

**College of Education**

**Department of Human Development/Institute for Child Study**

**Early Childhood Education Program**

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**Lesson Plan: Blue Room (Shade) Garden**

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| **Step 1: Desired Results** |
| **A. Overview of lesson in relation to Unit plan** For this lesson, the kindergarten students (about 5 years of age), will make put in a variety of plants into pre-dugholes in the ground, make observations (e.g. similarities and differences) of plants, orally communicate their observations and/or draw a picture of their plant, determine what plants need to survive, and investigate different types of soil and how they retain different amounts of water for plants to consume. Students will learn how plants manage to bring the necessary components they need to survive from the environment (e.g. water and nutrients from the soil, energy from the sun).  |
| **B. Standards and Objectives** a. ***State of Maryland Standards for Content Lesson**** Maryland Curriculum Standard(s): Science

3.E. Flow of matter and energy; 3.E.1 Develop an awareness of the relationship of features of living things and their ability to satisfy basic needs that support their growth and survival; 3.E.1.c Make observations of the features and behaviors of many different kinds of plant within an environment to identify and begin building a list of some of the basic needs these organisms share, such as water, light, etc.; 3.E.1.d Describe the way that most plants manage to bring water from the environment into the plant. 1.A Constructing knowledge; 1.A.1 Raise questions about the world around them and be willing to seek answers to some of them by making careful observation and trying things out; 1.A.1.b Seek information through reading, observation, exploration, and investigations.1.C Communicating scientific information; 1.C.1 “Ask how do you know?” in appropriate situations and attempt reasonable answers when others ask them the same question; 1.C.1.a Describe things as accurately as possible and compare observations with those of others; 1.C.1.b Describe and compare things in terms of number, shape, textures, size, weight, color, and motion; 1.C.1.c Draw pictures that correctly portray at least some features of the thing being described and sequence events (seasons, seed growth).* Maryland Curriculum Standard(s): Visual Arts
1. Perceiving and responding: Aesthetic education; 1.1 Identify, describe, and interpret observed form; 1.1.a describe colors, lines, shapes, and textures found in the environment; 1.1.b Represent observed form by combining colors, lines, shapes, and textures.
* Maryland Curriculum Standard(s): Mathematics

3.A Measurement units; 3.A.1.a Order, compare, and describe objects by attribute such as weight and capacity3.B.1 Measure in nonstandard units; 3.B.1.b Explore and compare the capacity of containers (with different types of soil); 3.B.1.c Explore and compare weight of objectsb. *MCPS standards for Content Lesson** MCPS Curriculum 2.0 Standard: Mathematics

2.K.A.2 Directly compare two objects with a measureable attribute in common, to see which objects had “more of”/”less of” the attribute, and describe the differences.c.*CYC Standards for Content Lesson** Kindergarten Developmental Guidelines (Marsden, Meisels, Jablon, & Dichtelmiller, 1994)

