



Bio/Diversity Project How Far Do Plants Travel?

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Grade Level: 6th grade – 8th grade

Common Core Standard:	<ul style="list-style-type: none"> • <i>CCSS.ELA-Literacy.W.8.1: Write arguments to support claims with clear reasons and relevant evidence.</i>
Content Objective: Science	<ul style="list-style-type: none"> • <i>Students will understand the importance of the services that biodiversity provides, particularly provisional services.</i>
Language Objective: (Optional)	<ul style="list-style-type: none"> • <i>Students will write a one to two page essay on a specific example of a provisional service that humans are dependent upon, and will explain how humans use this service.</i>

Vocabulary	Materials
<ul style="list-style-type: none"> • Biodiversity • Natural Services <ul style="list-style-type: none"> - Cultural Service - Habitat Service - Provisional Service - Regulating Service 	<ul style="list-style-type: none"> • PowerPoint presentation: How far do plants travel? • Class set of Almond Joys (fun size) • Utensils that can be used to dissect the Almond Joy • Globe or world map • Labels of five ingredients to place on a map: <ul style="list-style-type: none"> - Almonds - Chocolate - Coconut - Sugar - Vanilla
Guiding Questions:	
<ul style="list-style-type: none"> • How do humans benefit from biodiversity? • What type of natural service do you think that humans benefit from the most? Why? 	

Engagement/Introductory Activity:

- Warm-Up: “Complete the sentence: Biodiversity is _____.”
- Review the definition of biodiversity and introduce the idea that biodiversity provides natural services.
- Define what a natural service is, and explain the different types of natural services provided in biodiverse environments (provisioning, regulating, habitat, and cultural) – use the PowerPoint presentation *How far do plants travel?* to guide this discussion.

**Exploratory Activity:**

The 'Dissect an Almond Joy' activity focuses on provisioning services (because they are the natural service most exploited by humans) and will demonstrate how people have tapped into the biodiversity available around the world. Use the PowerPoint presentation *How far do plants travel?* as a guide to the dissection activity to discuss the origins of the five main ingredients in the candy: chocolate, almonds, coconut, vanilla, and sugar. The activity will examine where the Hershey's company gets its ingredients from, and will lead to a comparison between the origin of the ingredients and where they have traveled to.

- Show students the wrapped Almond Joy bar and ask them where it came from. The most likely response is "the grocery store", but ask them for a more detailed answer – Where did it come from before that? Ask one of the children to read the wrapper where it says "Made in Hershey, Pennsylvania".
- Probe students farther by asking if the whole bar (ingredients included) were made in Hershey, Pennsylvania.
- Open the candy bar wrapper and discuss each of the five main ingredients. What parts of the world did each ingredient originate in? Have each student unwrap their own candy bar and follow along. As you point out the ingredients the class can begin dissect the candy bar and separate out the ingredients.
- Ask the students to hypothesize as to where each ingredient came from. Remind them that making hypotheses (educated guesses) is an important part of what scientists do and they should not be worried about incorrect guesses.

Extension Activity/Questions:

- Once each ingredient has been discussed, place a label on a globe or map to illustrate how far each one had to be moved to become part of the candy bar.
- Bring the discussion back to biodiversity by asking the students the following questions: What plant ingredients are in an Almond Joy bar? Where do these plants originate? Can you think of other plants (and their origins) that are used in common foods or in other products that you use frequently?

Evaluation Activity:

- Ask students to list three examples of natural services provided by biodiversity and their importance to humans.
- Students will write a one to two page essay on a specific provisional service that humans are dependent upon and how we use this service. Ask students to include a hypothesis on would happen to humans if we didn't have access to the service, and whether this may a possibility either now or in the near future.