



# The Engineering Design Process

My STEAM  
Journal

Name:

# ASK

Describe the problem:

What problem are you trying to solve?

What do you want to accomplish with your new design? What do you want it to do?

Who will be using your design?

**Research Notes:** Which solutions to the problem already exist? Include your sources. Attach any additional research to this packet.

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What are the constraints/limitations of the project? What are some things about your solution that you cannot control?

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# IMAGINE

Brainstorm some solutions to the problem!  
Sketch out your ideas and draw up some solutions.

BE CREATIVE!

THINK OF NEW  
WAYS TO DESIGN A  
SOLUTION!

USE YOUR  
IMAGINATION!



Design 1:

Design 2:

Design 3:

**Design** \_\_\_\_

**Design** \_\_\_\_

# IMAGINE

Brainstorm some solutions to the problem! Sketch out your ideas and draw up some solutions.

Which Design Do You Like The Best?

- Design #1
- Design #2
- Design #3
- Design #4
- Design #
- Design #

My Favorite Design Is #\_\_\_\_\_

Because \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Design 4:

Design \_\_\_\_\_:

Design \_\_\_\_\_:







# TEST & EVALUATE

Determine how you will test the prototype or design for your solution.

What kind of data would you need to gather or evaluate to see if your design works?

Discuss the following questions about your data from the test/evaluation.

- If you tested your prototype, did it work like you wanted it to?
- What was successful about your prototype? What were its strengths?
- What were the problems with your prototype?
- What do you still need to think about?
- What could be improved about your prototype?

## Test & Evaluate

- Test your design and record results below. Circle if the challenge was a success.
- Remember that failure is an important part of the engineering process!
- After each trial, review the results and make changes to improve your design.

Trial	Results of Test	Challenge Complete?
1		Yes/No
2		Yes/No
3		Yes/No

How many trials were needed for a successful result? \_\_\_\_\_

Notes:

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# REFLECT & SHARE

## Story Spine

Communicate your results and share out your solution to a problem. Determine how you want to share this out with others: video, journal article, website, pamphlet, and/or other modes of communication.

To successfully communicate your solution, you need to do the following:

- State the problem/need that is being addressed
- Describe and show your solution
- Describe how your solution meets the need (criteria)
- State why it is a good solution (you can compare your solution to what's being done already today, if anything)

Complete the story spine below in order to develop a well written response in reflection of your project and share your results.

Use the problem statement you created originally to complete your response.

Question you are answering	Example Sentence Starter	Your Text...
What is the problem or need?	As it is now	
Who is it a problem for?	And this is a problem for	
Why is it a problem?	Because	
What is your solution (your product's name)?	But, now there's	
What does your solution do? How does it address the problem or meet the need?	That	
How does it work?	It works by	
What will be different because of your solution?	And in the future	