

Unit 2: Scientific Measurements

Content Area: **Template**

Course(s):

Time Period:

Length:

Status: **Published**

State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit 2: Scientific Measurements

Essential Questions

- How do scientists express the degree of uncertainty in their measurements?
- How is dimensional analysis used to solve problems?
- When you make a measurement, what are some possible sources of uncertainty?

Objectives

- Calculate the density of a substance
- Demonstrate why metric units are easy to use
- Describe the type of problems that use dimensional analysis
- Evaluate accuracy and precision
- Explain the process when using a conversion factor
- Explain why measurements must be reported to the correct number of significant figures
- Express numbers in scientific notation

Standards

- | | |
|---------------|---|
| 9-12.HS-PS1-1 | Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. |
| 9-12.HS-PS1-7 | Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction. |
| 9-12.HS-PS1-3 | Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. |

Instructional Tasks/Activities

- Accuracy and Precision Practice
- Common assessment chapter test
- Common assessment quiz
- Constructed response
- Darts Accuracy and Precision Activity
- Do now's and/or exit slips
- Graphic organizers or models
- Guided practice
- Individual, small, and large group work
- Laboratory investigations within small groups
- Review Activity

Assessment Procedure

- Classroom Total Participation Technique
- Classwork
- DBQ
- Essay
- Exit Ticket/Entrance Ticket/Do Now
- Flashcards and/or drill and practice
- Inquiry based activities with reflective discussion
- Journal / Student Reflection
- Kahoot
- Laboratory groups
- Lecture with note taking or guided notes
- Online models and simulators
- Other named in lesson
- Peer Review
- Performance
- Power Point Presentations
- Problem Correction
- Project
- Quiz
- Rubric
- Teacher Collected Data
- Test
- Whole and small group discussions

- Worksheet

Recommended Technology Activities

- Appropriate Content Specific Online Resource
- Chromebook
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Copy/Paste Content Specific Link Here
- Gimkit
- GoGuardian
- Google Classroom
- Google Docs
- Google Forms
- Google Slides
- Kahoot
- MagicSchool AI
- Other- Specified in Lesson
- Quiziz
- Screencastify

Accommodations & Modifications & Differentiation

Accommodations and Modifications should be used to meet individual needs. Their IEP and 504 plans should be used in addition to the following suggestions.

Gifted and Talented

- Compare & Contrast
- Conferencing
- Debates
- Jigsaw
- Peer Partner Learning
- Problem Solving
- Structured Controversy
- Think, Pair, Share
- Tutorial Groups

Instruction/Materials

- alter format of materials (type/highlight, etc.)
- color code materials
- eliminate answers
- extended time
- extended time
- large print
- modified quiz
- modified test
- Modify Assignments as Needed
- Modify/Repeat/Model directions
- necessary assignments only
- Other (specify in plans)
- other- named in lesson
- provide assistance and cues for transitions
- provide daily assignment list
- read class materials orally
- reduce work load
- shorten assignments
- study guide/outline
- utilize multi-sensory modes to reinforce instruction

Environment

- alter physical room environment
- assign peer tutors/work buddies/note takers
- assign preferential seating
- individualized instruction/small group
- modify student schedule (Describe)
- other- please specify in plans
- provide desktop list/formula

Honors Modifications

Resources

- Resource 1
- Resource 2
- Resource 3
- Resource 4
- Resource 5