

MS-PS3-3 Energy

California Alternate Assessment for Science—Item Content Specifications

# MS-PS3-3 Energy

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Use information (e.g., graph, model) to identify a device (e.g., foam cup, insulated box) that either minimizes or maximizes thermal energy transfer (e.g., keeping liquids hot or cold). | 1. Ability to use information to identify a device that minimizes thermal energy transfer. 2. Ability to use information to identify a device that maximizes thermal energy transfer. | Identify objects used to minimize or maximize thermal energy transfer (e.g., gloves). |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.** [Clarification Statement: Examples of devices could include an insulated box, a solar cooker, and a Styrofoam cup.] *[Assessment Boundary*: *Assessment does not include calculating the total amount of thermal energy transferred.]*

## Mastery Statements

Students will be able to:

* Identify objects that keep substances cold
* Identify objects that keep substances warm
* Recognize which object/device will keep a substance cooler
* Recognize which object/device will keep a substance warmer
* Use data to compare which object/device will keep a substance cooler
* Use data to compare which object/device will keep a substance warmer

## California Environmental Principles and Concepts

Principle 4—The exchange of matter between natural systems and human societies affects the long-term functioning of both.

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Household insulation methods (e.g., potholders)
* Insulated cups and containers
* Cold-weather clothing (e.g., mittens, scarves, sweaters)
* Selecting a container when provided simple data about temperature change of the contents

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for MS-PS3-3

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-ms-ps3-3.docx>

California 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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