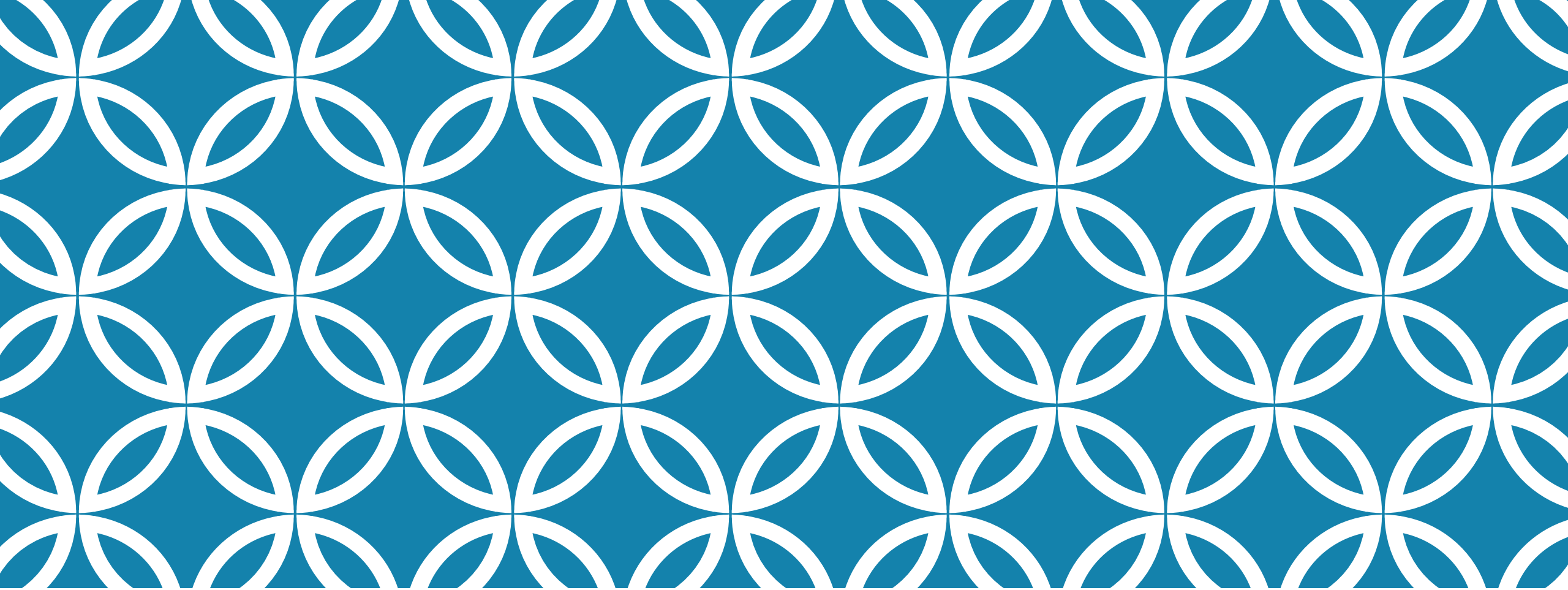


ENGINEERING DESIGN PROCESS

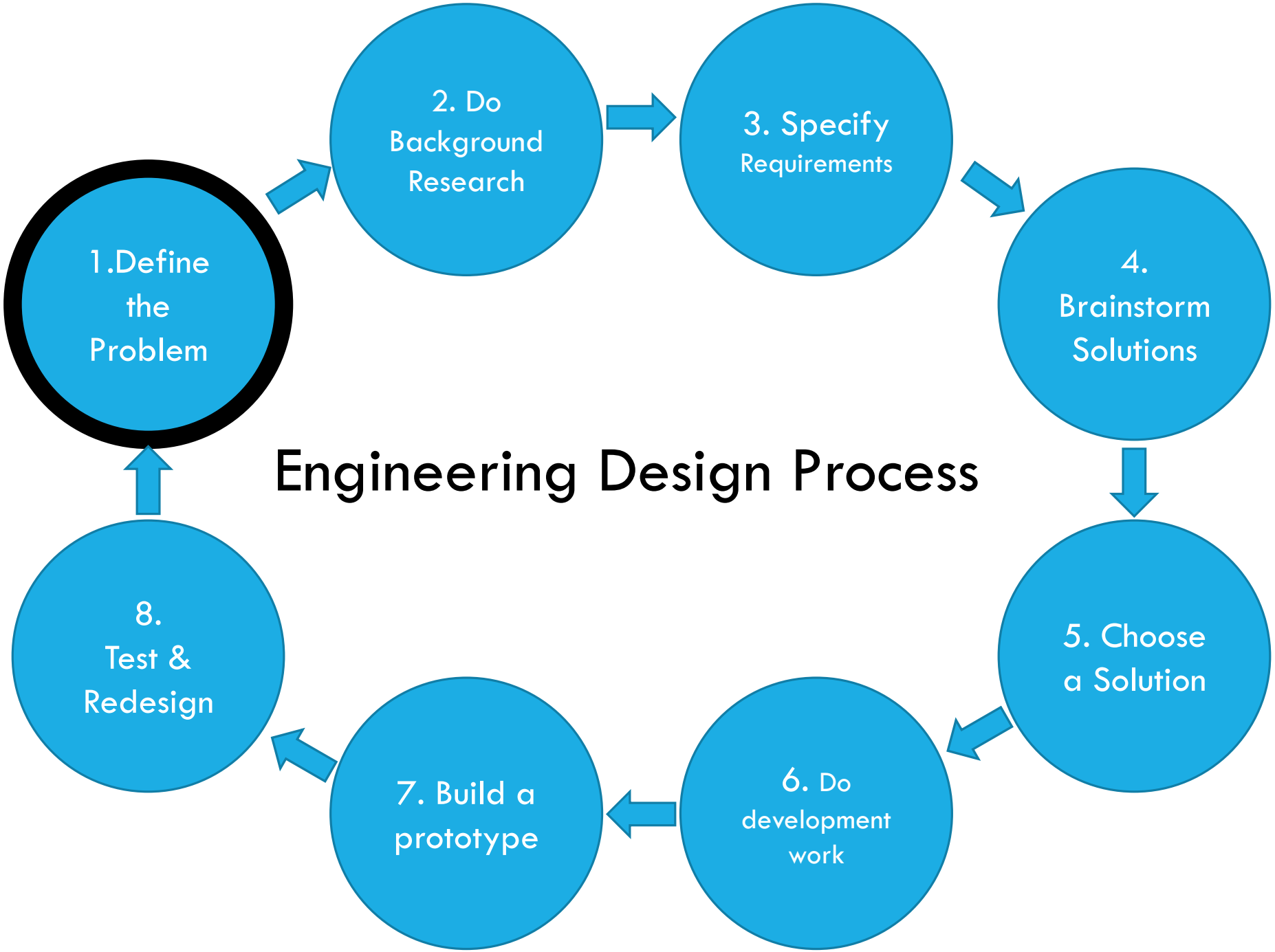
8/2/18

ENGINEERING DESIGN PROCESS

Cheesy intro video:

https://www.youtube.com/watch?v=MAhpfFt_mWM

Engineering Design Process



DEFINE THE PROBLEM

Identify the problem you are trying to solve or need which you are addressing

1. **Define the Problem**
2. Do Background Research
3. Specify Requirements
4. Brainstorm Solutions
5. Choose a Solution
6. Do Development Work
7. Build a Prototype
8. Test and Redesign

DO BACKGROUND RESEARCH

- Examine the current state of the issue and current solutions
- Explore other options via the internet, library, interview, etc.

