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EED 480  
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Student Project-Based Learning Outline

- I. **Title and Grade Level:** Deforestation, 1<sup>st</sup> grade
- II. **Big Idea:** Why do we need trees? Why are trees beautiful? What do you think would happen to the animals that live in trees if we cut down the trees?
- III. **Tasks:** We will do the following activities:
  - A. Celery Experiment
  - B. Plant a seed
  - C. Informative Poster
- IV. **Justification** In this lesson series, students will learn how cutting down trees displaces animal habitats. Students will begin by appreciating the beauty of trees and engaging in a celery experiment to understand the properties of plants.
- V. **Standards:** Grade Level and Subject Area  
ELA/Literacy:  
*CCSS.ELA-LITERACY.SL.1.1*  
*Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.*  
*CCSS.ELA-LITERACY.SL.1.2*  
*Ask and answer questions about key details in a text read aloud or information presented orally or through other media.*  
Social Studies: These lessons will help students understand how physical environment affects the way people live because people need shelter which is provided through trees that are being cut down.  
*Describe how location, weather, and physical environment affect the way people live, including the effects on their food, clothing, shelter, transportation, and recreation.*  
NGSS (Next Generation Science Standards): These lessons focus on how plants and animals use external parts to help them survive and grow. Students will understand that animals use their environment to meet their needs.
  - ★ *1-LS1-1.* Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.**A. Disciplinary Core Ideas**  
Structure and Function: In this lesson, students will understand that plants have a structure and their different parts help them survive and grow. In our celery experiment students will learn how a celery's stem helps it take in water.
  - ★ *LS1.A: Structure and Function:* All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)

**A. Science Engineering Practices**

*Constructing Explanations and Designing Solutions*

Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1)
- Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)

**B. Crosscutting Concepts**

*Patterns:* Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2),(1-LS3- 1)

*Structure and Function:* The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)

Commented [BSF1]: Very well-selected and aligned standards for your PBL, Marlene. Well done!

**VI. Engaging Context:** Hook- Launch Activity

Students will be engaged through the celery experiment. They will understand the basic structure of plants. Plants have roots and take in water.

**VII. Measurable Objectives**

- A. Students will understand that stems take in water by observing the color change in the celery experiment.
- B. As the culminating activity of this PBL students will create a project or presentation that meets the objective of the Big Idea: Students will understand that cutting down trees affects animals because it displaces them from their home.
- C. Students will explore solutions to helping the environment.
- D. Students will create an informative poster about deforestation.

**VIII. Total Time:** 5 days (50 minutes each day)

**IX. Social Skills and or Habits of Mind to Engage/Assess**

<input type="checkbox"/> Persistence	<input type="checkbox"/> Problem posing
<input type="checkbox"/> Decreasing impulsivity	<input type="checkbox"/> Drawing on past knowledge
<input type="checkbox"/> Empathic listening	<input type="checkbox"/> Application to new situations
<input type="checkbox"/> Flexibility in thinking	<input type="checkbox"/> Precision of language and thought
<input type="checkbox"/> Metacognitive awareness	<input type="checkbox"/> Using all the senses
<input type="checkbox"/> Checking for accuracy	<input type="checkbox"/> Ingenuity, originality, insightfulness and creativity
<input type="checkbox"/> Questioning	<input type="checkbox"/> Inquisitiveness, curiosity
	<input type="checkbox"/> Enjoyment of problem solving

X. Level of Noise Appropriate for Activity:

## Noise Levels

	<b>SILENT MISSION:</b> Silent - No talking at all
	<b>TOP SECRET PLAN:</b> Quiet - Only you and a partner
	<b>SUPER TEAM TASK:</b> Normal - Just your table team
	<b>POWER VOICE:</b> Strong - Hear it across the room
	<b>BIONIC NOISE:</b> Loud - Only used outside

XI. Materials List

- ★ A stalk of celery
- ★ Red, blue, and yellow food coloring
- ★ 6 clear cups filled with water
- ★ Plastic knife
- ★ *The great Kapok Tree: A Tale of the Amazon Rainforest*
- ★ Chart paper
- ★ Markers and crayons
- ★ Seeds
- ★ Pots
- ★ Water

XII. **5-E Framework**

**Engage Day 1**

- ★ We will do the Celery Experiment so students can understand the structure of plants.
- ★ I will pose the question: “How do plants get water?” and “What do you think would happen if we added dye to the water?”

