

JSD 3D Learning Activity Template

Grade: 6

Title: Bee Keeping

Utah Science with Engineering Education Standard (SEEd): 6.4.1 Analyze data to provide evidence for the effects of resource availability on organisms and populations in an ecosystem. Ask questions to predict how changes in resource availability affects organisms in those ecosystems. Examples could include water, food, and living space in Utah environments.

Key crosscutting concept(s) (CCC): Cause and Effect

Key science and engineering practice(s) (SEP): Asking Questions and Defining Problems; Analyzing and Interpreting Data; Constructing Explanations and Designing Solutions; Obtaining, Evaluating, and Communicating Information

Materials: Data table, situation cards

Time: 20 minutes

Teacher background, key content information and hints: Within an ecosystem, organisms will also vary depending on the availability of resources. If an ecosystem changes, it can cause changes to the population of organisms in that ecosystem. For example, if fertilizers from agricultural runoff enter a freshwater pond, it causes more algae to grow. Algae blocks sunlight from reaching the bottom of the pond. The growth of organisms, living on the bottom, which require sunlight is limited. Droughts, many years with significantly less precipitation, can also cause changes to an ecosystem.

Prior knowledge that students need: Students shouldn't need prior knowledge.

Learning Activity Plan

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

Gathering: *(Obtain Information, Ask Questions/Define Problems, Plan & Carry Out Investigations, Use Models to Gather Data and Information, Use Mathematics/Computational Thinking.)*

Reasoning: *(Evaluate Information, Analyze Data, Use Mathematics/Computational Thinking, Construct Explanations/Solve Problems, Develop Arguments from Evidence, Use Models to Predict & Develop Evidence.)*

Communicating: *(Communicate Information, Argue from Evidence (written & oral), Use Models to Communicate).*

Phenomenon:

People tend to be afraid of bees, but they help to pollinate different plants which helps provide us with food. How does their food supply affect them?

Learning Activity:

Gathering: Students will look at the data table to gather information and bees and their habitats/food.

Reasoning: Students will answer questions with their partner, given the situation on their assigned card.

Communicating: Students will present to the class their findings.

Assessment of student learning

Students will do an exit slip. Have them write their answer to the question “ How do different types of plants affect bees?” They should be able to tell that bees would benefit from having certain plants grow/would suffer from losing certain plants.

Bee Keepers

Habitat and Food Requirements by Bee Type

	Bumblebee	Digger Bee	Carpenter Bee	Mason Bee	Yellow-faced Bee
Flowers					
Catalpa			X		
Catnip	X	X		X	
Clover		X			
Columbine	X				
Cow Parsley					X
Goldenrod	X	X			
Impatiens	X				
Irises	X		X		
Lavender	X	X	X		
Penstemon	X	X		X	
Passion Flowers			X		
Phacelia	X	X		X	
Potentilla					X
Rose	X	X	X	X	X
Salvia	X	X	X	X	
Saxifrages					X
Sunflowers	X	X	X		
Wild Mustard		X			
Crops					
Almond	X			X	
Apple				X	
Blueberry	X	X			
Cherry				X	
Eggplant	X		X		
Gooseberry	X				
Legumes	X				
Watermelon	X		X		
Squash/Gourds			X		
Tomatoes	X	X	X		
Thyme	X			X	X

<p>What would the benefits be of planting Cow Parsley, Roses, and Saxifrages be?</p>	<p>If tomatoes were unable to grow this season, what would happen?</p>
<p>If you were to keep bumble bees, what things should you plant?</p>	<p>What would the benefits be of planting Roses, Passion Flowers, and Irises be?</p>
<p>In your garden, you have an apple tree, a cherry tree, and thyme growing. What will happen?</p>	<p>What would happen to Carpenter Bees if watermelon and squash didn't grow well this year?</p>
<p>If you were to keep Digger Bees, what kinds of things should you plant?</p>	<p>What would happen if Thyme, Cow Parsley, Potentilla, Roses, and Saxifrages stopped growing in Utah?</p>