IV. Scientific thinking; IV.A Observing and investigating; IV.A.1 Uses senses to observe characteristics and behaviors of living and non-living things. IV.A.3 Makes comparisons among objects that have been observed; IV.A.4 Seeks answers to questions through active investigation.  |
| **C. Rationale**: * Each classroom at the placement has a garden in which teachers are encouraged to utilize. It is located in a shaded area, thereby limiting the choices of plants. This garden gives an ideal opportunity to teach children about life science such as the basic needs of plants; to practice scientific thinking, observation, and communication; and to provide an opportunity to talk about different elements of landscape design such as texture and color.
* By partaking in these activities, students can practice scientific thinking, use observation and communication skills, and gain more concrete experiences and understanding about the basic survival needs of plants (e.g. food, water, light). Using this lesson, students can be encouraged to think about different varieties of plants, different kinds of environments (e.g. different types of soil and water availability) and what components plants retrieve from their environment to support their growth and survival. The observation and inquiry skills acquired from this lesson can be applied later to study other living things (e.g. people, plants) and environments.
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| **Step 2: Assessment Evidence** |
| **Performance Task (done in groups of 3)**Have students select a shade plant. Before planting, have each student verify that he/she has all the components essential for the plant’s survival and growth. After planting, instruct students to carefully observe, draw and describe orally about their picture for the teacher to dictate. The teacher will informally ask students to compare, contrast, and ask open-ended questions about the plants (e.g. shape of leaves, roots, and stem/stalk).  | **Performance Criteria** **5.** Student accurately describes two or more necessary components of plants for survival and growth; student makes accurate observations, distinguishes his/her plant, and communicates the observed details either through drawing and/or orally. Student also notices some similarities and/or differences between different shade plants; and student does not require teacher prompt and re-direction to follow the instructions.**4.** Student accurately describes two or more necessary components of plants for survival and growth; student makes accurate observations, distinguishes his/her plant, and communicates the observed details either through drawing and/or orally. Student may notice some similarities and/or differences between different shade plants; and student may need teacher prompt and re-direction to follow the instructions.**3.** Student accurately describes at least one necessary component of plants for survival and growth; student makes some accurate observations, distinguishes his/her plant, and communicates the observed details either through drawing and/or orally. Student may notice some similarities and/or differences between different shade plants; and student may need teacher prompt and re-direction to follow the instructions.**2.** Student does not indicate or inaccurately describes the necessary components of plants for survival and growth; student makes some observations, somewhat distinguishes his/her plant, and may poorly communicate his/her observation through drawing and/or orally. Student does not notice any similarities and/or differences between different shade plants; and student often need teacher prompt and re-direction to follow the instructions.**1.** Student does not participate in the activity, is off-task, and consistently need teacher prompt and redirection. Student does not indicate understanding of what plants need for survival. Student does not make any observations or take not of any features of his/her plant. |

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| **Step 3: Planning for Individual Needs** |
| **Individualized Instruction** |
| **Accommodation(s):** Students will be grouped into small groups of three allowing the teacher to give more attention to each child. Also, each student will get an opportunity to contribute to what they know about plants, gardening, and other related facts about plants. Students will also receive instruction and guidance when planting their own individual plant. |
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| **Step 4: Learning Plan**  |
| **Materials:** * A variety of plants suitable for the shade environment
* Foot shovel, trowels, gloves
	+ Include children’s size tools
* Leaf Grow or compost
* Plant picture with essential parts (e.g. roots, stem, leaves, dirt/soil, air, carbon dioxide, water, minerals, sunlight/energy)
* Detachable labels of plant growth/survival essentials
	+ Poster board
	+ Markers
	+ Velcro or masking tape
	+ Extra empty labels
* Related Science Books
	+ *Dirt* by Steve Tomecek, 2007, National Geographic Series
	+ *From Seed to Plant* by Gail Gibbons, 1991,
	+ *It Could Still Be a Worm* by Allan Fowler, Rookie Read-About Science
	+ *My Light* by Molly Bang, 2004
	+ *Plant* by David Burnie, 2004, DK Eyewitness Books
	+ *Plants*, 1998,Ontario Science Center
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| **Integration of Technology and/or the Arts (if applicable)**Students will create a visual product (e.g. drawing) to represent their observations and ideas related to the plants and their planting experience.  |
| **Time** **(estimate)** |  |
| **20 minutes****Lesson 1** | **Lead activity (Anticipatory Set/Warm-up): (As a large group activity)*** The teacher will explain that each student will be given the opportunity to grow one plant in the Blue Room Garden. However, they first need to make sure that the plant has everything it needs to survive. The teacher will bring out a poster board of a plant with empty “Velcro” spaces to fill in with student responses. The teacher will ask students, “What do you think are essential things plants need to live and to grow?” If children are stumped, the teacher will rephrase the question by asking the students, “What are some things you need every day to live and to grow?”
* The students will respond with various answers. Students will then be given a pre-labeled essential component for plant survival and growth to stick to the poster board.
* For each answer, the teacher will ask why something is required. “How do you think that helps the plant to live and to grow?”
* Differentiation: For students with other ideas of plant needs or requirements, there will be empty labels for the teacher to fill out and place on the poster board. Students will also gain assistance from their peers. The teacher can ask, “Do you agree that plants need such and such?”
* **Assessment:** All the students will have an opportunity to contribute to what they think is an essential component for plant survival. The teacher will also ask each student whether everything was available for the plants before planting. The teacher will also look at children’s’ drawings to verify their understanding.
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| **20 minutes****Lesson 2a** | **Explore/Guided and Independent Practice**: (the teacher will take small groups of three children outside throughout the day or week)* The teacher will help remove the plant from the pot and direct the student to observe the roots, stem, and any other interesting features. The teacher hand each child one scoop of Leaf Grow or compost into the pre-dug hole and mix the compost with the existing soil using a trowel. The existing soil removed earlier from digging the hole will be gently scooped to fill in the hole.
* Students with the help of the teacher will plant their selected plant.
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| **20 minutes****Lesson 2b** | **Explain**: (In small groups of 3 students)* The teacher will show the plant selection from which the students can choose from to plant. The students will be asked to select one plant, to observe its characteristics, and to determine similarities and differences between the plants. “What do you see that the plants all have in common?” “What do you see that is different?”
* The students will respond to the questions and the teacher will write down their responses on a chart paper/clipboard and paper.
* The teacher will ask the students to remember what their plant looks like so that they can draw a picture of it to be placed in the “Master Blue Room Garden Plan”; this will be a large landscape design drawing with each student’s plant placed in their respective locations.
* **Differentiation**: Students who may have difficulty remembering the appearance of their plant can sit directly in front of their plant and/or look at garden/plant books or magazines.

