

STEM Engineering Design Process



We use the four fields of STEM (science, math, engineering, and technology) to solve real-world problems, or challenges. STEM challenges have four main goals: **define, imagine, plan, create, and improve** - how does the Engineering Design Process work? It sets a goal and a challenge. Once you build a solution, you will find a way to improve it, create a new plan, build a new model, and retest it until you find a solution that works.

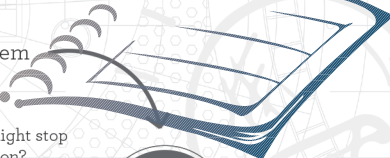
Practice: going through the ED² steps yourself! Get a deck of cards and a roll of tape. Find a way to build a house that stands up to strong winds.



ASK

Define the problem and constraints.

Practice: What is the problem? What might stop you from coming up with the best solution?



IMAGINE

Brainstorm - how can you solve this problem?

Practice: Write down all the possible ideas for how you might build the house. Sketches are OK!



IMPROVE

Find a way to make your plan even better.

Practice: Test it by either blowing air onto the card house or putting a fan up to it. How will you change it in the future to help it stand longer?



CREATE

Build a model of your solution.

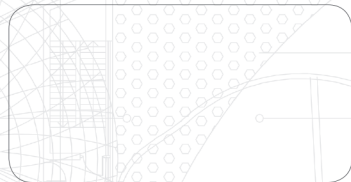
Practice: Build your card house!



PLAN

Pick your best idea, & plan your solution.

Practice: Use a detailed drawing to show your plan.



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