NAEP SCIENCE (Grades 4, 8, and 12)

https://www.nationsreportcard.gov/science_2009/ict_tasks.asp

For these NAEP Science tasks, if you have a Mac, ***only the Firefox browser*** *will allow you to see all of the animations and simulations.*

Grade 4 Engineering & Science Assessments

Cracking Concrete. In this 20-minute task, students investigate what happens to the volume of water when it freezes. Then students use the results of their investigations to predict and test what will happen when water freezes in the cracks of a concrete sidewalk.

Here Comes the Sun. In this 20-minute task, students use a time lapse simulation to make observations about the path of the Sun as it relates to the amount of daylight. Students use this knowledge to determine the better of two locations for growing tomatoes.

Mystery Plants. In this 40-minute extended task, students use a simulated greenhouse to determine the best sunlight or fertilizer amounts for two different plants. Students begin the task by showing their prior knowledge about how sunlight and nutrients are related to optimal plant growth. Then students run three separate investigations and draw their conclusions about the effect of sunlight and nutrients on the plant samples.

Grade 8 Engineering & Science Assessments

Bottling Honey. In this 20-minute task, students investigate how four different liquids behave when they are poured and how temperature affects the flow rates of the liquids. Then students determine the best temperature range for bottling honey that will take the least amount of time while using as little energy as possible.

Playground Soil. In this 20-minute task, students investigate the permeability of soil samples from two sites a town is considering for a play area. Students use their results to help decide which site has the better water drainage and is therefore the better place for a grassy play area.

Planning a Park. In this 40-minute extended task, students help plan a new recreation area for a town using a small portion of an existing wildlife area. Students evaluate the potential impact that various locations of the recreation area would have on the population of the meadow vole and other animals. By the end of the task, students make a recommendation for the best placement of the new park.

Grade 12 Engineering & Science Assessments

Energy Transfer. In this 20-minute task, students investigate which metal would be better for making the bottom of a cooking pan. While designing and conducting their investigations, students use a simulated calorimeter to test the specific heat capacities of two metals that could be used for the bottom of the pan.

Phytoplankton Factor. In this 40-minute extended task, students investigate the role of phytoplankton (microscopic, plant-like organisms that live near the ocean surface) in the Earth's carbon cycle. In addition, students analyze an authentic set of experimental data relating levels of iron and nutrients to the growth of phytoplankton, and use a resource library to research ocean locations where increased iron levels might affect phytoplankton growth.

NAEP TECHNOLOGY AND ENGINEERING LITERACY (8th grade only)

https://www.nationsreportcard.gov/tel_2014/

For these TEL tasks, Chrome and Safari also work. Be patient, as they take a minute to load.

Design a Safe Bike Lane. In the Bike Lanes task, a city is encouraging its citizens to use bicycling as a form of transportation. Students need to apply the engineering design process to come up with a route design for a safe bike lane. Similar to what engineers face when tackling a problem, students need to produce a design that meets specific requirements while accounting for trade-offs between options including cost and safety.

Iguana Home. In the Iguana Home task, students help troubleshoot and fix the habitat for a classroom iguana named "Iggy." Students first learn about iguanas and their basic needs, and then they work through the task to determine how best to fix Iggy's wire mesh cage.