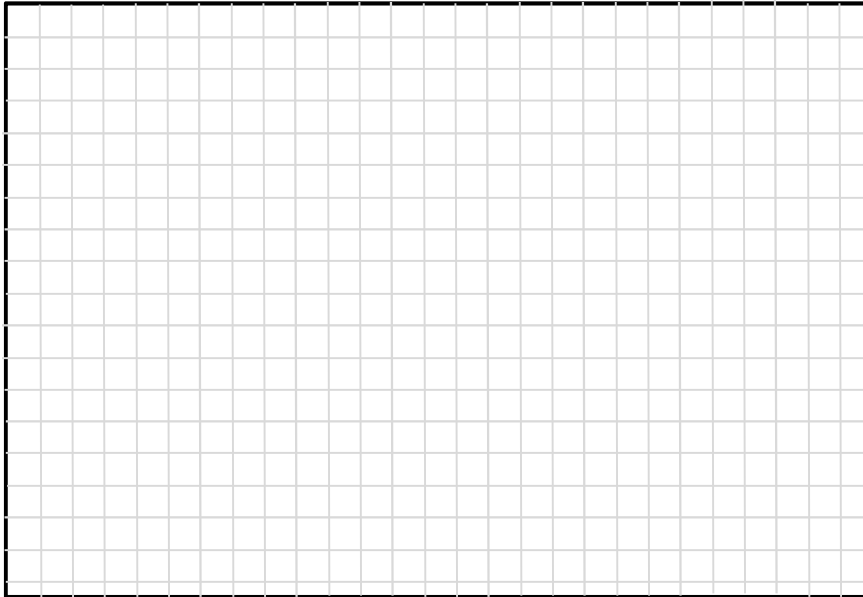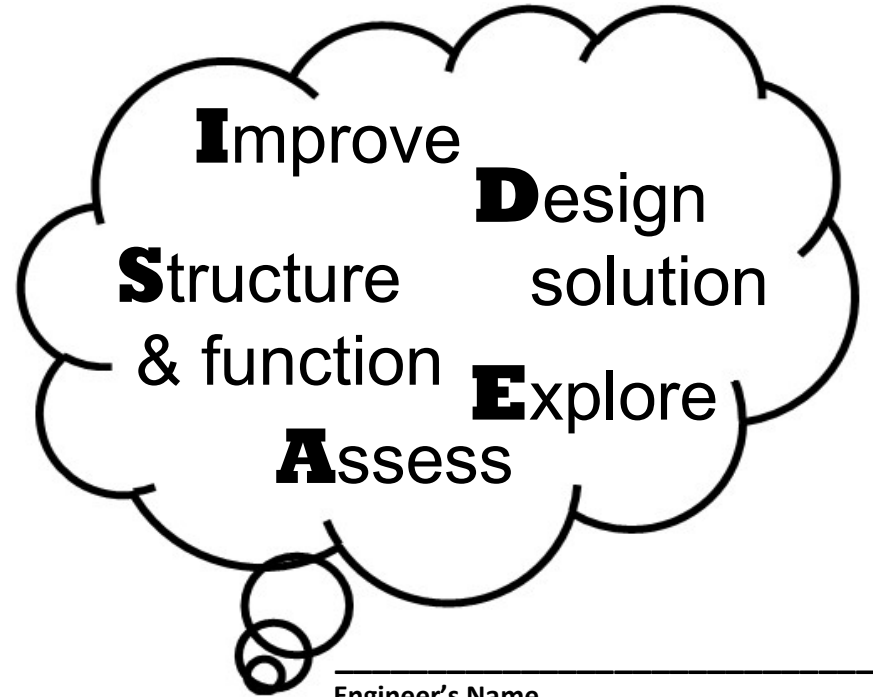Drawing with labels of final design
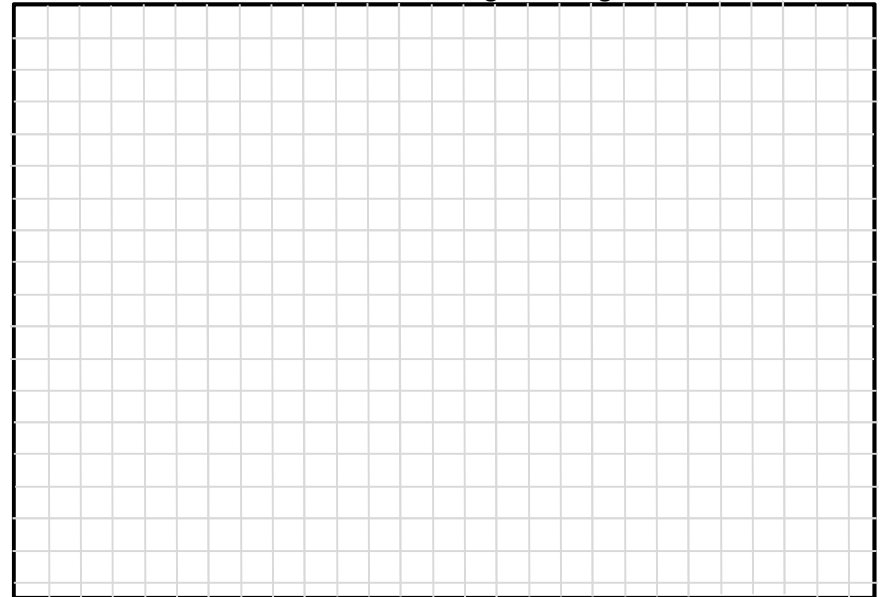
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More **IDEAS**: What else? Why else?
When else? Where else? How else? Who else?

