

Instructional Unit Bundle: Plants

This instructional unit bundle provides an example of how teachers may design a Common Core aligned unit with culminating performance tasks. Teachers may (a) use this bundle as it is described below; (b) integrate parts of this bundle into a currently existing curriculum unit; or (c) use this bundle as a model or support for a currently existing unit on a different topic.

This instructional unit bundle contains:

- I. [Unit snapshot](#), including:
 - a. Overarching question
 - b. Enduring understandings
 - c. Focus standards from the NYS Pre-Kindergarten Foundation for the Common Core
 - d. Unit sub-topics. Each sub-topic includes:
 - i. Anchor texts
 - ii. Anchor learning experiences
 - iii. Formative assessment opportunities
 - iv. Family engagement opportunities
 - e. Culminating task
- II. [Complete suggested alignment to the NYS Pre-Kindergarten Foundation for the Common Core](#)
- III. [Ideas for learning centers](#)
- IV. [Book list](#)
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This unit contains references to [Depth of Knowledge \(DOK\)](#) and [Universal Design for Learning \(UDL\)](#). DOK offers a common language to understand cognitive demand in curricular units, lessons, tasks, and assessments. Webb developed four DOK levels that grow in cognitive complexity and provide educators a lens on creating more cognitively engaging and challenging tasks. UDL is a set of principles that provides teachers with a structure to develop instruction to meet the diverse needs of all learners. A research-based framework, UDL suggests that each student learns in a unique manner so a one-size-fits-all approach is not effective. By creating options for *how instruction is presented*, *how students express their ideas*, and *how teachers can engage students in their learning*, instruction can be customized and adjusted to meet individual student needs.

I. Unit snapshot

This unit snapshot gives an overview of the unit. This is a helpful starting place; more details about how to design and execute the unit come later in this bundle.

Unit Topic	Plants
Overarching Question <i>Child-friendly question that connects the knowledge and skills that children should develop throughout the unit.</i>	How can we use books and the world around us to learn more about what plants are and how they grow?
Enduring Understandings <i>These are the big ideas that students should remember throughout their educational careers.</i>	<ul style="list-style-type: none"> • Plants are living things that come from seeds; they need water, nutrients, and sunlight to grow. • Plants can be different colors, shapes, and sizes, but they all have some kind of stem and leaves. • Gardeners often plant plants in patterns. • Plants grow at different rates. We can measure different attributes of plants (e.g. height, weight) using different units (e.g. non-standard, standard) • Plants are important to our world for many reasons; plants can be made into food, clothes, and shelter.
Focus standards from the Prekindergarten Foundation for the Common Core <i>These represent the 7-10 standards that will be emphasized throughout the unit. They cover different domains of development. You will touch on other standards throughout the unit, but these should be the foundation.</i>	<ul style="list-style-type: none"> • <i>Math:</i> PK.OAT.2. Duplicate and extend (e.g. what comes next?) simple patterns using concrete objects. • <i>Math:</i> Mathematical Practice. Model with mathematics. • <i>ELA & Literacy:</i> PK.RIT.1. With prompting and support, ask and answer questions about details in a text. • <i>ELA & Literacy:</i> PK.RIT. 10. With prompting and support, actively engage in group reading activities with purpose and understanding. • <i>ELA & Literacy:</i> PK.W.2. With prompting and support, use a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and apply some information about the topic. • <i>ELA & Literacy:</i> PK.SL.1. With guidance and support, participate in collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adults in small and large groups. • <i>ELA & Literacy:</i> PK.L.6. With prompting and support, use words and phrases acquired through conversations, reading and being read to, and responding to texts. • <i>Science:</i> PK.S.5. Observe and describes characteristics of living things. • <i>Social-Emotional Development:</i> PK.SED.4: Develop positive relationships with their peers. • <i>Social-Emotional Development:</i> PK.SED.5: Demonstrate pro-social problem solving skills in social interactions.

Unit Sub-Topics <i>These represent the major inquiries of the unit. They build over time and require students to make connections across all content areas. Each sub-topic is designed to take 1-2 weeks to explore.</i>		What are plants? How do we know if something is a plant?	How do plants grow? How can people help plants grow?	Why is it important for people to help plants grow? What do plants do to help us?	How can we track the growth of plants?
Anchor Texts <i>Texts that can be read throughout the unit. Text based questions about each book build understanding of the sub-topic.</i> <i>The text based questions listed here are each associated with DOK levels (see page 1 or here for more information).</i>	<u>Jack and the Beanstalk</u> by Steven Kellogg	What type of plants do you see in the book? Tell me about the plants. (DOK: Level 1)	How did this plant grow? Can we grow a plant like the one in the story? Why or why not? (DOK: Level 4)	How did this plant help the characters in the book? (DOK: Level 3)	Talk about the size of the plant compared to the size of other objects in the book, including people. (DOK: Level 2)
	<u>Planting a Rainbow</u> by Lois Ehlert	Look at the pictures in the book. What is a plant? What isn't a plant? How do you know? (DOK: Level 3)	How did the plants in the book grow? Did people help those plants? (DOK: Level 1)	Look at the plants that grew. How can those plants help people? (DOK: Level 3)	Which is the tallest plant in the picture? Which is the shortest? How do you know? (DOK: Level 3)
	<u>Growing Vegetable Soup</u> by Lois Ehlert	What types of plants did you see in the book? (DOK: Level 1)	Did all of the seeds need the same things to grow? What did they need? (DOK: Level 1)	How did the seeds get used when they grew into plants? How can we use vegetables? (DOK: Level 1)	Discuss the sizes of the vegetables in the book and the plants from which they came. (DOK: Level 1)
	<u>From Seed to Plant</u> by Gail Gibbons	What is similar about all the plants in the book? What is different? (DOK: Level 2)	Put the pictures in order- what comes first, next, and last? (DOK: Level 2)	What can the plants be made into? (DOK: Level 4)	How might we measure the plants in the book in real life? (DOK: Level 3)
	<u>Jack's Garden</u> by Henry Cole	What is similar about all the plants in the book? What is different? (DOK: Level 2)	How does Jack help his plants grow? (DOK: Level 1)	Why does Jack want to plant a garden? (DOK: Level 3)	Talk about the sizes of the plants in Jack's garden. (DOK: Level 1)
	<u>Flower Garden</u> by Eve Bunting	Where can we find plants? (DOK: Level 1)	What can we do to help plants grow? (DOK: Level 2)	How can we use plants? How do plants help us? (DOK: Level 4)	What can we use to measure plants? (DOK: Level 3)

<p>Anchor Learning Experiences <i>One or two key learning experiences (e.g. field trips, observations, materials in centers) for each sub-topic that provide ample opportunities to deepen students' understanding of the sub-topic.</i></p>	<p>Take a neighborhood walk to identify plants vs. non-plants and/or find different types of plants.</p> <p>Work with children to transform the dramatic play center into a park with different types of plants.</p>	<p>Conduct experiments- plant seeds in plastic bags with paper towels and water. Plant seeds and try to grow them in the dark.</p> <p>At the science table, place seeds in various states of growth. Provide magnifying glasses and have students sketch the growth of a seed.</p>	<p>Create a job for students to care for plants.</p> <p>Have students taste various types of plants (peapods, basil, etc.). Make a graph of students' favorite plants to eat.</p>	<p>Have students track the growth of plants in the science center. Children can use non-standard units of measurement and record their observations in science journals.</p>
<p>Formative Assessment Opportunities <i>Key look fors and listen fors that will give you information about students' understanding of the standards and sub-topic.</i></p>	<p>Listen for logical thinking and expanded vocabulary use as students explain why things are (or aren't) plants.</p>	<p>Ask students to dramatize growing from a seed to a plant, explaining the stages as they do so. (see resources for examples)</p>	<p>Listen to conversations during meal times; see if students can identify items they eat that come from plants.</p>	<p>Listen in the science center as students talk about the size of plants. Listen for words such as smaller, bigger, etc.</p>
<p>Family Engagement <i>Learning experiences that connect to classroom study that families can do at home with their children.</i></p>	<p>Offer some questions that parents can ask to prompt conversations about the plants they see at the park, garden, or home. For example, "How do you know this is a plant?" or "What is the same about these two plants? What is different?"</p>	<p>Send home instructions about how to reuse a recyclable container as a pot for a plant. Encourage families to decorate the container and plant seeds in it.</p>	<p>Send home an example of a recipe that uses a plant as an ingredient. Encourage families to share their own recipes, highlighting the plant ingredients. Make a class recipe book with plant ingredients and send home to all families.</p>	<p>Encourage families to keep a journal about their plants; children can keep track of their growth, draw pictures of the stages of development, etc.</p>
<p>Culminating Tasks <i>Tasks that take place in a small group during the last week of the unit. These tasks allow students to demonstrate the knowledge and skills they have gained throughout the unit.</i></p>	<p>At the end of this unit, students can engage in culminating tasks to demonstrate the content knowledge and skills they have developed throughout the unit. There are two culminating tasks. Both are grounded in science; one task is focused on math skills and the other is focused on literacy skills. During small group time (with 3-5 children), the teacher presents the students with one culminating task at a time. Students complete one task focused on math, making patterns out of seeds. Students complete one task focused on literacy, drawing, writing, and dictating how to plant and take care of a garden. See Section VI for more information.</p>			

II. Complete suggested alignment to the NYS Pre-Kindergarten Foundation for the Common Core

Actual alignment to the NYS Pre-Kindergarten Foundation for the Common Core will vary depending on how the unit is designed and implemented.

