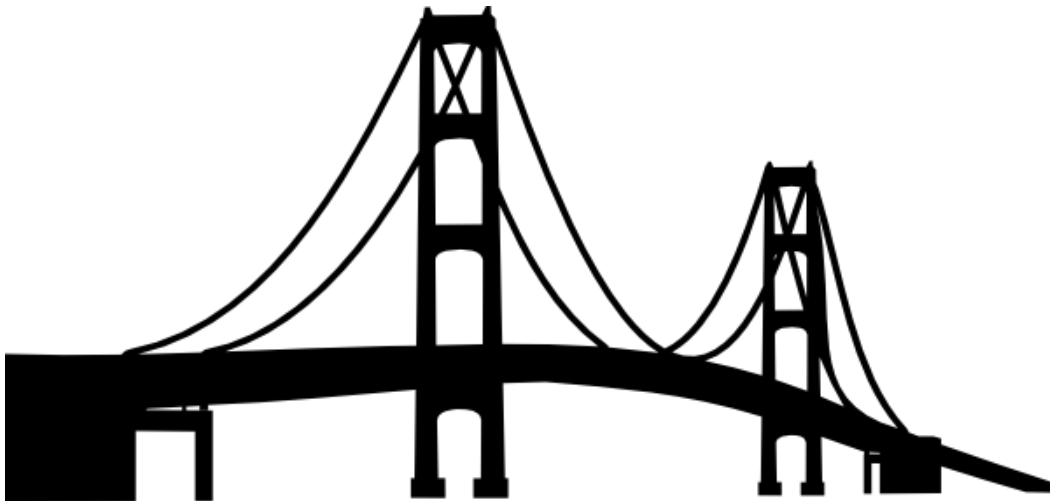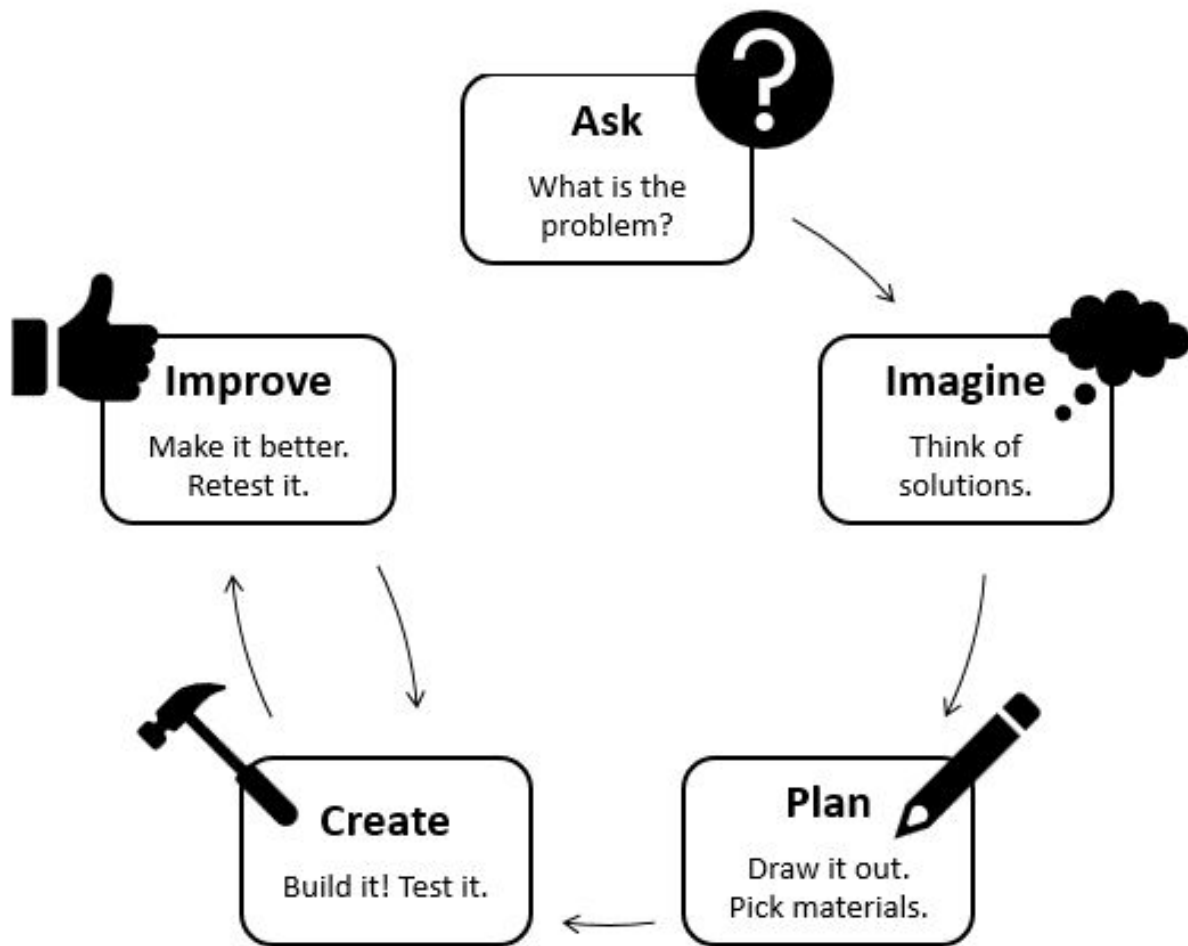**Name:**_____