**Assessment**: The teacher will look at the student’s drawings and note what the student notices about his/her plant. |
| **10 minutes****Lesson 3a****15 minutes****Lesson 3b****15 minutes** | **Extend/Further exploration of one essential component plants need** (Set up activity center/box)* The students will explore the following activity center/box:
	+ The teacher will provide 4 different types of soil/dirt (clay, sand, compost, mixed)
	+ Each type of soil will be placed about halfway up a 2.0 liter plastic soda bottle. Use clean and similar shape bottles. Punch small holes at the bottom of the bottle.
* Have students explore using their senses the different types of soil/dirt (e.g. touch, smell). Ask students to lift up each bottle to find out, “Which type of soil feels the lightest and which one is the heaviest?” Use a scale to record the weight if one is available.
* Record student’s/responses to questions using the Assessment form for Lesson 3, attached on a clipboard.
* In small group of four, provide each student with four small watering cans with a specified measurement mark.
* Have each child pour this quantity of water into the bottle at approximately the same rate.
* Ask the students, “What did you notice?” Have students explain their observations and record their answers below using a checklist attached on a clipboard.
1. Did the water flow through each type of soil at the same rate? Which type of soil did the water flow through the fastest? Which type of soil did the water flow through the slowest?
2. Have students observe how much water came out underneath after the water passes through the soil. Ask, “Was the water level the same, more, or less than the amount poured in? Did all the water poured come out at the bottom?” If it did not, ask students, “Where do you think the water went?”
3. Have students again lift each bottle and compare the weight of the bottles before and after pouring water into the soil. Ask each student, “Which bottle is the lightest and which is the heaviest. Ask students, “Why do you think the soil is lighter, heavier, or the same?”
4. Did you see any other differences or anything else that is interesting?”
* Allow the students to repeat this experiment.

