

**3-5-ETS1-2 Engineering Design**

California Alternate Assessment for Science—Item Content Specifications

# 3-5-ETS1-2 Engineering Design

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Compare two possible solutions to the same problem based on how well each is likely to meet the identified criteria (required features) and constraints (limits) for a successful solution. | 1. Ability to compare two possible solutions to the same problem based on how well each is likely to meet the identified criteria for a successful solution. 2. Ability to compare two possible solutions to the same problem based on how well each is likely to meet the identified constraints for a successful solution. | Recognize the best solution to a simple problem when given a choice of two possible solutions. |

## CA NGSS Performance Expectation

Students who demonstrate understanding can:

**Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.**

## Mastery Statements

Students will be able to:

* Identify the most appropriate solution for a simple problem
* Recognize how the solution to a simple problem meets identified criteria or constraints
* Recognize how the solution to a simple problem does not meet identified criteria or constraints
* Recognize which of two solutions for a simple problem best meets specified criteria or constraints and recognize why the other does not meet the criteria or constraints

## Environmental Principles and Concepts

Principle 5—Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* The number of people needed to clean up trash on the school grounds
* Decreasing the risk of failure in a system designed to keep people safe
* Improving the function of a tool or system in the classroom
* Considering the negative impacts of a solution for protecting the environment around the school that might limit access to certain areas periodically to protect nesting birds
* Availability of materials needed to improve a system

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for 3-5-ETS1-2

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-3-5-ets1-2.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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