### Resourceful Bean

<table>
<thead>
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<th>Grade Level: 3rd-5th</th>
<th>Topic: Soybeans</th>
<th>Estimated Time: 50 minutes</th>
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**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.

**Next Generation Science Standards:**

- **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.
- **4-ESS3-1:** Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
- **5-PS1-4:** Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

**National Agricultural Literacy Outcomes:**

- **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.
- **T4.3-5 d:** Provide examples of science being applied in farming for food, clothing, and shelter products.
- **T5.3-5 b:** Discover that there are many jobs in agriculture.
- **T5.3-5 d:** Explain the value of agriculture and how it is important in daily life.

### Specific Learning Outcomes

**Students will:**

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.