**Extend by reading to the students a section from the book *Dirt* by Steve Tomecek*** Ask the students if they agreed with the descriptions about the different types of dirt based upon their hands-on experience in Lesson 3a.
* Ask students why they think water moves through each type of dirt/soil differently
* Ask the students, “Which type of soil will hold the most amount of water? How do you know?”
* Ask, “Which soil will hold the least amount of water? How do you know?”
* Ask, the students, “Do you think all the plants in the world need the same amount of water?” Rephrase if necessary with, “Do you think plants in the desert like a cactus need the same amount of water as a mangrove tree living in a swamp? Which plant will need less water? What will happen do you think if you give a cactus too much water?”
* Ask, “Do you think the plants we have added are getting too much water, too little water, or just the right amount of water? How do you think we can tell if the plants are not getting the right amount of water?”
* Ask student if they want to try other types of experiments with the soil/dirt
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| **10 minutes****Lesson 4** | **Evaluate/Closure:** * Ask students what they liked best about the activities.
* Ask, “What did you learn that you did not know before? What do you know more about now that you did not know before?”
* Encourage students to regularly look after the garden. Have them notice the changes throughout the different seasons either orally and/or in drawing.
* In spring, have students draw and/or describe their plants. Also in spring students can measure the amount of sunlight in a shade garden and compare the amount of sunlight to a sunny area.
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| **Integration of Content Areas****Lesson 3:**Maryland Curriculum Standard(s): Mathematics3.A Measurement units; 3.A.1.a Order, compare, and describe objects by attribute such as weight and capacity3.B.1 Measure in nonstandard units; 3.B.1.b Explore and compare the capacity of containers (with different types of soil); 3.B.1.c Explore and compare weight of objectsMCPS Curriculum Standard: Mathematics2.K.A.2 Directly compare two objects with a measureable attribute in common, to see which objects had “more of”/”less of” the attribute, and describe the differences. |

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| **Step 5: Reflection** |
| 1. Summarize the outcome data from your lesson, being sure to address *how your lesson affected student learning* and how you will use the outcome data to inform future instruction.

In learning science, I desire the students to have opportunities to appreciate nature and its beauty, and to make learning fun, engaging, and integrated. This lesson, I think, helped personalized learning and motivated children to learn about plants and their needs for survival. An additional benefit with this lesson is that students will be able to see their classroom garden change though the seasons. This sense of personalization brings out different children’s individual personalities. For example, I am amazed to see the differences between children’s perceptions of their plants and experiences. Two children planted the same variety of plant, but each child saw and concluded by drawing different key characteristics of their experience. Once child emphasized the top portion of the flower, leaves, and stem while the other child captured the entire planting situation by drawing the dirt, roots, etc.I also noticed some children’s fascination with things they saw outside like worms, slugs, and rocks. For example, some of the girls who seemed uninterested initially in working with dirt began showing increasing interest in worms and the rocks they were finding. One boy’s drawing astonished me in that he noticed the wavy edges of leaves and their pinkish purple coloration on the back of the leaves. He noticed that there were four arborvitaes (evergreens) in the background which I did not even know until I verified the number by counting. This activity helped me gain greater insight into my students. Most students seemed to have understood what plants needed for survival and growth. However, not all the students connected that knowledge with their planting experiences or they did not reflect this knowledge in their drawings or descriptions. 1. Explain how you actively and appropriately engaged ALL of your learners (e.g., building on prior knowledge, questioning, responding to learner feedback, etc.), to include *differentiation of instruction*, and any future modifications you will make in this regard.

Children were engaged in these lessons through the use of visual props (e.g. poster of a plant with essential components for survival), questioning, responding to learner feedback (e.g. one child said seeds were important for plant survival), and hands-on experiences (e.g. selecting and planting a plant, conducting experiment with soil types). In addition to oral expressions of knowledge, children also had the opportunity to draw and communicate their observations. They were also provided developmentally appropriate books with pictures (e.g. non-fiction picture books, Eyewitness Book about plants) about plant-related topics like dirt, seeds, food for humans and animals, etc. For a Read Aloud activity for a literacy class, I read the children *The Tiny Seed* by Eric Carle and acknowledged one child’s feedback about seeds being important for plant survival. This topic was not further expanded upon yet, but next semester when I start full-time student teaching, I will be able to connect this to a lesson and experiment with growing seeds.1. 3. Evaluate the effectiveness of your chosen teaching strategies in communicating/teaching the content.

This lesson helped promote children’s observation skills, make comparisons, and communicate their scientific understanding of characteristics and behaviors of things (e.g. plants, soil). 1. 4. Address how you fulfilled the instructional goal/objective for ALL of your learners (provide at least 2 specific examples).