SPECIFY REQUIREMENTS

Determine the **constraints** and **criteria**

KEY VOCAB

CONSTRAINT: a limitation or condition that must be satisfied by a design

CRITERIA: a standard or aspect of a design that can be measured

BRAINSTORM A SOLUTION

- Look at solutions to similar problems
- Draw on mathematics and science
- Think *creatively*

CHOOSE A SOLUTION

From what you know, choose a solution

"Do the best you can until you know better. Then when you know better do better." – Maya Angelou

DO DEVELOPMENT WORK

Plan out your design (sketch/model)

BUILD A PROTOTYPE

Make something!

KEY VOCAB

PROTOTYPE: A first working model or product from which other forms are developed

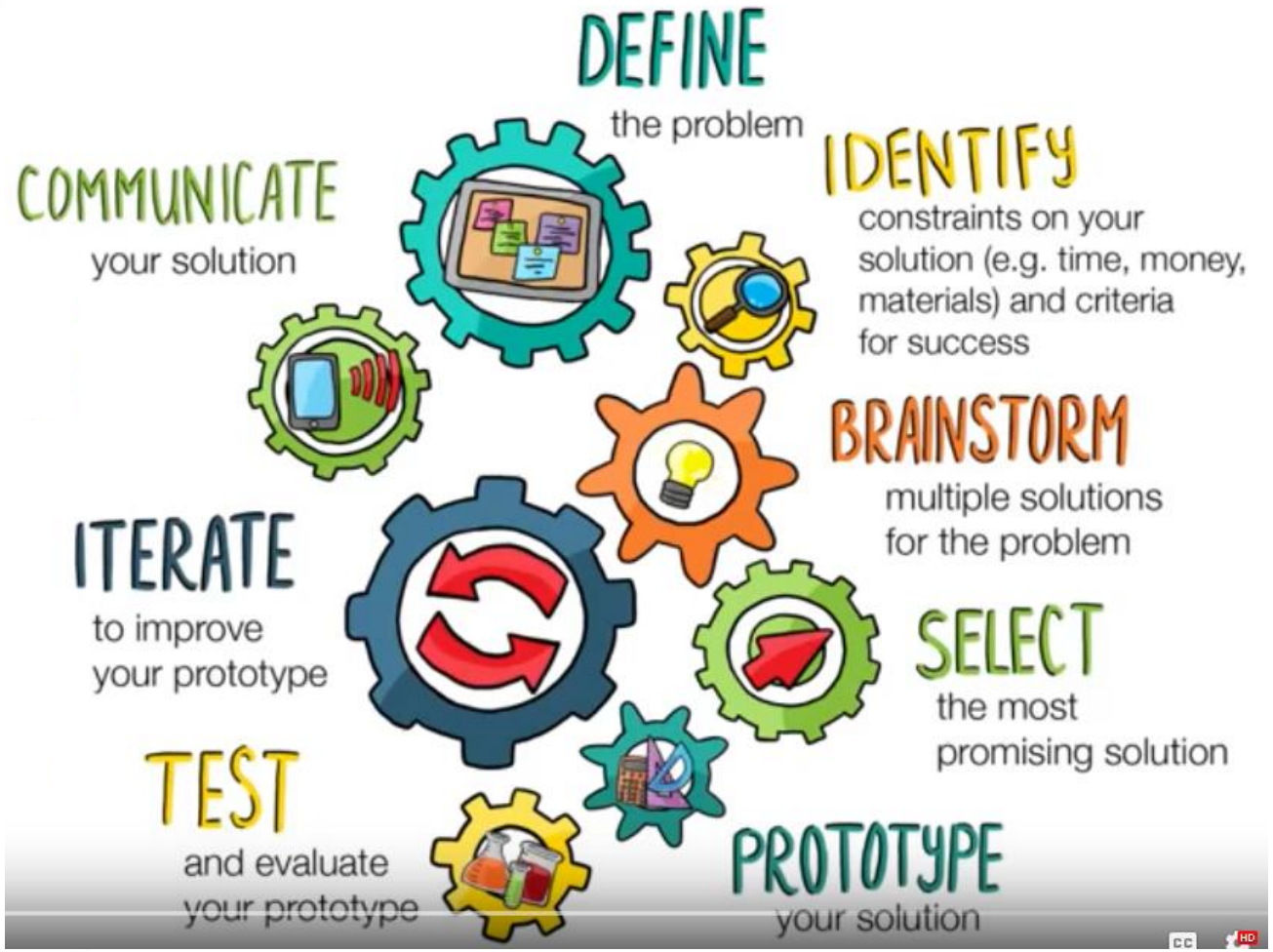
TEST AND REDESIGN

Experiment with your prototype
Does it meet the original constraints?
How does it meet the original criteria?
What worked?
What didn't work?
How can it be improved?

REPEAT!!!

1. Define the Problem
2. Do Background Research
3. Specify Requirements
4. Brainstorm Solutions
5. Choose a Solution
6. Do Development Work
7. Build a Prototype
8. Test and Redesign

OTHER ENGINEERING DESIGN PROCESS MODELS:



PAPER AIRPLANE CHALLENGE!

Rules:

- Your plane can only consist of paper and <4” of scotch tape
- Can only throw your plane in the designated throwing areas

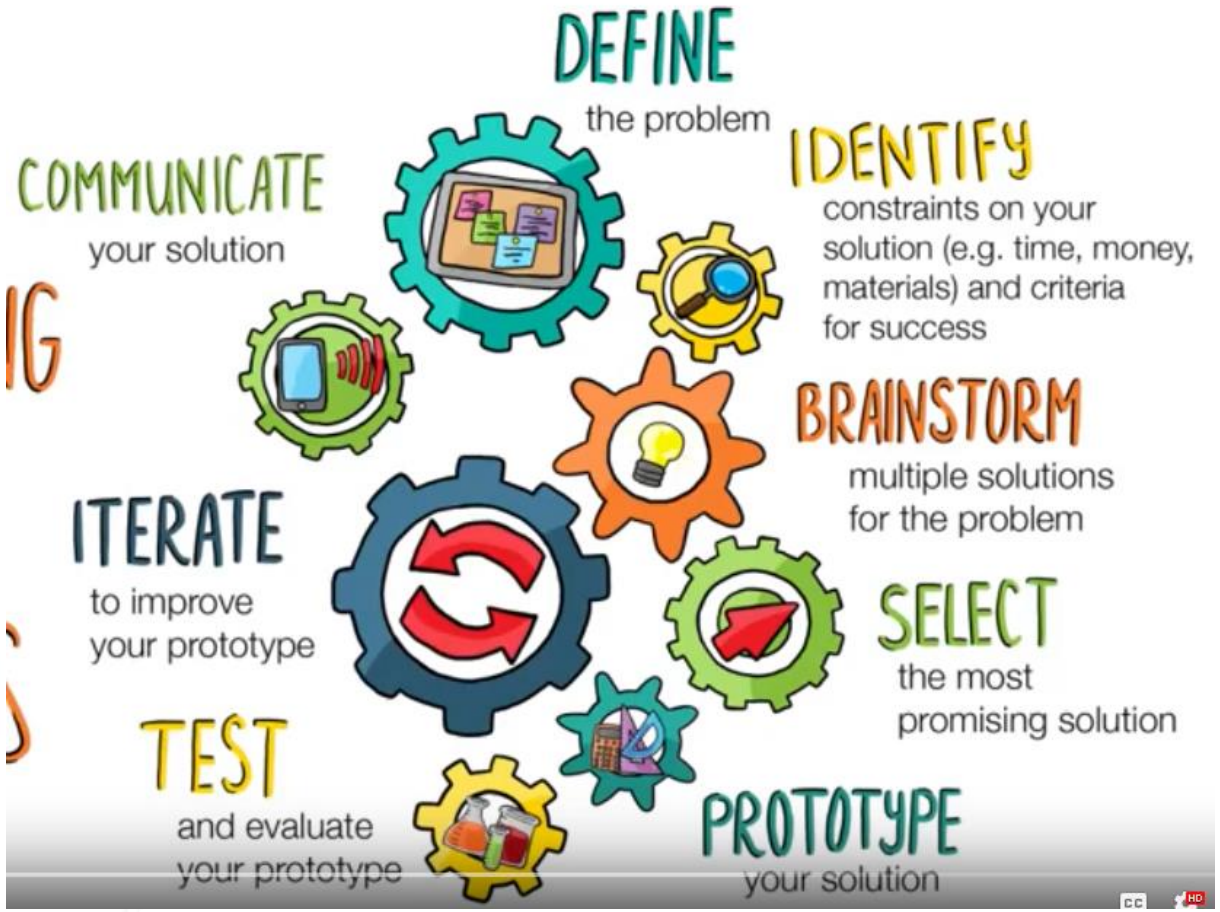
Goal #1
Create the plane which flies the farthest

