

This
Design Thinking Engineering Notebook
Belongs to

When you are finished, make sure you ask yourself these questions:

- Did you collect enough data?
- Do you need to collect more data?
- Do your results seem reasonable?
- Are there any trends in your data?
- What might explain these trends?
- Do you need to do more experimentation?



Define

What are some problems you may want to solve? Brainstorm potential

How Might We questions:

Choose one How Might We question that you want to research more and design a solution for below:

Why did you choose this problem to solve?

Gather information about your problem.

- What do you already know about this problem? How do you know it?

- What else do you want to know about this problem?

Research:

- What information can you find out about your problem?
- Why is this a problem?
- What data can you find about the problem?

Remember to include where the information came from.

Empathize

Who is impacted by your problem? What might the user of your solution say, think, do or feel about the problem?

Says WHAT DOES YOUR USER SAY? WHAT MIGHT THEY SAY?	Thinks WHAT DOES YOUR USER THINK? WHAT MIGHT THEY THINK?
User WHO IS THE USER OF YOUR SOLUTION?	
Does WHAT DOES YOUR USER DO? WHAT MIGHT THEY DO?	Feel WHAT DOES YOUR USER FEEL? HOW MIGHT THEY FEEL?

What evidence do you have that the user needs your solution?

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Ideate

What are all the possible solutions you can come up with to your problem?
Write all of your possible solutions below.

What themes do you notice? Group your ideas into similar ideas.

Prototype

Design a solution. What will you invent to help solve this problem?

- Draw a picture if you would like.
- TAKE PICTURES OF THE PROCESS!
- Jot ideas here throughout the process. Remember, it should be a working prototype.
 - What works?
 - What doesn't work?
 - What did you need to change?



Materials I have at home.	Materials I need to get

Test

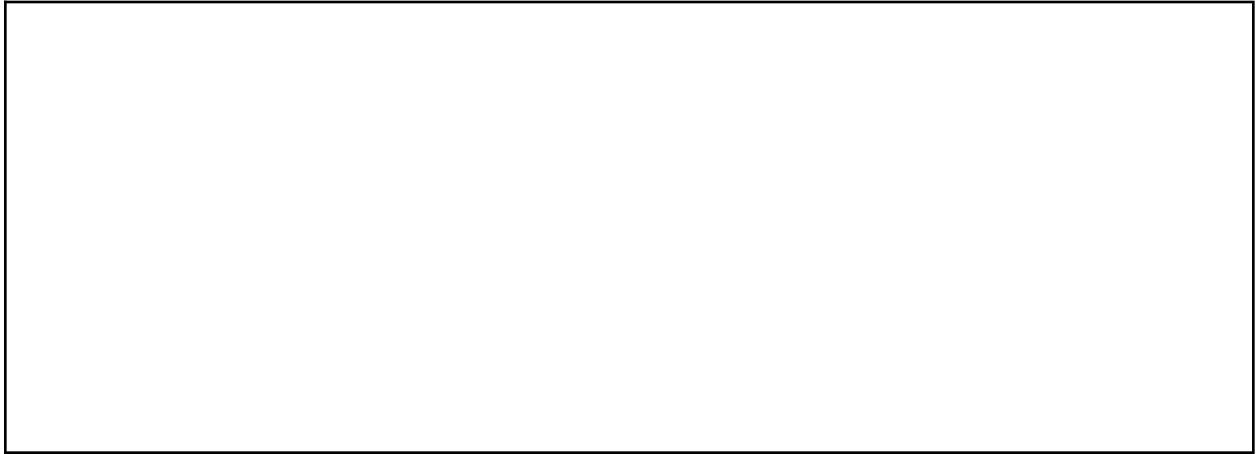
Test your design AT LEAST 3 TIMES!

Collect the data in an organized way.

