TEACHENGINEERING.ORG

Ignite STEM Learning in K-12

ASK

Identify the need and constraints
Engineers ask critical questions about what they want to create, whether it be a skyscraper, amusement park ride, bicycle or smartphone.

RESEARCH

Investigate 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.

IMAGINE

Develop possible solutions
Work with a team to brainstorm ideas and develop as many solutions as possible. This is the time to encourage wild ideas and defer judgment! Build on the ideas of others! Stay focused on topic, and have one conversation at a time!

PLAN

Select a promising solution
This is the hardest step for many teams! Revisit the needs, constraints and research from the earlier steps, compare your best ideas, select one solution and make a plan to move forward with it.

CREATE

Build a prototype
Building a prototype makes your ideas real! These 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.

TEST

Evaluate 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.

IMPROVE

Redesign as needed
Discuss how you could improve your solution. Make revisions. Draw new designs. Iterate your design to make your product the best it can be. And now, REPEAT!

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Engineering Design Process

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