Title: Cat Warming House

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Grade: Kindergarten
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Introduction

During the winter, my cat gets cold. I noticed that my cat loves to crawl under my covers especially when it was really, really cold outside. I thought that my cat needed a home that was warm, so that she could stop taking over my blanket at night. Even cats who do not have a home need somewhere during the winter that they can be warm. I designed a house that would attempt to keep a cat warm during the winter time.

Problem

During the winter, cats get cold and need warm places to go to sleep. Cats without a home have this problem and can freeze to death. I wanted to create a home that was warm for cats with homes as well as cats who do not have a home.

Materials

- Foam Board
- Glue
- Cardboard
- Pillow Filling
- Scissors
- Tape
- Blanket
- Towel
- Thermometer
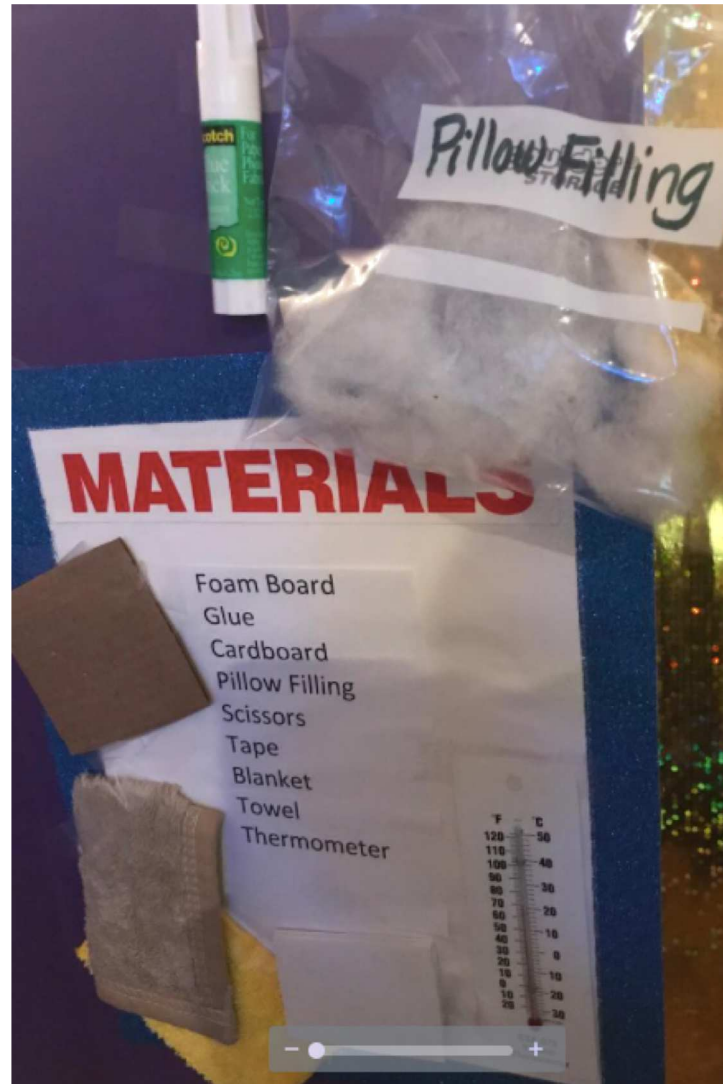
Hypothesis

- My house design will be warmer than my cats original Store-Bought house.

Store Bought House   Cardboard House   Foamboard House

Procedure

1. I came up with the idea.
2. I drew the house design.
3. I used cardboard and made a quick design of a cat house.
4. I taped the house together.
5. I got a towel and put the towel in the house so the cat could be comfortable.
6. I waited for the cat to come to the house
7. I saw that the house was a little too small, so I created a bigger one
8. I gathered foam board, glue, scissors, a blanket and a pillow.
9. I made a pattern of five rectangles.
10. I glued them together.
11. I took the filling out of a pillow.
12. I glue the filling on the rectangles.
13. I glued the blanket over the filling.
14. I decorated the house.
15. I placed the houses outside and took the temperature every 15 minutes to see which house stayed warmer.

Goals

Goal #1: Research different types of materials that can keep the home warm during winter months. (Research)

Create a free standing structure that appeals to the cat.

(Development: Problem Solving/Critical Thinking)

Goal #2: Determine how temperature affects the design of the structure. (Design)

