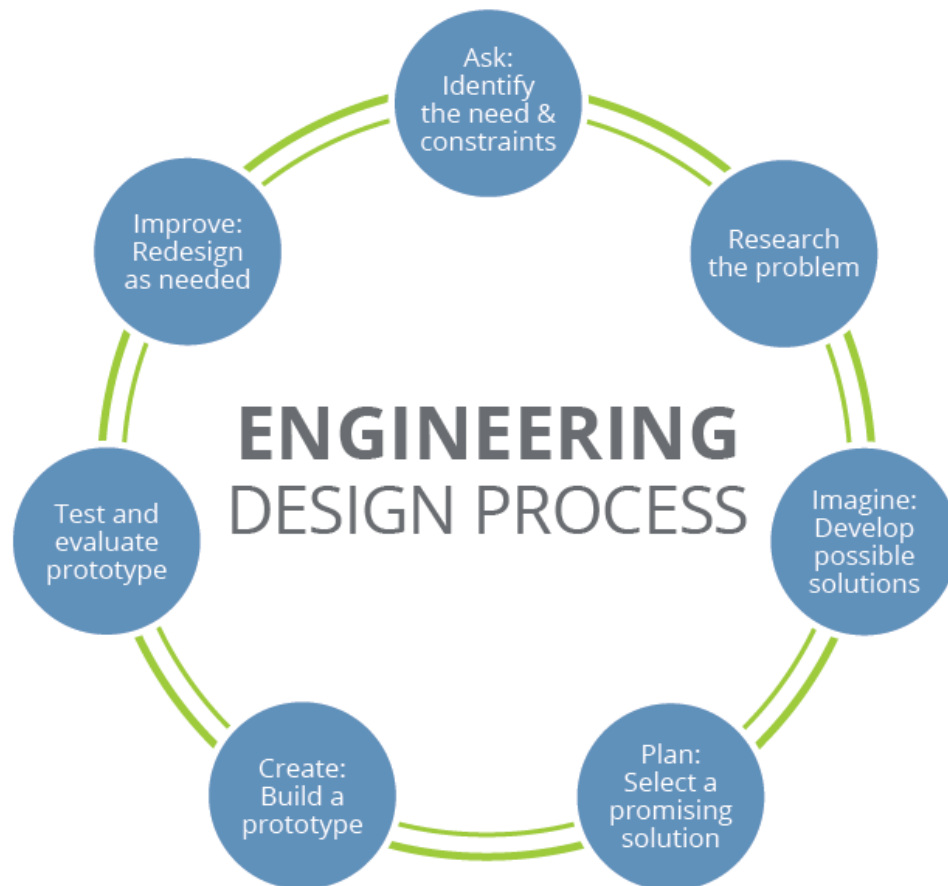


Design Process

Technical Report



Name:

Teacher:

Assignment:

Block:

Due Date:

Define and Analyze the Problem

As you read through the design brief, highlight the functions of the product and circle the constraints it must have. List both the mentioned and implied attributes below.

Functions – Verbs – What does it do?

-
-
-
-
-
-

Objectives – Adjectives – What is it like?

-
-
-
-
-
-

In 2-3 sentences define the problem you need to solve.

What are some questions you will need to answer to solve this problem?

- 1)
- 2)
- 3)



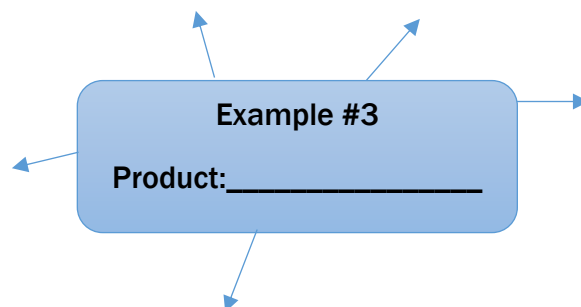
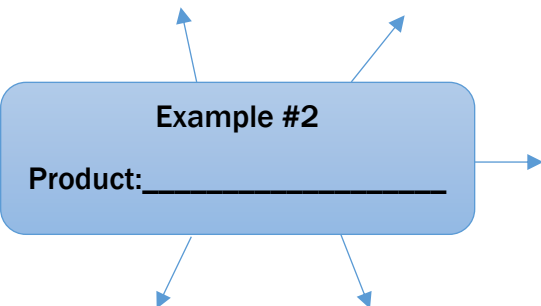
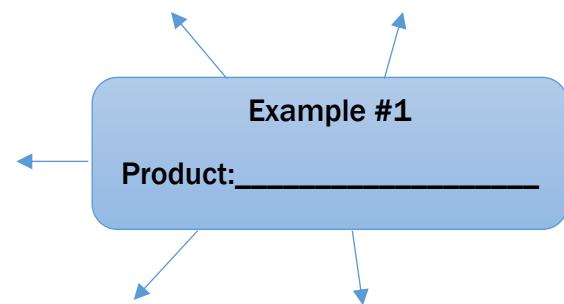
**Research and
Gathering
Information**

