Lesson: Land's Wonders and Worries: Sustainable Table

Topic/Essential Questions: How has human land use affected the watershed?

Content Standards:

Science

3.4.E.1 Recognize food as the source of materials that all living things need to grow and survive.

6.4.B.1. Recognize and describe that people in Maryland depend on, change, and are affected by the environment.

• Environmental Literacy

- 5.A.1. Analyze the effects on human activities on earth's natural processes.
- 1.A.5.f. Make recommendations supported by data to help address or resolve the issue.

Lesson Sequence: This lesson is one of three in the "Land's Wonders and Worries" module based at Arlington Echo Outdoor Education Center. The lesson's focus is environmental impact of food choices.

Length of Lesson: 35 minutes

Student Learning Outcome: The student will follow a recipe to prepare food, explain the environmental impact of food production and distribution, and learn options of food choices that have low environmental impact.

Knowledge of the Learner:

- Prerequisite knowledge, skills and processes: Students will complete an introductory activity that introduces what a watershed is and view a map of the Chesapeake Bay Watershed.
- Student needs, interests, previous learning: Conduct pre-assessment to see level of prior knowledge and address any special needs of students that might need modification.
- Conceptual difficulties: relating production, packaging, and transportation to the cost of and ecological impact of foods on the table
- Differentiation: Students are 4th graders, with a diversity of backgrounds and skill levels.

Knowledge of the Content: Students will be exploring the connection between buying locally grown produce and the impact on the Chesapeake Bay. Since it involves making something they will eat, students will be engaged the whole time. By choosing local foods, students will be able to make wise choices that impact their health and the health of the bay.

Vocabulary:

Sustainable Local Transportation Production

Materials:

Cooking supplies: bowls, utensils, measuring cups etc. depending on recipe.

Recipe and ingredients Maryland agriculture map Map of the USA Seasonal produce chart

Lesson Setup

Setup varies with the recipe. Lay out recipes, ingredients and utensils on the table. Have the poster and maps on a viewable easel. Have all students wash their hands when they arrive.

Instructional Delivery

Pre-Assessment

Ask "How many students have a garden?" "How many students have been to a farm or farm stand?" What are students' favorite local fruits and vegetables?

Motivation/Warm-up:

- 1. Holding up the local produce for the recipe, "Who knows what this is?" Tell students they are going to be the chefs today who are making something with this ingredient. "What should you do first?" (Look at the recipe, acquire materials, etc.)
- 2. Have the students look at the recipe and read the ingredients. If you must double or multiply the recipe, have students do math to get the correct amounts. Have the students be active participants in the process of making the recipe. They can measure the ingredients and begin mixing. (Some recipes will need some explanation of knife safety before beginning.)

Lesson

- 3. Follow the recipe, allowing every student to help out in some way. Students may wash produce, chop, grate, or slice produce, and mix ingredients. Allow students to try ingredients when possible. When finished: if the food item will be cooked, set aside for kitchen staff to bake it for dessert; if not, eat and enjoy.
- 4. After the recipe has been prepared, move to the United States map to discuss where food is grown and produced. Engage students in some of the following topics. Point out that many products are grown on the west coast. "Does anyone know this state?" *California*. Talk about how produce gets to our houses in Maryland. *Plane, train, or truck*. These forms of transportation use what? *Fuel/gas* Distance from coast to coast? *About 3,000 miles*. "Leaving what in the air?" *exhaust, pollution (fossil fules)*
- 5. Where could we get food from so that we don't have such an impact on the environment? Closer to home, "Local food means it was grown close to you. The ingredient we used today was grown in ______. Have students point out Maryland on the map and discus the shorter travel distance, less pollution, fresher food that was picked recently. "What other produce is grown in Maryland?" Use the seasonal produce chart as a guide. Discuss why things like bananas, oranges and lemons are not locally grown.
- 6. Introduce term **Sustainable** use definition card

 A way of harvesting a resource that does not use up or completely destroy the resource for future generations.
- 7. To reinforce the term ask "Who knows the story of the Lorax?" "Were the Truffula trees harvested sustainably?" No they were all cut down before they had a chance to reproduce. "How could they be more sustainable?" only harvest the tops of the trees instead of cutting the whole tree down, and plant more trees than are cut down.

Assessment

- Have students complete Journal page 10 (Supplement A)
- Ask students about the benefits of eating local foods. You may guide the discussion using the following questions.
 - When we buy foods that are imported across the country, how does that impact our environment? (uses lots of gas, vehicles emit fumes, food not as fresh due to long travel times, extra package to travel farther distances, chemicals could be used to force produce to ripen)
 - What options are there to buy produce? (buy local produce from store, go to farmer's market, grow your own)
 - O What can you do at home or at school to make wise food choices to protect the bay and have a "Sustainable Table"? (Use reusable bags, buy products with less packaging, refuse a bag when not needed, reduce the amount of food that is wasted, and teach others what you have learned)
- If time allows use True/False questions to reinforce the topics discussed. (Supplement B)

Supplement A

Sustainable Table

What I made:	
Local ingredients:	43
My favorite produce from Maryland is	
Its yearly harvest is in	
One way my family could have a sustainable table is	