

# Unit 5: Electrostatics

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 5: Electrostatics

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### Learning Objectives

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- How do different circuits perform electrical work?
- How does moving an electric charge do work?
- How is electrical energy stored and transferred?

### Essential Skills

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- Define and calculate electric potential difference.
- Demonstrate that charging is the separation, not the creation, of electrical charges.
- Describe the differences between conductors and insulators.
- Recognize that objects that are charged exert forces, both attractive and repulsive.
- Solve problems relating to charge, electric fields, and forces.

### Standards

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|---------------|--|
| 9-12.HS-PS2-4 | Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.                            |
| 9-12.HS-PS3-5 | Develop and use a model of two objects interacting through electric or magnetic fields to illustrate the forces between objects and the changes in energy of the objects due to the interaction. |
| 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-PS2-5 | Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.                  |

## **Instructional Tasks/Activities**

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- 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