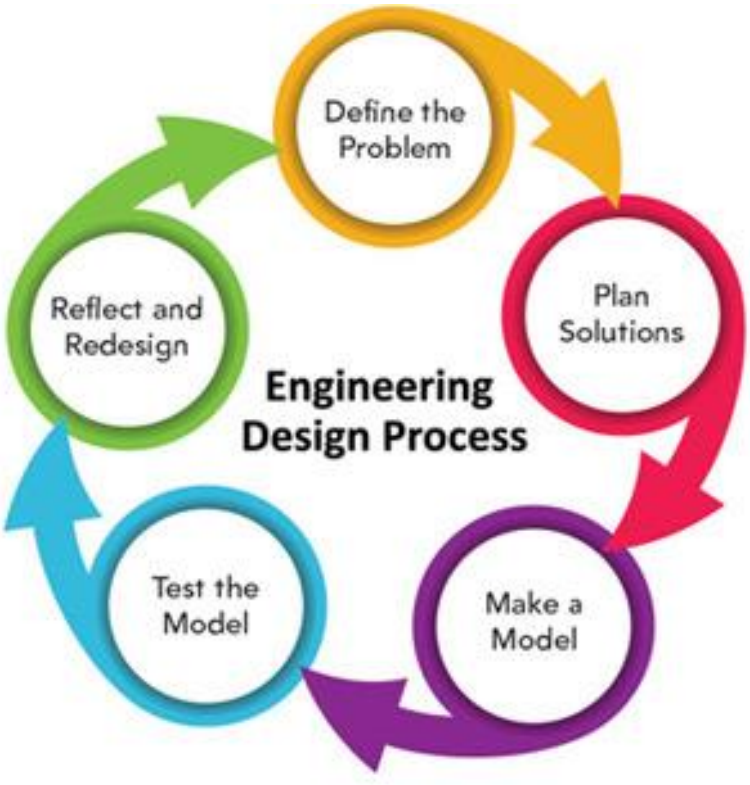
VANDERBILT SCIENTIST IN THE CLASSROOM PARTNERSHIP

Aluminum Foil Boats Engineering Challenge

5.ETS1.1 Research, test, re-test, and communicate a design to solve a problem.
5.ETS1.2 Plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Apply the results of tests to redesign the prototype.
5.ETS1.3 Describe how failure provides valuable information toward finding a solution.

Supplies:
Aluminum Foil
Pennies
Large shallow bin as a lesson bin
Lesson Binder

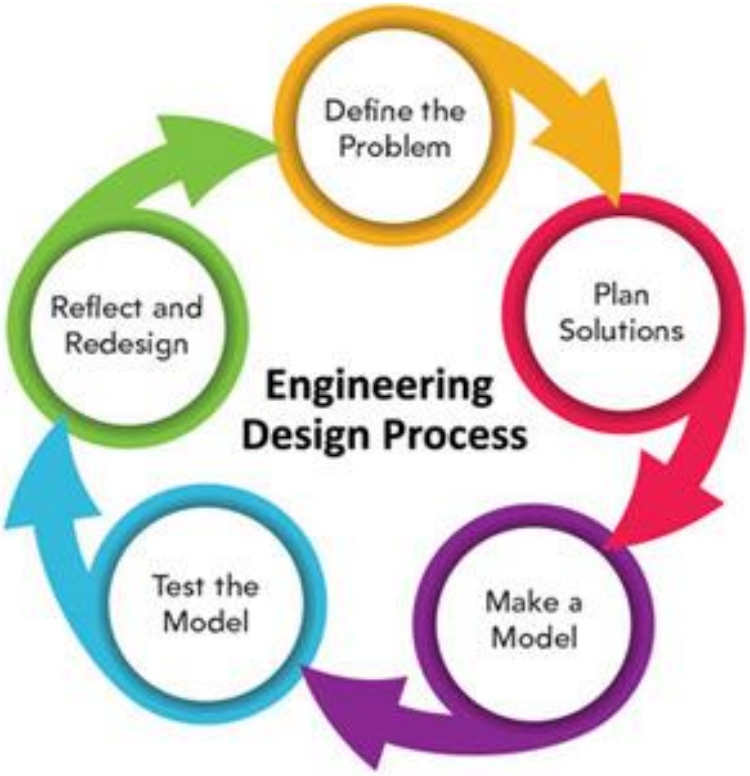
In this lab students will get to test their engineering prowess. They will have a certain amount of aluminum foil (Teacher choice, but about 1-2 feet is appropriate) and students will work together in groups to design an aluminum foil boat that holds the most pennies. The engineering process should be emphasized.



Aluminum Foil Boat Challenge

Name:_____

You are an engineer working for ABC Boating Company. The company needs a boat designed out of aluminum for their new project. They have assigned several teams to try and design the best boat that would hold the most number of cargo (pennies). As a member of one of these teams it is your job to work together using the engineering design process to come up with the best design for your boat to hold the most pennies.



1. What is the problem? Be as specific as possible.

2. Plan a few solutions. Sketch them below.

3. Make your model. Predict how many pennies it can hold.

4. Test your model. How many Pennies did it hold?

5. Reflect: How do you think you could have done better?

6. If there is time, start over and design an new more specific problem and solution.