TeachEngineering

STEM Curriculum for K-12

Engineers make a world of difference!

ENGINEERING DESIGN PROCESS

TeachEngineering.org

1 **ASK TO IDENTIFY THE NEED** Engineers ask critical questions about what they want to create: What is the problem? What do we want to design? Who is it for? What do we want to accomplish? What are the project requirements and limitations? What is our goal?

2 **RESEARCH THE PROBLEM** This includes talking to people from many different backgrounds and specialties to assist with researching what products or solutions already exist, or what technologies might be adaptable to your needs.

3 **IMAGINE POSSIBLE SOLUTIONS** Work with a team to brainstorm ideas and develop as many solutions as possible. Encourage wild ideas and defer judgment! Stay focused on topic, and have one conversation at a time. Good design is all about teamwork!

4 **PLAN BY SELECTING A SOLUTION** Revisit the needs, constraints and research from the earlier steps, compare your best ideas, select one solution and make a plan to move forward.

5 **CREATE A PROTOTYPE** Building a prototype makes your ideas real! Early versions of the design solution help your team verify whether the design meets the original challenge objectives. Push yourself for creativity, imagination and excellence in design.

6 **TEST THE PROTOTYPE** Does it work? Does it solve the need? Communicate the results and get feedback. Analyze and talk about what works, what doesn't and what could be improved.

7 **IMPROVE AND REDESIGN** Discuss how you could improve your solution. Make revisions. Iterate your design, continuously improving it, to make your product the best it can be within your design constraints.

And now, ITERATE YOUR DESIGN!

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