

HS-PS3-5 Energy

California Alternate Assessment for Science—Item Content Specifications

# HS-PS3-5 Energy

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
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| Identify a model (e.g., drawing, diagram) that shows the cause and effect relationships between forces produced by electric or magnetic fields. | 1. Identify a model (e.g., drawing, diagram) that shows the cause and effect relationships between forces produced by electric fields.
2. Identify a model (e.g., drawing, diagram) that shows the cause and effect relationships between forces produced by magnetic fields.
 | Identify electric and magnetic forces that attract or repulse. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**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.** [Clarification Statement: Examples of models could include drawings, diagrams, and texts, such as drawings of what happens when two charges of opposite polarity are near each other.] *[Assessment Boundary: Assessment is limited to systems containing two objects.]*

## Mastery Statements

Students will be able to:

* Recognize that opposite magnetic poles attract
* Recognize that similar magnetic poles repel
* Recognize that opposite electrical charges attract
* Recognize that similar electrical charges repel
* Identify an effect produced by an electrical field
* Identify an effect produced by a magnetic field
* Recognize why an object will be attracted or repelled

## Possible Phenomena or Contexts

*Note that the list in this section is not exhaustive or prescriptive.*

**Possible contexts include the following:**

* Two magnets with the same or opposite poles near one another
* Two magnets interacting, one in a fixed position and one that can move
* A magnetic object (nail or washer) moves past a magnet
* Two charged objects near one another, such as a balloon and hair
* Two charged objects, one in a fixed position and one that can move
* Two charged objects, both of which can move, such as two balloons hanging from strings

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for HS-PS3-5

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-hs-ps3-5.docx>

Environmental Principles and Concepts <http://californiaeei.org/abouteei/epc/>

The *2016 Science Framework for California Public Schools Kindergarten through Grade Twelve* <https://www.cde.ca.gov/ci/sc/cf/cascienceframework2016.asp>

Appendix 1: Progression of the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts in Kindergarten through Grade Twelve

<https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix1.pdf>

Appendix 2: Connections to Environmental Principles and Concepts

<https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix2.pdf>

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