



Engineering Virtual Learning

# HS Machine Drafting Design Lesson #6

April 13, 2020



## **Objective/Learning Target:**

Students will build a Catapult, Trebuchet or Sling-shot out of household items, test it for “accuracy & precision”, and create drawings for their design.  
(This is a 4 day project.)

# Bell-work:

Sometimes problems are easy to solve using string, glue or tape. Other ideas take months or years to solve all the “bugs” before they can be mass produced. This week you are going to design and build a simple machine to **launch a cotton ball**.

Have you ever used a sling-shot or a rubber band to launch an object into the air? What is the difference in that type of machine and a hot air type balloon to move an object?

Write a reflection of the similarities and differences in your engineers notebook.

Title this activity **Simple Machine, “Launch It!”**

# Let's Get Started:

These videos show how to create a Trebuchet, Catapult or Sling-shot

<https://www.youtube.com/watch?v=9-Hwxw4fggk>

<https://www.youtube.com/watch?v=EFxeVO3AfaA>

Notice how the builders documented their design and “re-designs” with drawings and words.

# Learning Practice:

Today we will Research a Design for our **Launching Machine** (Trebuchet, Catapult, Sling-shot)

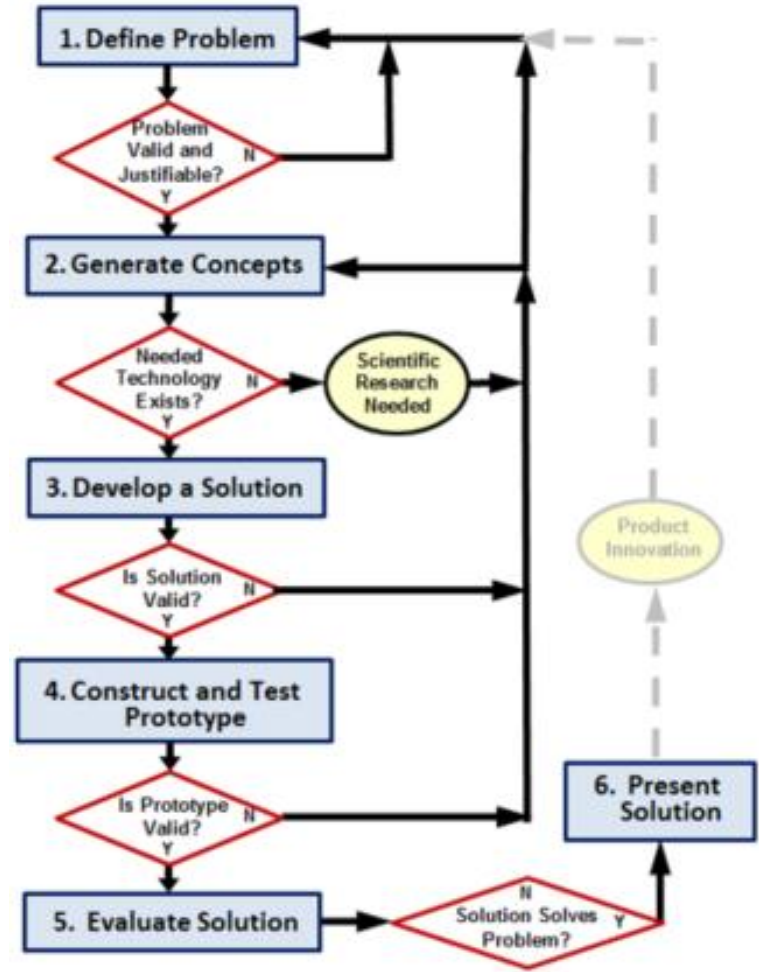
After watching the videos on the previous page, continue to research different styles of launching machines that you might be able to build from materials you find at home. Keep in mind that your machine will have to stay within the dimensions of 12” long x 12” wide x 12 “ tall.

Use steps 1–3 of the design process on page 6 to Brainstorm solutions to this challenge. Record all your ideas with sketches in your engineer’s notebook or on other paper. Try to get at least 10 solutions. Feel free to further research on the internet. Organize your data into a chart listing the pros and cons of your top 4 ideas so you can narrow it down to the best choice.

You should conclude your work today with a sketch of each part and an assembly drawing of the design you choose.

# Make sure you follow the Design Process.

1. Define the Problem
2. Generate Concepts
3. Develop a Solution
4. Construct and Test a Prototype
5. Evaluate the Solution
6. Present the Solution



## Check For Understanding:

Do you think you can build your launcher with materials you find around your house?

