

# Unit 4: Energy

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 4: Energy

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### Learning Objectives

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- How are work and power related to energy and each other?
- How do changes in the amount of energy occur?
- What is the difference between momentum and energy?
- Why does energy have a role in the physical world?

### Essential Skills

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- Calculate the kinetic energy of a moving object
- Compare the system before and after an event in energy problems.
- Describe relationship -> work and energy.
- Determine how to find the gravitational potential energy of a system.
- Differentiate between work and power.
- Identify ways in which elastic potential energy is stored in a system.
- Use a model to relate work and energy.
- Identify the force that does work.

### Standards

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|---------------|--|
| 9-12.HS-PS3-1 | Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. |
| 9-12.HS-PS3-3 | Design, build, and refine a device that works within given constraints to convert one form   |

9-12.HS-PS3-2

of energy into another form of energy.

Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motion of particles (objects) and energy associated with the relative position of particles (objects).

## **Instructional Tasks/Activities**

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- Activity 1
- Activity 10
- Activity 2
- Activity 3
- Activity 4
- Activity 5
- Activity 6
- Activity 7
- Activity 8
- Activity 9
- Common assessment chapter test
- Common assessment quiz
- Constructed response
- Do now's and/or exit slips
- Graphic organizers or models
- Guided practice
- Homework
- Individual, small, and large group work
- Laboratory investigations within small groups
- Review Activity

## **Assessment Procedure**

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- 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
- Problem Correction
- Project
- Quiz
- Rubric
- Teacher Collected Data
- Test
- Whole and small group discussions
- Worksheet

## **Recommended Technology Activities**

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- 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**

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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**

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

## **Instruction/Materials**

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- 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**

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- 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**

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## **Resources**

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