Below is a suggested alignment that can be used with the unit as it is written in this bundle.

Domain	Standards	Example of Standards in Action
<i>Approaches to Learning</i>	<ul style="list-style-type: none"> PK.AL.3. Approaches tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities. 	<ul style="list-style-type: none"> A student conducts an experiment to determine if a seed can grow without soil. <i>Home extension:</i> Students conduct experiments to see what helps plants grow (e.g. giving water or orange juice, placing in the window or closet).
<i>Physical Development and Health</i>	<ul style="list-style-type: none"> PK.PDH.8. Demonstrates awareness and understanding of healthy habits. 	<ul style="list-style-type: none"> A student identifies edible plants that are nutritious to eat. <i>Home extension:</i> Students bring in an example or picture of an edible plant.
<i>Social and Emotional Development</i>	<ul style="list-style-type: none"> PK.SED.4. Develops positive relationships with their peers. PK.SED.5. Demonstrates pro-social problem solving skills in social interactions. 	<ul style="list-style-type: none"> Students work together to plant seeds and watch them grow, documenting growth in a joint science journal. Students collaborate in determining the best place to plant a garden in their school environment. <i>Home extension:</i> Students plant seeds at home with their family. Students document the growth of their plant at home and share with other students.
<i>Communication, Language, and Literacy</i>	<p><i>Approaches to Communication</i></p> <ul style="list-style-type: none"> PK.AC.3. Demonstrates that he/she understand what they observe. <p><i>English Language Arts and Literacy</i></p> <ul style="list-style-type: none"> PK.RIT.1. With prompting and support, ask and answer questions about details in a text. PK.RIT. 10. With prompting and support, actively engage in group reading activities with purpose and understanding. PK.W.2. With prompting and support, use a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and apply some information about the topic. PK.SL.1. With guidance and support, participate in 	<ul style="list-style-type: none"> A student writes in a journal about the seed s/he planted in a milk carton. A student explains how to make vegetable soup after reading <u>Growing Vegetable Soup</u>. Students chorally read “Fe fi fo fum” from <u>Jack and the Beanstalk</u>. Students engage in a discussion about what they can do with the flowers growing in their class garden. A student uses words such as “stem” and “bulb” after reading the anchor texts. <i>Home extension:</i> Students bring in updates about their plants’ growth through pictures, drawings, home journals or show and tell. Families can be encouraged to send in

	<p>collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adults in small and large groups.</p> <ul style="list-style-type: none"> • PK.L.6. With prompting and support, use words and phrases acquired through conversations, reading and being read to, and responding to texts 	<p>pictures of children with plants (at home, in the community, in gardens, etc).</p>
<p><i>Cognition and Knowledge of the World</i></p>	<p><i>Mathematics</i></p> <ul style="list-style-type: none"> • Mathematical Practice: Model with mathematics. • PK.OAT.1: Demonstrate an understanding of addition and subtraction by using objects, fingers, and responding to practical situations (e.g. if we have 3 apples and add two more, how many do we have?). • PK.OAT.2. Duplicate and extend (e.g. what comes next?) simple patterns using concrete objects. • PK.MD.1. Describe and compare measurable attributes. <p><i>Science</i></p> <ul style="list-style-type: none"> • PK.S.3. Generates explanations and communicates conclusions regarding experiments and explorations. • PK.S.5. Observes and describes characteristics of living things. <p><i>Social Studies</i></p> <ul style="list-style-type: none"> • PK.SS.4. Develops an understanding of how people and things change over time and how to relate past events to their present and future activities. <p><i>The Arts</i></p> <ul style="list-style-type: none"> • PK.A.5. Participates in a variety of dramatic play activities to represent fantasy and real life experiences. <p><i>Technology</i></p> <ul style="list-style-type: none"> • PK.T.5. Uses the knowledge of technology to increase learning. 	<ul style="list-style-type: none"> • Students work in small groups to add and subtract seeds. • Students sort and make patterns out of seeds (the patterns extend at least 4 repetitions) • Students compare the sizes of plants and use non-standard units of measurement to track plant growth over time. • Students explain why seeds can grow without soil. • Students sort seeds from non-seeds and explain why they are different. • Students explain how various cultures use plants in a variety of ways. • Students take on different roles in dramatic play “park.” • Students, with the help of adults, use digital cameras to document plant growth. • <i>Home extension:</i> Families take students to the park or botanical gardens to identify plants and bring in pictures or drawings of their observations.

III. Ideas for learning centers

These are examples of how you might use learning centers to advance the overarching question, enduring understandings, and unit sub-topics. These are only suggestions; you should add to and modify these ideas based on the resources available and the needs of children and families. As you plan your learning centers, keep the principles of [Universal Design for Learning \(UDL\)](#) in mind and consider how you will provide multiple entry points into the material for all students in your classroom. The activities and materials listed under each center can be rotated throughout the unit.

Notes:

- Hang visual representations of plants with labels around your classroom to create a print-rich environment connected to the unit.
- Many of these activities can be sent home to families in a newsletter, be posted on a bulletin boards outside classrooms, go on a website, etc. to keep families informed about classroom activities.

<p>Blocks</p> <ul style="list-style-type: none"> • Show the students examples of gardens built in the form of mazes. • Create a garden for plants. • Put <u>Jack and the Beanstalk</u> in the block area. Encourage students to build a beanstalk. How high can they make it? • Encourage students to build a farm. Talk about how seeds are often planted in rows and patterns. • Include popsicle sticks, paper, writing implements, and tape so that children can make signs for a block garden. 	<p>Dramatic Play</p> <ul style="list-style-type: none"> • Dramatize the process of growing from a seed into a plant. • Dramatize planting seeds. • Have the characters for <u>Jack and the Beanstalk</u> in the dramatic play area and encourage students to dramatize the story. • Transform the dramatic play center into a park or garden.
<p>Art</p> <ul style="list-style-type: none"> • Dip leaves in paint and make prints with them. • Glue seeds on paper to create works of art. • Observe real plants and draw them. • Use different materials to create three-dimensional gardens. • Make tissue paper flowers. • Make seed catalogues and packets available for collages. 	<p>Discovery</p> <ul style="list-style-type: none"> • Conduct experiments. Put a few bean seeds in plastic bags and a few bean seeds dirt and see which seeds grow faster. Put a few seeds in a dark closet and a few seeds by the window and see which seeds grow faster. • Plant different types of seeds (avocado, apple, flower, grass, etc.). • Introduce a variety of plant seeds in specimen jars or in plastic bags at center time. Encourage students to draw and discuss what they notice about the size and shapes of seeds. • Use a balance scale to weigh different quantities and types of seeds/beans. Discuss which side is heavier/lighter. • Dissect a flower and discuss the different parts.

<p>Toys and Games</p> <ul style="list-style-type: none"> • Sequencing game with plants (see resources for suggestions). • Different seeds for sorting and patterning by size, color, shape, etc. • Put out number cards and bowls of beans. Encourage children to place the appropriate number of beans on the card. • Place photographs of cut open fruits with seeds showing (like this). Encourage children to place seeds on the photos with one-to-one correspondence. 	<p>Sand and Water</p> <ul style="list-style-type: none"> • Different seeds for sorting and patterning by size, color, shape, etc. • Place beans in the sand table and describe them using four senses (not taste). • See if different seeds/beans sink or float.
<p>Library</p> <ul style="list-style-type: none"> • Display a variety of informational and literary texts about plants. • Create felt board pieces to retell familiar stories (e.g. <u>Jack and the Beanstalk</u>). • Display class books about plants (e.g. a photo book that shows the growth of a class plant over time). 	<p>Cooking</p> <ul style="list-style-type: none"> • Roast pumpkin seeds. • Taste different types of edible seeds (e.g. sunflower seeds, sesame seeds). Make a graph of children’s favorite seeds. • Make a salad out of plants (e.g. different types of lettuce, radishes, carrots). • Encourage children to find count the seeds in their apples, oranges, etc.
<p>Computers</p> <ul style="list-style-type: none"> • Show images or video clips of birds eating seeds and gardeners planting seeds to provide visual representations prior to this task. • Visit Storybird (at http://storybird.com/) to create a visual story online. • Take digital photos of a plant’s growth over time. 	<p>Outdoors</p> <ul style="list-style-type: none"> • Take a nature walk to look for seeds and plants. • Plant seeds outside. • Go on a nature scavenger hunt. • Use magnifying glasses to inspect plants. • Use rulers, snap cubes, string, etc. to measure plants.

