



## Activity: What is a Problem?

1. Write or post the word *problem* on the board. Ask the students to work with partners/ small groups to define problem.
2. Have students share their definitions, either by writing them on large paper (such as sentence strips) and posting them or by writing them directly on the board.
3. Work with the students to compare the different definitions while discussing the common words/themes present.
4. Ask the students if they have ever solved a problem? Have them explain to a neighbour the problem they solved (briefly).
5. Discuss how scientists and engineers also solve problems. However, they define problem in a different way. Post and share this simplified definition: *A problem is a challenge that can be solved through a set of steps.*
6. Compare the definition with the student definitions. Discuss as needed.
7. Explain that the students are actually going through the design process, which is also called Project Based Learning. Show the design cycle and work out together the different steps.
8. Then, work with the students to brainstorm a list of possible problems that engineers and/or scientists (and even students) might use the design process to solve.  
**For example:**
  - ↳ Building a bridge
  - ↳ Reducing a certain type of pollution in a river/water stream
  - ↳ Constructing a more aerodynamic car
  - ↳ Attracting birds or insects to a site
  - ↳ Increasing the production of a garden
  - ↳ Reducing animal damage on crops
  - ↳ Getting rid of (or preventing the growth of) non-native and/or invasive plants
  - ↳ Growing vegetables/food on a different planet
  - ↳ Constructing a new soccer field that will not flood
9. Conclude by revisiting the definition of problem (keeping it posted for the duration of the Project-Based Learning Model process) and reminding the students that they will be defining and solving a problem with their teams as they continue to work through this project.