

MS-ETS1-1 Engineering Design

California Alternate Assessment for Science—Item Content Specifications

# MS-ETS1-1 Engineering Design

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Define a design problem that can be solved through consideration of criteria and constraints, potential impacts on people and the environment, and scientific or other issues that are relevant to the problem.  | 1. Ability to define a design problem that can be solved through consideration of criteria and constraints relevant to the problem.
2. Ability to define a design problem that can be solved through consideration of potential impacts on people and the environment that are relevant to the problem.
3. Ability to define a design problem that can be solved through consideration of scientific or other issues that are relevant to the problem.
 | Recognize that a solution to a simple design problem can impact people and the environment.  |

## CA NGSS Performance Expectation

Students who demonstrate understanding can:

**Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.**

## Mastery Statements

Students will be able to:

* Identify one result of a solution to a simple design problem that will impact people or the environment
* Identify one solution to a design problem that would have specific impacts on humans or the environment
* Identify one solution to a design problem that incorporates specified scientific issues

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Forms of pollution
* Loss of wildlife habitat
* Enhancing mobility for people with disabilities
* Enhancing access to clean water
* Solar and wind energy

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for MS-ETS1-1

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-ms-ets1-1.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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