Partner's
Name:_____

Be an Engineer:

Building a Bridge Packet

The Engineering Design Process

Ask
What is the problem?

Imagine
Think of solutions.

Plan
Draw it out.
Pick materials.

Create
Build it! Test it.

Improve
Make it better.
Retest it.

❓ Ask

What is the problem?

_____

_____

_____

_____

_____

💭 Imagine

Think of ideas to solve the problem. These are called **solutions.**

_____

_____

_____

_____

_____

✏ Plan

Draw out your idea. This is your **design**. Show all the parts of your design.

Pick out materials you need**.** Write a list of what you will need.

_____

_____

_____

⚒ Create and Test

Build your design. Test your **model** with pennies. Record the results.

Group	Number of Pennies

☁ Reflect

Which models held the most? Which held the least? What did they do differently?

_____

_____

_____

_____

_____

_____

Picking Different Materials and Folds

Material:	Good or Bad for Bridges?	Why?
Tin Foil		
Wax Paper		
Construction Paper		
Cardstock		

Kinds of Bridges:	Good or Bad for Bridges?	Why?
Folded like Yellow		
Folded like Red		
Folded like Green		
Folded like Blue		

💭 Reflect

The <u>function</u> of the bridges we are building is to _____

_____.

One of the <u>structures</u> that is weak is the _____ (fold / material).

It did not hold a lot of pennies <u>because</u>_____

_____

_____

_____.

The best <u>structure</u> to use is the _____ fold with the

_____ material. I think this will be the strongest and hold a lot

of pennies <u>because</u> _____

_____

_____

_____

_____.

👍 Improve

How can you make your design and model better?

_____

_____

_____

_____

_____

✏️ Redesign

Draw out your idea with improvements. Show all the parts of your redesign.

✏ Final Design

Draw out your final idea with all improvements. Show the way you will fold the material and label which materials you need. This is the way you will build it for the final testing.

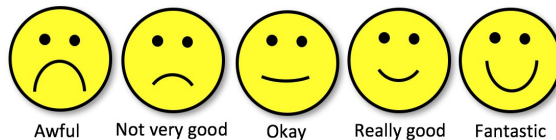Pick out materials you need**.** Write a list of what you will need.

_____

_____

_____

⚒ Final Tests

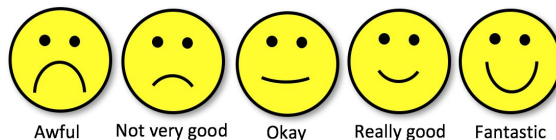Build your final design. Test your **model** with pennies. Record the results.

Group	Number of Pennies

☁ Reflect

How well did you work with your partner to come up with the final design?

Awful   Not very good   Okay   Really good   Fantastic

How well did you work with your partner to build the bridge and test it together?

Awful   Not very good   Okay   Really good   Fantastic

How well did you use the Engineering Design Process to improve your model?

Awful   Not very good   Okay   Really good   Fantastic