IV. Book list

Books should be a foundational component of your unit. You should engage children in several read alouds per day during large group, small group, and center time. Some books will be read repeatedly throughout the unit; these are your anchor texts. These anchor texts should be a mix of literary and informational texts that advance students' understanding of the overarching question, enduring understandings, and unit sub-topics. Some books will be read only once or twice throughout the unit; these are your supporting texts. These supporting texts may focus on specific topics or areas of interest or may be tangentially related to the overarching question or enduring understandings of the unit.

Throughout each of your reading experiences with students, consider the principles of [Universal Design for Learning \(UDL\)](#). You should develop strategies to ensure that all children are able to access and comprehend the text. For example, consider projecting illustrations from the text on a document camera, giving students a chance to point to illustrations when they answer, asking questions at different [Depth of Knowledge \(DOK\)](#) levels, etc.

<p>Anchor Texts <i>These texts should be read throughout the unit; they can be read multiple times during the day and in a variety of settings. For example, you may read one book to a large group and then again that same day to a small group in the dramatic play area. The children should know these books and be able to read them with you.</i></p>	<p><i>Informational Texts</i></p> <ul style="list-style-type: none"> • From Seed to Plant by Gail Gibbons: A simple introduction to growth from seed to plant. • Growing Vegetable Soup by Lois Ehlert: Learn about the gardening cycle and see how seeds can be used to make food. • Planting a Rainbow by Lois Ehlert: A mother and her child plant bulbs in the fall, order seeds in the winter, anticipate the first shoots in spring, select seedlings in the summer and watch a rainbow of colors grow. <p><i>Literary Texts</i></p> <ul style="list-style-type: none"> • Flower Garden by Eve Bunting: In an urban neighborhood a girl and her father buy flowers at a grocery store and plant a window box. • Jack's Garden by Henry Cole: A cumulative story that traces a little boy's planting of a backyard flower garden from tilling the soil to enjoying the blossoms. <p><i>Fairy Tales</i></p> <ul style="list-style-type: none"> • Jack and the Beanstalk by Steven Kellogg: Jack climbs a magic beanstalk and has an adventure.
<p>Supporting Texts <i>These books can be touched on throughout the unit. You can send them home using your Lending Library, place them in centers so</i></p>	<p><i>Informational Texts</i></p> <ul style="list-style-type: none"> • How a Seed Grows by Helen Jordan: A non-fiction book about a variety of seeds that grow into plants. • The Vegetables We Eat by Gail Gibbons: A look at a variety of edible vegetables. • The Reason for a Flower by Ruth Heller: Brief text and lavish illustrations explain plant reproduction and the

students can use them, and read them throughout the day.

purpose of a flower.

- From Seed to Sunflower by Gerald Legg: Large illustration and simple text present the life cycle of a sunflower.

Literary Texts:

- City Green by DyAnne DiSalvo-Ryan: Marcy transforms an abandoned lot by planting sunflowers. The last page explains how to start a neighborhood community garden.
- Oh Say Can You Seed? All About Flowering Plants by Bonnie Worth: The Cat in the Hat examines various parts of plants seeds and flowers; basic photosynthesis and pollination.
- The Carrot Seed by Ruth Krauss: A little boy tracks the progress of his seed growing into a giant carrot.
- The Tiny Seed by Eric Carle: The story of a small seed that starts with other seeds on a journey from a flower to its very own spot.
- The Dandelion Seed by Joseph Anthony: The story describes the journey of a little dandelion seed.
- Fran's Flower by Lisa Bruce: A little girl learns about the foods that nurture a plant.
- The Maybe Garden by Kimberly Burke-Weiner: A little girl envisions the garden of her dreams. It is nothing like the garden her mother enjoys.
- Sunflower House by Eve Bunting: Lyrical rhyming text about planting sunflowers.
- Sunflower Sal by Janet S. Anderson: A little girl finds peace and success in growing hundreds of sunflowers throughout her village.
- The Curious Garden by Peter Brown: Liam finds a struggling garden and nourishes it until it transforms his entire city.
- Chrysanthemum by Kevin Henkes: A little girl starts school and is ashamed of her long name.

Fairy Tales

- The Little Red Hen by Lucinda McQueen: The little red hen works hard following the steps to make bread and the other farm animals do not help her.

Alphabet and Number Books

- Alison's Zinnia by Anita Lobel: See the alphabet come to life as incorporated into floral drawings.
- Counting Wildflowers by Bruce McMillan: Count from 1-20 using wildflowers.
- The Flower Alphabet Book by Jerry Pallotta: Watch flowers turn into letters and words.

V. Family engagement

As you develop your family engagement plans for this unit, you should consider the pillars of family engagement. Below are some examples of how those pillars can be actualized in this unit. These are just examples; you should adapt and modify them to fit the needs of your children and families.

Pillars of Family Engagement				
<i>Welcoming Environment</i>	<i>Sharing Expectations</i>	<i>Extending Learning</i>	<i>Ongoing Communication</i>	<i>Supporting Transitions</i>
Families will experience warmth and respect from program staff, demonstrated by the collaborative tone of program staff and in the program's policies, protocols and offerings that are sensitive to their linguistic, cultural and social emotional needs.	Families feel like partners in supporting their children's school readiness, facilitated by experiences of shared goal-setting between families and teachers.	Families have the ability to support and extend their children's learning and development at home with the assistance of complementary learning activities developed by the program and shared with families regularly in newsletters, at parent-teacher conferences, and other school events.	Families experience multiple methods of communication between themselves and the program, demonstrated by timely, routine efforts by the program to share information in a linguistically and culturally sensitive way, and through effective communication channels.	Families experience the process of transitioning into and out of programs effectively and are thus equipped with the resources and skills to support their children through that process, as demonstrated by program policy, the information elicited by program and shared with families, and ongoing meaningful discussions with program staff.
Examples for this Unit				
<ul style="list-style-type: none"> • Encourage families to find and discuss plants in their environment. <ul style="list-style-type: none"> ○ Send home a list of local parks and gardens that parents can visit with their children. ○ Offer some questions that parents can ask to prompt conversations about the plants they see at the park, garden, or home. For example, "How do you know this is a plant?" or "What is the same about these two plants? What is different?" ○ Encourage families to take pictures of themselves and their children with the plants they are observing and send copies of these pictures to school. They can be used to create a bulletin board or class book. ○ Encourage family members to collect leaves from plants in their neighborhood and use the leaves to "measure" things around the home. • Encourage families to read informational and literary texts about plants. <ul style="list-style-type: none"> ○ Send home a list of books that you will be reading during the unit. ○ Let your local library know that your class is studying plants; encourage families to visit the library and talk with the librarian for book 				

recommendations.

- Encourage families to notice plants in the illustrations of books they are reading together with their children.
- Encourage families to plant seeds and take care of plants at home.
 - Send home instructions about how to reuse a recyclable container as a pot for a plant. Encourage families to decorate the container and plant seeds in it.
 - Purchase a classroom plant and send a different child home with the plant each weekend to care for it with their family.
 - Encourage families to keep a journal about their plants; children can keep track of their growth, draw pictures of the stages of development, etc.
- Encourage families to talk with their children about how they use plants every day.
 - Encourage families to share examples of plants that are indigenous to their home countries (pictures, class visit, live plants).
 - Send home an example of a recipe that uses a plant as an ingredient. Encourage families to share their own recipes, highlighting the plant ingredients. Make a class recipe book with plant ingredients and send home to all families.
 - Over a weekend, ask families to keep a list of ways they used plants during their daily activities (e.g. eating, flowers to cheer up a friend).
 - At drop-off or pick-up, ask families to answer a question on a bar graph outside the classroom: “What is your favorite plant to eat?”
- Keep families informed about what and how students are learning about plants.
 - At the beginning of the unit, share information about what questions you will explore, what you want children to learn, and the types of learning experiences that you will present to children.
 - Display ample photographs and pieces of authentic student work in a place that families will see (e.g. bulletin board, classroom door).
- Invite family members to partake in classroom activities.
 - Family members who have expertise in gardening, landscaping, etc. can talk to the class about their experiences.
 - Family members can help the class plant a garden, join nature walks, read books, support during center time, etc.

