

Table of Contents

What is STEM?	2
Things to Know	3
The Engineering Design Process	4
Idea #1	5
Idea #2	12
Idea #3	19
Idea #4	26

Use these sections to plan, design, build, and share four great ideas for making something useful and new.

What Is STEM?

STEM stands for **S**cience, **T**echnology, **E**ngineering, and **M**athematics.

S ➔ **Science** = observing things to better understand how the universe works

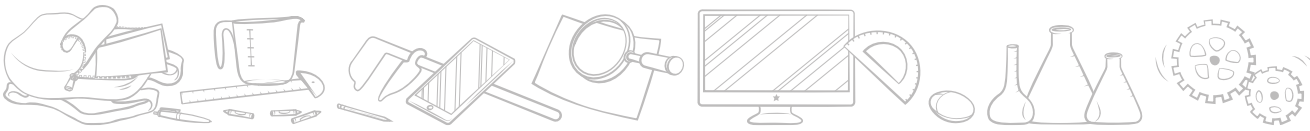
T ➔ **Technology** = using machines and other equipment to solve problems

E ➔ **Engineering** = using math and science to design and build things

M ➔ **Mathematics** = the study of numbers and how they are used

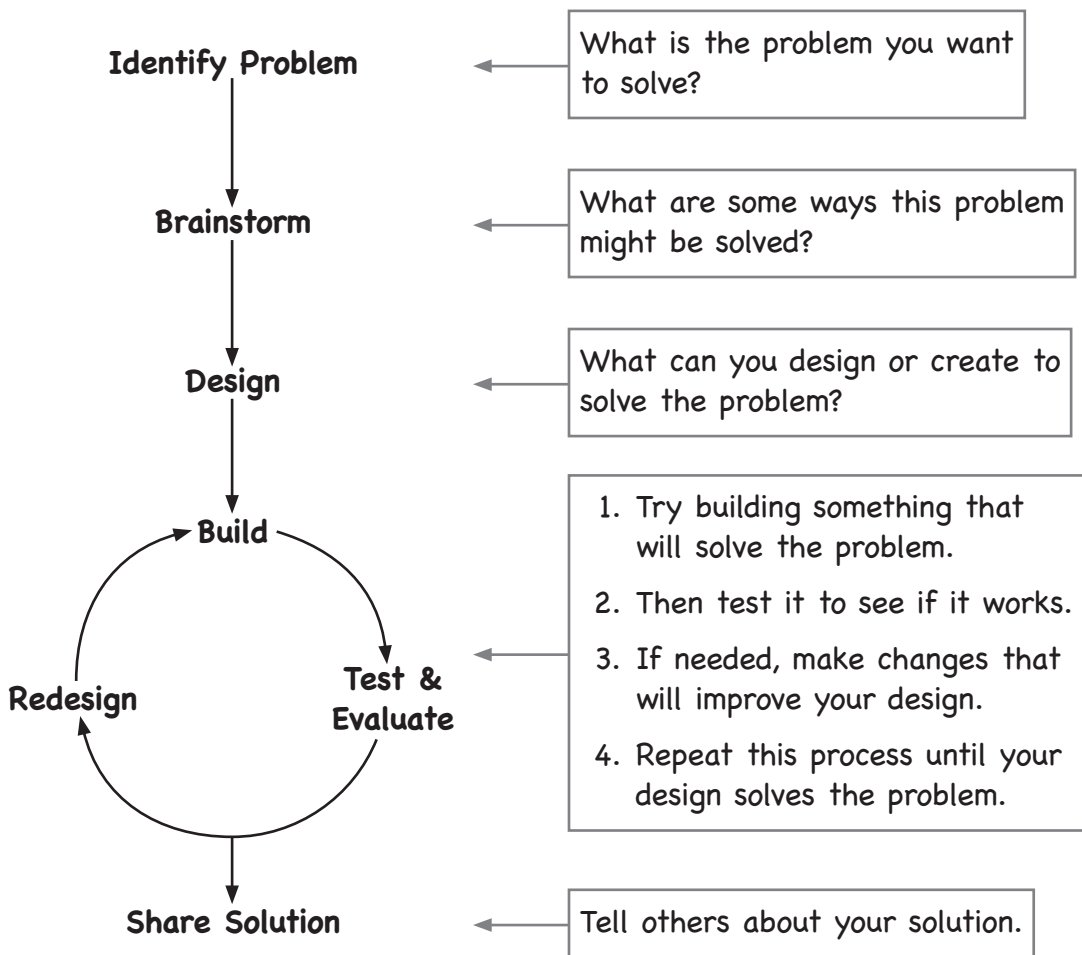
Together, these STEM subjects give us a better understanding of our world.

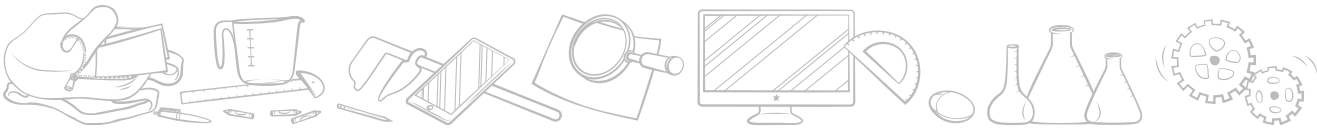




Engineering Design Process

The engineering design process is a way to solve a problem by building a solution. It looks like this:





Idea # 1 *(cont.)*

Design

What can I design or create to solve this problem?

What it is: _____

What it does: _____

Here is a drawing or diagram of what I will build:



Idea # 1 *(cont.)*

Test and Evaluate Again

Did this new design pass all tests?

- Ways this new design did pass all tests:

- Ways this new design did not pass all tests:

Second Redesign

Do I need to make any more changes to improve the design?

YES

NO

Changes needed: _____



Idea # 1 *(cont.)*

Reflection

Fill in the bubbles to show how you feel about your idea and design.

Question	Answer		
How do you feel about . . .	I feel great!	I feel okay.	I can do better.
1. The idea you came up with as a solution to a problem?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The design you came up with for the things you made?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The tests you used to make sure your design worked?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The changes you made to make your design as good as it could be?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The final version of your design and how it solves the problem?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Imagine you are someone seeing your design for the first time. What would you say about it?
