrate knowledge of how plant and other matter is broken down.
- Demonstrate ability to construct planting mediums.
- Demonstrate knowledge of beneficial and non-beneficial insects.
- Demonstrate understanding of how the environment and weather shape the garden and its inhabitants.
- Begin managing scarcity and abundance in the garden environment.

# GRADE 2 | FALL

Each activity described below should be designed to last approximately 45 minutes.

| Lesson # & Title | Topic | Content Learning Objective(s) | Suggested Lesson Activity | Life Skills Learning Objective(s) | Connections to Kitchen Lessons | Possible Extensions | Academic Standard Connections | Health Standard Connections |
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| START THE YEAR *Schoolwide Garden Work Party with Families/Local Community* | | | | | | | | |
| **1.** Welcome to the Garden! | Personal and Community Life Skills **(PLS and CLS)** | | Engage students by playing an age-appropriate name game. Explore teamwork by leading a team-building exercise. Explain teamwork by establishing garden agreements together Introduce the Community and Personal Life Skills. Then have students elaborate, practicing these agreements by exploring the garden and playing a game such as "meet a plant." Choose one edible plant to harvest and enjoy together. | **PLS.1-6**<br><br>**CLS.5** Students participate in the development of agreed upon protocols and behaviors for the garden and kitchen environments. | In the garden, review safe food harvesting and handling practices from the kitchen as you harvest and enjoy a snack together. | **Classroom:** Compare group agreements for the garden with those students have in the classroom. How are behavior expectations similar in both places? How are they different? | **CCSS.ELA-LITERACY.SL.2.** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |

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| **2.** Comparing Food Textures | Plants **(P)** | **P.2.2** Identify edible leaves and stems in the garden. | Hand out journals that students will use to reflect at the end of each lesson. Engage students by challenging them to find edible stems and leaves in the garden. Have them explore by sorting their findings based on plant structure (stems vs. leaves). Explain the function of stems (water and nutrient transport) and leaves (photosynthesis). Then conduct a comparative tasting between various edible leaves and stems. Focus especially on feeling and describing different food textures. | **CLS.4** Students appreciate and are respectful of differences and diversity in their communities. | In the garden, have students preview or review adjectives that describe texture from **Kitchen Lesson #2: Food Texture** as they describe the textures of each stem or leaf. In the kitchen, prepare a dip or dressing to enjoy with the edible stems and leaves in the garden. | **Cafeteria:** Identify edible stems and leaves in the school lunch or salad bar. | **CCSS.ELA-LITERACY.L.2.5.A** Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy).<br><br>**CCSS.ELA-LITERACY.L.2.5.B** Distinguish shades of meaning among closely related verbs (e.g., toss, throw, hurl) and closely related adjectives (e.g., thin, slender, skinny, scrawny).<br><br>**NGSS Crosscutting Concept:** ***Structure and Function*** The shape and stability of natural and designed objects are related to their function(s). | **National Health Education Standard 2:** Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors. |

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| **3.** Building Compost | Soils **(S)**<br><br>Garden Tools and Equipment **(GTE)** | **S.2.3** Balance carbon (browns) and nitrogen (greens) in compost.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Explain and demonstrate safe use of spading forks. Then have students practice these skills by building a compost pile together. Explain that we build healthy soil to grow healthy plants. To elaborate, ask teams to work together on developing systems to ensure that carbon and nitrogen are in balance in the compost pile. Demonstrate how to use a soil thermometer, and then stick one in the center of your pile. Together with students, check, record, and graph the temperature of your pile over time. | **PLS.1** Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.<br><br>**CLS.2** Students cooperate and communicate well with each other. | Collect plant-based food scraps from the kitchen to build the compost pile in the garden. | **Cafeteria:** Collect plant-based food scraps from the cafeteria to build the compost pile in the garden. | **CCSS.MATH. CONTENT. 2.MD.A.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.<br><br>***NGSS.2.ETS1.B Developing Possible Solutions*** | |