Goal #2
Create the plane which flies the most accurate over 10 feet

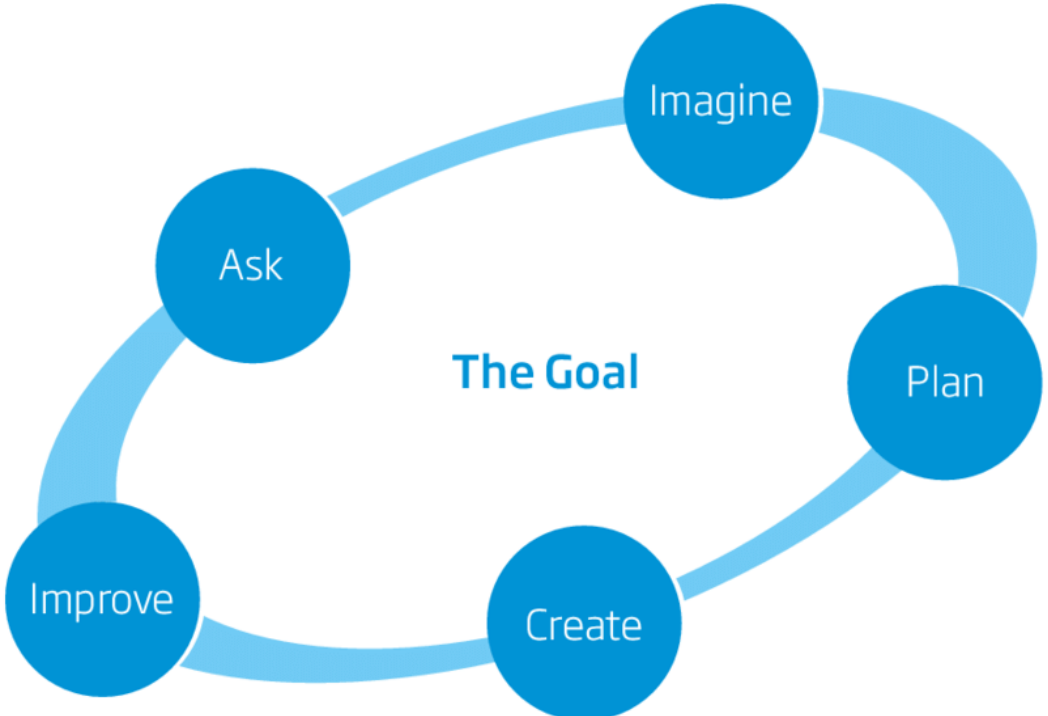
Put your name on your plane (and decorate!) your plane and turn it in before leaving class

