

A photograph of two young polar bear cubs sitting inside a snow cave. The cubs are covered in thick, light-colored fur and have small black eyes and noses. They are positioned close together, with one slightly behind the other. The snow cave walls are textured and white. The text "Magical Roofs" is overlaid in the center of the image in a black, cursive font.

*Magical Roofs*

# Why Did You Choose This Project?

My reason for building switchable roofs is because I think that saving energy would be better for our planet during global warming. There are other ways to save energy and help global warming but I decided to create a newish solution that is followed by having a white roof on your home to reduce global energy. But the problem is that when you have just a white roof on your home then you have nothing to keep you warm in the winter. So if you have a white roof and a black roof on then you can reduce way more energy. But how can you have 2 roofs on at the same time?



## Question or problem

Due to global warming our planet is endangered. Yet there are many things that you can do to help but there are not enough people participating. According to my research, “ **Increased heat, drought and insect outbreaks**, all linked to climate change, have increased wildfires. Declining water supplies, reduced agricultural yields, health impacts in cities due to heat, and flooding and erosion in coastal areas are additional concerns.” This is just some of the things that global warming is doing to our planet. If we don't participate now then bad things could happen later. That is the reason why I am building the “magical roof” so then our planet has another resource for saving the environment..



## Idea to Fix The problem

My idea to fix this problem is making switchable roofs that are black and white (if you have a black or white roof you just need the opposite colored switch.) This will help because the white will keep your house cool in the summertime and the black will keep it warm in the winter. Just do a little switcheroo every now and again and boom! You wouldn't even be able to tell the difference between an air conditioner or a switchable colored roof. Purdue university created this paint that is so white that you can't tell the difference between an air conditioner and a little bit of white paint on your roof. Researchers at Purdue demonstrated the cooling powers of this white paint with impressive results. During testing, surfaces covered in the white paint were 8 degrees fahrenheit cooler than their ambient temperature when exposed to strong sunlight during noon hours. At night, the paint kept surfaces at 19 degrees cooler than the ambient temperature.

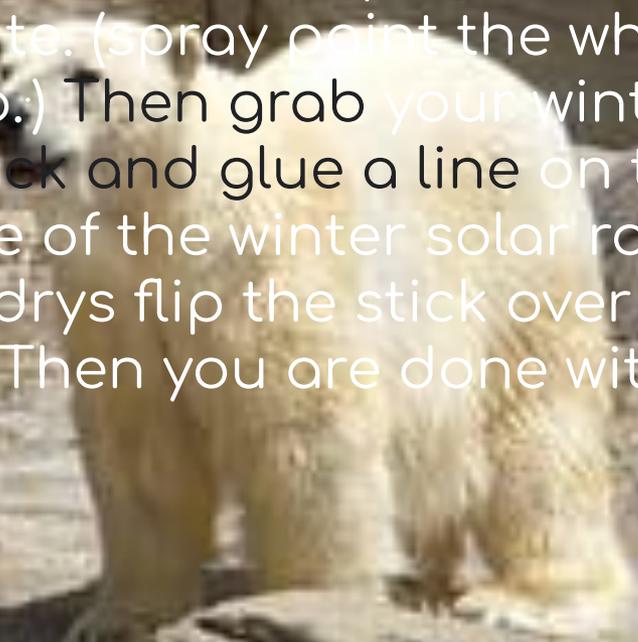
A fluffy brown bear cub is lying on a snowy surface. The cub's head is on the left, and its body extends towards the right. The snow is bright white and appears soft. The bear's fur is a mix of light and dark brown tones, with a very thick, woolly texture. The cub's eyes are closed, and its black nose is visible on the right side of its face.

## Materials

There are 5 materials that you need for the model: A black winter solar roof, 2 cardboard boxes (one with a flat roof and the 2nd one with a pitched roof.) A stick that will be a little bit longer than the width of the black winter solar roof, and maybe if you are interested, than you can also add decorations such as doors windows or other items that you would like to add.