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| **4.** Tending the Garden | Garden Planning and Maintenance **(GPM)**<br><br>Garden Tools and Equipment **(GTE)** | **GPM.2.1** Understand how to prepare soil for planting in terms of weeding and cultivating.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Engage your students by having each student share one of his/her favorite fruits or vegetables growing in the school garden. Explain that preparing the soil is an essential step in growing healthy, tasty plants. Review safe use of spading forks and demonstrate safe use of hand forks. Divide your group in half. Have one half work with you to prepare beds by weeding and adding compost. With an adult volunteer, have the other half listen to and discuss *How Groundhog's Garden Grew* by Lynn Cherry, and then switch. | **PLS.1** Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.<br><br>**CLS.3** Students understand and apply principles of fairness, equity, and democracy in the garden and kitchen environments. | Prepare a recipe that involves stirring, such as in **Kitchen Lesson #3: Make-Yourself-Some-Applesauce**. Discuss how stirring is similar to preparing a bed for planting (mixing ingredients; stirring in air; using tools; etc). | **BAM! Box:** Plant an extra set of plants in containers to send home with students. Have them care for their plants over time and compare them to the ones planted in the garden. | **CCSS.ELA-LITERACY.RL.2.7** Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.<br><br>**CCSS.MATH.CONTENT.2.MD.A.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | |

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| **5.** Planting Together | Garden Planning and Maintenance **(GPM)** | **GPM.2.2** Understand when to plant seeds and transplant seedlings into the garden.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Have your students explore a regional planting guide and local weather data (including your average last frost date) to determine particular seeds and/or transplants that can be planted at this time in your region. Review safe tool use. Then plant them together in the beds you prepared at the appropriate time. | **PLS.5** Students develop the ability to make informed and responsible decisions. | In the garden, use the "Days to Harvest" on your planting guide to determine when your crops will be ready to harvest. In the kitchen, plan a dish that includes that crop. Then mark your calendar for when you should be able to prepare it. | **Classroom:** Give teams a calendar, a planting guide, your average last frost date, and a list of 3 crops. Have them work together to calendar out when they could plant and harvest their crops. | **CCSS.MATH. CONTENT. 2.OA.A.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.<br><br>**CCSS.ELA-LITERACY.SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |

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| **6.** Soil vs. Dirt | Soil **(S)** | **S.2.2** Describe characteristics and components of soil.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Provide groups of 4–6 students with a scoop of non-living dirt (such as you might find in a parking lot median) and a scoop of healthy garden soil. Have them explore with magnifying glasses, sort ingredients, and record differences in their journals. Discuss/explain soil components. Review safe tool use. Then elaborate by planting a crop in both kinds of soil and measuring and observing plant growth over time. | **PLS.1** Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.<br><br>**CLS.2** Students cooperate and communicate well with each other. | In the garden, do a comparative taste test of the crop planted in the dirt and the one planted in the soil. Have students use concepts from **Kitchen Lesson #2: Food Texture** and **Grade 1 Kitchen Lesson #5: Taste Sensations** to describe each food. | **Community:** Have students gather dirt and soil from various locations around their communities. Bring them in and compare them all. | **NGSS Science and Engineering Practice:** Planning and Carrying Out Investigations<br><br>**CCSS.MATH. CONTENT. 2.MD.A.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | |

# GRADE 2 | WINTER

Each activity described below should be designed to last approximately 45 minutes.

| Lesson # & Title | Topic | Content Learning Objective(s) | Suggested Lesson Activity | Life Skills Learning Objective(s) | Connections to Kitchen Lessons | Possible Extensions | Academic Standard Connections | Health Standard Connections |
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| **7.** Making Soil | Soil **(S)** | **S.2.1** Explain how soil is made. | To engage students, brainstorm soil "ingredients" together, such as rocks, dead plant material, and the like. Have students explore and gather those ingredients and challenge them to make soil. Then, challenge teams to look around the garden for evidence that explains how this process happens naturally. Gather together to share findings and discuss natural processes, including weathering of rocks and decomposition of once-living materials over time. | **PLS.6** Students actively seek creative and resourceful solutions.<br><br>**CLS.1** Students demonstrate problem solving and resolve conflict as a team. | Prepare a dish that features fruits and vegetables, such as in **Grade 1 Kitchen Lesson #6: Salsas**. Before you eat, trace the food back to the plants, the soil, and discuss the ingredients and processes that made the soil. | **Classroom:** Sing "Dirt Made My Lunch" by the Banana Slug String Band. | **NGSS.2.ESS1.C** ***The History of Planet Earth*** Some events happen very quickly; others occur very slowly over a time period much longer than one can observe.<br><br>**NGSS Science and Engineering Practice:** Engaging in Argument from Evidence | |
| **8.** Weather Station Creation | Weather and Seasons, Climate and Geography **(WSCG)** | **WSCG.2.1** Name, describe, and collect data on local weather events.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Create a weather station with an air thermometer, rain gauge, visual cloud identification chart and the like. Explore these tools together. Explain how to make a wind sock, and then have students make their own wind socks. Then, teach students how to use all instruments. For the remainder of the year, have rotating student teams elaborate by visiting the station to record and report on the weather each time they visit the garden. | **CLS.2** Students cooperate and communicate well with each other. | In the garden, share dishes you crave on hot and cold days. | **Classroom:** Create a collage of favorite activities in each season (i.e. playing in the sprinklers in the summer, making snowmen in winter, etc). | **NGSS Crosscutting Concept:** ***Patterns*** Patterns in the natural world can be observed.<br><br>**CCSS.ELA-LITERACY.SL.2.6** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. | |

