Unit 9: States of Matter and Gas Laws Copied from: Chemistry, Copied on: 06/05/25

Content Area: **Template**
Course(s):
Time Period:
Length:
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State Mandated Topics Addressed in this Unit

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N/A	N/A

Unit 9: States of Matter and Gas Laws

Essential Questions

- Compared to solids and liquids, what is unique about gases?
- How do gases respond to changes in pressure, volume, and temperature?
- Why do you suppose we study ideal gases?
- Why is the ideal gas law useful even though ideal gases do not exist?

Objectives

- Demonstrate the strength of IMF's and their surface tension
- Describe three factors that affect gas pressure
- Determine the relative strength between three intermolecular forces
- Explain how boiling point and vapor pressure are determined by intermolecular forces
- Explain how the three states of matter depend on the intermolecular forces of compounds
- Explain the relationship and calculate problems between pressure, volume, and temperature of gas through the gas laws
- Explain why gases are easier to compress than solids or liquids
- Relate the total pressure to the partial pressures of gases contained in a mixture
- Use Graham’s diffusion rate to calculate the rate of diffusion of given gases.

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-PS2-6	Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials.
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

- Boiling Point and Vapor PRessure
- Common assessment chapter test
- Common assessment quiz
- Constructed response
- Do now’s and/or exit slips
- Gas Properties Practice
- Gasses and Chemical Reactions Lab
- Gasses and Gas Postulates Intro Activity and Lesson
- Gasses Demonstration
- Gasses PHET Lab
- Gasses practice questions
- Gasses Test
- Gasses Test Review
- Graphic organizers or models
- Guided practice
- Homework
- Ideal Gas Law Introduction (video/discussion/questions)
- Ideal Gas Law Practice Questions and Application
- IMF's Test
- IMF's Test Review
- Individual, small, and large group work
- Intro to IMF's and the 3 types
- Laboratory investigations within small groups
- Methane and Global Climate Impact
- Review Activity
- States of Matter PHET
- Surface tension pennies demonstration/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 Presentation
- 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