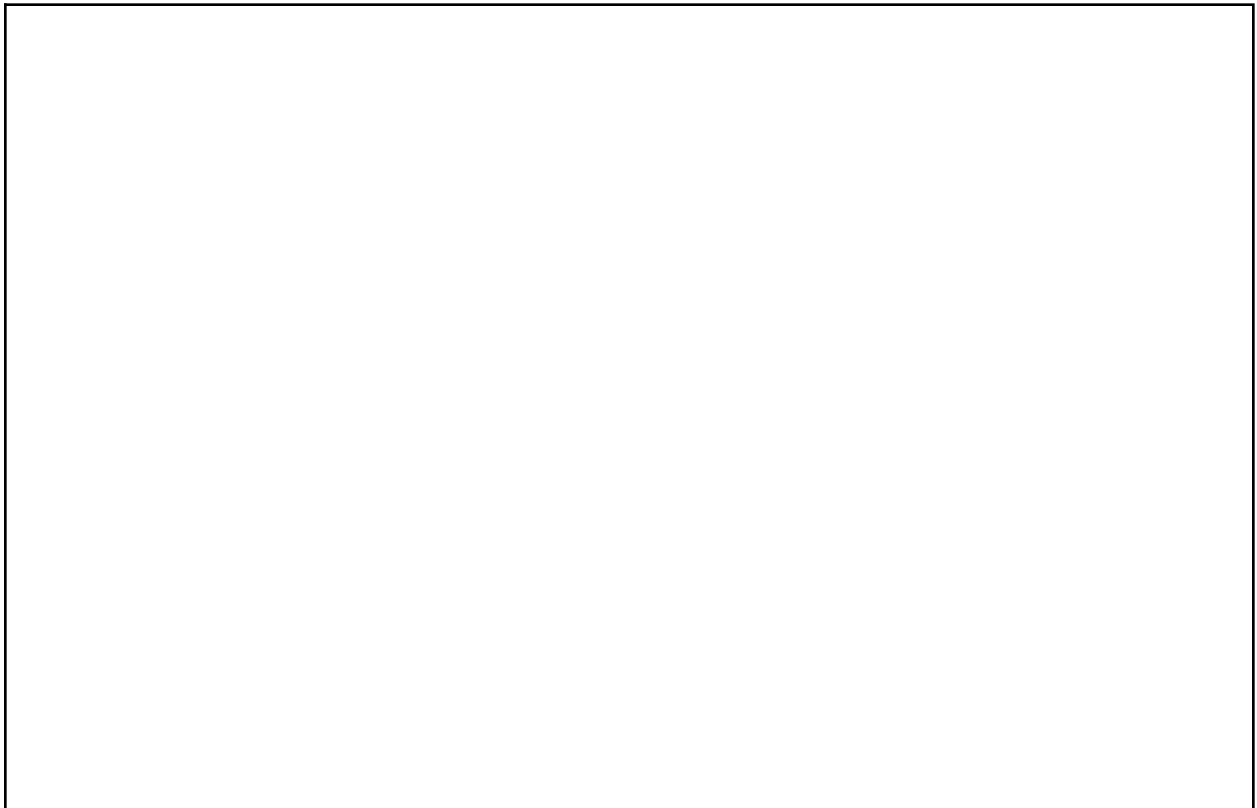
- Think about what you will measure when you test. How will you know if your design worked?
- Make tables or charts to collect the data as you experiment.
- Use units of measure as you collect the data.

Write your step-by-step process for creating and testing your design.

How will you know if your design is successful? What data will you need to collect?

A large, empty rectangular box with a thin black border, intended for a student to draw or write their answer to the question above.

How will you organize your data? Ex. Tables, charts, graphs. Draw your data collection tool below and fill it in when you test. (You can use more than one.)

A large, empty rectangular box with a thin black border, intended for a student to draw or write their answer to the question above.

Reflect on Results and Redesign

What went well? (Use data to support your thinking.)

What did not go well? (Use data to support your thinking.)

What constraints did you have?

What improvements need to be made in the future? (Use data to support your thinking.)