Lesson Title	Unit Conversions: Creating Oobleck, Goop and Glurch
Length of Lesson	90 minutes
Created By	Erin Anderson
Subject	Chemistry
Grade Level	9-12
State Standards	2a., 2b.
DOK Level	2 & 3
DOK Application	Investigate, differentiate
National Standards	B: Physical Science
Graduate Research Element	Precise measurements must be taken when doing lab work, especially with standard creation for the microelectrodes. Microelectrode standards must be carefully created, because of the minute concentrations of oxygen and sulfide that are measured. Sulfide is especially difficult to accurately measure, because it oxides to sulfate in the presence of oxygen. Sulfide and oxygen concentrations in porewaters fluctuate and must be measured to help determine the health of a bay/marsh.

Student Learning Goal:
English units will be correctly converted into metric units. If calculations were off, students should be able to identify which ingredients were incorrectly measured.

State Standards:
2a. Choose the most appropriate SI unit of mass, length or volume of an object.
2b. Define the common SI prefixes used in chemistry and interconvert, using the factor-label method (dimensional analysis) to obtain the desired unit in solving problems.

National Standards:

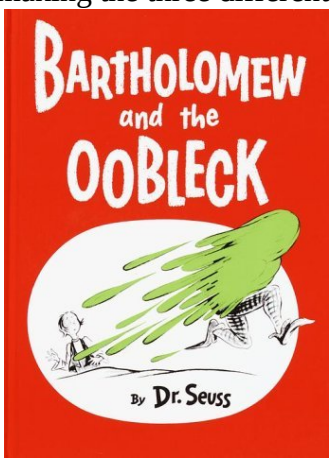
A. Mathematics is essential in scientific inquiry. Mathematical tools and models guide and improve the posing of questions, gathering data, constructing explanations and communicating results.

Materials Needed (supplies, hand-outs, resources): Set of metric measuring spoons, safety goggles, food coloring, recipes for oobleck, goop and glurch (see attached). Ingredients that are needed: liquid starch, table salt, cornstarch, water, Elmer's white school glue, Borax powder, Clear 16-oz. plastic cups, paper towels, zipper-type freezer sandwich bags, Wax paper, Ruler, Markers.

Lesson Performance Task/Assessment: A recipe for Oobleck, Goop and Glurch will be provided in English units of measurement (attached). Beside the units will be a blank space for students to convert into metric units and write down the metric measurement and corresponding SI unit. If the students have calculated correctly, they should create pristine Oobleck, Goop and Glurch.

Lesson Relevance to Performance Task and Students:
Recall and application of unit conversions and appropriate SI units.

Anticipatory Set/Capture Interest:
Read this story to the students. Oobleck, glurch and goop are introduced in the book. Hopefully, students will remember having read this before and become excited about making the three different things.



http://4.bp.blogspot.com/-HwNedeQC7eQ/T1C2oWQKQDI/AAAAAAAAAC8/znxrbLj8a14/s1600/bartholomew_and_the_oobleck.jpg

Guided Practice:
Students will be given the recipe for Oobleck, Goop and Glurch. A quick review of unit conversions will be covered before the activity.

Independent Practice:
The students will convert the measurements into metric and then complete the lab by making the mixtures using their conversions. Students will determine if any mistakes were made in their calculations by analyzing their Oobleck, Goop and Glurch mixtures.

Remediation and/or Enrichment:
IEP's will be supported. Students can practice calculations in groups if they are still having trouble with the concept. For enrichment, discussions of how solids and liquids can form these gel-like mixtures will be conducted.

Check(s) for Understanding:

1. If you had not converted from English units into metric units, would your oobleck, goop and glurch have formed correctly?
2. Can you think of a situation when you might have to convert from English units to metric units?
3. What if you gave someone from France driving directions in English units? Would they arrive at their destination sooner or much later than they thought?

If the students mix Oobleck, Goop and Glurch correctly, they have demonstrated that they understand how to convert between English and Metric units.

Closure:
Students will throw away Oobleck, Goop and Glurch.

Possible Alternate Subject Integrations:
Mathematics

Teacher Notes:
Recipes for oobleck, goop and glurch (see attached: English to Metric Conversion Recipe) were taken from the Charles A. Dana Center at the University of Texas at Austin and converted into American units of measurements.
http://www.utdanacenter.org/sciencetoolkit/downloads/activities/6_oobleck.pdf