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| **Lesson Title: Plant It!** |  |
| **Grade Level:** First | **Quarter:****Fourth** |
| **Standards:** S1L1. Students will investigate the characteristics and basic needs of plants and animals.* Identify the basic needs of a plant.
* 1. Air
* 2. Water
* 3. Light
* 4. Nutrients

c. Identify the parts of a plant—root, stem, leaf, and flower |
| **Lesson Essential Question:** **EQ: How can I design a model of a plant?****EQ: How can I create a garden guide to teach others about caring for a garden?**  | **Vocabulary:**Air, water, light, nutrients, root, stem, leaf, flower |
| **Lesson Materials**Construction paper, craft sticks, paper rolls, pipe cleaners, glue, brass fasteners, hole punch, plastic bottles, Styrofoam cups, cardstock, tape, string/yarn, Unifix cubes, stapler | **Lesson Assessment:** Teacher ObservationGarden GuideModel of a plant |
| **STEM Challenge Overview:**You have been learning about plants. You have learned about all the parts of a plant (root, stem, leaf, and flower) and what plants need to survive. Today you will begin a new plant challenge! This challenge was based on “Growing Plants” that can be found at: <http://www.childrensengineering.com/DB-GrowingPlants.pdf> |
| **Teacher Background:**The students should have had lessons all about parts of a plant and how plants grow. Students should have conducted experiments to find out what plants need to survive. Students should be able to explain what a plant needs to grow.  |
| **INSTRUCTION** |
| 1. **Ask/Engage (Day 1-20 Minutes)**
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| * Begin by playing the Dr. Jean song, <https://www.youtube.com/watch?v=sXrnHff2Kjc>
* During the song have students stand up and dance to the parts of a plant.
* Flower-Hands connected over their heads in a circle
* Stem-Stand up straight
* Leaves-arms move side to side
* Roots-feet move quickly
* After the song have students talk with a partner what they know about plant parts. Show a plant that you may have been growing in your class and ask the students what they have to do to make sure it survives. List their answers on the board.
* Now introduce the challenge:

A local botanist needs your help. Home Depot has hired the botanist to teach a weekend class to help others plant wonderful gardens. The problem is he/she doesn’t have a model of a plant to teach other gardeners all about plants. The botanist needs you to create a model of a plant that includes each part of a plant; stem, root, leaf, and flower. You will also need to provide a “Garden Guide” that will teach other gardeners how to take care of their garden. You will need to use all the information you learned about needs of plants to create this. You can work with a partner or in groups. Have fun!  |
| 1. **Imagine/Brainstorm (Day 2, 20-30 minutes)**
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| * Introduce the constraints of the design plan. Define the criteria for success.

Your plant must: * Have roots, stem, flower, and leaves
* Be at least 12 Unifix cubes in length
* Be colorful and look good

Your Garden Guide must: * Describe why a plant needs air, water, light, and nutrients to grow
* Pictures that show parts of a plant labeled
* Include 2 photographs you find online
* Ask each student to work independently to come up with 1-2 possible design solutions. Students should draw/label their designs*.* After students complete their brainstorm have them get into groups of 2-3.
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| 1. **Plan/Design (Day 2 continued)**
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| * Each student presents their ideas to their team.
* Student teams collaborate to come up with final design plan.
* Students draw final design plan and make a list of needed supplies.
* Let students explore and get their materials prior to creating their design. This will save time during the next session.
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| 1. **Create / Test (Day 3-5 30 minutes) The garden guide most likely will take more time than the model. This could be done during your guided writing time also.**
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| * Student teams build their design according to their design plan.
* When students complete their model they will then create their “Garden Guide”
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| 1. **Evaluate/Improve –** and repeat Steps 1-5
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| * Students evaluate their design for success. Did it meet the established criteria? Did their final design match their planned design? How would students improve their design?
* Students will present their models and “Garden Guides” to another group or they present to the whole class.
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