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| **9.** Researching Regions | Weather and Seasons, Climate and Geography **(WSCG)** | **WSCG.2.2** Describe how geographic place influences what grows in the garden. | Engage students by challenging them to find 3 different locations that you've pre-selected on a world map. Provide descriptions of the climate in all 3 places, and have students explore and discuss how this impacts what can grow there at a given time. Divide class into teams of 4. Assign each team a different location and a list of common crops in that region during this time of year. Have teams present their region and crops and discuss similarities and differences. If working in the garden, have students compare the list to the crops in their garden.  | **PLS.4** Students are active and engaged learners who show up on time prepared to learn and manage their time wisely.<br><br>**CLS.2** Students cooperate and communicate well with each other | In the kitchen, prepare dishes from different regions, featuring foods grown in those regions. | **BAM! Box:** Find a class from another state or country with a different climate to be pen pals. Have students work at home with their community members to write to students in the other class. Have them ask about the food, culture, and weather in their pen pal's region, and elaborate on what foods they have growing near themselves, and what they are eating. | **NGSS Crosscutting Concept:** ***Patterns*** Patterns in the natural world can be observed.<br><br>**CCSS.ELA-LITERACY.SL.2.6** Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification. | |

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| **10.** Finding Weather Patterns | Weather and Seasons, Climate and Geography **(WSCG)** | **WSCG.2.3** Predict and apply weather patterns to the garden. | Elaborate on student understanding of weather and climate. Once they have logged the weather in their journals for a few months, have them look together for weather patterns, such as:<br>• Is it raining now more or less than before?<br>• Is it warmer or cooler?<br>As a class, use these patterns, with historical weather data for your region, to make weather predictions and garden plans.<br>  | **PLS.6** Students actively seek creative and resourceful solutions.<br><br>**CLS.2** Students cooperate and communicate well with each other. | Prepare a dish featuring storage crops, such as in **Kitchen Lesson #11: Maple-Buttery Corn Muffins**, highlighting that the grain corn was grown in summer, harvested in fall, and then stored for use in winter. | **Classroom:** Set up a weather log in the classroom where students can observe and record basic weather phenomena (temp, clouds, precipitation, wind direction) daily. | **NGSS Crosscutting Concept:** ***Patterns*** Patterns in the natural world can be observed.<br><br>**CCSS.ELA-LITERACY.SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |
| **11.** Tracking the Seasons | Weather and Seasons, Climate and Geography **(WSCG)** | **WSCG.2.3** Predict and apply weather patterns in the garden. | Give students a paper with each season labeled. Have them explore their ideas about each season by adding images (collage or illustrations) of favorite activities in each season. Have them share out and find commonalities and differences. Over time, have them elaborate by recording produce available in their garden in each season on their paper.<br>  | **PLS.4** Students are active and engaged learners who show up on time prepared to learn and manage their time wisely.<br><br>**CLS.4** Students appreciate and are respectful of differences and diversity in their communities. | In the kitchen, prepare a dish featuring foods that are in season in the winter in your region, and/ or have been preserved or stored from the fall. | **Classroom:** Keep a calendar posted in the classroom and have students record first harvests onto the calendar. | **NGSS Crosscutting Concept:** ***Patterns*** Patterns in the natural world can be observed.<br><br>**CCSS.ELA-LITERACY.SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |

