

NASA

Ask
Imagine
Plan
Create
Experiment
Improve

Dartmouth

Define the problem.
Restate the problem.
Develop constraints/ criteria/specifications.
Brainstorm ideas.
Research alternatives.
Analyze alternatives by a trade-off matrix.
Identify a potential solution
Research in detail the potential solution.
Design a potential solution.
Construct a prototype.
Evaluate prototype.
Reiterate if necessary.
Simplify if possible.

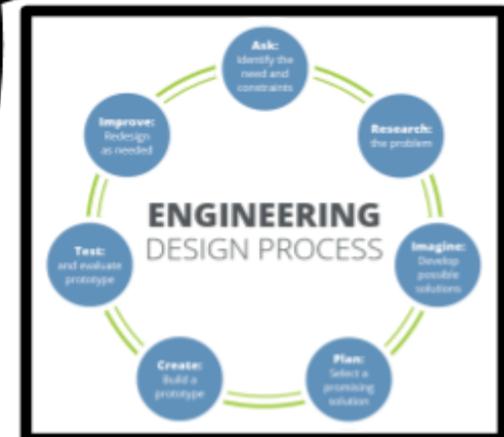
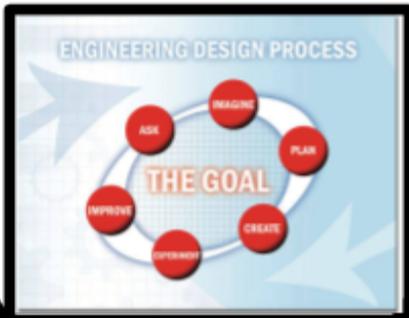
Cyclical
Constraints
Teamwork/
Groups
Problem Solving

High
School or
College
level

Better for
elementary.

Ask: Identify Need & Constraints
Research the Problem
Imagine: Develop Possible Solutions
Plan: Select a Promising Solution
Create: Build a Prototype
Test and Evaluate Prototype
Improve: Redesign as Needed

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<https://www.teachengineering.org/k12engineering/designprocess>

<https://www.nasa.gov/audience/foreducators/best/edp.html>