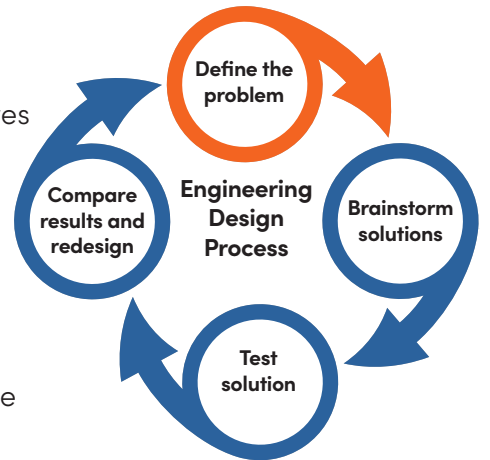


# ENGINEERING DESIGN PROCESS PART 1: DEFINE THE PROBLEM

The **engineering design process** is a series of steps used by engineers to design an object, tool, process, or system that solves a problem. Typically, the first step in the process is to *define the problem*. This involves identifying specific criteria and constraints.

- **Criteria** are the measurable requirements that a successful solution must meet.
- **Constraints** are the factors that limit the possible solutions.

Many problems have criteria and constraints related to cost, materials, and time. The more precisely the criteria and constraints are defined, the more likely it is that the designed solution will be successful.



Think of a problem that you could solve by designing an object, tool, process, or system. Use the graphic organizer to define the problem.

Describe the problem you want to solve.		
Who is affected by the problem?	What <b>criteria</b> should be met in solving the problem?	What scientific issues are relevant to the problem?
What are the potential societal and environmental impacts of solving the problem?	What are the <b>constraints</b> of the solution? Which constraints are most important?	What safety considerations should be kept in mind?