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Improve   **D**esign
Structure   solution
& function   **E**xplore
Assess

_____
Engineer's Name

Engineering This: _____

Draw and Label Original Design

[blank grid]

DaNel Hogan and Sherrie Dennis – STEMAZing.org

IDEAS for Modification 1

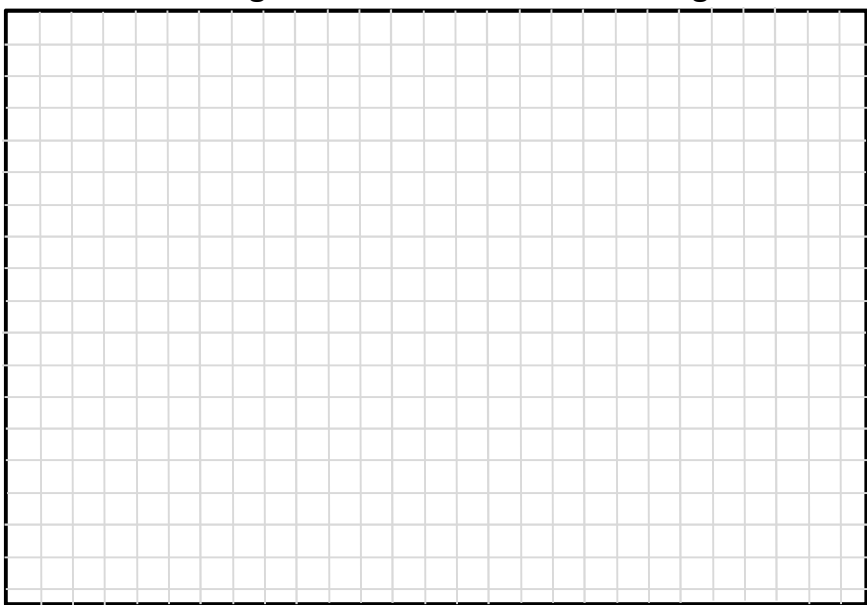Can you make a part bigger/smaller?

Can you change the shape of a part?

Are there different materials you could use?

Can you make a part lighter/heavier?

Can you make a part longer/shorter?

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Drawing with labels of modified design

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Fellow Engineer or Customer Critique: Let another engineer or a customer use your current design. Either let them record or you can record their feedback to the following questions:

- What do you like about this design?
- How could this design be improved?
- Are you having any troubles using it? If so, what is frustrating about using the design?
- Do you have any other suggestions for modifying this design to make it better?
  - How could it be more fun?
  - How could it be easier to use?
  - How could its performance improve?
  - What could be done to make it look incredible or sleek or cool?

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Describe the modification made and why you picked it.

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Performance is (circle one): Better / Same / Worse

Evidence: _____

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Modification 1 (circle one): Keep / Kick

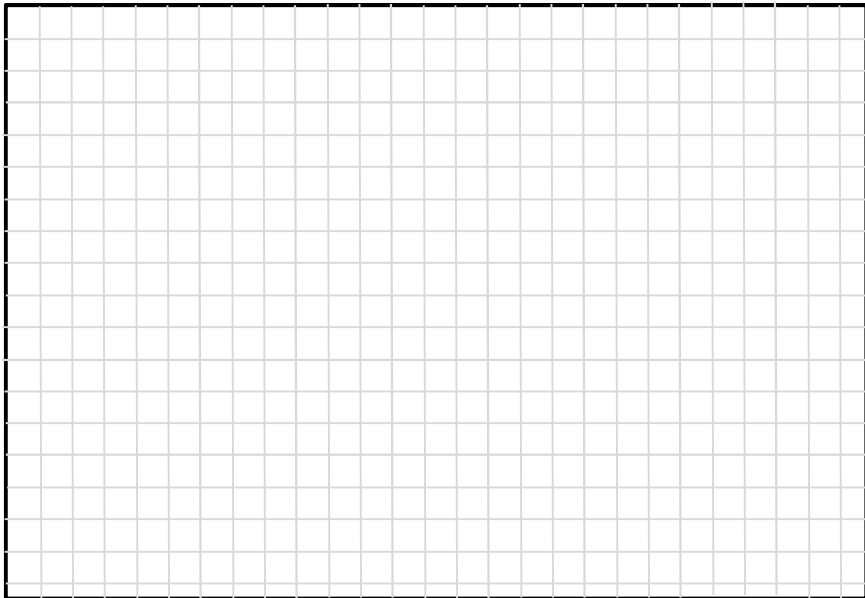# **IDEAS** for Modification 2

Can you use less expensive materials?

Can you make a part wider/narrower?

Are there different materials you could use?

Can you make a part stronger/weaker?

Can you add a part?

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Drawing with labels of modified design

Describe the modification made and why you picked it.

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Performance is (circle one): Better / Same / Worse

Evidence: _____

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Modification 5 (circle one): Keep / Kick

