

Resourceful Bean

Grade Level: 3 rd -5 th	Topic: Soybeans	Estimated Time: 50 minutes
<p>Brief Lesson Description: Explore renewable and non-renewable resources through an investigation of soy-based materials. First, students will learn the steps a soybean takes from farm to final product. Then, students will carry out a test to observe differences between a soy crayon and a petroleum-based crayon. Finally, students will assist in making their own soy-based lip balm. Throughout the lesson, agricultural career connections are made and Michigan agriculture facts are shared.</p>		
<p><u>Next Generation Science Standards:</u></p> <p>Performance Expectation(s):</p> <p>3-5ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</p> <p>4-ESS3-1: Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</p> <p>5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</p> <p>5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p> <p>5-PS1-2: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.</p> <p><u>National Agricultural Literacy Outcomes:</u></p> <p>T2.3-5 b: Distinguish between renewable and non-renewable resources used in the production of food, feed, fuel, fiber (fabric or clothing) and shelter.</p> <p>T4.3-5 d: Provide examples of science being applied in farming for food, clothing, and shelter products.</p> <p>T5.3-5 b: Discover that there are many jobs in agriculture.</p> <p>T5.3-5 d: Explain the value of agriculture and how it is important in daily life.</p>		
<p><u>Specific Learning Outcomes</u></p> <p>Students will:</p> <ol style="list-style-type: none"> 1. Arrange the processing steps of a soybean from farm to final product. 2. Compare petroleum and plant-based crayons by running a series of tests and comparing the results. 3. Identify renewable and nonrenewable resources. 4. Name two careers involved in the making of soy-based materials. 5. Predict changes in states of matter when a solid is heated or cooled. 		
<p>Narrative / Background Information</p>		
<p>Prior Student Knowledge</p> <ol style="list-style-type: none"> 1. Students should be familiar with: <ol style="list-style-type: none"> a. Basic role of a farmer b. Plants are living organisms c. Basic role of a scientist 		