

Family Information

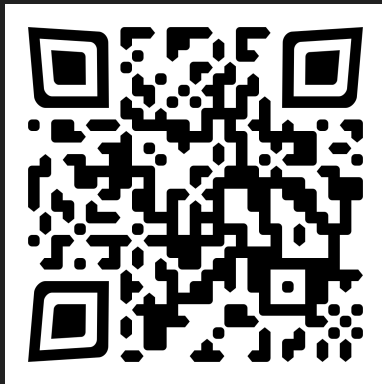
Freedom Elementary Science & Engineering Expo

2023



Science & Engineering Expo Information

- All 3rd, 4th, and 5th grade students will be working on an independent science experiment or engineering project both at school and at home.
- Step by step instructions for completing either an engineering project or a scientific investigation are located on the Science and Engineering Expo website.
 - URL: <https://www.d11.org/Page/19818>
 - QR Code:



What does my student need to do?

○ Science Investigation

- Design and perform a scientific experiment, collecting data as they go
- Interpret data and make a conclusion
- Make a display board summarizing their experiment, results, and conclusions
- Present their work to guest judges at the Science & Engineering Expo **April 5, 2023**

○ Engineering Project

- Determine a problem
- Design, construct, and test a working product prototype that solves the problem
- Make a display board summarizing their product prototype, results, and conclusions
- Present their work to guest judges at the Science & Engineering Expo **April 5, 2023**

Science Experiment vs. Demonstration

- Students that choose a **science investigation** will complete a science experiment NOT a demonstration.
- An experiment will always center around a question that **cannot** be answered with a simple yes or no answer, or be found by searching the internet.

Science Experiment vs. Demonstration Examples

Science Experiment A science experiment has variables, tests different materials, and generates data.	Science Demonstration A science demonstration shows how something works.
Examples: Which brand of batteries lasts the longest when connected to a lightbulb using a simple circuit?	Examples: Create a circuit to show how electricity lights a lightbulb.
How do the amounts of baking soda and vinegar affect the volume of bubbles created?	Build a model volcano.
What slime recipe will create slime that can stretch the furthest?	Show how to make slime.
How does rocket shape affect flight height?	Create a report on the Artemis mission.

Engineering Project vs. Demonstration

- Students that choose an **engineering project** will design a new, or modify an existing product, **NOT** demonstrate how a product works.
- An engineering project will always center around solving a problem by creating an object to solve the problem , **not** by searching the internet for a solution.

Engineering Project vs. Demonstration Examples

Engineering Project Solves a problem to make life better	Engineering Demonstration An engineering demonstration shows how something works.
<p>Examples:</p> <p>Problem – Studying math facts is boring.</p> <p>Engineering Product – Use Scratch to design and code a game to teach math facts in a fun way.</p>	<p>Examples:</p> <p>Show people how to play your favorite video game.</p>
<p>Problem – Rubbing mud on baseballs gets your hands dirty.</p> <p>Engineering Product – Use Legos to design a device to apply the mud without getting your hands dirty.</p>	<p>Create a presentation on why mud is applied to baseballs in the major and minor leagues.</p>
<p>Problem – Student water bottles keep falling off their desk or get knocked over on the floor and spilling water.</p> <p>Engineering Product – Design a water bottle holder that fits on a desk or chair to prevent them from getting knocked over.</p>	<p>Show a video on how water bottles are made.</p>

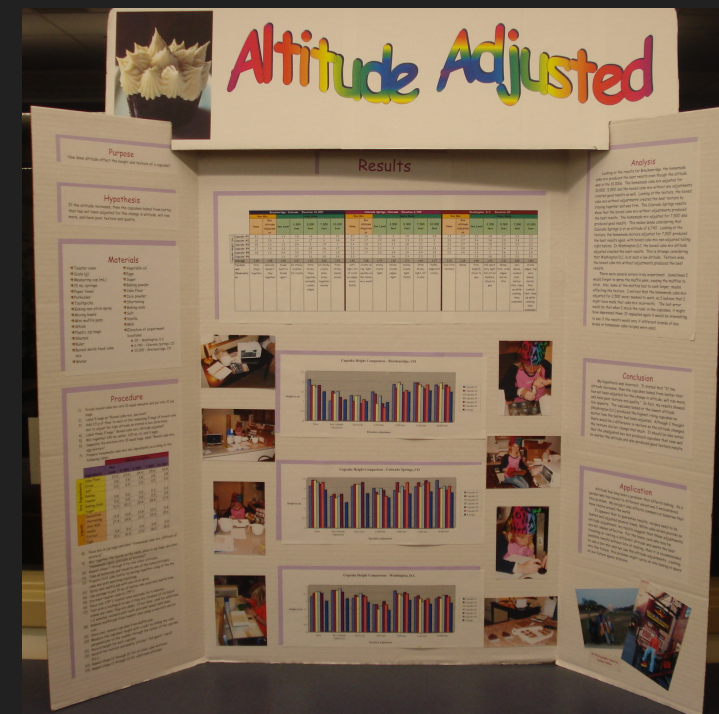
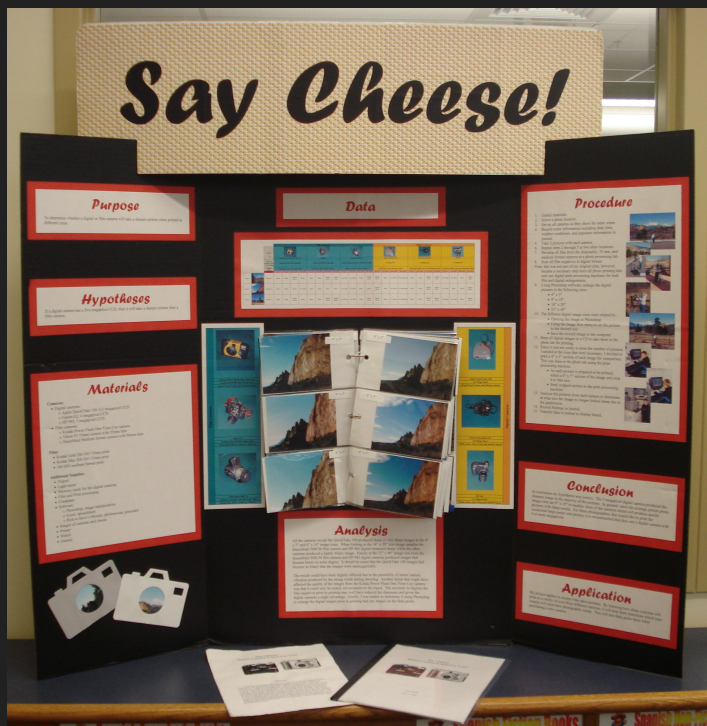
Guidelines

- The Science or Engineering Project should:
 - be completed by the student with minimal adult assistance.
 - provide new learning for the student.
 - keep the researcher and subjects safe.
 - be done by individual students.



Traditional Display & Presentation

- Traditional display boards will be used as the primary way to communicate information.
- In addition to the display board the student will present their information in a 3-4 minute presentation for the judges.



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Need Help

- Email Help

- duane.helfer@d11.org

- Online Help

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