IDEAS for Modification 5
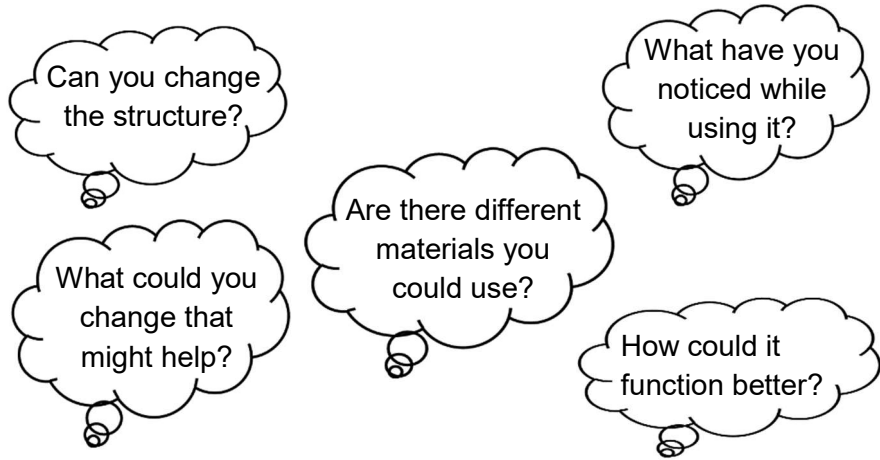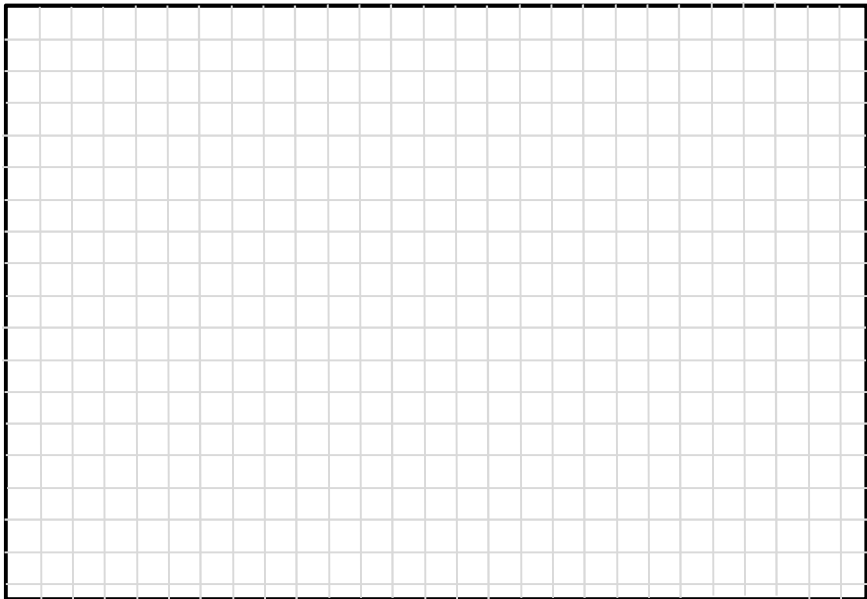
Can you change the structure?

What have you noticed while using it?

What could you change that might help?

Are there different materials you could use?

How could it function better?

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Drawing with labels of modified design

Describe the modification made and why you picked it.

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Performance is (circle one): Better / Same / Worse

Evidence: _____

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Modification 2 (circle one): Keep / Kick

IDEAS for Modification 3

Will adding color make it more appealing?

Can the appearance be changed to make it more appealing?

Are there different materials you could use?

Did you notice something someone else tried that you could use?

Can you eliminate/replace a part?

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Drawing with labels of modified design
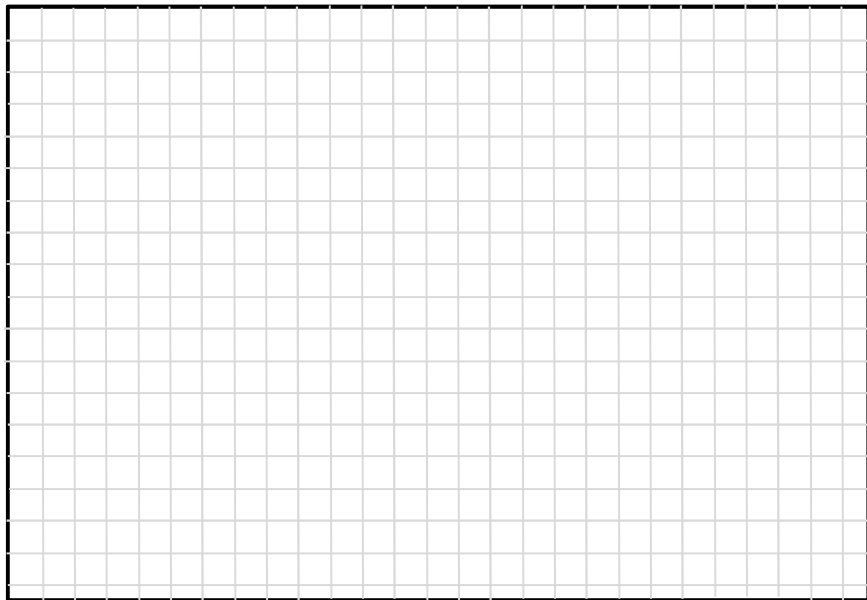
Describe the modification made and why you picked it.

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Performance is (circle one): Better / Same / Worse

Evidence: _____

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Modification 4 (circle one): Keep / Kick

IDEAS for Modification 4
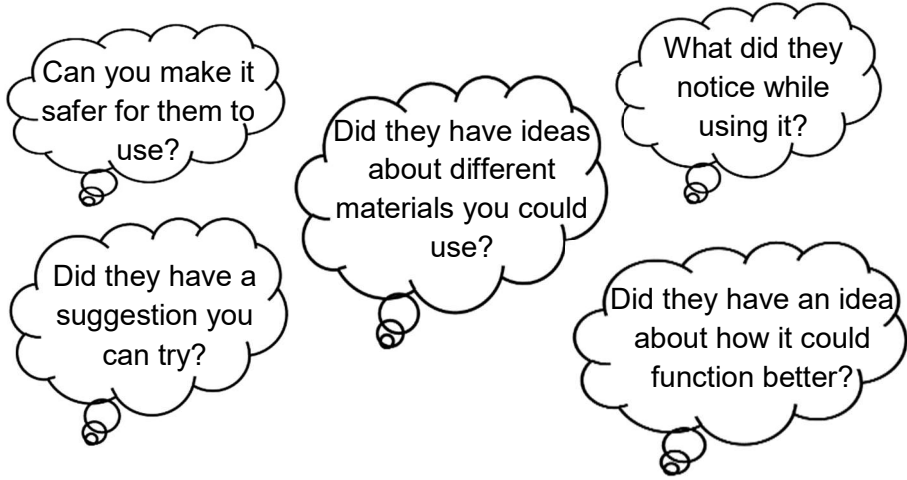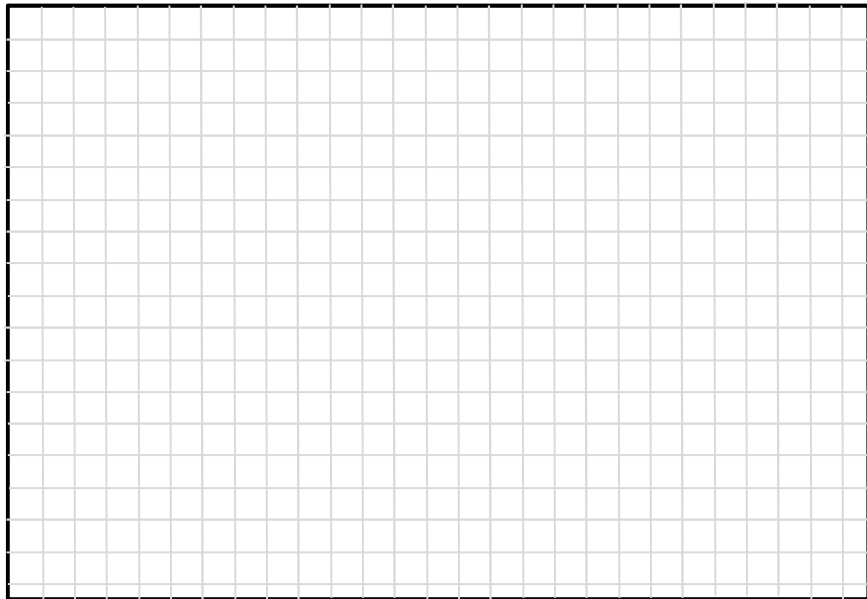
Can you make it safer for them to use?

Did they have ideas about different materials you could use?

What did they notice while using it?

Did they have a suggestion you can try?

Did they have an idea about how it could function better?

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Drawing with labels of modified design

Describe the modification made and why you picked it.

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Performance is (circle one): Better / Same / Worse

Evidence: _____
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Modification 3 (circle one): Keep / Kick

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  - What could be done to make it look incredible or sleek or cool?

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