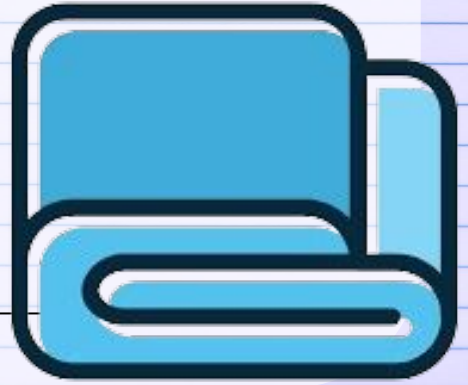
Reversible Cooling/Heated Weighted Blanket



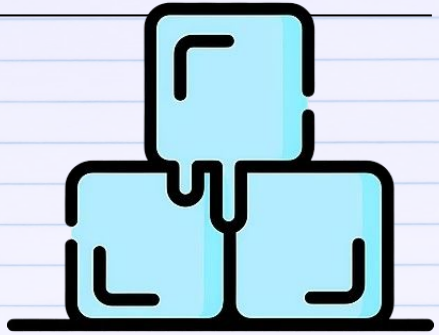
What's the Problem:

The problem that I want to solve is: In the summer I always want to have a weighted blanket on but it's too hot. I can only use it in the winter but cooling blankets are super expensive and are not reversible. I want to make a weighted reversible blanket that has a cooling insert and a heating insert that is cost-effective.

Criteria & Constraints:

Criteria:

1: The blanket needs to cool your body temperature..
2: The blanket needs to be transition from cold to hot.
3: The blanket needs to be cost effective.

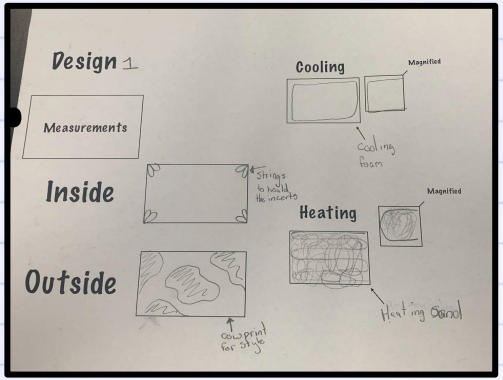


Constraints:

1: The width of the blanket is 50 in and the length is 65 in.
2: The cost to make the blanket would be $45 for each insert
3: The blanket needs to heat and cool

Sketches and Concept Rubric:

1.



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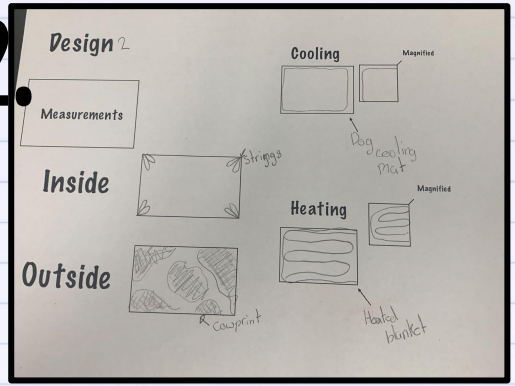

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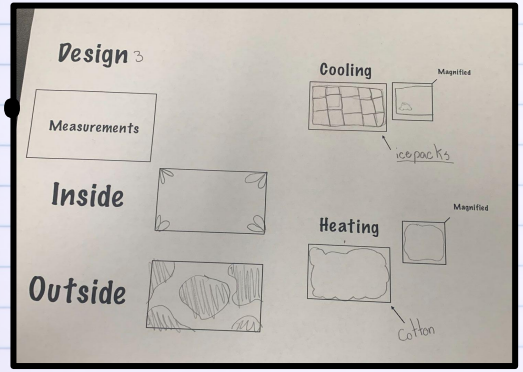