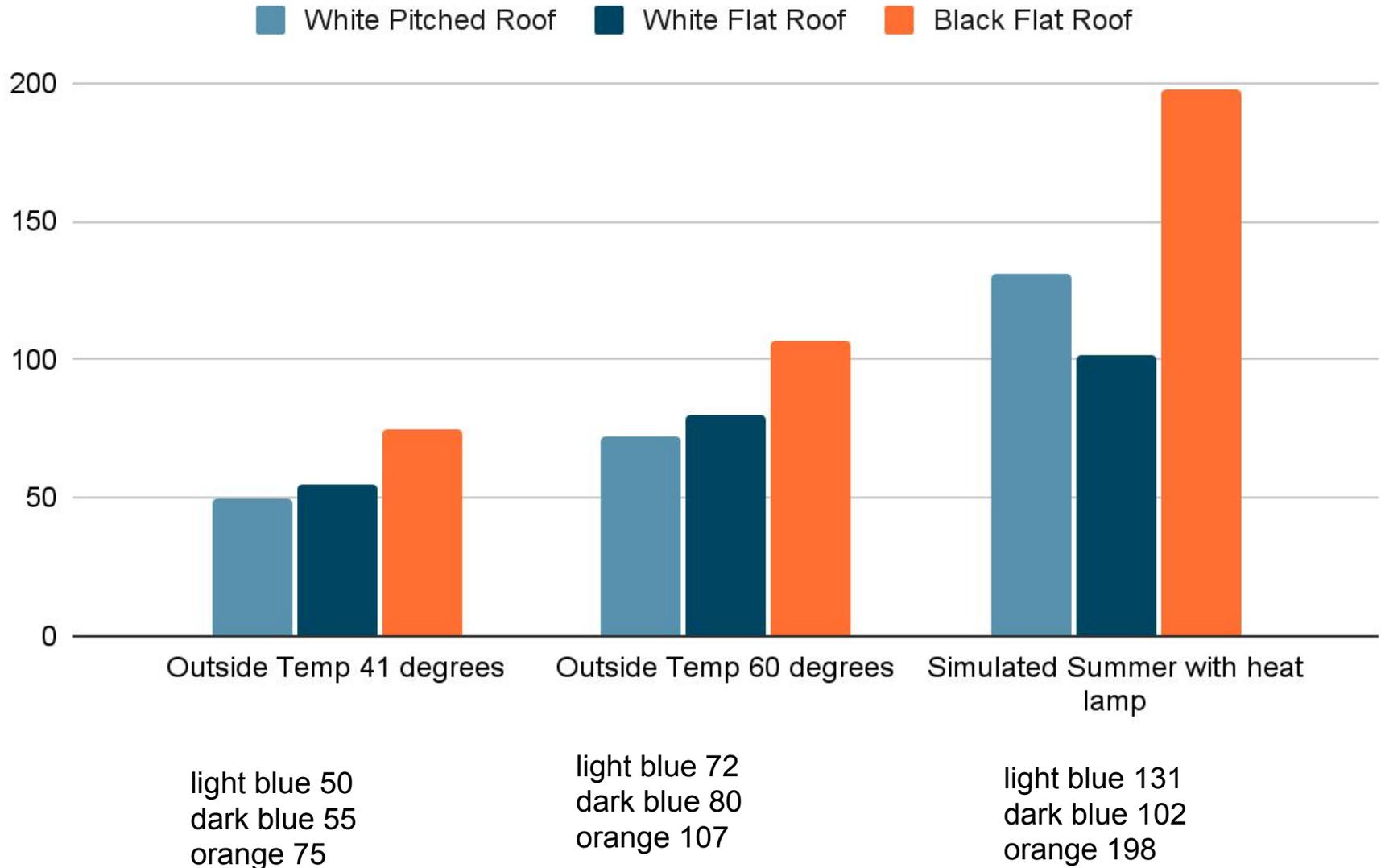
# Build and Design

So first pull over your cardboard box that is flat roofed and decorate it if you want to, if you don't want to decorate it then you can get started on painting the roof white or black. Then when your done with that, get out your second cardboard box and make the roof pitched and then spray paint it white. (spray paint the whole box if you would like to.) Then grab your winter solar roof and your stick and glue a line on the stick, and put the edge of the winter solar roof on it and then once that dries flip the stick over and glue it to the flat roof. Then you are done with the model.