Research and Gathering Information

Search for existing solutions to your problem online. Select and describe three below.

Consider:

- Purpose – What is it for?
- Appearance – color, shape, texture
- Materials – strength, weight, durability
- Construction / fabrication – How is it made?
- Safety - What features make it easy to use?



**Not enough information?
Look back at the functions,
constraints and problem.**

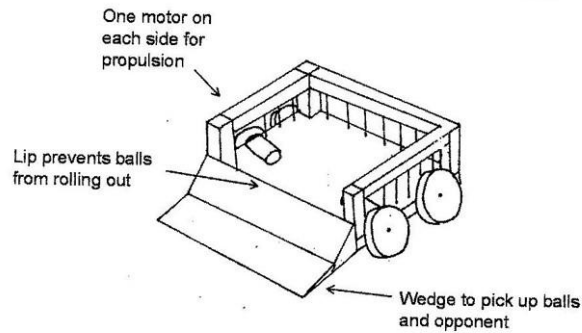
**Brainstorm
Possible Designs**

Brainstorm Possible Design Solutions

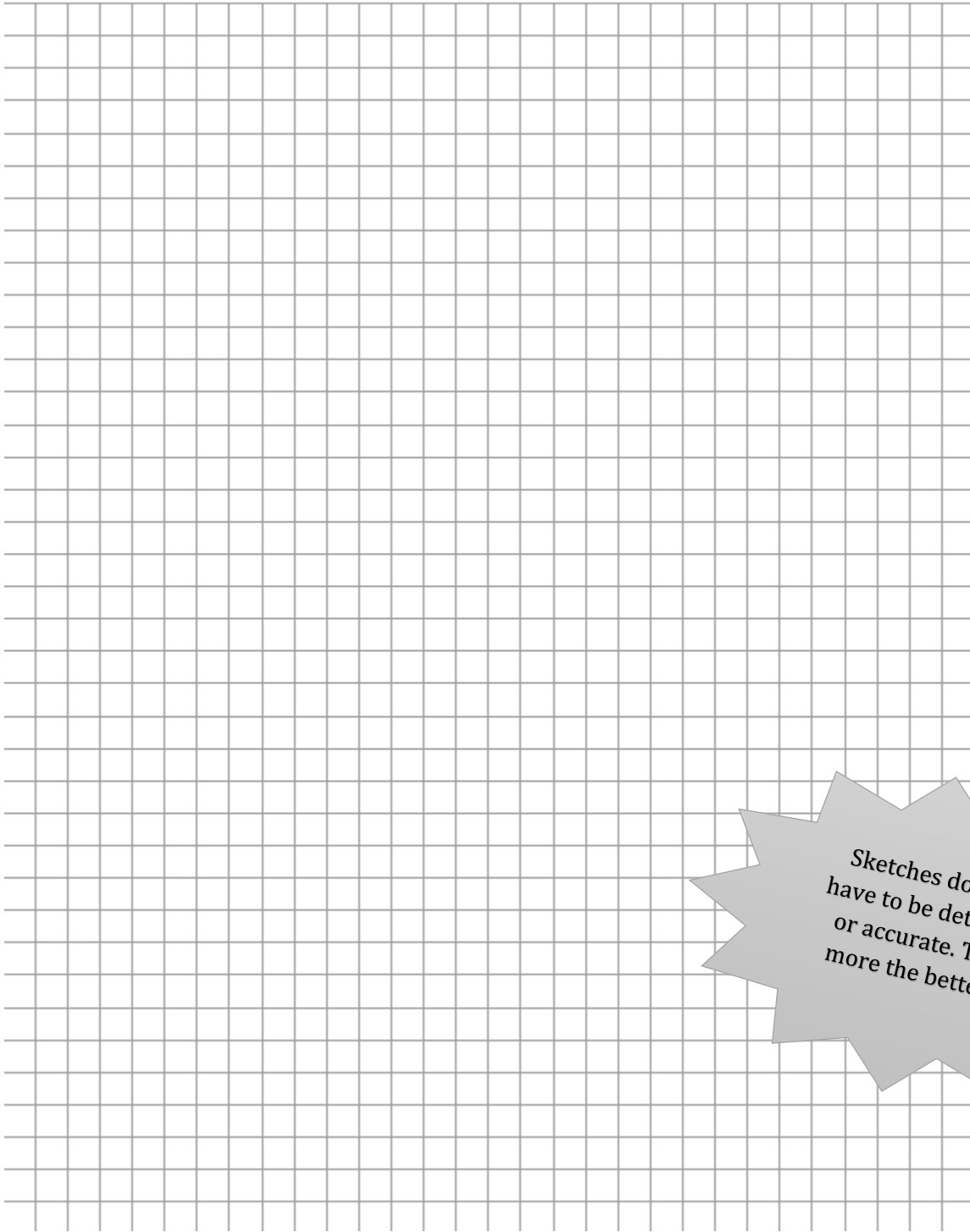
Draft your initial concept sketches here. Record all of your ideas with a minimum of five different ideas.

Use the margins to make notes
on materials and manufacturing.

Example: The Wedge



**Out of ideas? Gather
more information.**



*Sketches do not
have to be detailed
or accurate. The
more the better!*

**Continue to Refine
Solutions**

Select and Refine Your Solutions

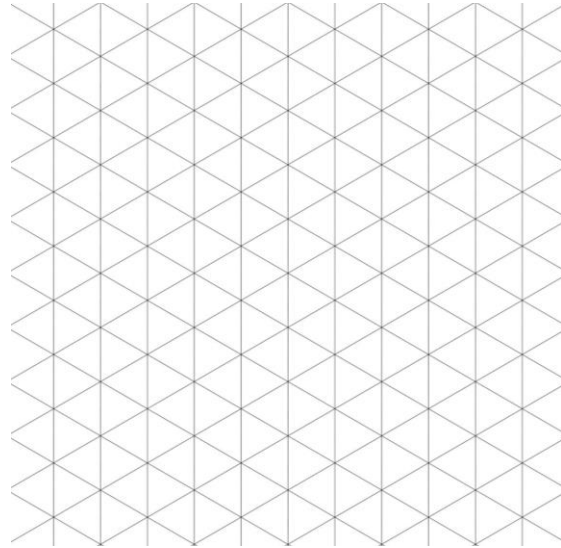
Include a drawing with details, parts, overall dimensions and notes for manufacturing.

Sketch #1 Design Name: _____

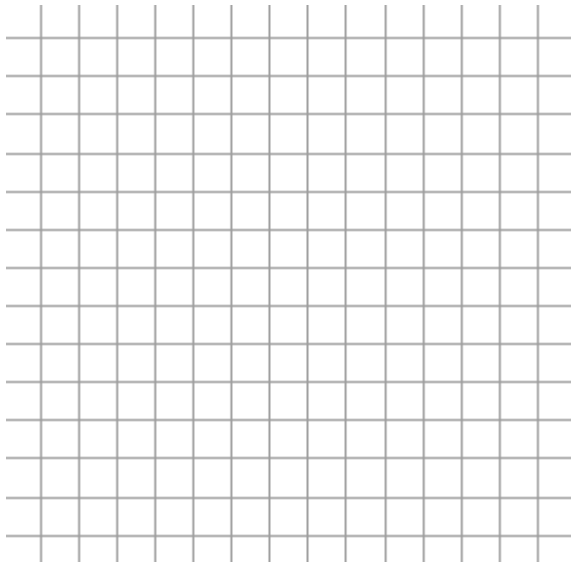
Top



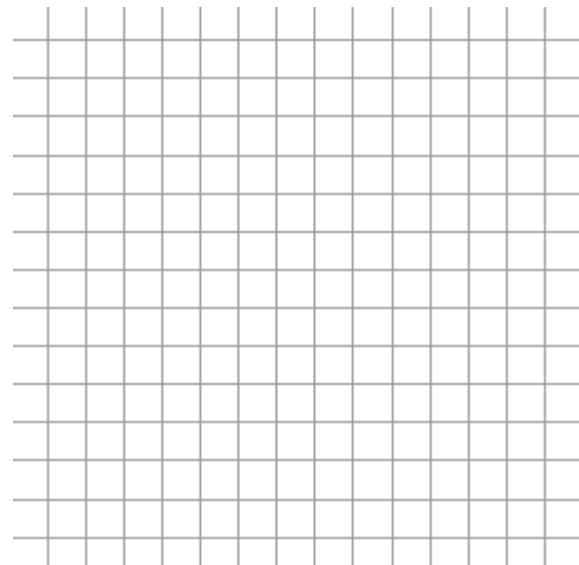
Isometric



Left



Right



**Brainstorm more
ideas**

Rank the following categories based on how the design relates to the statement.