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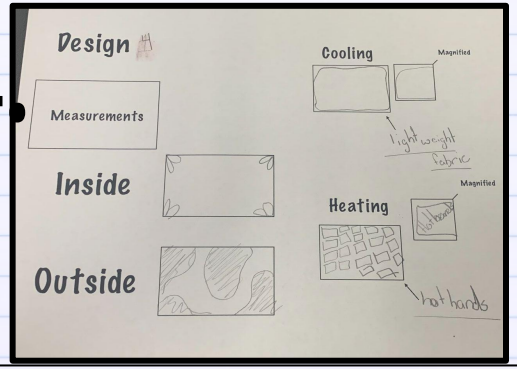
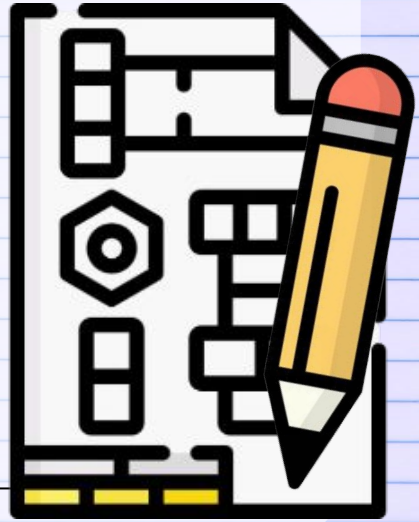




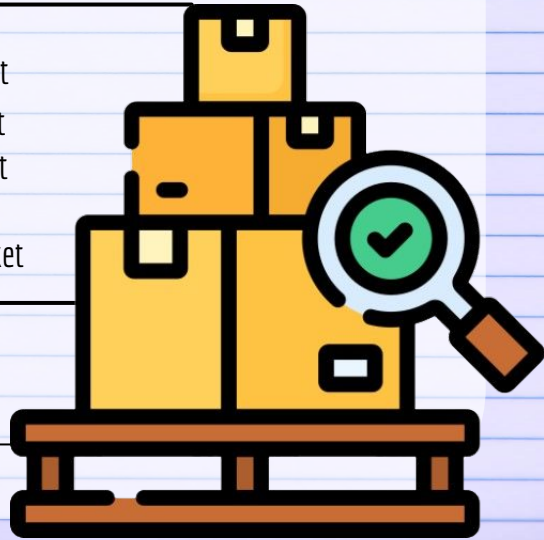
Materials:

3. Fabric-for the outside of the blanket
Ice packs- for the cooling part of the banket
Cotton- for the heating part of the blanket
Sewing machine-to connect the fabric
Sand-for the weighted part of the blanket

1. Fabric-for the outside of the blanket
Cooling foam-for the cooling part
Heating sand-for the heating part
Sewing machine-to connect the fabric
Sand-for the weighted part of the blanket

2. Fabric-for the outside of the blanket
Dog cooling bed-for the cooling part of the banket
Heating blanket- for the heating part of the blanket
Sewing machine-to connect the fabric
Sand-for the weighted part of the blanket

4. Fabric-for the outside of the blanket
Lightweight fabric-for the cooling part
Hot hands warmers-for the heating part
Sewing machine-to connect the fabric
Sand-for the weighted part of the blanket



Procedure:

The video! (blanket making)

Prototype # 1
Cooling insert
Heating insert

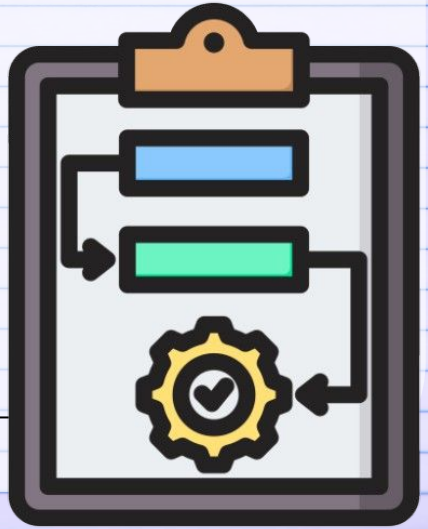
Prototype # 2
Cooling insert
Heating insert

Prototype # 3
Cooling insert
Heating insert

Prototype # 4
Cooling insert
Heating insert

1: get the materials (from slide 5)
2: start by making the outside of your blanket (watch the video)
3: make the incertes (watch the videos)
4: test each incerte (what things worked the best)

(not my videos but did follow them)

