

## JSD 3D Learning Activity Template

**Grade:** 6th

**Title:** Observing Competition Among Plants

**Utah Science with Engineering Education Standard (SEEd):** 6.4.2 Construct an explanation that predicts patterns of interactions among organism across multiple ecosystems. Emphasize consistent interactions in different environments, such as competition, predation, and mutualism.

**Key crosscutting concept(s) (CCC):** Patterns; Cause and Effect

**Key science and engineering practice(s) (SEP):** Constructing explanations

**Materials:** journals, clipboards, pencils, research resources (Internet, books, textbooks, etc.), iPad or iPhone cameras—one per group, books or papers that have pictures and names of common plants and trees.

**Time:** Three 60 minute periods

**Teacher background, key content information and hints:**

Different species living in the same environment or habitat may require the same resources. When the resources are limited, competition occurs among those different species. Competition for the same resources can also be a struggle between organisms of the same species also. Bottom line is, the more similar the needs of the species the more intense the competition.

If a tree species in a dense forest grows taller than surrounding tree species, it is able to absorb more of the incoming sunlight. Smaller plants then die because of the less light. Leopards and lions can also be in competition, since both species feed on the same prey and can be negatively impacted by the presence of the other because they will have less food. Thus, the population cannot thrive but remain constant.

**Prior knowledge that students need:** Students need to know what happens when there is competition between different species and competition between the same species.

### Learning Activity Plan

***These three aspects of a lesson should be identified in your learning activity.***

***Gathering:***

As students are walking through their neighborhoods, through parks, or even in forest areas, they can ask questions as to why some plants are doing well and why some are not. One would be why grass does better in the sun that under a tree.

As the students recognize certain plants that are doing well and not

***Reasoning:***

After the students have gathered data on the plants doing well and not doing well, they can evaluate and analyze the data to determine why the plants are and aren't doing well. The students will then construct explanations and develop arguments for the completion between plants for the resources they need to sustain life. Students can draw models of their data.

***Communicating***

Students will communicate their information through their evidence and models they have made. The students need to communicate involving the competition between plants for survival.

doing well, they can do research on what the needs of these plants are. The students will gather data and identify the needs of the plants.		
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**Phenomenon:**

When taking a walk through a park, neighborhood, or forest, some plants are doing well and some are not.

**Learning Activity:**

1. Talk to the students about competition between plants to survive, that some get all they need and some don't.
2. Students will be taking a walk through a neighborhood or park that has many plants of all kinds and many trees of all kinds.
3. As the students walk, they are to take notes in their journals as to which plants are doing well and not doing well. They may want to take samples if permissible and bag them. They can take pictures with an iPhone or iPad.
4. By the use of books or pictures of common plants and trees, the students can identify the plants so they can do research on them when they get back to class.
5. When the students have found at least four plants that are doing well and at least four plants that are not doing well and have taken pictures and tried to identify them, they are done.
6. Also, the students need to gather data as to why each of the plants are doing well and why each of the plants are not just by observation at this time.
7. At the classroom, the students begin do research and gather data on the needs of the plants. They can look at the pictures they took to look for evidences if the plants needs are being met.
8. When they have identified the evidences, they can analyze the evidences and come up with conclusions as to why the plants are doing well. They need to use completion between the plants that will illustrate these evidences.
9. The students will draw models of their conclusions.

**Assessment of student learning**

The students will show that they are able to find evidences of competition between plants. Those that don't do well are getting less of the components needed for survival than the plants that are. They will need to show these evidences with a model and argument.

## **Student Sheet**

### **Title:**

Observing Competition Among Plants

### **Introduction:**

Different species living in the same environment or habitat may require the same resources for survival. When the resources are limited, competition occurs among those different species.

### **Materials:**

journals, clipboards, pencils, research resources (Internet, books, textbooks, etc.), iPad or iPhone cameras—one per group, books or papers that have pictures and names of common plants and trees.

### **Procedures:**

#### **On the walk about the neighborhood:**

1. You will be taking a walk through a neighborhood that has many plants of all kinds and many trees of all kinds.
2. As the you walk, you are to:
  - a. Take notes in your journals as to which plants are doing well and not doing well.
  - b. If it is permissible, take samples and bag them.
  - c. Take pictures with an iPhone or iPad of the plants you have identified.
3. By the use of books or pictures of common plants and trees, try to identify the plants so you can do research on them when you get back to class.
4. During the walk try to find at least four plants that are doing well and at least four plants that are not doing well.
5. Be sure to take pictures of them.
6. When you are observing, you need to gather data of the circumstances the plants are in so you can make conclusions.

#### **Back at the classroom**

7. At the classroom, the you will begin your research and gather data on the needs of the plants types of plans you identified.
8. Look can at the pictures you took to look for evidences if the plants needs are being met.

9. When you have identified the evidences, you are to analyze the evidences and come up with conclusions as to why the plants are doing well and not doing well. You will need to use the idea of the competition between the plants that will illustrate these evidences.
10. Draw models of your conclusions.
11. Present your conclusions with your argument in class by using your models.