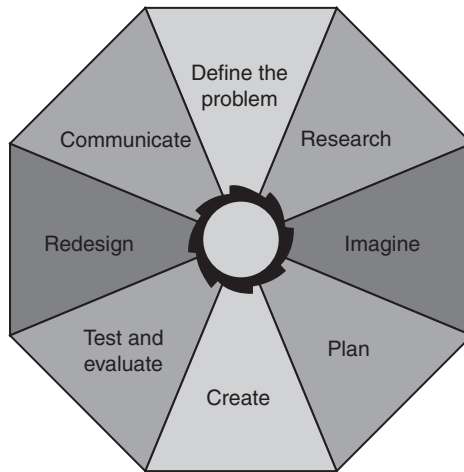


Design Tool 7.3: EDP Description for Teachers

Note: This is a description of the engineering design process in a nutshell. Steps do not have to occur in any particular order.



Engineering Design Process

Define the problem. This is the specific challenge that students will address. Introduce criteria and constraints.

Research. Team members gather needed information about the problem in a variety of different ways. Experiments and technology are often useful in their STEM research.

Imagine. Team members brainstorm informed ideas on how to solve the problem and come up with a number of possible solutions. Encourage creative and out-of-the-box ideas.

Plan. Team members choose the idea they think will work best and decide how to design their prototype. Sketching the prototype is a suggested part of the planning step. Reaching consensus may be a good team focus to help with this stage.

Create. Team members design the prototype they selected. All team members play a role in the design process. At this point teams often discover that their design isn't practical, do additional planning, and redesign their device.

Test and evaluate. Teams test their prototypes to see if they work according to the criteria established. They evaluate them based on how well the prototypes meet the criteria and solve the problem. Rubrics and checklists are useful for this stage.

Redesign. Teams decide how to improve the prototype and they redesign the device. This may not be the first time teams have redesigned. In fact, redesign is an ongoing part of the EDP. An entire STEM challenge might actually focus on improving (redesigning) an existing device.

Communicate. Teams share specifics about the problem, their design solutions, and their results with a variety of audiences, using a variety of communication approaches and methods.