Circle your ranking (1 is strong disagree, 2 is disagree, 3 is neutral, 4 is agree, 5 is strongly agree)

It will take a reasonable time to create.	1	2	3	4	5
I will have the skills to make this.	1	2	3	4	5
I will have access to the materials used in this design.	1	2	3	4	5
This project is not too expensive.	1	2	3	4	5
The final product will be a reasonable size to take home.	1	2	3	4	5
This design is safe to make and easy to use.	1	2	3	4	5

Total : ____/30

Details – What are the special features of this design? Refer to your rankings.

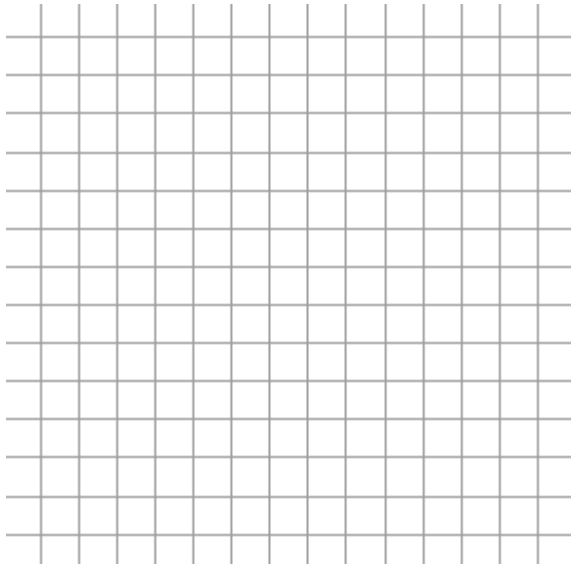
**Refine another
design**

Select and Refine Your Solutions

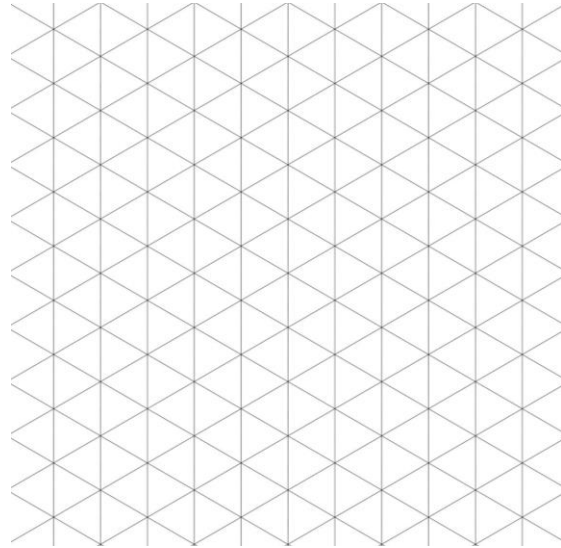
Include a drawing with details, parts, overall dimensions and notes for manufacturing.

