

# SJCSD STEM Expo Engineering Project Planner

Name(s): \_\_\_\_\_

✓	Due Dates	Tasks
	January 8 – January 20	Identify a real-world problem and write possible solution. (Pg. 2)
	January 8 – January 20	Get approval from your teacher. (Pg. 2)
	January 20 - January 29	Research your topic. Write science terms and paragraph draft. (Pg. 2-3)
	January 29 – February 5	Design possible prototype solutions (Pg. 5)
	January 29 – February 5	List and gather materials. (Pg. 6)
	February 5 – February 21	Build a working model (prototype), write down procedures for testing it. (Pg.7)
	February 5 – February 21	Test prototype and analyze data. (Pg. 7)
	February 21 – February 28	Modify prototype, test, and analyze new data. (Pg. 8-9)
	February 21 – February 28	Draw conclusions. Explain how you would improve your experiment. (Pg. 10)
	February 28 – March 10	Print final Research Summary.
	February 28 – March 10	Make the project display.
	<b>March 12</b>	Present project at school science fair/expo.

# Define the Problem

As you begin your engineering project consider the use of science, engineering, technology, and mathematics: “Will you design or build something based on your interest that solve a real-world problem?” “Is this something that you can test to solve a problem or answer a question that you would like to know more about?”

Make you think about the following:

- ✓ What problem are you trying to solve?
- ✓ What are the challenges?
- ✓ What are you trying to accomplish?
- ✓ Why is this problem important to you?

Brainstorm possible problems that you are interested in learning more about.



Once you have decided on your engineering project, write it on the lines below and then get approval from your teacher to begin your project.

---

---

---

---

# Research Project

Spend some time learning more about your topic. Use reliable internet sources, books from the library, your science book, or other resources. Not only do you want to be an expert on your topic, you also want to teach others about your topic. This information will be used to help you create your prototype and avoid working on something that already exists. Don't forget to cite your resources.

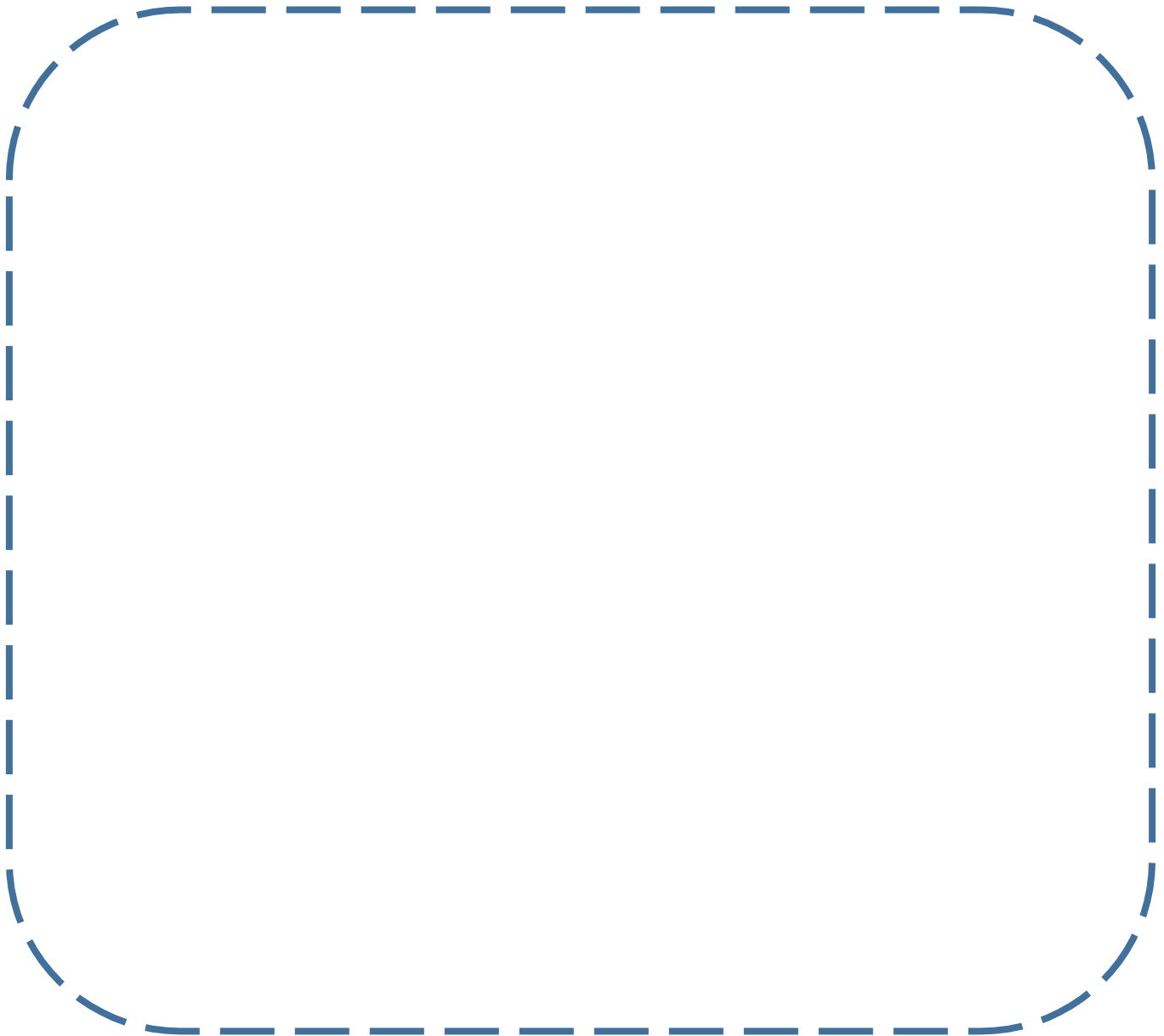
Facts Learned	Source



# Prototype Design

Based on your research, decide what you think the best solution to your problem could be. Be sure to explain **WHY** you think that will be the outcome. Remember, it is okay if your prototype is not successful at first; that is how scientists make discoveries and redesign.

