



# STEAM Fair

## 2017



Rube Goldberg



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

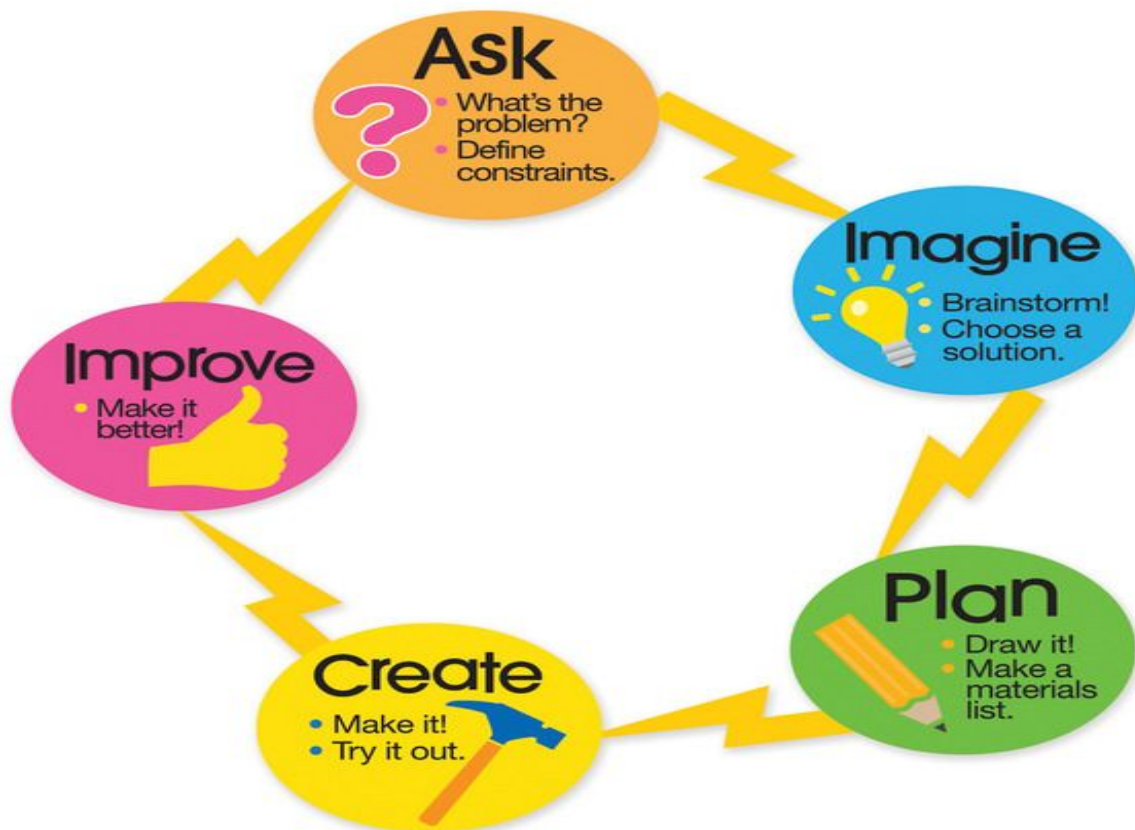
# Rube Goldberg

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

If you are completing a Rube Goldberg 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 12:12-2:20, 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

- Problem: Build a Rube Goldberg machine to accomplish the simple task of ( \_\_\_\_\_ )
  - Examples:
    - Build a Rube Goldberg to blow out a candle
    - Build a Rube Goldberg to turn on the lights
    - Build a Rube Goldberg to pour water into a glass
- Journal or draw some of your ideas.

### Step 2: ASK - Research

- Research topics:
  - what is a simple machine? How do scientists define and describe "work?"

- what are the 6 simple machines? Real life examples? How they work? How do each of these machines make work easier?
- what is a Rube Goldberg machine? what are some examples of Rube Goldberg machines?

### Step 3: IMAGINE - Brainstorm

- In your own words, write a short paragraph describing your problem and how your Rube Goldberg 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 (VIDEO IS PREFERABLE DURING TESTING!)
  - These pictures and video 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 Rube Goldberg, create a 3-column data table (see sample below) describing changes made and why the change was made (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 Rube Goldberg machine. 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 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.

# STEAM Fair Expectations

## What should I bring to present at the STEAM Fair?

**\*\*PLEASE NOTE\*\***

We do not recommend bringing your Rube Goldberg machine to the Fair - parts may break or fail during transport. A video of the process would be ideal.

- 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!
    - all labeled pictures of Rube Goldberg process, in chronological order
- a computer or other technology device (if applicable)
  - include all steps of design process listed in previous pages
  - should be neat and in order