VI. Culminating tasks and rubrics

These two culminating tasks give students an opportunity to apply the knowledge they have gained throughout the unit. They are designed to be done in small groups during the last week of the unit. Both tasks are grounded in science content; one is focused on math and the other on literacy. There are also opportunities to make connections to other domains of development (e.g. approaches to learning, social emotional, and physical) in these tasks. Teachers should take anecdotal notes throughout each of the tasks to capture evidence of students' thinking and understanding of the content. Students' performance on the tasks can be measured using the mathematics and literacy rubrics below.

Mathematics Task

Focus Standards

- PK.OAT.2. Duplicate and extend (e.g. what comes next?) simple patterns using concrete objects.
- Mathematical Practice. Model with mathematics.
- PK.AL.3. Approach tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.
- PK.S.5. Observe and describes characteristics of living things.

Depth of Knowledge

- Level 2

Task Experience

During small group time (with 3-5 children), the teacher shows the students pictures of gardens that are planted in patterns and explains:

We have been learning all about plants, how they grow, and how they help us. We have talked about gardens and how they can grow in patterns. Many gardens are planted in patterns. (Show the picture of a [patterned garden](#).) What is the pattern here? When gardeners want patterned gardens, they need to plant their seeds in patterns. Let's look at some seeds. Let's make the seeds into patterns so that we can create our own patterned garden. You can sort your seeds then make them into a pattern.

Questions to ask as students are working:

- How can you plant seeds so that the seeds grow into a pattern?
- If we want to plant a garden with an AB (ABC, ABBA, etc.) pattern, how many types of seeds should we use?
- If we were going to plant vegetables, how could we make the vegetables into a pattern?

In order to push the students to the next level and encourage higher-order thinking, have the students talk about the life cycle of a garden:

- Tell me how to begin a garden.
- What happens after we plant seeds?
- What happens next?
- What happens to a garden in the winter or in the cold?
- Tell me how growing a garden represents a pattern.

Materials Needed

- Pictures of a patterned garden ([example](#)) and pictures depicting the life cycle of a garden ([example](#))
- A variety of seeds and/or a variety of flower/plant pictures
- A blank piece of paper students can use to place their patterns
- (optional) Glue for students to glue their seeds or pictures
- (optional) Texts that were read during the unit

Alternative ideas for task:

- For students who have trouble grasping small seeds, use larger beans (e.g. lima beans).
- For students who are not yet verbal, students with disabilities (SWDs), or English Language Learners (ELLs), have additional photographs and books available to help them express ideas and connections.

Collecting Information

Take anecdotal notes about the students; process for creating patterns with their seeds/pictures. Anecdotal notes should be factual, low-inference observations about students' words and actions. You should focus your notes on students' work around patterning, but may also take notes that document other domains of development (e.g. social-emotional, approaches to learning, physical) during this small group.

You can use the [template](#) in the resources section to help organize your notes.

You may include work samples, anecdotal notes, photos, etc. collected from this task as part of their authentic assessment systems (e.g. Work Sampling System, Teaching Strategies GOLD, or High Scope Child Observation Record).

Rubric

This rubric can be used to evaluate student's work on the mathematics culminating task.

Mathematics		
Standards: PK.OAT.2. Duplicate and extend (e.g. what comes next?) simple patterns using concrete objects. Mathematical Practice. Model with mathematics.		
Not Yet	In Process	Proficient
Student doesn't make a pattern with seeds/flowers. Student may sort seeds/flowers and/or discuss their characteristics.	Student makes two or three repetitions of a patterned sequence and sometimes explains how a pattern repeats itself.	Student makes at least four repetitions of a patterned sequence and explains how a pattern repeats itself.
<i>Example:</i> AAAAAA BBB CCC  <p>"The white seeds go here. The color is all the same and go here. "</p>	<i>Example:</i> ABABCRA  <p>"First is white then black. It's the same."</p>	<i>Example:</i> ABABABABAB  <p>"First white then black and it goes over and over again."</p>

Literacy Task

Focus Standards

- PK.SL.1. With guidance and support, participate in collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adults in small and large groups.
- PK.W.2: With prompting and support, uses a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
- PK.AL.3. Approach tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.
- PK.S.5. Observe and describes characteristics of living things.

Materials Needed

- Paper
- Drawing/writing materials
- (optional) Texts that were read during the unit

Depth of Knowledge

- Level 2

Task Experience

During small group time (with 3-5 children), the teacher sets up the following scenario:

We have done such a great job making our class garden that other classes want to make one, too. We need to teach them how to do this. Think about how we made our garden. Now, on this paper, draw a picture of what we need to do to make a garden.

Here are some things to think about when teaching someone how to make a garden:

- Where we should plant the garden
- What we should do to help it grow and to care for it
- How our garden can help us

Have students draw, dictate, and write about how to plant a garden. Encourage students to talk to one another and you as they work.

As students work, you can encourage conversation by asking questions and making comments about their work. For example:

- I see you're drawing brown dots on your paper. (open-ended comment)
- What are you planning to draw in your garden? (open-ended question)
- If we are going to plant a garden with these seeds, where should we plant them? Why? (Science)
- What can we do to help our garden grow? How will what we do help our garden grow? How can we work together to help our garden grow? (Social Emotional)

- Tell me more about the garden that we can grow- think about some of the books we have read [show book covers here] and tell me about how those gardens grew. (Literacy)
- What can we do with the things we might grow in our garden? How might the world use these plants? (Literacy)

Alternative ideas for discussion:

- For students who are not yet verbal or who are Students with Disabilities (SWDs) or English Language Learners (ELLs), you may ask them to draw pictures, hold up fingers, or demonstrate their answers by dramatizing them.

Collecting Information

Take anecdotal notes about the students' process of writing, drawing, and dictating. Anecdotal notes should be factual, low-inference observations about students' words and actions. You should focus your notes on students' work to draw, write, or dictate an informational text, but may also take notes that document social-emotional, approaches to learning, or literacy skills during this small group.

Take dictations on sticky notes and post them on the students' pages. You can use the [template](#) in the resources section to help organize your notes.

You may include work samples, anecdotal notes, photos, etc. collected from this task as part of their authentic assessment systems (e.g. Work Sampling System, Teaching Strategies GOLD, or High Scope Child Observation Record).

Rubric

This rubric can be used to evaluate student’s work on the literacy culminating task.

English Language Arts		
Standard: PK.SL.1. With guidance and support, participate in collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adults in small and large groups. PK.W.2: With prompting and support, uses a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.		
Not Yet	In Process	Proficient
Student doesn’t describe – through drawing, dictating, or writing – how to plant and/or take care of a garden.	Student describes – through drawing, dictating, or writing – two ways to plant a garden and/or to take care of a garden.	Student describes – through drawing, dictating, or writing – at least three ways to plant and take care of a garden. Students state at least one thing that plants can be used for.
<i>Example:</i> Student draws with green and brown and says, “This is a plant. This is a seed. A plant is green.”	<i>Example:</i> Student draws with green, brown, red, yellow, and blue and says, “This is a seed. Then the water comes and the sun comes and then it is a flower.”	<i>Example:</i> Student draws with green, brown, red, yellow, and blue and says, “Plants need water, sun, and good soil. They need a lot of room to grow and need to have food sometimes. We can eat plants.”

VII. Sample weekly plan

This is an example of a sample weekly lesson plan. Teachers should take the above information and put it into detailed weekly lesson plans that last between 4-6 weeks for this unit. The daily lesson plans will reflect individual schedules, students' and families' needs, school context, etc.

UNIT TITLE: Plants are all around us!

Overarching Question: How can we use books and the world around us to learn more about what plants are and how they grow?

Unit Sub-Topic: What are plants? How do we know if something is a plant?

Vocabulary* for the week: *Seed, plant, flower, food, sun, birds, animals, eat, water, dirt, rain, food, fruit, vegetable, leaves*

Essential ideas: Seeds come in a variety of shapes and sizes. Seeds can turn into many different items.

**Although these are all good words to use with your students, it is important to make sure that your students understand the key, italicized words.*

***These activities are described in detail in the sample lesson plans, [Section VIII](#).*

Week 1 of 6	Monday	Tuesday	Wednesday	Thursday	Friday
Morning activities	What do you know about plants? Draw a picture of a plant and tell about it.	Put some plants around the room and encourage students to think, draw, and write about plants.	Put some plants around the room and encourage students to think, draw, and write about plants.	Put seeds on a table. Have students draw, sort, and describe seeds.	Put some plants and non-plants on a table. Encourage students to identify the plants and the non-plants and explain why items fall into a specific category.
Morning meeting	Use a KWL chart to engage students in a discussion about what they already know and wonder about plants prior to reading a book such as From Seed to Plant .**	Use a projector or document camera to enlarge images of plants from books, magazines, or photographs to introduce new vocabulary words to students. Always integrate students' native languages when introducing new words.	Sing and dramatize a song about plants and dramatize. Revisit KWL chart.	Sort seeds. Give each student a different picture of a seed and ask them to find the other students that are holding the same picture. Count the seeds and make a class graph showing the number of each type of seeds.	Revisit KWL chart Show students a variety of seeds. Ask them to predict what will happen to each seed if it is placed in a classroom garden.
Read aloud (anchor)	Growing Vegetable Soup , Lois Elhert	Jack and the Beanstalk , Steven Kellogg	From Seed to Plant , Gail Gibbons	Jack and the Beanstalk , Steven Kellogg	From Seed to Plant , Gail Gibbons

	What types of plants did you see in the book? (DOK: Level 1)	What type of plants do you see in the book? Tell me about the plants. (DOK: Level 1)	What is similar about all the plants in the book? What is different? (DOK: Level 2)	Create a Venn Diagram to record similarities and differences between two plants in the book (DOK: Level 2)	Look at the pictures in the book. What is a plant? What isn't a plant? How do you know? (DOK: Level 3)
Small groups	Sort seeds and graph them	Sort plants and non-plants and identify why each item belongs with its group.	Observe plants with magnifying glasses and identify the different parts of a plant. Help students make text-to-real world connections after reading <u>From Seed to Plant</u> by Gail Gibbons.	Observe seeds with magnifying glasses and identify the different parts of a plant. Help students make text-to-real world connections after reading <u>From Seed to Plant</u> by Gail Gibbons.	Sort plants and non-plants and identify why each item belongs with its group.
Outdoors	Take a few books about plants outside and encourage children to look for plants in the books and outdoors.	Encourage children to draw one plant that they find outdoors.	Go on a neighborhood walk with clipboards, writing tools, and magnifying glasses to examine plants. Create a classroom mural about the plants you observe.	Provide chalk for children to draw seeds and plants.	Provide magnifying rulers, snap cubes, blocks, etc. for students to measure plants.
Read aloud (supporting)	<u>The Tiny Seed</u> , by Eric Carle	<u>Chrysanthemum</u> , Kevin Henkes	<u>How a Seed Grows</u> by Helen Jordan	<u>Alison's Zinnia</u> , Anita Lobel	<u>The Curious Garden</u> , by Peter Brown
Lunch	Talk about foods that come from plants. For example, if eating beans, talk about bean plants. If eating apples, talk about apple seeds. The students may want to plant the various seeds.				
Centers	See above section on centers for details. This week, introduce the following materials: books about plants, such as <u>Jack and the Beanstalk</u> and <u>Planting a Rainbow</u> . Put a variety of seeds in the science, art, and water table centers.				
Closing Meeting	What did we learn about plants today?	Look around the room-turn and talk with your neighbor about a plant in the room.	Share something you learned about gardens today.	Tell us one thing that seeds need to grow.	What types of seeds did you see today?

VIII. Sample lesson plans

The following are sample lesson plans that can be used during the unit. You can use the plans as written or adapt to best fit the needs of your students.

Sample 1: Ten Little Flower Seeds

Standards

- *Math*: PK.OAT.1. Demonstrate an understanding of addition and subtraction by using objects, fingers, and responding to practical situations (e.g. if we have 3 apples and add two more, how many do we have?).
- *The Arts*: PK.A.5. Participates in a variety of dramatic play activities to represent fantasy and real life experiences.
- *Approaches to Learning*: PK.AL.3. Approaches tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.

Objective

- Students will explore counting down from 10-0 along a number line, singing and moving to a song about seeds.

Time Needed

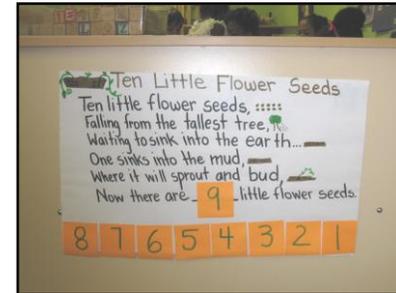
- 10 minutes at meeting time

Set-Up & Materials

- Create a number line on the floor with your students
- Write the song “little flower seeds” on chart paper with images for students to follow along.
Ten Little Flower Seeds (to the tune of Little Speckled Frogs)
Ten little flower seeds,
Falling from the tallest tree,
Waiting to sink into the earth...
One sinks into the mud,
Where it will sprout and bud,
Now there are ____ little flower seeds.

Learning Experience

1. Have 10 students stand along the number line and pretend to be the “seed sinking into the mud,” sitting down as their number is called.
2. Pause and prompt students to note how many are left.



Sample 2: How Many Little Seeds? An Interactive Word Problem

Standard

- *Math*: PK.OAT.1: Demonstrate an understanding of addition and subtraction by using objects, fingers, and responding to practical situations (e.g. if we have 3 apples and add two more, how many do we have?).
- *Literacy*: PK.RIT. 10. With prompting and support, actively engage in group reading activities with purpose and understanding.
- *Literacy*: PK.RIT.1. With prompting and support, ask and answer questions about details in a text.
- PK.AL.3. Approaches tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.

Objective

- Students will explore the concept of addition and subtraction by combining and separating up to 5 seeds in a pot. Students will pretend to be a “busy gardener” adding seeds to a pot, or a “hungry bird” subtracting seeds from a pot.

Time Needed

- 10 minutes at center time

Set-Up and Materials

- Set-up as a center-time table activity.
- Place a variety of real seeds or beans on sorting plates for each student.
- Give student a paper “planter pot” to use as a game board.
- Write the interactive story (below) on chart paper with pictorial representations of birds and gardeners alongside the sentences. You may also want to create in [Storybird](#).
- Camera
- Chart paper
- *How many little seeds? An interactive math story*
- Images of birds and gardeners
- Large “pots” (made out of heavy paper or cardstock)
- Sorting cups, trays or plates with seeds
- Variety of large seeds or beans (safe for small children)
- Student Reflection Sheet
- Teacher Notes Template
- Writing and drawing tools
- A large felt board with a felt pot and felt seeds to attach



Learning Experience

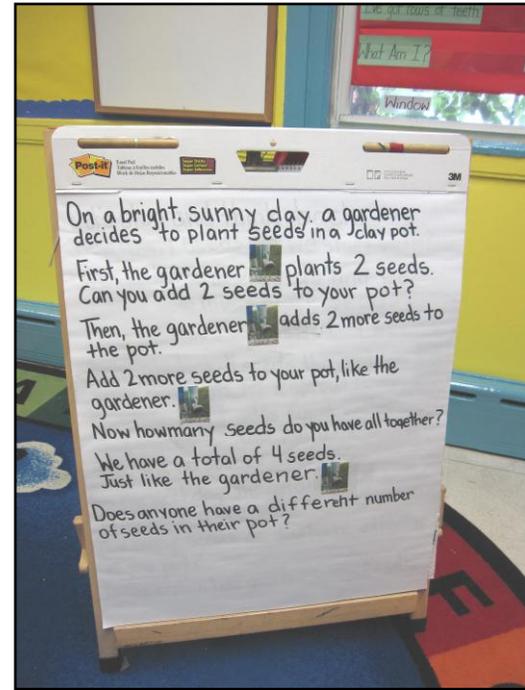
1. Prepare each student with a tray of seeds and a paper planter pot. Encourage students to create and/or design their own planters before beginning the game.
2. Prepare the felt board with two colors of felt seeds that can be readily added and/or subtracted, to model to concepts students.
3. During center time invite 3 or 4 students to play a game with a math story.
4. Explain to students that they'll be using addition and subtraction to play a game. Model what this means: "Addition means to combine seeds in the pot, like this...subtraction means to separate the seeds, like this..."
5. Read and model the following steps to play the game to students:
 - a) *I'll read a story about a busy gardener, who plants seeds in a pot, and a hungry bird, who eats the seeds from the pot.*
 - b) *When the gardener plants seeds, the seeds are added to the pot. When the bird eats seeds, the seeds are subtracted from the pot.*
 - c) *As you listen to the story you will follow along pretending to be a gardener, adding seeds, or a hungry bird, subtracting seeds from the pot.*
 - d) *Can you show me how to be a busy gardener, adding seeds to your pot? Now show me how to be a hungry bird, subtracting seeds from your pot.*
 - e) *Encourage students to dramatize movements and make sounds like birds!*
6. Read aloud the interactive word problem (see below). Be sure to model addition and subtraction with the teacher-made felt pieces.
7. Prompt and support your students to add and subtract the seeds in the pots.
8. Explain to students that this is one way to add and subtract, by combining and separating seeds. Encourage them to share aloud other ways they add and subtract. Provide examples as needed.