Brainstorm possible prototypes.



Decide which prototype you think will be most successful and circle the sketch above that you will engineer.

**Materials:**

List all materials needed to engineer your prototype. Be specific about type, size, amount, brand, etc.

A large, empty rounded rectangle with a dashed blue border, intended for listing materials. The rectangle is centered on the page and occupies most of the middle section.



## **Observations and Data Collection:**

Scientists test prototypes many times to get the most accurate and reliable data, so make sure you also test your prototype multiple times. During your tests, you need to collect data and record observations.

# **Observations/Data**



# Evaluate and Redesign

Make any necessary changes after each test, then improve.

# Product Presentation

## Conclusion:

Write out the results of testing your prototype in paragraph form. Make sure that you include any numerical data (measurements), as well as any other important observations you made. You should also include:

- ✓ My original prototype (was or was not) effective because...
- ✓ I was able to improve my prototype by...
- ✓ During my project, I learned...

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---


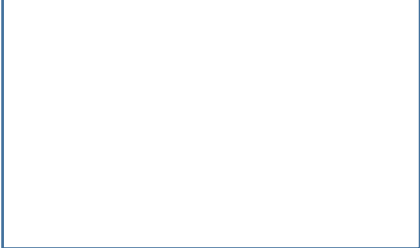

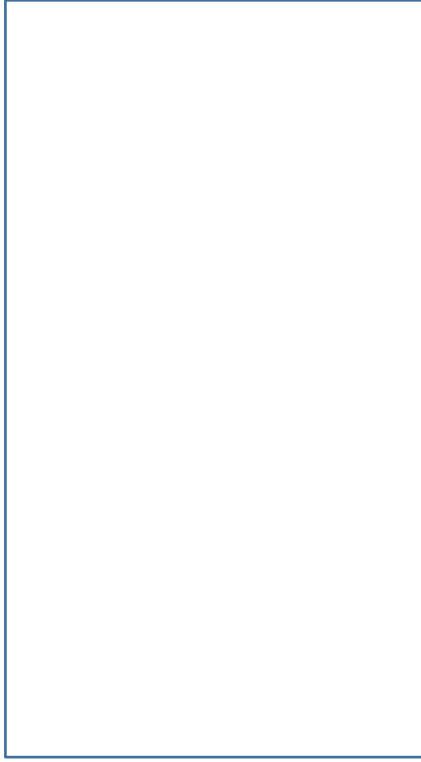
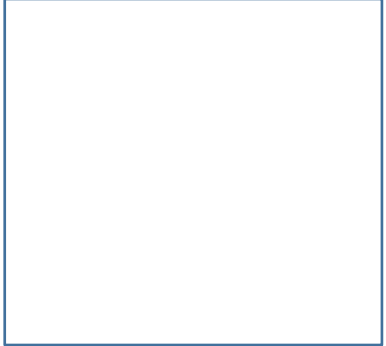
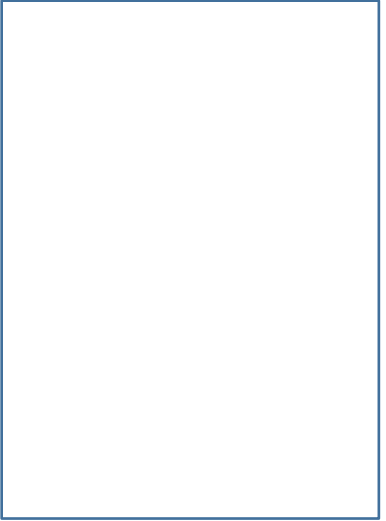
---

---

---

---

# Display

<p>Real-World Problem</p>  <p>Materials</p>  <p>Procedures</p> 	<p>Title</p> <p>Data</p> <p>Prototype sketches &amp; photos, redesigns, data graphs or charts</p> 	<p>Research Summary</p>  <p>Results</p> 
--	---	--

# Project Component Score Sheet

Name(s): \_\_\_\_\_

Project Title: \_\_\_\_\_

Component	Points Possible	Comments
Problem is real-world and relevant to the student.	1 2 3 4	
Research is relevant to the problem being addressed.		
Procedures are clearly outlined and follow the engineering design process.		
Student builds a working prototype that can be tested.		
Results are communicated clearly through graphs/charts and include a well written explanation, along with clear sketches of designs.		
STEM Fair Project Planner is complete.		
Display board includes all components.		
<b>Total Points</b>		

The St. Johns County School District will inspire good character and a passion for lifelong learning in all students, creating educated and caring contributors to the world.