Student were able to accurately describe at least one necessary component of plants for survival and growth; student made at least some accurate observations, distinguished his/her plant, and communicated the observed details either through drawing and/or orally. One child, however, needed greater teacher prompt and re-direction to follow the instructions.1. Explain what, if anything, you did as a follow-up (later that day or the next) to the process and outcome of the observed lesson (e.g., work with individual students, work with small groups, re-teach the lesson, modified lesson plan for subsequent lesson, etc.).

As a follow up activity, I created one follow up activity to extend their understanding. One of the activities I followed up with was an observation and experiment about one important requirement for many plants: soil. In this lesson 3 of this science unit lesson, children investigated four types of soil: mixed, clay, sand, and peat. The children were able to apply their senses to feel and smell the soil. They weighed the soil and found out which one was the lightest and the heaviest. In addition, they discovered water drained fastest for sand followed by mixed and peat. The slowest drainage occurred for clay soil. The overall review of the experimental data will be shared in the future with the entire class next semester due to time constraints and the classroom’s primary science focus on bones and fossils.1. Explain the two most critical learnings you’ve gained from the planning, delivery and assessment of this lesson.

This science unit about what plants need for survival and how they get what they need from their environment involve several complex concepts (e.g. characteristics of soil, photosynthesis, habitat, patterns in plant growth). These concepts were not covered in depth because of the nature of student teaching. I did provide children with books and read to them those books they were interested in (e.g. *My Light* by Molly Bang). Providing children with opportunities to make scientific observations, make inquiries, explore and investigate topics is time consuming and needs to be well thought out. In addition, children’s level of interest must be considered when doing lesson plans. It is important to find ways to engage and motivate all students especially those who seem reluctant to participate. Fortunately, all the children were engaged and seemed interested in participating in the planting and soil investigation portion of the lessons.  |
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**Early Childhood Education Lesson Plan Self-Assessment**

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|  | **Unacceptable** | **Acceptable** | **Target** |
| **Lesson content****(15%)** | Candidates select lesson content that is incompatible with standards. | Candidates select content that is compatible with standards.  | Candidates select content that is compatible with state standards and adapt that content to suit the diversity of their students  |
|  | Unacceptable □ | Acceptable □ | Target □ |
| **Ability to plan****(30%)** | Candidates select teaching methods and learning opportunities that don’t connect well to the standards and benchmarks or the students they are teaching  | Candidates select teaching methods and learning opportunities that are appropriate to the standards and benchmarks and students they are teaching  | Candidates select teaching methods and learning opportunities that are well matched to the standards and benchmarks and engaging to the students they are teaching |
|  | Unacceptable □ | Acceptable □ | Target □ |
| **Alignment of assessment with plan****(20%)** | Candidates select no assessment strategies or use strategies that do not connect well to the standards/benchmarks or students they are teaching | Candidates select formative or summative assessment strategies aligned with standards/benchmarks, teaching methods, learning opportunities, and students | Candidates select authentic formative and summative assessment strategies aligned with standards/benchmarks, teaching methods, and learning opportunities which provide opportunities for students to self-assess |
|  | Unacceptable □ | Acceptable □ | Target □ |
| **Instruction****15%** | Candidates primarily select teacher-centered approaches to instruction | Candidates select one or more student-centered approaches to instruction | Candidates plan to engage students in critical thinking and problem solving, and communicate with students to foster collaboration and develop performance skills |
|  | Unacceptable □ | Acceptable □ | Target □ |
| **Rationale****(20%)** | Candidates’ rationale does not reflect on content and teaching in terms of learning for students and teachers | Candidates’ rationale reflects on content and teaching and use assessments to plan further instruction | Candidates’ rationale reflects on content and teaching in terms of learning for students and teachers, and use assessment to improve planning and student learning |
|  | Unacceptable □ | Acceptable □ | Target □ |
|  | Overall Unacceptable □ | Overall Acceptable □ | Overall Target □ |