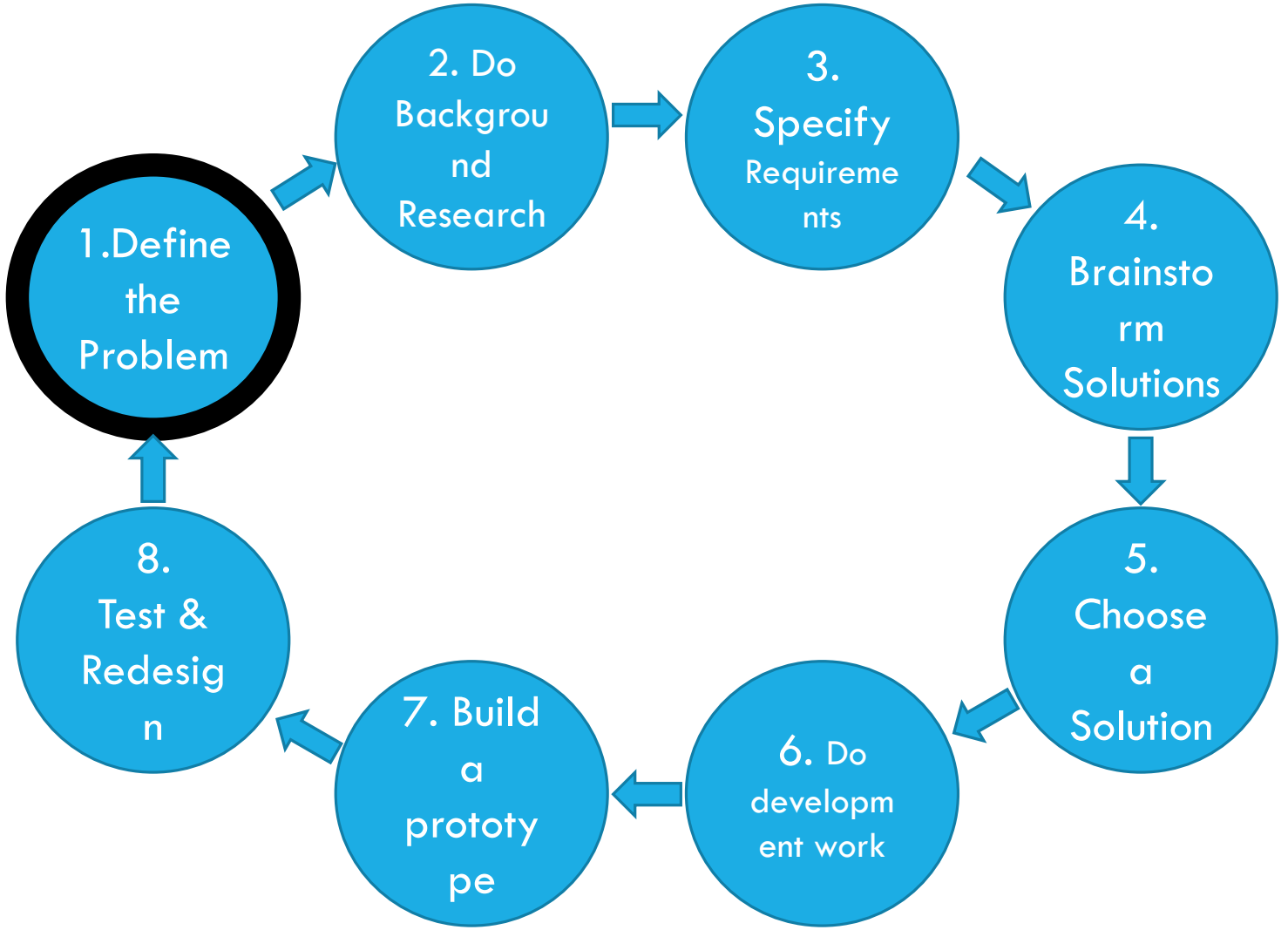
ENGINEERING DESIGN PROCESS MOBILES

In a group, create a mobile demonstrating one of the four EDP's below:



CONT:


Imagine
Ask
The Goal
Plan
Improve
Create


1.Define the Problem
2. Do Background Research
3. Specify Requirements
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