



STEAM Fair

2017



Environmental Innovation



Student Name(s): _____

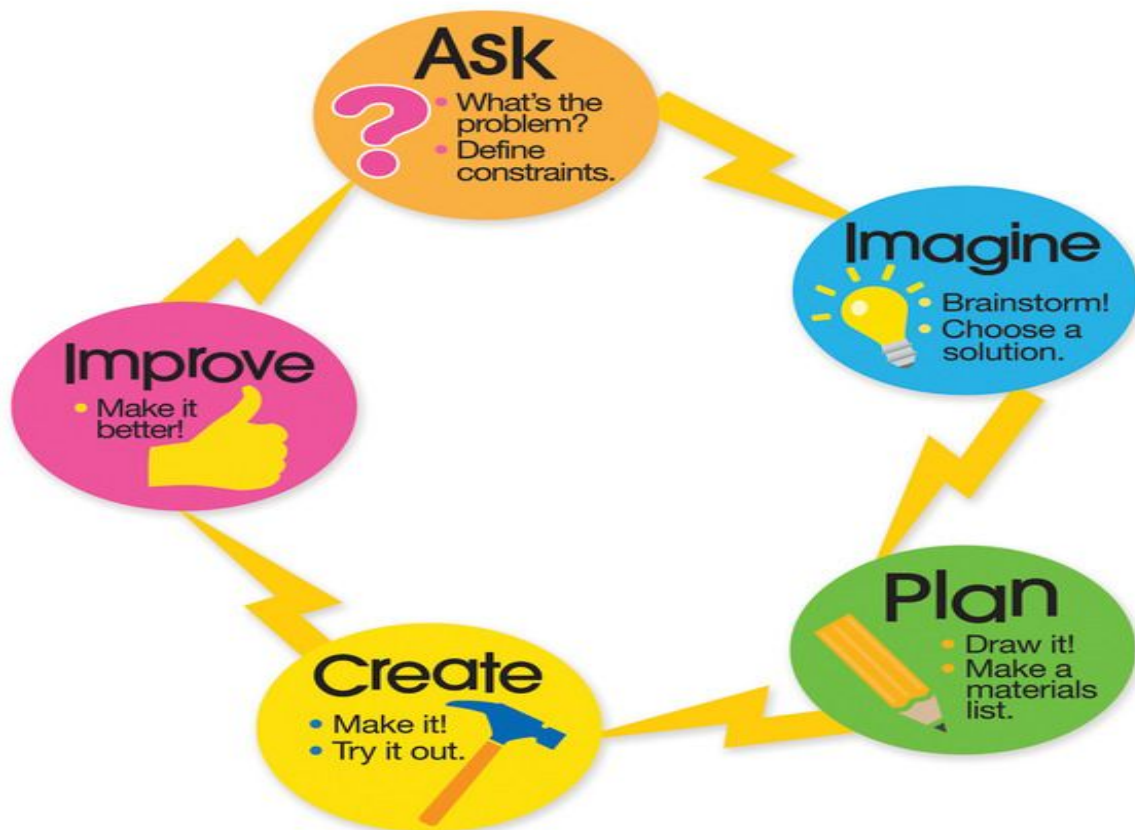
Environmental Innovation

The STEAM Fair gives students a chance to engage in a STEAM-based project of their interest.

If you are completing an environmental innovation project, you will be required to follow the Engineering Design Process (shown below). All parts of this process should be documented and included as part of your project presentation.

The date of the STEAM Fair is Thursday, April 13th in the Media Center. Your presentation and materials should be delivered to the Media Center before school. on Thursday, April 13th from 12:10-2:20, you will be presenting your project to students from McGaugh.

A detailed description of further expectations are outlined on the following pages.



Step 1: ASK - Define the Problem

- what environmental problems in this world need to be solved?
Can you solve one of those problems with a product or process?
- what do you want to do or what do you want to achieve?
- what do you want to change or what do you want to create?
- Journal or draw some of your ideas.

Step 2: ASK - Research

- Research topics:
 - what other products or processes are available that can solve your environmental problem?
 - Identify at least 3 other designs or processes currently being used.

- Evaluate the strengths and weaknesses of these other products or processes.
- How can you make a product or process that is truly innovative?

Step 3: IMAGINE - Brainstorm

- In your own words, write a short paragraph describing your problem and how your design can solve it (should have been defined in Step 1).
- Draw brief designs (brainstorm!) to explore possible solutions.

Step 4: PLAN - Develop a Design Proposal

- Develop a sketch of your design.
 - This sketch should be NEAT, CLEAR, DETAILED, and LABELED.
- with your sketch, do the following:
 - Label each part identifying:
 - Material it is made of (if applicable)
 - Purpose (if applicable)
 - Dimensions (length, width, height, etc.)
 - Include top view and side view (if helpful)

Step 5: CREATE - Build, test, and re-test

- Build your design!
 - YOU ARE REQUIRED TO TAKE PICTURES DURING YOUR BUILDING AND TESTING PROCESS!
 - These pictures should be included as part of your presentation at the STEAM Fair.

- Put your photos in chronological order, and write a brief description with each photo, detailing what is happening in the photo. This should be included as part of your presentation at the STEAM Fair!

Step 6: IMPROVE - Communicate Design Changes

- As you build each section of your design, create a 3-column data table (see sample below) describing changes made, why the change was made, and how the change affected your device.
 - MAKE SURE YOU DO THIS AS YOU BUILD SO YOU DON'T FORGET ALL THE MINOR CHANGES!
 - Any change made to your initial design proposal should be recorded.
 - You may have to test/change one part multiple times before it works - remember to record all of these!
 - Pictures of these changes should be taken and added to the pictures in the CREATE section.

Sample 3-Column Data Table:

	Change Made	why Change was Made	How Change Affected Device
Change 1			
Change 2			

Step 7: IMPROVE - Develop a Final Design Proposal

- Provide a final sketch of your device. This final sketch should follow the same criteria as the sketch in your initial design proposal, but it should include all the changes that were made.

Presentation

- You will be required to present your project to a reviewer at the STEAM Fair.
 - Be prepared to explain the process by which you came up with the final design.
- Your presentation should include a brief introduction and conclusion, and it should also follow the engineering design process.
- USE THE GUIDELINES to ensure you are completing all items effectively.

STEAM Fair Expectations

what should I bring to present at the STEAM Fair?

- visual Aid(s)
 - tri-fold or other large poster board ([Example](#))
 - board should:
 - include name of your project and your name
 - include any pictures/data tables/parts of your project that can be attached
 - stand on its own
 - be neat!
 - a prototype of your actual design (if possible)
 - all labeled pictures of creation process, in chronological order
- a computer or other technology device (if applicable)