Sketch #2 Design Name: _____

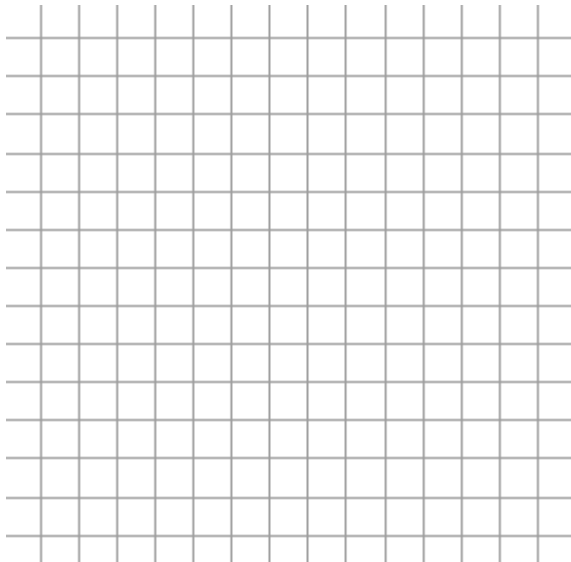
Top



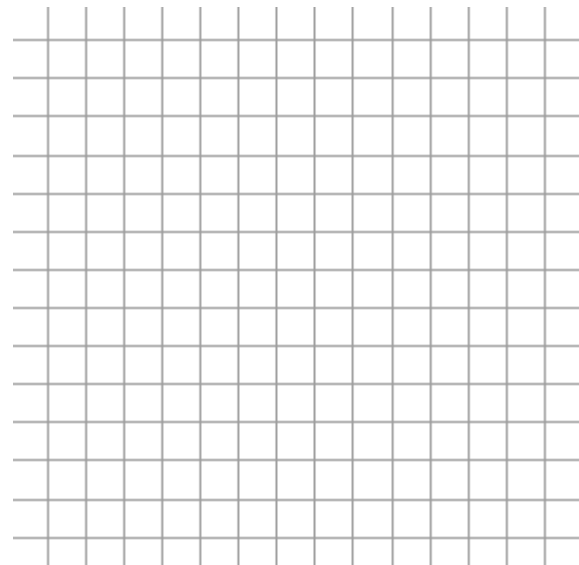
Isometric



Left



Right



**Brainstorm more
ideas**

Rank the following categories based on how the design relates to the statement.

Circle your ranking (1 is strong disagree, 2 is disagree, 3 is neutral, 4 is agree, 5 is strongly agree)

It will take a reasonable time to create.	1	2	3	4	5
I will have the skills to make this.	1	2	3	4	5
I will have access to the materials used in this design.	1	2	3	4	5
This project is not too expensive.	1	2	3	4	5
The final product will be a reasonable size to take home.	1	2	3	4	5
This design is safe to make and easy to use.	1	2	3	4	5

Total : ____/30

Description – What are the special features of this design? Refer to your rankings. _____

**Refine another
design**

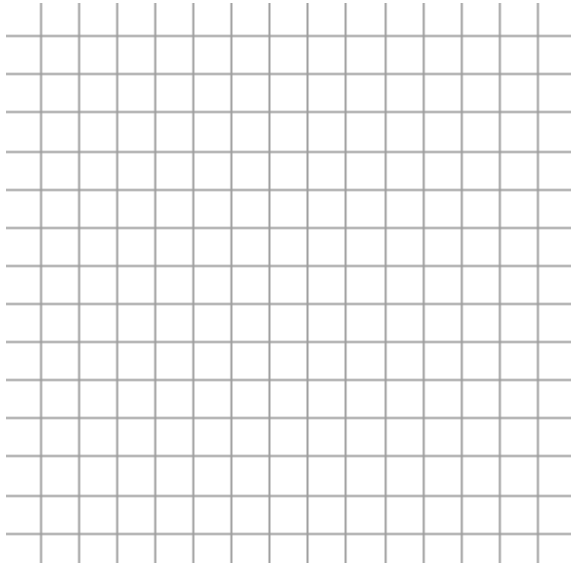
Select and Refine Your Solutions

Include a drawing with details, parts, overall dimensions and notes for manufacturing.

