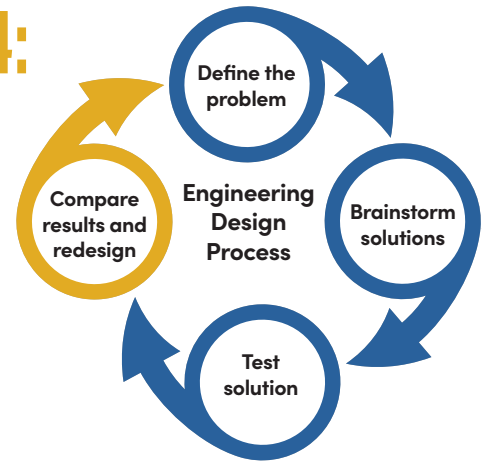


ENGINEERING DESIGN PROCESS PART 4: COMPARE RESULTS AND REDESIGN

Once an engineer has defined a problem, brainstormed solutions, and tested solutions, they are ready to begin the fourth step of the engineering design process: *compare results and redesign*. In this step, an engineer compares their test results to those of other engineers working to solve the same problem. The engineers collaborate to design and test an optimized solution that combines the best features of each prototype.



Answer the questions below to compare prototypes and develop an optimized solution to the problem you defined in Part 1.

1. Share the following with your peers:
 - What is your most successful prototype? *Show the physical model or a sketch of the design.*
 - What data shows that this prototype is the most successful?
 - Why do you think this prototype best meets the criteria of the design challenge?

2. Think about what you learned from your peers.
 - a. Which design best meets the criteria of the design challenge? Explain why you think this design is the most successful.

 - b. What are some features of your peers' designs that work well to meet the criteria of the design challenge? Explain your reasoning for each. List at least one feature from each design you heard about.

 - c. What are some design features that do not help the design performance? Explain your reasoning.

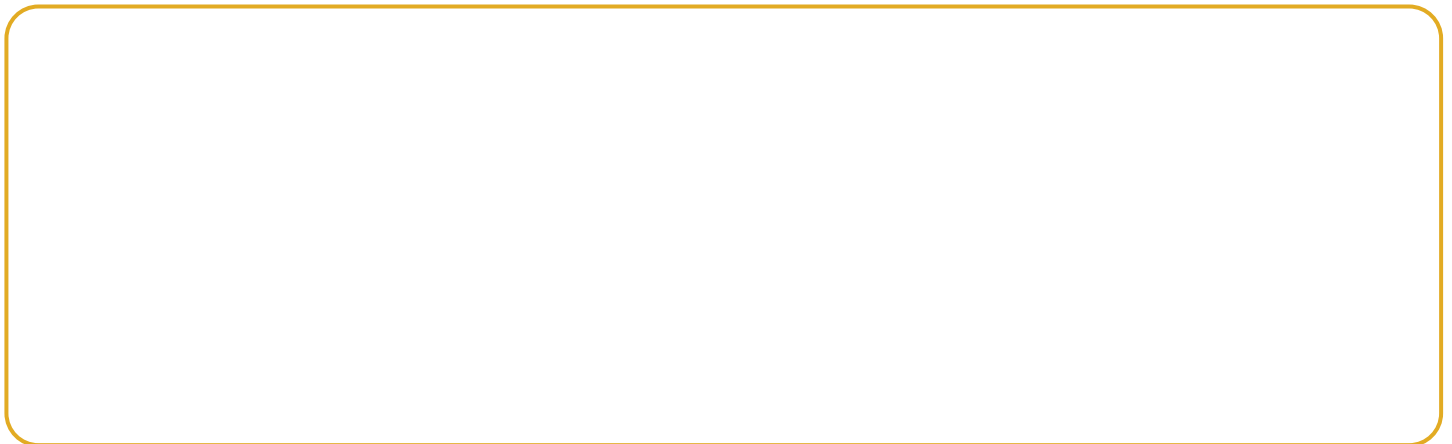
ENGINEERING DESIGN PROCESS PART 4: COMPARE RESULTS AND REDESIGN

Keep going! Answer the questions below.

3. Sketch a redesigned prototype that incorporates the most effective design features you identified in question 2. Be sure to include elements, such as labels, explanations, measurements, or lists of materials, that will help you communicate your plan.



4. Construct the optimized prototype you sketched in question 3. Test the prototype and record relevant data in the space below.



5. Did the optimized prototype perform as well as expected? Why or why not?

Remember that the engineering design process is cyclical and iterative! Engineers repeat the steps as many times as needed until the prototype meets or exceeds the criteria of the project.