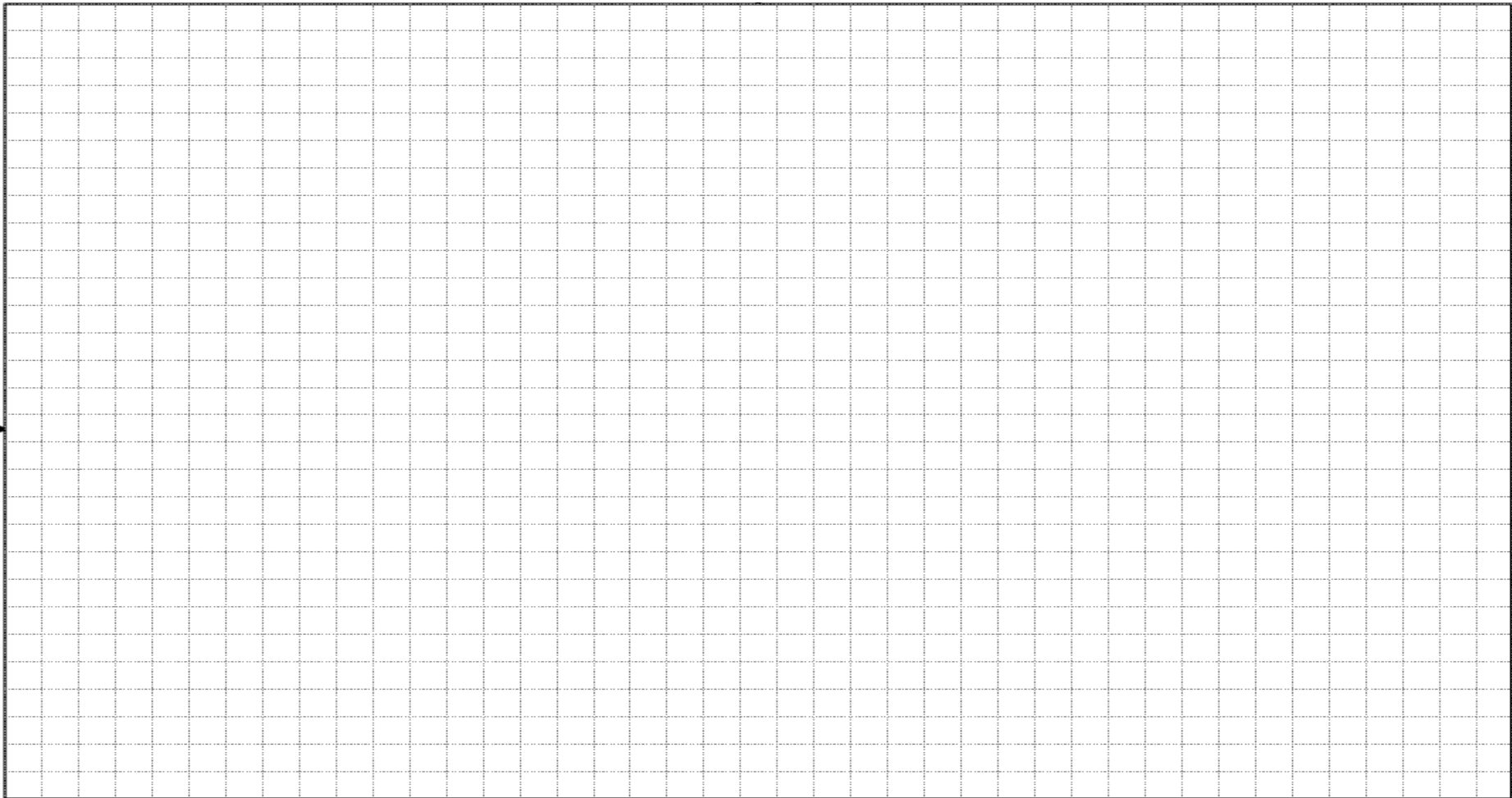
## Learning Resource Links:

<https://www.youtube.com/watch?v=9-Hwxw4fgqk>

<https://www.youtube.com/watch?v=EFxeVO3AfaA>

[https://www.youtube.com/watch?v=JTDxIBPme\\_0](https://www.youtube.com/watch?v=JTDxIBPme_0)





**NAME**

**TITLE**

**DATE**

**PERIOD**