Engineering Process

Identify the problem

and Requirements

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Research the Problem

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Identify Possible Solutions

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Select "Best" Solution

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Develop Prototypes

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Test Prototype

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Prepare for Design Review

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Receive Feedback

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Design Working Model

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Test Working Model

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Refine based on feedback
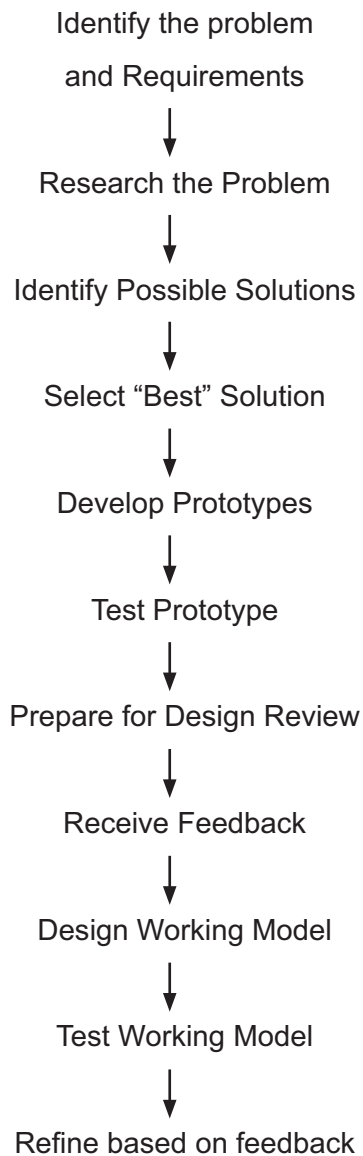
The dictionary describes a "process" as a series of actions, changes, or functions bringing about a result. Engineers, scientist, and researchers use a process when they solve a problem. The first step in solving a problem is to clearly define the problem. The team may think that they have identified the problem, when in fact they may have only considered part of the problem, which typically leads to a partial solution. Once the problem has been clearly identified, the team can begin to brainstorm and propose solutions. The first three steps of the problem-solving model: define the problem, brainstorm, and propose solutions, may be done concurrently. If the team moves too quickly from one step to the next, they may not have thoroughly identified the problem, brainstormed sufficiently, or proposed enough potential solutions to consider all of the alternatives available. When that happens, most teams find themselves returning to the beginning and to start over again.

The next couple of steps: developing prototypes, testing, design reviews, and receiving feedback from others, are all important steps in the engineering process. Before a team begins to build their final solution, it is important that they model and test several ideas. After that is done they will want to present their ideas to others. Sometimes, problem solvers miss potential solutions because they haven't considered all options. Preparation for the design review and the feedback the team receives will move them closer to a working solution. Design is an iterative process. Even when the team has a working solution, they will want to consider improvements based on their testing.

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