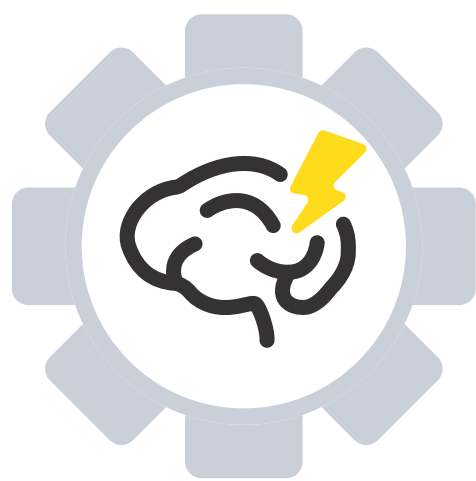
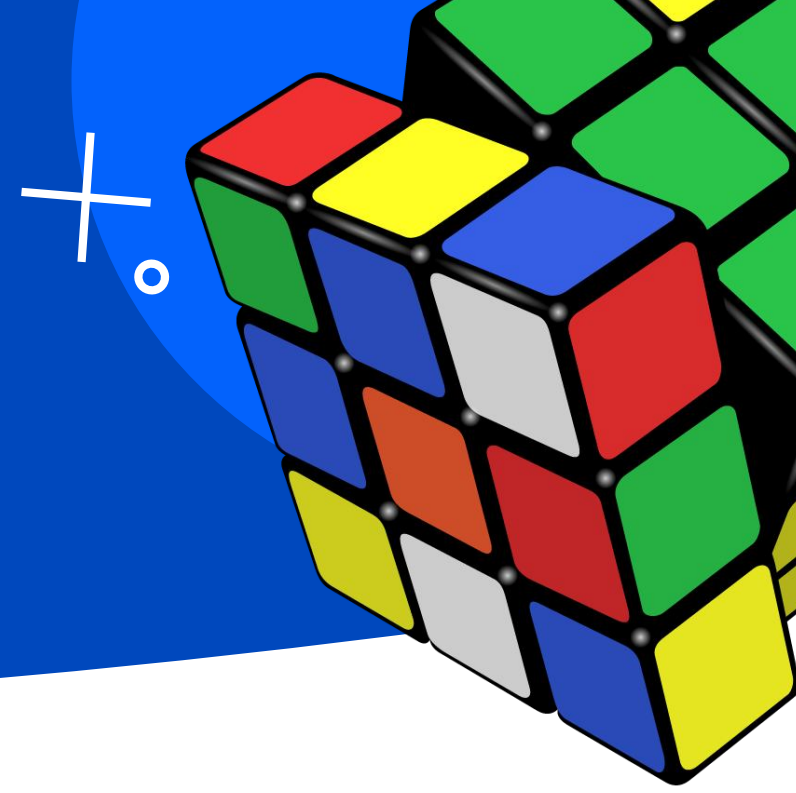


The Engineering Design Process



1. Brainstorm | Goal: Select your best idea.

⚙️ **Brainstorm at least 3 ideas.** All ideas are welcome at this stage.

- What is the problem you're trying to solve?

⚙️ **Bring your big ideas into focus.** Consider criteria and constraints.

- Can you build it with the materials you have available?
- Did you consider the constraints provided?

☐ **Write down everything.** Even silly ideas can spark amazing solutions! Remember words and phrases count too.



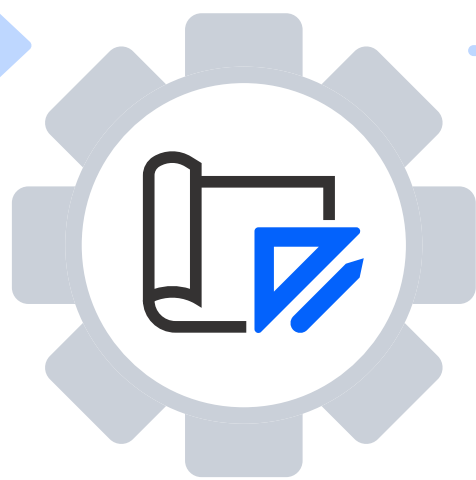
2. Research | Goal: Explore science concepts that can guide your design.

⚙️ **Ask questions!** Curiosity is key to finding information about your problem.

- What have other people done?
- What materials and tools are available?

☐ **Look everywhere!** Use all resources available—books, websites, experts, etc. Knowledge is power!

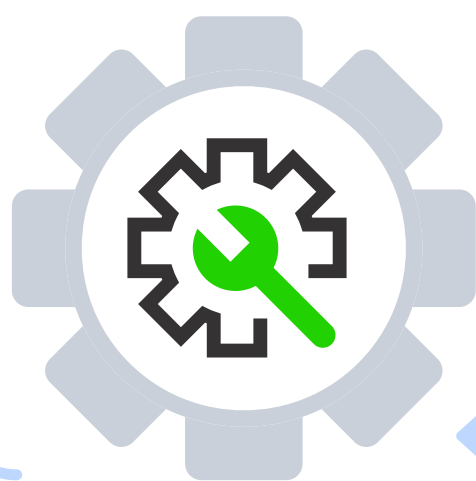
☐ **Keep track of your sources!** Write down any science principle that will inform your design (and their source.)



3. Design | Goal: Create a sketch of your best idea.

⚙️ **Get creative!** Sketch out your best idea. Label all the important parts.

☐ **Summarize 2 science concepts** you learned about in your research. How can you combine these concepts with your original design to improve it?



4. Build and Test | Goal: Build a prototype and test it to see if it works.

⚙️ **Does it work?** Test your prototype to see how well it solves the problem.

☐ **Don't be afraid to make mistakes!** Make a note of what doesn't work to help you improve your design. It's all part of the process!

Design (Again!)

Design (Again!) | Goal: Use what you've learned from your tests to adjust your design.

⚙️ **What worked well?** What could be improved?



5. Evaluate | Goal: Review each version of your design and reflect on the decisions you made.

⚙️ **Reflect on the process.** Be honest and specific in your evaluation.

- How did your design change from the beginning of this project to the end?
- What information did you use to make these changes?

☐ **Ask yourself:** What did you learn? What would you do differently next time?

Remember: The engineering design process is iterative! You might need to repeat some steps or even start over. That's okay! Keep trying, keep learning, and keep improving!