Sample Interactive Word Problem

- *On a bright sunny day a gardener decides to plant seeds in a clay pot.*
- *First, the gardener plants 2 seeds. Can you add 2 seeds just like the gardener?*
 - Add 2 seeds to the felt board
- *Then, the gardener adds 2 more seeds to the pot. Add 2 more seeds to your pot just like the gardener.*
 - Add 2 more seeds to the felt board.
- *Now, how many seeds do you have all together?*
- *Let's stop and think back. How many seeds did we start with? (2 seeds)*
 - Point to the first 2 seeds on the felt board.
 - Encourage students to explain their thinking about math in their own words and language.

- *How many more seeds did we add? (2 seeds)*
 - Refer to the felt board
- *How many seeds do we have? (4 seeds) 2 seeds plus 2 more seeds equals 4 seeds.*
- *After planting 4 seeds, the gardener waits and waits for a sprout to appear.*
- *The gardener waters the soil and places the pot in sunlight. But, still no sprouts!*
 - Encourage students to dramatize the story.
- *The next day the gardener adds 1 more seed to the pot.*
 - Add 1 seed to the felt board. Pause and wait for students to add 1 more seed.
- *Now, how many seeds do you have? Please explain how you have ___ seeds.*
 - Encourage students to explain how they have 5 seeds.
- *The gardener continues to wait for a seed to sprout when, suddenly, a chirping sound comes from above. What do you think is making that sound? It's a hungry bird!*
 - Encourage students to dramatize the story.
- *The hungry bird swoops down from above and subtracts 3 seeds from the gardener's pot. Can you pretend to be a bird and subtract 3 seeds from your pot?*
 - Remove 3 seeds from the felt board.
- *You started with 5 seeds in your pot and subtracted 3 seeds. Now how many seeds do you have?*
 - Record the students' responses on the teacher note page.
- *Next, the hungry bird subtracts 2 seeds from the pot. Now you have 0 seeds in your pot, just like the gardener.*
 - Remove all the seeds from the felt board. Prompt students to remove all of the seeds.
 - Encourage students to solve the following problem independently and provide guidance only if necessary. Document what they know and can do on their own and what supports are provided.
- *Next, the gardener adds 2 seeds pot and then adds 3 more. How many do you have in your pot?*
- *The hungry bird quickly swoops down again and subtracts 2 seeds from the gardener's pot. How many seeds do you have in your pot?*



Sample 3: Patterning

Standards

- *Math*: PK.OAT.2. Duplicate and extend (e.g. what comes next?) simple patterns using concrete objects.
- *Social Emotional Development*: PK.SED.4. Develops positive relationships with their peers.

Objective

- Students will work together in pairs and individually to create patterns using concrete objects such as seeds and /or pictures of flowers/plants.

Time Needed

- 10 minutes in large or small group

Set up and Materials

- Paper flowers in two colors (red and blue, green and pink, etc.)
- Two types of seeds

Learning Experience

1. Review AB patterns. Remind children that patterns repeat over and over again.
2. Show the students a picture of a garden that has been created in an AB pattern ([example](#)).
3. Give one flower to each student and encourage the students to work together to put their flowers in an AB pattern.
4. Ask students to describe their pattern and explain how they know it is a pattern.

Sample 4: Know, Wonder, Learn

Standards

- *Literacy:* PK.SL.1. With guidance and support, participate in collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adjust in small and large groups.
- *Social-Emotional Development:* PK.SED.4. Develops positive relationships with their peers.

Objective

- Students will work together to document their discussion about what they know, what they wish to know, and what they have learned.

Time Needed

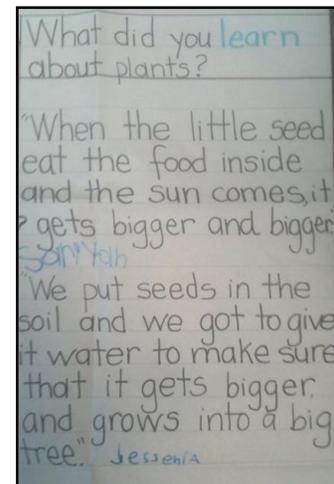
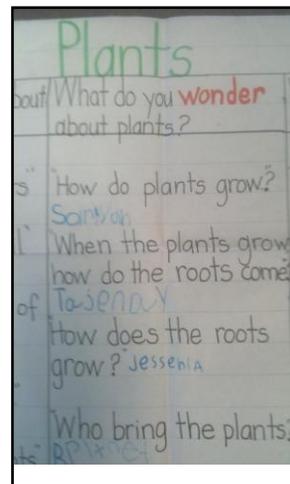
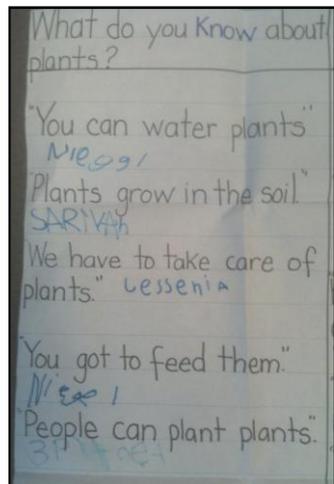
- 10 minutes during large group each week.

Materials and Prep

- Create a chart with three columns to document what students know, wonder and learned about plants and help organize their thoughts.

Learning Experience

- Before you read any books in the unit, ask students what they know and wonder about plants.
- Use this opportunity to introduce some vocabulary words that they'll experience throughout the unit.
- Throughout the unit, read the informational texts and discuss what they learned about plants from each book.
- You may want to alter the chart to reflect the kind of questioning you've been doing with your students. For example, ask what they noticed on a walk.
- Throughout the unit, revisit the chart and ask students what they have learned about plants. Chart their responses. You can also encourage students to add to the "wonder" column throughout the unit.



Sample 5: Informational Read Aloud

Standards

- *Literacy*: PK.RIT.1. With prompting and support, ask and answer questions about details in a text.
- PK.RIT. 10. With prompting and support, actively engage in group reading activities with purpose and understanding.
- PK.SL.1. With guidance and support, participate in collaborative conversations with diverse partners about pre-kindergarten topics and texts with peers and adults in small and large groups.
- PK.AL.3. Approaches tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.

Objective

- Students will listen to a book, answer questions about it, and engage in a brief discussion about the book.

Time Needed

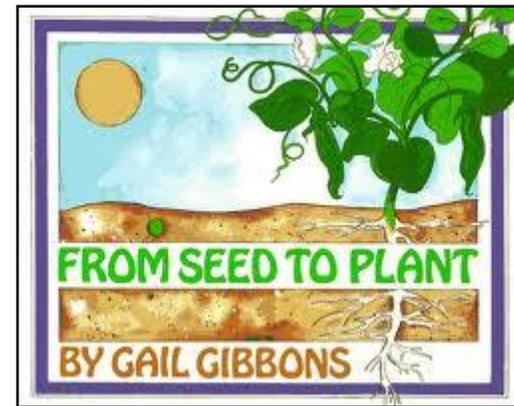
- 15 minutes in small or large group

Materials and Prep

- Book
- Projector, if available
- KWL chart, specifically the “Learn” piece

Learning Experience

- Enlarge the book on the wall with a document camera or projector if possible.
- Explain to students that you will be reading an “informational book on how seeds grow into plants.” This book will provide “real life information, or facts, on how seeds grow into plants.”
- Introduce the front cover of the book and underline the title of the story with your finger from left to right while reading the title, From Seed to Plant.
- State the author/illustrator’s name, “Gail Gibbons.” Briefly explain that this author wrote the words and illustrated the pictures.
- Take a moment to closely examine the front cover. Prompt students to “look closely at the pictures to figure out what the story is about.”
- Start reading the text while pausing to prompt the students with the following:
 - What types of plants do you notice in this picture?
 - What is this part of the plant called? Stem, leaf, root?
 - How do seeds travel?
 - What are some places where seeds fall?
 - What do birds do with seeds?



