

# Unit Learning Targets

Department: Science

Course: Physics/Physics with Technology

Instructor(s): Jessica Rodriguez

**Standard III:** Students will understand the factors determining the strength of gravitational and electrical forces. (Unit 9: Electricity)

**Objective II:** Describe the factors that affect the electrical force (Coulomb's law).

## Student-Friendly Learning Target Statements

<p style="text-align: center;"><b>Know</b></p>	<p style="text-align: center;"><b>Knowledge Targets</b></p> <p style="text-align: center;"><i>"What I need to know"</i></p>	<p>I know that more charge means more electric force (that charge and the electric force are directly related).</p> <p>I know that like charges repel and opposite charges attract.</p> <p>I know that the farther the distance between objects the less the force (force is inversely proportional to the distance squared).</p> <p>I know that electric charges produce electric fields around them.</p> <p>I know that objects can be discharged by grounding.</p> <p>I know the difference between conductors and insulators.</p> <p>I know that electric energy can be stored in chemical reactions in batteries to produce charge flows.</p>
<p style="text-align: center;"><b>Do</b></p>	<p style="text-align: center;"><b>Reasoning Targets</b></p> <p style="text-align: center;"><i>"What I can do with what I know."</i></p>	<p>I can compare the electric forces on objects of different charges.</p> <p>I can compare the electric forces on objects at different distances.</p> <p>I can determine whether objects will repel or attract each other.</p> <p>I can determine whether charge will build up or flow through and object by distinguishing between conductors and insulators.</p>
	<p style="text-align: center;"><b>Skill Targets</b></p> <p style="text-align: center;"><i>"What I can demonstrate."</i></p>	<p>I can measure the electric field around on an object using a voltmeter.</p> <p>I can solve equations involving electric forces, charges, and distances using Coulomb's law.</p>

	<p><b>Product Targets</b></p> <p><i>"What I can make to show my learning."</i></p>	<p>I can draw a force diagram for a charge and describe the resultant net force.</p> <p>I can draw graphs for electric force vs. charge and electric force vs. distance.</p> <p>I can draw electric field lines around charged objects.</p>
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Essential Learning: The critical knowledge, skills, and dispositions each student must acquire as a result of this unit of instruction.

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