

INSPIRE GK12 Lesson Plan



Lesson Title	Conversion Cookies
Length of Lesson	50 minutes
Created By	Cheryl McLaurin
Subject	Chemistry
Grade Level	10-12
State Standards	2.a.
DOK Level	1, 2
DOK Application	Calculate, Critique, Compare
National Standards	9-12: A:Science as Inquiry
Graduate Research Element	Awareness of conversions and scale is vital in mapping.

Student Learning Goal:

Students will put the mathematical theory of converting between units and orders of magnitude into practice and learn the consequences of inattentiveness and inaccuracy in mathematics within science.

State Standards for 9th - 12th Chemistry:

2. Demonstrate an understanding of the atomic model of matter by explaining atomic structure and chemical bonding.
 - a. Describe and classify matter based on physical and chemical properties and interactions between molecules or atoms

Students will discuss what type of mixture cookies are classified as and how the different melting points of the mixture combine to create a "cookie."

National Standards for 9th - 12th Chemistry:

A: Science as Inquiry: Abilities necessary to do scientific inquiry

- ▲ Use technology and mathematics to improve investigations and communications.

Students will convert from English units to metric units and between orders of magnitude within metric units.

Materials Needed (supplies, hand-outs, resources):

Cookie recipe, handout, scales, graduated cylinders, oven

Lesson Performance Task/Assessment:

Students will be given a handout that has the recipe in English units. They will be required to convert to metric units, showing work and reporting answers in scientific notation with correct significant digits. They will make their cookies according to their converted measurements. To determine accuracy of their calculations, the cookies will be taste-tested.

Lesson Relevance to Performance Task and Students:

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The ability to properly convert between units will be used throughout their science careers and personal lives.

Anticipatory Set/Capture Interest:

Student interest will be captured by the idea of eating in class.

Guided Practice:

Students will be given the conversions between base English and metric units.

Independent Practice:

Student groups will have to convert within the metric system on their own and will be in charge of their own quality assurance.

Remediation and/or Enrichment:

IEP's will be followed. Students can be given guidance on the next step within conversions, if needed. For enrichment, students can be given a more challenging recipe or limited to base units for weight and volume.

Check(s) for Understanding:

Does the student recognize the need for knowledge of conversion?

What would have happened if the decimal was in the wrong place in the salt amount?

The flour?

Does the cookie taste good?

Closure:

Students will see the benefit in being confident in converting between units in everyday situations, and what can happen when those conversions are done incorrectly.

Possible Alternate Subject Integrations:

Home Economics

Teacher Notes:

The recipe used in this class is an oatmeal-chocolate chip for its short time of preparation and cooking. Be aware of any food allergies. Food safe lab equipment will be needed, and students should be made aware that the lab is not usually a place to cook in.