- How do plants grow once they land in the soil? What happens first?
- As you read, point to illustrations that connect to the key words listed above. Provide definitions in students' dominant and heritage languages.
- After the read aloud, chart what students learned about plants from the book under LEARN. Label what they say in response with their names.

Sample 6: Planting seeds

Standards

- PK.AL.3. Approaches tasks, activities and problems with creativity, imagination and/or willingness to try new experiences or activities.
- PK.S.3. Generates explanations and communicates conclusions regarding experiments and explorations.
- PK.S.5. Observes and describes characteristics of living things.

Objective

- Students will understand how to plant and take care of seeds

Time Needed

- About 10 minutes in a small group

Materials and Prep

- Small cups or containers
- Dirt
- Seeds (can have different kinds)
- Popsicle sticks with children's initials
- Books about planting and taking care of seeds

Learning Experience

1. Gather students in a small group and show them the dirt and seeds. Ask what they think they are going to do with the materials.
2. Encourage children to recall information from the texts about how to plant and take care of seeds. Ask guiding questions such as: "What do plants need to live?" or "How do gardeners help their plants grow?" You may want to chart children's responses.
3. Explain that today everybody will have a chance to plant a seed. If you have different types of seeds, explain the differences between them.
4. Give each student a spoon to scoop dirt and a few seeds. Discuss the order in which students should put the dirt and seeds in their cup (e.g. "What will happen if you put the seeds at the bottom and all the dirt on top?" or "What will happen if you put the seeds on the top of all the dirt?").
5. Allow students to plant their seeds. As they work, narrate their behavior and prompt them to talk with their classmates.
6. When students are done, they can label their cup by putting a popsicle stick with their initials in it.
7. Wrap up by asking children what they should do to take care of their seeds. Again, you may want to chart responses so that you can refer back to them throughout the unit.



IX. Sample student work

Below are examples of student work that was produced throughout this unit. Note the alignment to standards and relationship to the overarching question, enduring understandings, and unit sub-topics. Some examples may fit under more than one standard, essential understanding, and/or subtopic.

Example 1: Math

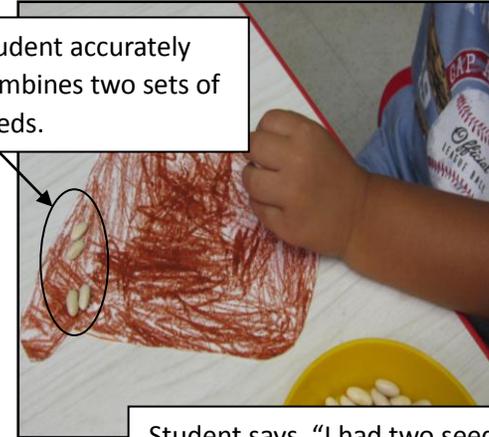
Student accurately counts two seeds.



Student adds two more seeds.



Student accurately combines two sets of seeds.



Student says, "I had two seeds and I added two seeds. Now I have four seeds."

Standard:

- *Math*: PK.OA.1: Demonstrates an understanding of addition and subtraction by using objects, fingers, and responding to practical situations (e.g. if we have 3 apples and add two more, how many do we have?).

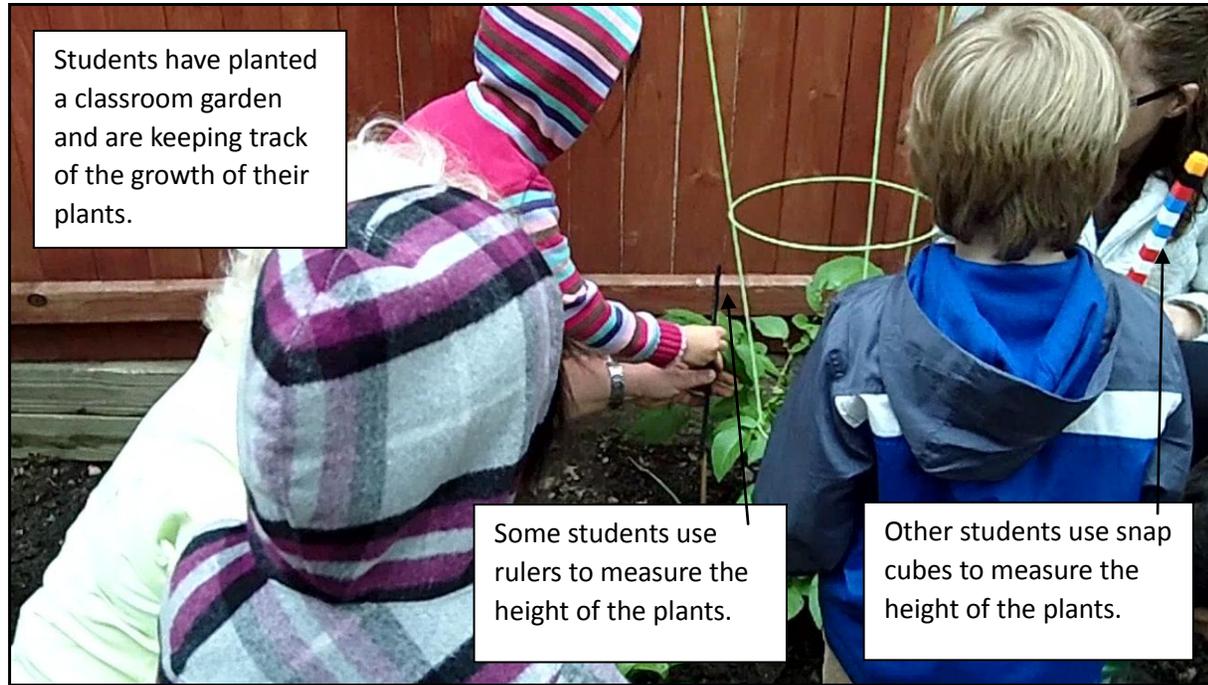
Essential Understanding:

- Plants are living things that come from seeds; they need water, nutrients, and sunlight to grow.

Unit Sub-Topic:

- What are plants? How do we know if something is a plant?

Example 3: Math



Standard

- *Math:* PK.MD.1. Describe and compare measurable attributes.

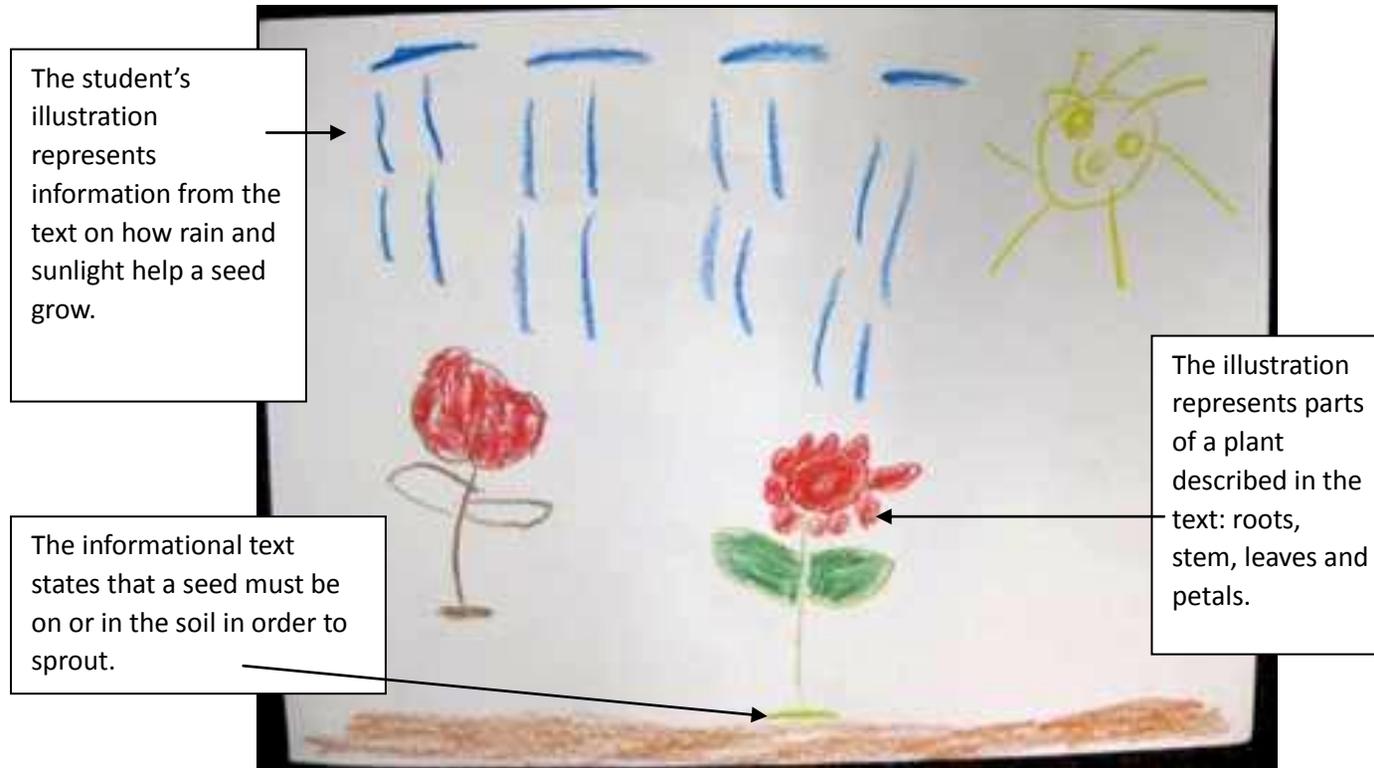
Essential Understanding

- Plants grow at different rates. We can measure different attributes of plants (e.g. height, weight) using different units (e.g. non-standard, standard)

Unit Sub-Topic

- How can we track the growth of plants?