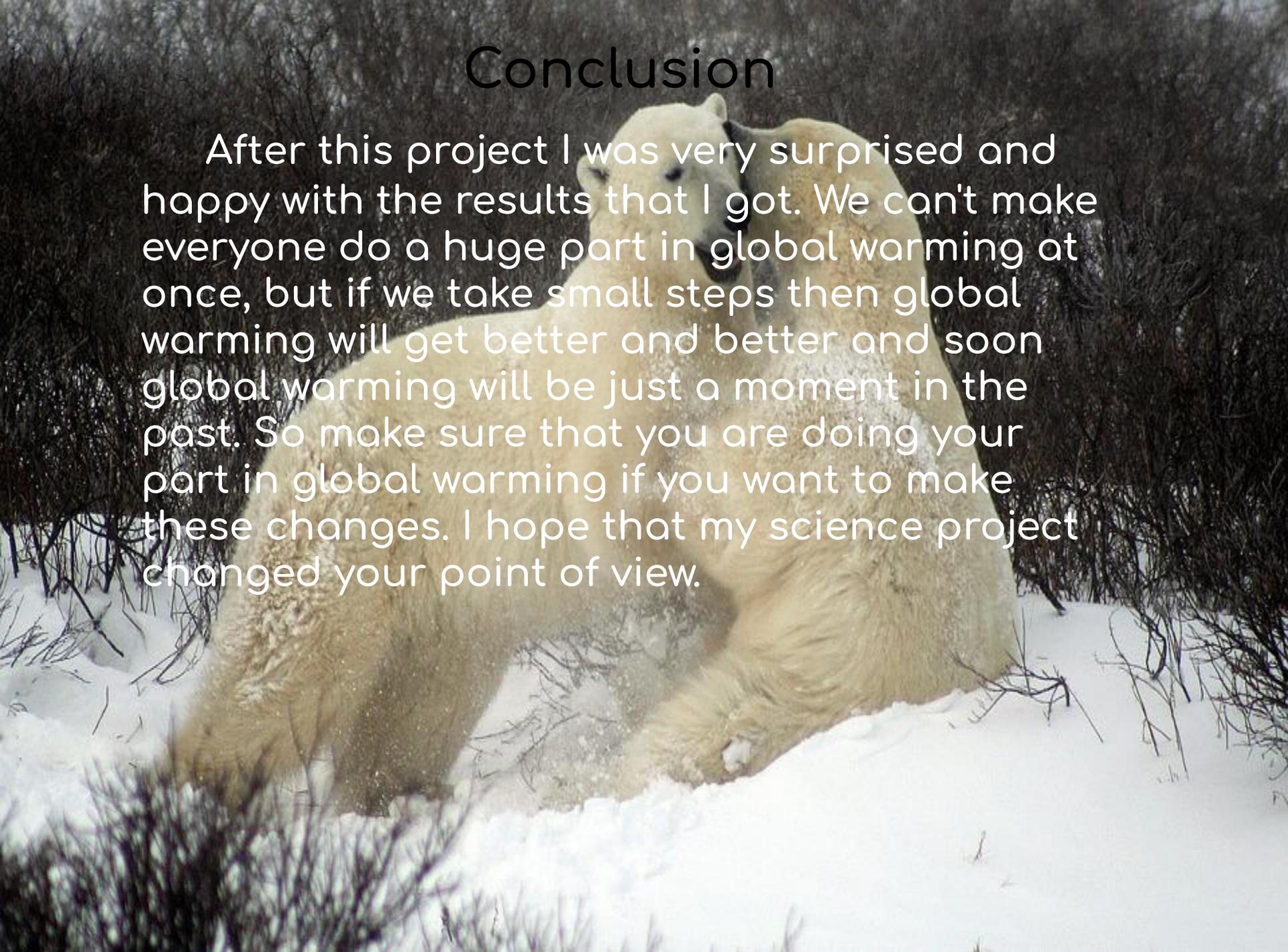
# Results

## Temperatures



# Conclusion

After this project I was very surprised and happy with the results that I got. We can't make everyone do a huge part in global warming at once, but if we take small steps then global warming will get better and better and soon global warming will be just a moment in the past. So make sure that you are doing your part in global warming if you want to make these changes. I hope that my science project changed your point of view.



# More pictures



# Bibliography

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