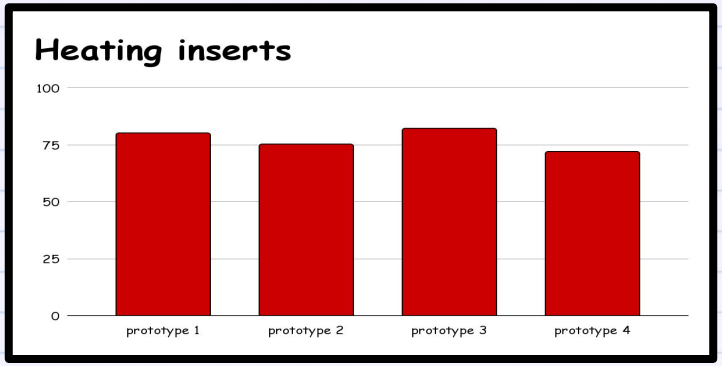


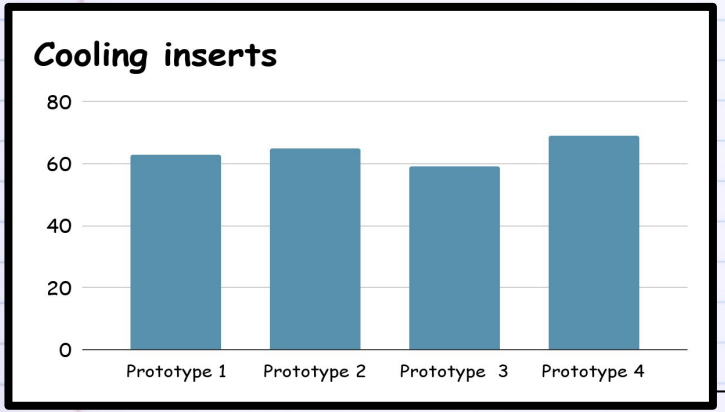
Data Collection Table:

	Temperature: Fahrenheit	Temperature: Fahrenheit	Temperature: Fahrenheit	Temperature: Fahrenheit
PROTOTYPE	1	2	3	4
HOT	63°	65°	59°	69°
COOL	80°	75°	82°	72°

Data Analysis Graph

Temperature in Fahrenheit

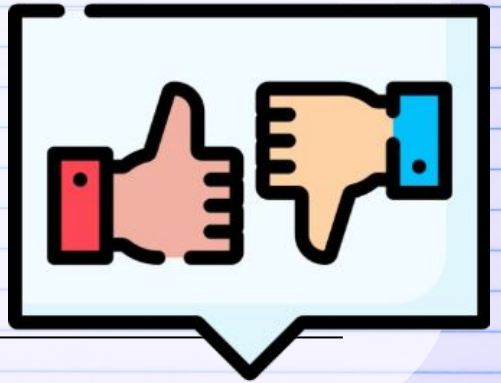




Temperature in Fahrenheit

Critique and Redesign

If I was to sell this product, I would combine the best heating inserts and the best cooling inserts. My data states that the best heating insert was the third prototype. The best cooling insert was also the third prototype. The third prototype did the best overall.



Evaluate Solutions

All of my designs worked somewhat well because they had the same control variables. All of the prototypes were made in the same day. I also tested the prototypes on the same person which was my grandma. I did that to get specific and reliable data. My data was also reliable because I used a thermometer to see what the temperature of each blanket was. I thought that the temperature was pretty important because measuring how cold and hot the prototypes were was more reliable than a person telling me how they thought the temperature felt.

Application

When you first see a reversible weighted blanket in a store, you think: Why would I need it and what are the things that make it different from a normal weighted blanket? The first thing that's different is it's made for kids that have disabilities like autism or ADHD. One thing that kids with autism and ADHD have in common is that they usually have anxiety. A weighted blanket helps with anxiety because It's putting pressure on you to calm you down In your head and relax your nervous system. Obviously people have already made something like this, but Anxiety takes place all of the time in all seasons. Because of that, it's not normal to have on a blanket when it's 110° outside. To combine two different seasons is essentially just making a blanket that you can use all year round. Thatś why I created this blanket.

Acknowledgements

There are a lot of people that I would like to thank. The first person that I would like to thank is my grandma for helping me make the blanket cover and buying the materials. Another person that I would like to think is my mom and my dad for keeping me on schedule so I didn't fall behind. My grandpa is another person that I would like to thank who helped me figure out the electric part of of my science experiment. I would especially like to thank science teacher for giving me this opportunity to be able to have a choice on what my science project was going to be about. Last but definitely not least I would like to thank study skills teacher for helping me research what my project was going to be about so I could have a better understanding of what I wanted my project to be. Thank you all so much and you don't know how much I appreciate all of you helping me to be the best person and student that I can possibly be.