



STEAM *with* Soybeans



About this Kit

Explore the World of STEAM with Soybeans! This kit contains the essential non-perishable materials for up to eight groups of middle/high school students to engage in the STEAM with Soybeans lessons and lab activities. Access all three lessons, complete with educator guides, presentation slides, student worksheets, and reading activities, for free at bit.ly/SoybeanSTEAM.

The lessons and kit materials have been provided by Wisconsin Agriculture in the Classroom with funding from the Wisconsin Soybean Marketing Board and the Wisconsin Farm Bureau Foundation.

Kit Contents

This kit is for you to keep. Review all lesson materials and collect any extra lab materials required for each lesson and activity.

- Most replacement items can be purchased at your local hardware or general store, or order from your favorite online retailer.
- Smaller materials have been divided into lab-specific bags for your convenience. Larger items, are not in lesson-specific bags due to size restrictions, but are included in the kit.
- Keep all contents of this kit in a dry and cool area. Do not allow contents to freeze.

From Farm to Form

- (1 bottle) White vinegar
- (1 bottle) Soy (vegetable) oil
- (8) Sandwich-sized plastic bags
- (2 boxes) Food coloring
- (1 container) Cornstarch
- (8 sets) Measuring spoons
- (16) Wooden spoons

The Great Seed Showdown

- (16) 8" Peat pots
- (8) Trays
- (16) White plastic labels
- (1 bag) GMO Soybeans
- (1 bag) Non-GMO soybeans
- (8) Bowls
- (8) Water spray bottles
- (1) Grow light
- (8) Moisture sensors

Digging Deeper

- (1 bag) Bag of sand
- (8) Graduated cylinders
- (24) Coffee filters
- (8) Stopwatches
- (24) Plastic cups (beaker alt.)



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Topics of Exploration

Lesson: From Farm to Form - Bioplastics

This lesson explores the journey of soybeans from the farm to their transformation into bioplastics. Students will:

- Learn about the properties of bioplastics
- Conduct experiments to create their own bioplastic using soybeans
- Discuss the environmental impact of bioplastics vs. traditional plastics

The Great Seed Showdown: GMO vs. Non-GMO

In this lesson, students will investigate the differences between GMO and Non-GMO soybeans. Activities include:

- Comparative growth studies of GMO and Non-GMO plants
- Analyzing the benefits and concerns of GMO crops
- Engineering Design Challenge

Digging Deeper: Exploring Water and Nutrient Retention in Soil to Improve Soybean Growth

In this lesson, students will investigate the soil's impact on soybean growth through experiments and data analysis, teaching students to optimize soil conditions.

Students will:

- Describe the importance of water and nutrients for soybean growth
- Conduct an experiment to test the water retention capacity of different soil types
- Analyze data to compare water and nutrient retention in different soil types

Get the Free Lessons!

- Detailed lesson plans include educator guides, presentation slides, keys, student worksheets, grading rubrics and reading activities.
- Step-by-step instructions and pictures for all experiments.
- All lessons are aligned to Wisconsin Science Standards and were designed and tested by Wisconsin science educators.
- Access at bit.ly/SoybeanSTEAM

Learn more at wisagclassroom.org