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| **12.** Tracking Garden Data | Garden and Food Systems **(GFS)** | **GFS.2.3** Strategize solutions for abundance and scarcity in the garden. | Divide into teams and have each team explore, count, record, and share a type of an item in the garden. Have some teams focus on produce (i.e. the number of lemons on the lemon tree) and some on environmental factors (i.e. the number of pollinators seen in the pollinator bed or inches of rain collected in the rain gauge). Have students share findings and record. Continue this throughout the year and look for patterns. Have students discuss possible explanations for the abundance or scarcity of things in the garden and elaborate by brainstorming possible solutions (for example, making lemonade from a lot of lemons, or planting drought-resistant plants if it's a year in which water is scarce). | **PLS.4** Students are active and engaged learners who show up on time prepared to learn and manage their time wisely.<br><br>**CLS.2** Students cooperate and communicate well with each other. | In the garden, brainstorm together good dishes for each season based on what is in abundance in your region in each season. | **Classroom:** Add notes on what is in abundance to the classroom garden calendar where students are recording first harvests. | **NGSS Crosscutting Concept:** ***Patterns*** Patterns in the natural world can be observed.<br><br>**CCSS.MATH. CONTENT.2.OA.A.1** Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. | |

# GRADE 2 | SPRING

Each activity described below should be designed to last approximately 45 minutes.

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| **13.** Getting to Know Our Weeds | Plants **(P)** | **P.2.3** Identify weeds.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Give each pair of students a photograph of a common garden weed from your garden. Challenge them to explore and find that plant. Once students have found their weed, invite them to share it with the class, explaining to their peers how to identify it by pointing out any defining characteristics. Review why it is important to remove weeds from the garden. Then pass out hoola hoops or string circles and have pairs put them down in areas that need weeding. Have pairs work together to clear their entire circle. You can even host a weeding contest to see who can build the tallest pile of weeds. | **CLS.1** Students demonstrate problem solving and resolve conflict as a team. | In the kitchen, prepare a dish featuring some local edible wild plants or weeds. | **Classroom:** Measure and graph the piles of weeds from the garden to identify a winner for the weeding contest. | **NGSS.2.LS2.A** ***Interdependent Relationships in Ecosystems*** Plants depend on water and light to grow.<br><br>**CCSS.MATH. CONTENT.2.MD.A.1** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. | |

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| **14.** Dissecting Weeds | Plants **(P)** | **P.2.1** Describe the structure and functions of plant parts. | Have student teams pull weeds and choose one to dissect. Challenge them to explore it by separating all the different parts they can find (i.e. roots, stems, leaves, etc). As you go through explaining each of the 6 plant parts, challenge them to look carefully at each structure and see if they can infer its function. Have them share out, clarifying the accurate function for each plant structure as you go. To elaborate, sing "Roots, Stems, Leaves," by the Banana Slug String Band.  | **CLS.2** Students cooperate and communicate well with each other.<br><br>**CLS.4** Students appreciate and are respectful of differences and diversity in their communities. | In the garden, review safe food harvesting and handling procedures learned in the kitchen. Then make a "6 plant part" salad, spring roll, or wrap. You can even use a large leaf to wrap everything together! | **Community:** Have students go on a "6 plant part" scavenger hunt and find and collect or photograph each of the 6 parts they find. | **NGSS Crosscutting Concept:** Structure and Function<br><br>**CCSS.ELA-LITERACY.SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |

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| **15.** Eating Stems and Leaves | Plants **(P)** | **P.2.2** Identify edible leaves and stems in the garden. | To engage students, have them identify and harvest edible leaves and stems in the garden. Have students explore each, asking what similarities and differences students observe between them. Review the function of stems (nutrient and water transport) and leaves (photosynthesis). Then have students wash and tear them up to make a garden salad with a simple dressing. | **PLS.1** Students are self-aware and show respect for their own needs, the needs of others, and the environment. They practice safe and conscientious behaviors in the garden and kitchen environments.<br><br>**CLS.2** Students cooperate and communicate well with each other. | In the kitchen, make a homemade dressing for the garden leaf and stem salad. | **Cafeteria:** Work with the food service director to incorporate harvested leaves and stems into the salad bar or school lunch menu. | **NGSS Crosscutting Concept:** Structure and Function.<br><br>**CCSS.ELA-LITERACY.SL.2.1** Participate in collaborative conversations with diverse partners about *grade 2 topics and texts* with peers and adults in small and larger groups. | |