Goal #3: Compare the designed structure to the store bought structure to determine which structure can maintain a warm temperature (Compare and Contrast)
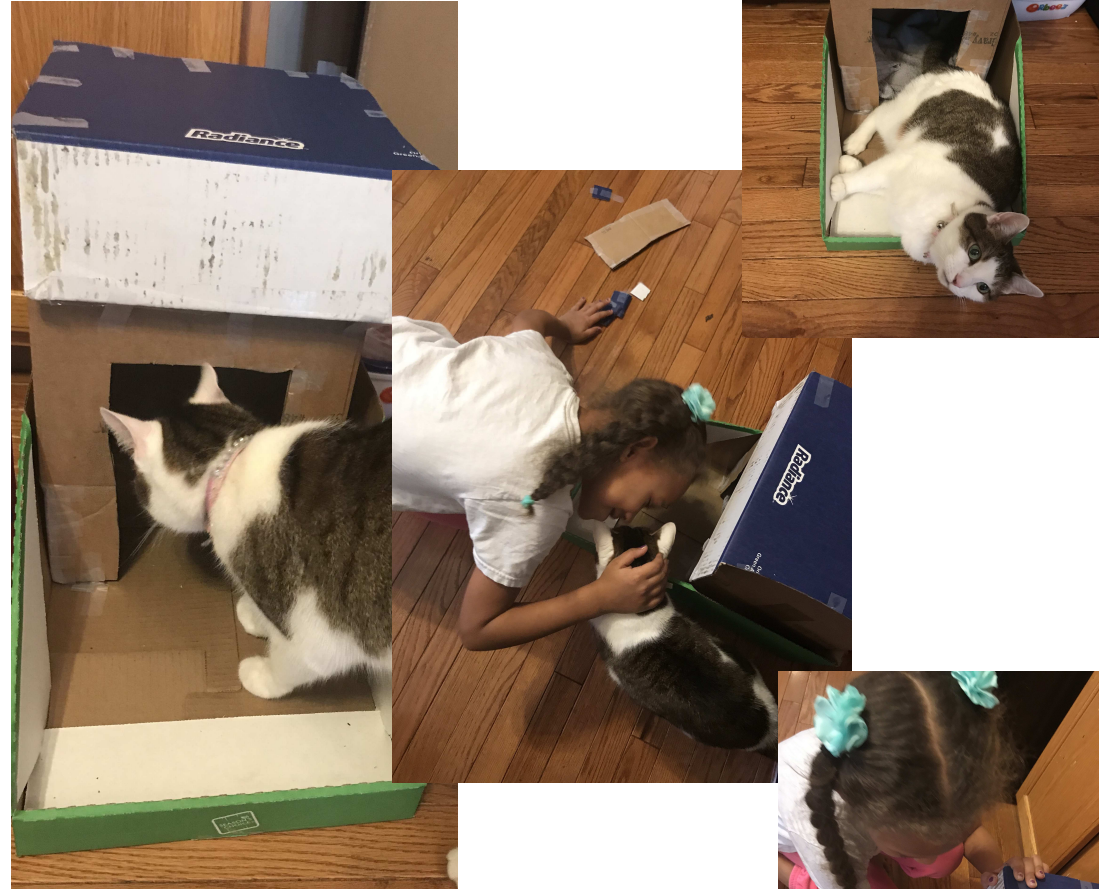
Goal #4: Engage in energy sharing practices (Communication/Discussion)

Goal #1: Research different types of materials that can keep the home warm during winter months.
Create a free standing structure that appeals to the cat.

- I made my first design from cardboard. I took tape to place the pieces of cardboard together. When I was done, I allowed the cat to test the home. Once I knew that the cat would actually go into the house, I knew that it was one home that could be tested to determine which home could keep the cat warmer.

The first cat house I made. This cat house was made of cardboard.

Goal #1: Research different types of materials that can keep the home warm during winter months.
Create a free standing structure that appeals to the cat.

- I created another design. The next design was completed with foamboard. The foamboard home was a bigger type of house. The bigger home was created because the first home had a door that was bit smaller than the cat was. Additionally, the home was not insulated. I took pieces of a blanket and the pillowcase filling from a pillowcase to make the second cat house. The decision to use the blanket and the pillowcase filling was so that it could block the cold air and keep the cat warm.

Foamboard Cat House with blanket and pillow case filling to keep the cold out.

Goal #2: Determine how temperature affects the design of the structure.

- I took all three of the houses outside. I had a temperature gun that I used to see what the temperature was. I went outside every 15 minutes to see what the temperature was.

This is me taking the temperature of the cat houses.

Goal #3: Compare the designed structure to the store bought structure to determine which structure can maintain a warm temperature

- This is my data sheet. I used this sheet to determine the actual temperature that each house was every 15 minutes. If the temperature went down, that meant that it was not staying warm in the house. It was 15 degrees outside on the day that I conducted the test.

DATA

Temperature	Store Bought House	Cardboard House	Foam Board House
Beginning Temperature	72.1F	72.3F	72.1F
15 minutes outside	24.8 F	25.7 F	28.7F
30 minutes outside	20.8 F	22.4 F	26.2 F
45 minutes outside	18.8 F	20.4F	24.2 F
1 hour outside	17.0 F	18.6 F	20.1 F

Results

- The Store-Bought house was the coldest. The Cardboard House was not as cold as the Store Bought house and the Foamboard House stayed a little bit warmer than the other two houses, but it was still cold and below 32 degrees, which is freezing. The cat would freeze in any of the houses.

Store Bought House   Cardboard House   Foamboard House

Conclusion

- The design needs to be redone to help it stay warmer if I put the house outside. I want to add more insulation to the inside of the Foamboard House. I could use different materials like foil or plastic wrap, attach it to the walls to keep in the heat. However, if I kept the house inside, my cat would have a warm home because the temperature is warm.

Goal #4: Engage in energy sharing practices

- To end the project, I was able to take my learnings from this project and share them with everyone at the science fair. I told my teacher, my principal, my family, and all the students in the school. I ended up winning for Kindergarten.

ME!

Congratulations to all of our winners! We can't wait to see what the students come up with next year!

Thank You!

Thank you so much for taking the time to review my project. I am a Kindergartener who loves to innovate new things. I love animals and I believe that they should be able to have a safe and warm shelter in the winter.

Stay tuned for my next invention.