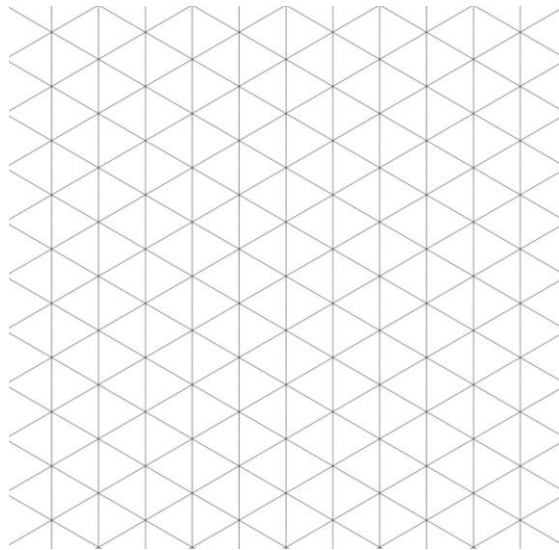
Sketch #3

Design Name: _____

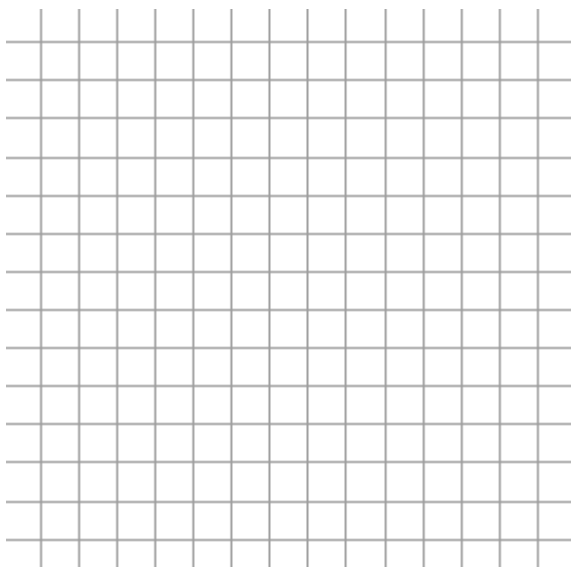
Top



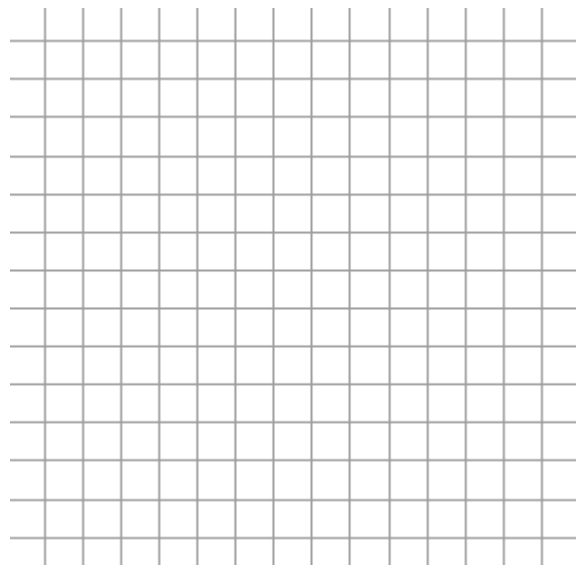
Isometric



Left



Right



**Brainstorm more
ideas**

Rank the following categories based on how the design relates to the statement.

Circle your ranking (1 is strong disagree, 2 is disagree, 3 is neutral, 4 is agree, 5 is strongly agree)

It will take a reasonable time to create.	1	2	3	4	5
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Total : ____/30

Description – What are the special features of this design? Refer to your rankings. _____

Partner Review

Partner Review

Trade packets with a partner. Complete the table below.

Sketch Name	What did they do well?	What doesn't make sense?	How could they improve?
Sketch #1			
Sketch #2			
Sketch #3			

In a different color ink, review each sketch and circle your rankings.

**Return
this
packet to
its owner**

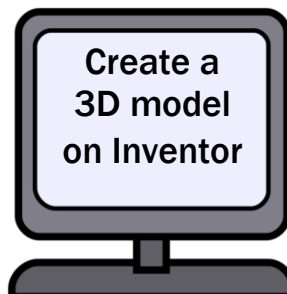
Documenting your Design Solution

Select one of your designs and write a rationale for why you chose this design. How does this solution best solve your problem? What unique features make this better than the other options? 4-5 sentences minimum

Tip: Refer back to your list of attributes and how your solution solves them.

Key Vocabulary

- Ergonomic
- Analyze
- Implement
- Manufacture
- Usability
- Innovative
- Economical
- Efficient
- Improvement
- Creative
- Solve
- Fabricate
- Effective
- Technology
- Cost
- Aesthetic
- Constraint
- Prototype
- Evaluate
- Modify
- Sustainable
- Function



**Write a
Procedure**

Fabrication of a Working Prototype

Write a step by step procedure on how you will build your product. Consider materials, layout, shaping, assembly, finishing and tools. Describe how you will use hand tools, machines, 3D printer, laser cutter or CNC machines. Also, include an estimate for how long each step will take.

☐ Ex. Sketch and justify design in this packet. pencil and packet 2-4 class days

☐☐☐☐☐☐☐

Initials

Testing and Evaluating a Solution

Analyze the results of your final product. Does it meet your initial design requirements? What went wrong along the way? How did you fix it?

Tip: Look back to the first page for the design requirements

If you had to build your product a second time, what would you do differently? How would you improve the design? Would you use different tools?

Tip: Refer to steps in your procedure