Lesson 2: Biobased bubbles

In this lesson students explore an alternative method for producing bubbles. Students compare and contrast the performance characteristics of bubbles made with environmentally-friendly materials vs. those made conventionally.

Sequence
Lesson 2 of 2 in the unit, Soy-Stainable

Time
One 50-minute period.

Grade Level
5-12 with differentiation

Materials
Vegetable glycerin
Graduated cylinder
Bubble bottles
Biobased dish soap (7th Generation)
Sugar
Pipettes
Balance

Objectives/Target
Using laboratory equipment, students will formulate and produce bio-based bubbles.

Students will test the characteristics of their bio-based bubbles against the characteristics of store-bought, conventional bubbles.

Vocabulary
Bio-based, glycerin, toxic, non-toxic, solution

Prior Knowledge
Students should have an understanding of what store-bought (conventional) bubbles are made from. If the students are not familiar with store-bought bubbles, the lesson allows for students to be engaged regardless of knowledge coming into the lesson.

5E Plan

Engage
Ask students if they've played with or used store-bought bubbles before. While discussing student responses, transition the discussion to address whether students think they can make bubbles out of other materials that they may have at home. Students may mention that they've made bubbles in the sink with soap and water. Ask students how this may be possible, or even what the soap they are using is made of.

Explore
Complete the procedure on the Biobased Bubbles student document. While students are completing the laboratory procedure, it is advised that students record observations and data in a notebook or graphic organizer.

Explain
Students should collect quantitative measures regarding the time the bubble lasts before bursting, the bubble weight, and bubble size. Students should also collect qualitative data about the bubbles they produce, including size, reflectiveness, and other things they notice.

Students should compare their data to similarly-collected data of store-bought bubbles.

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After students have recorded their data, students should make a claim about the characteristics of bio-based bubbles vs. store-bought bubbles.

Extend
Ask your students if they can make bubbles out of any other materials. If they think they can, have them come up with an experimental procedure for creating those bubbles.

Ask students why it might be important to use a bio-based formula for producing bubbles over the conventional formula for producing store-bought bubbles.

Evaluate
Assess student responses during class discussion about quantitative and qualitative data.

Collect and assess student data sheets and/or graphic organizers to ensure students demonstrate mastery of data collection.

Assess student claims of bio-based bubble characteristics vs. conventional formula bubble characteristics.