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| **16.** Investigating Pollination | Garden and Food Systems **(GFS)** | **GFS.2.1** Identify pollinators in the garden, what service they perform, and how to increase the number of them living in the garden.<br><br>**GTE.2.1-4** Garden Tools and Equipment | Explore the garden for insects landing on flowers and try to determine what they're doing. Explain the role of pollinators in plant reproduction. Have students elaborate by making "bees" by wrapping yellow and black pipe cleaners together in a ball. Then have them go around the garden moving pollen between flowers. Apply your learning by planting together some plants that attract pollinators. You can find regional guides at Pollinator.org. | **PLS.2** Students are able to express empathy and caring for themselves, others, and the environment.<br><br>**CLS.2** Students cooperate and communicate well with each other. | Make a dish that features fruits that require pollinators, such as in **Grade 1 Kitchen Lesson #16: Mixed Berry Crumble**. As you enjoy, thank the pollinators. | **Community:** Take a field trip to look for pollinators around the community, in parks, or in natural settings. | **NGSS 1.LS1.A** ***Structure and Function*** All organisms have external parts… Plants have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.<br><br>**NGSS.2.LS2.A** ***Interdependent Relationships in Ecosystems*** Plants depend on animals for pollination or to move their seeds around. | |

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| **17.** Insect Structures  | Garden and Food Systems **(GFS)** | **GFS.2.2** Describe structure and function of insect parts. | Engage students by discussing plant parts and how each part helps plants live, thrive, and contribute to the garden. Then ask students to consider what parts insects may have and how they help them live, thrive, and contribute to the garden. Explore this idea by allowing students to collect an insect from the garden in a magnifying bug box to observe. As students are observing their insects, explain that insects have 3 body parts—head, thorax, and abdomen (along with the features on each). Discuss how these structures help insects live, thrive, and contribute to the garden. Students can elaborate on their understanding by drawing a scientific model of their insect and labeling the parts in their journal. These journals can be used to evaluate student understanding of insect structures. | **PLS.2** Students are able to express empathy and caring for themselves, others, and the environment.<br><br>**CLS.4** Students appreciate and are respectful of differences and diversity in their communities. | In the kitchen, research insects eaten around the world, such as those found in this National Geographic article. | **Classroom:** Create imaginary insects in teams of 3. Give each team a blank piece of paper folded in thirds. Have each student draw an insect head on the top third, with the neck just passing the top fold. Fold to hide the head, then pass the papers, and have everyone add a thorax to their new paper. Pass one last time to add an abdomen. Open up to see your collective insect creations. | **NGSS Crosscutting Concept:** ***Structure and Function*** The shape and stability of natural and designed objects are related to their function(s).<br><br>**VA:Cr2.1.2a** Experiment with various materials and tools to explore personal interests in a work of art or design. | |

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| **18.** Web of Life | Plants **(P)** | **P.2.4** Describe the role of plants in the food web. | Give each student a card representing a plant, animal, or other key feature in your garden ecosystem. Have them look for that object in the garden. Then give one student a ball of string. To explore the concept of interdependence, the first student's job is to hold one end of the string and then toss the ball to anyone he/she thinks the garden object interacts with. For example, "I'm a butterfly and I interact with the flowers because I drink nectar from flowers." Then have the next person continue, until you've created a web of yarn. Use the web to explain interdependence and the role of plants as producers, making food for themselves and the animals in the garden.  | **CLS.4** Students appreciate and are respectful of differences and diversity in their communities. | In the kitchen, prepare a dish featuring fruits and vegetables and then create a web connecting the ingredients to other members of the garden ecosystem, such as pollinators, sunlight, earthworms, and the like. | **Classroom:** Do the same activity, but focused on human communities. Each student can play a community role such as a teacher, firefighter, mother, or farmer. | **NGSS.2.LS2.A** ***Interdependent Relationships in Ecosystems*** Plants depend on water and light to grow.<br><br>**NGSS.2.LS2.A** ***Interdependent Relationships in Ecosystems*** Plants depend on animals for pollination or to move their seeds around.<br><br>**Social Studies:** Diversity and Community | |