Example 4: Literacy



Standard:

- *ELA: PK.W.2:* With prompting and support, uses a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

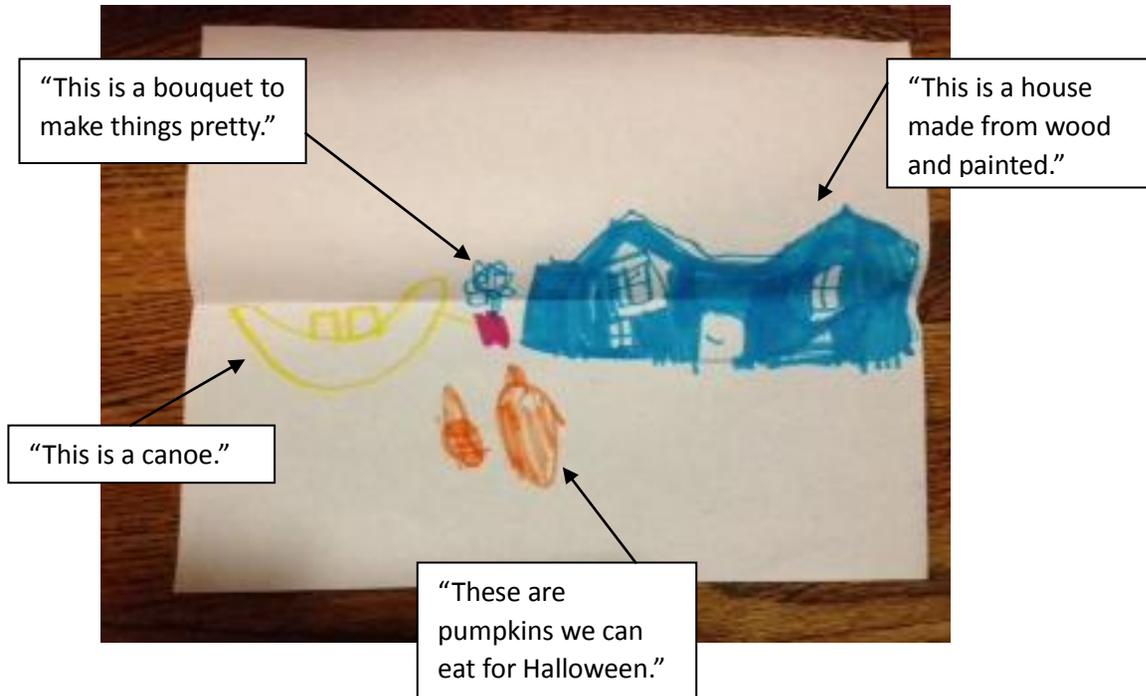
Essential Understanding:

- Plants are living things that come from seeds; they need water, nutrients, and sunlight to grow.

Unit Sub-Topic:

- How do plants grow? How can people help plants grow?

Example 5: Literacy



Standard:

- *ELA: PK.W.2:* With prompting and support, uses a combination of drawing, dictating, or writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

Essential Understanding:

- Plants are important to our world for many reasons; plants can be made into food, clothes, and shelter.

Unit Sub-Topic:

- Why is it important for people to help plants grow? What do plants do to help us?

X. Supporting resources

These are some ideas of how you can help students connect what they are learning in school with the real world. You can use these ideas to help children students make the connection between books and what they see to how these concepts affect their everyday life.

Outside Resources

- Invite a gardener to your classroom to speak with students about how plants grow.
- Ask a local florist to visit your room and discuss floral arrangements and various plants.
- Take a field trip to the NYC Botanical Gardens.
- Invite a nutritionist or chef to visit your room and talk with the students about how plants can be used to grow food that helps keep our bodies healthy.
- Ask a doctor or pharmacist to visit and discuss how some medicines come from plants.
- Invite a Native American to explain how Native Americans used plants for shelter, clothes, and food.

Websites

- [Eartheasy.com \(http://eartheasy.com/grow_gardening_children.htm\)](http://eartheasy.com/grow_gardening_children.htm) -- Tips and resources on what to plant for young gardeners.
- [New York Botanical Garden \(http://www.nybg.org/edu/\)](http://www.nybg.org/edu/) -- Children's gardening program information at the New York Botanical Gardens
- [Brooklyn Botanical Garden](#) -- Information about the Brooklyn Botanic Garden Educational Program
- [United States Department of Agriculture \(http://www.bbg.org/discover/gardens/childrens_garden/\)](http://www.bbg.org/discover/gardens/childrens_garden/) -- A database on national plants.
- [Lowes' Gardening with Young Children \(http://www.lowes.com/cd_Gardening+with+Children_1272982901\)](http://www.lowes.com/cd_Gardening+with+Children_1272982901) -- Benefits of gardening with children, what to plant and safety in the garden.
- [Teacher's College Press \(http://www.tcpres.com/\)](http://www.tcpres.com/) -- A free downloadable Project Planning Journal from *Young Investigators* by Judy Harris Helm and Lilian Katz; a free download
- [Storybird \(http://storybird.com/\)](http://storybird.com/) -- Web 2.0 application for sharing observations and stories
- [Kids Gardening \(http://www.kidsgardening.org/\)](http://www.kidsgardening.org/) -- Ideas for grants, school gardening, and family gardening
- [Sequencing Games \(http://www.enchantedlearning.com/sequencingcards/\)](http://www.enchantedlearning.com/sequencingcards/) -- Can help students understand sequences, including the process of growing from seed to plant.

Music

- The Garden Song: <http://www.maydreamsgardens.com/2009/08/garden-song-inch-by-inch.html>
- The Planting Song, Dr. Jean: http://www.drjean.org/html/monthly_act/act_2007/04_Apr/pg06.html

Teacher Texts

- Chalfour, Ingrid & Worth, Karen. (2003). *Discovering Nature with Young Children: A pre-school nature curriculum designed to guide children's learning through open and focused science explorations*. St. Paul, MN: Red Leaf Press
- Midden, Karen, Olthof, Marla & Starbuck, Sara (2002). *Hollyhooks and Honeybees: Garden Projects for Young Children*. St. Paul, MN: Red Leaf Press
- Neumann-Hinds, Carla. (2007). *Picture Science: Using digital Photography to Teach Young Children*. St. Paul, MN: Red Leaf Press
- Sangliolo, Maria. (2011). *Maria and Friends-Planting Seeds*. CD. Amazon.com

Family Communication

- [Sample family letter](#)
- More ideas can be found in the [family engagement](#) section

Sample Family Letter

Dear Families,

We are beginning a unit on seeds and plants. Here are some of the questions that we will try to answer:

- What are plants? How do we know if something is a plant?
- How do plants grow? How can people help plants grow?
- Why is it important for people to help plants grow? What do plants do to help us?
- How can we track the growth of plants?

We need *your* help. You can help extend your child's learning at home by:

- Talking to your child about our new unit. Ask what types of books we're reading and what plants we have looked at in class.
- Look around your home, inside and outside. Do you have any plants or anything that has grown from a seed? Take a picture or have your child share about it with us in class.
- Do you eat anything that comes from seeds? If you have a special recipe for a food that involves seeds and/or plants, please share it with us.

If you have a garden or enjoy growing seeds, please let us know. We would love for you to come in and talk with the students about growing seeds!

Please let us know if you have any questions.

Thank you so much,

XXX