**A. DIRECT INSTRUCTION:** I will use a human line graph to form groups. I will assign and describe roles and tasks.

**Materials Manager/ Spy Tasks:** The materials manager is in charge of grabbing materials for their group. They are to make sure there are no spills and that everything is cleaned up afterward. The spy will walk around to see what other groups are doing.

**Checker's Tasks:** The checker will make sure everyone is on task and will let the teacher know when tasks are complete.

Commented [BSF2]: I like this additional task.

**Recorder's Tasks:** The recorder is in charge of writing down the team's observations for the color change of the celery.

**Encourager/Observer's Task:** Coach the team to persevere and stay together while sharing and turn-taking. Notice, identify and record occurrence of team members' social skills and habits of mind.

### Explore

We will use our inquiry skills of predicting (hypothesis testing) comparing and analyzing to investigate how water travels up a stem. Students will work in their groups to set up the experiment and to make predictions.

6 groups of 4 students.

### Explain Day 2

As students complete the launch and inquiry activity, they will share their prior knowledge and observations and question to explain why the celery changed color after adding dye to the water.

Students will report their observations and findings in a group.

### Extend/Elaborate:

In small groups and in the final performance students have opportunities to extend their knowledge and to elaborate on their ideas. The teacher provides mini-lessons as needed to scaffold student thinking and understanding.

### Day 3

- ★ I will read *The Great Kapok Tree* and hold a discussion on why rainforests are important.
  - Students will respond to the text in their journals by writing reasons we should not cut down trees.

Commented [BSF3]: You know I love this text☺

### Day 4

- ★ Discuss animal habitats. Take students out for a walk around the school. Have them observe what kinds of animals live in the trees. Have students record the animals they see on a sheet of paper and ask how those animals benefit from the trees. What would happen if we cut down those trees in our school?
- ★ Show students kid friendly pictures of deforestation.
- ★ Have students brain storm ideas about what they can do to help the environment.

Commented [BSF4]: Wonderful inclusion!

**Day 5**

- ★ Students will plant a seed and create an informative poster on deforestation in their cooperative groups.
- ★ Students will display posters along with their newly planted seed.

**Evaluate (Assess)**

Content Formative Assessment: Students will write in their journals and keep analysis and observation sheets.

Content Summative Assessment

Formative Assessment of Non-Cognitive Factors

**Cooperative Learning Checklist**

Group Member Name	Following the rules	Worked well with other and listened to everyone's ideas	Stayed on task	Encouraging
1.				
2.				
3.				
4.				

Commented [BSF5]: See if you can come up with images for each category that reflects the work they are doing on trees.

<b>Criteria</b>	<b>Not Yet 1</b>	<b>Almost There 2</b>	<b>Got It! 3</b>
Did the student participate cooperatively in the group?	Evidence of many problems with cooperation in the group.	Some problems that were overcome in the cooperative group.	The group showed strong evidence of cooperation and achievement.
Did the group follow instructions?	The group showed evidence of confusion with instructions; minimal evidence of analysis and observation in reporting answers to questions.	Directions were followed well. Required questions were answered satisfactorily with evidence of analysis and observations.	Directions were followed well. Answers to required questions were excellent with strong evidence of analysis and observations.
Did the group create an informative poster on deforestation?	The poster is unfinished and/or students did not demonstrate understanding of deforestation.	The poster shows a before and after setting demonstrating that students understand deforestation.	The poster is neatly colored, and it shows a before and after setting demonstrating that students understood deforestation. There is a hook or slogan.

Children's Literature that Supports the PBL: *The Great Kapok Tree* by Lynne Cherry