Family Information





Science & Engineering Expo Information

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





What does my student need to do?

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

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



Science Experiment vs. Demonstration

- O 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

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



Guidelines

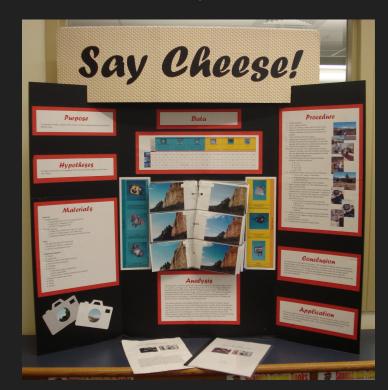
- O The Science or Engineering Project should:
 - obe completed by the student with minimal adult assistance.
 - oprovide new learning for the student.
 - Okeep the researcher and subjects safe.
 - Obe done by individual students.

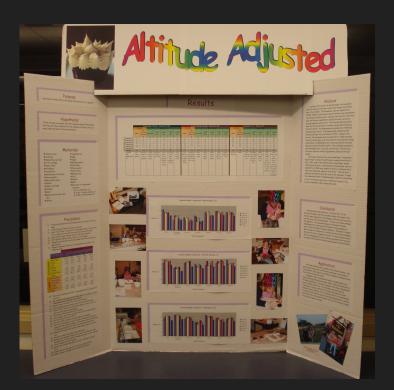




Traditional Display & Presentation

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







Judging Criteria for Science Projects

Scientific Process *						
	0	1	2	3	4	5
Testable Question	0	0	0	0	0	0
Hypothesis (IfThen Because)	0	0	0	0	0	0
Variables Defined- independent and dependent variables are present and correctly defined	0	0	0	0	0	0
Procedure	0	0	0	0	0	0
Materials	0	0	0	0	0	0
Results: graphs, charts & journals with units	0	0	0	0	0	0
Conclusion/Reflection (supported not proven)	0	0	0	0	0	0

Presentation *							
	0	1	2	3	4	5	
Display: organized & attractive to audience	0	0	0	0	0	0	
Display: student uses notebook to discuss findings & data	0	0	0	0	0	0	
Oral Discussion Quality	0	0	0	0	0	0	
Time and Effort	*						
	0	1	2	3	4	5	
Thoroughness	0	0	0	0	0	0	
Effort	0	0	0	0	0	0	



Judging Criteria for Engineering Projects

Design Process *						
	0	1	2	3	4	5
Problem addresses a real and specific need	\circ	\circ	\circ	\circ	\circ	\circ
Requirements and materials specified	\circ	\circ	\circ	\circ	\circ	\circ
Preliminary design evidence (more than 1 solution)	0	0	0	0	0	0
Well-developed prototype	\circ	\circ	\circ	\circ	\circ	\circ
Defined prototype testing	\circ	\circ	\circ	0	\circ	\circ
Results: graphs, charts & journals with units	0	0	0	0	0	0
Conclusion/Reflection (supported not proven)	0	0	0	0	0	0

Presentation *							
	0	1	2	3	4	5	
Display: organized & attractive to audience	0	0	0	0	0	0	
Display: student uses notebook to discuss findings & data	0	0	0	0	0	0	
Oral Discussion Quality	0	0	0	0	0	0	
						_	
Time and Effort *							
	0	1	2	3	4	5	
Thoroughness	\circ	\circ	\circ	\circ	\circ	\circ	
Effort	\circ	\circ	\circ	\circ	\circ	\circ	



Need Help

- O Email Help
 - Oduane.helfer@d11.org
- Online Help
 - OURL: https://www.d11.org/Page/19818
 - OQR Code:

