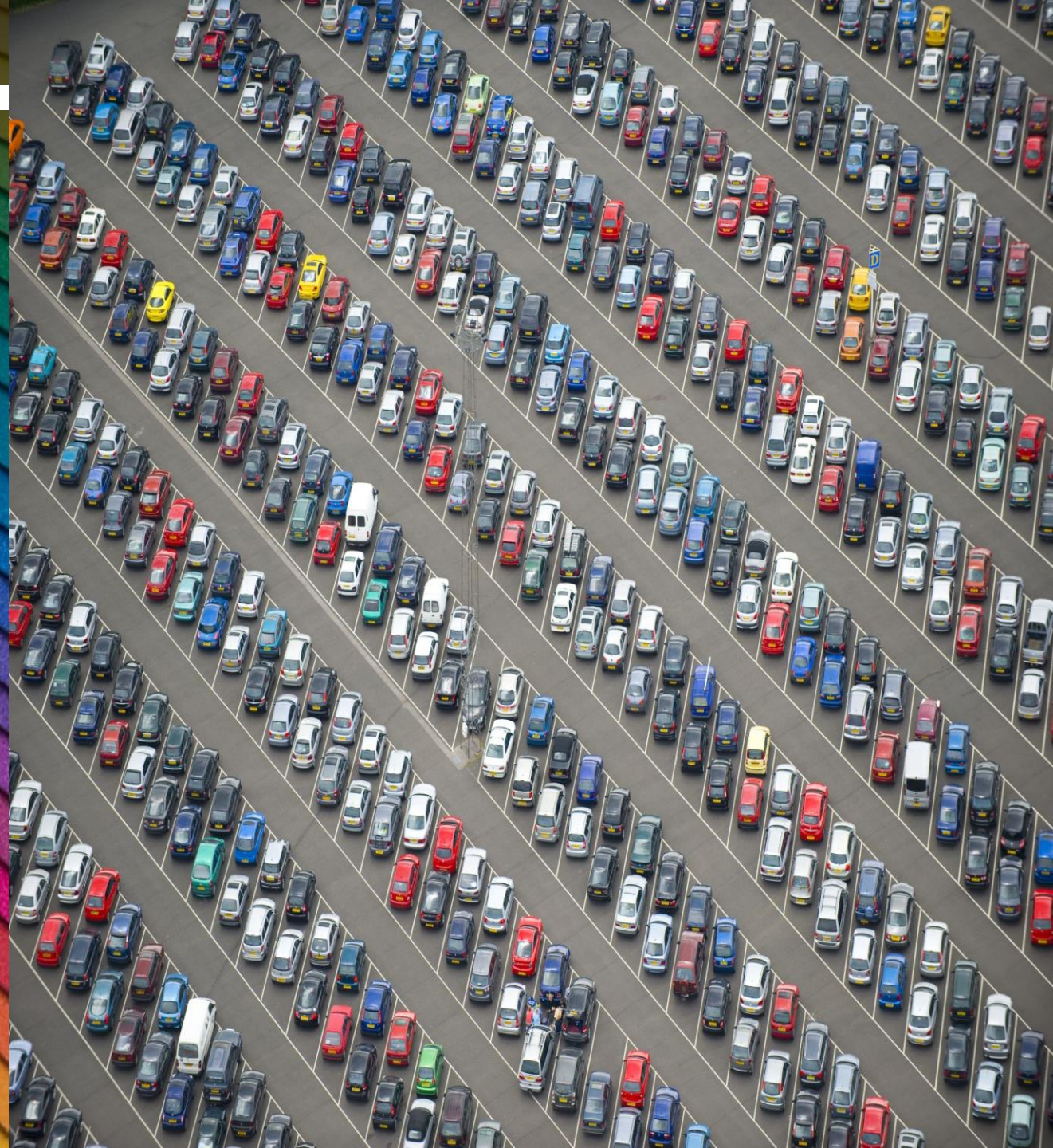
Hot Colors

Which is the hottest?



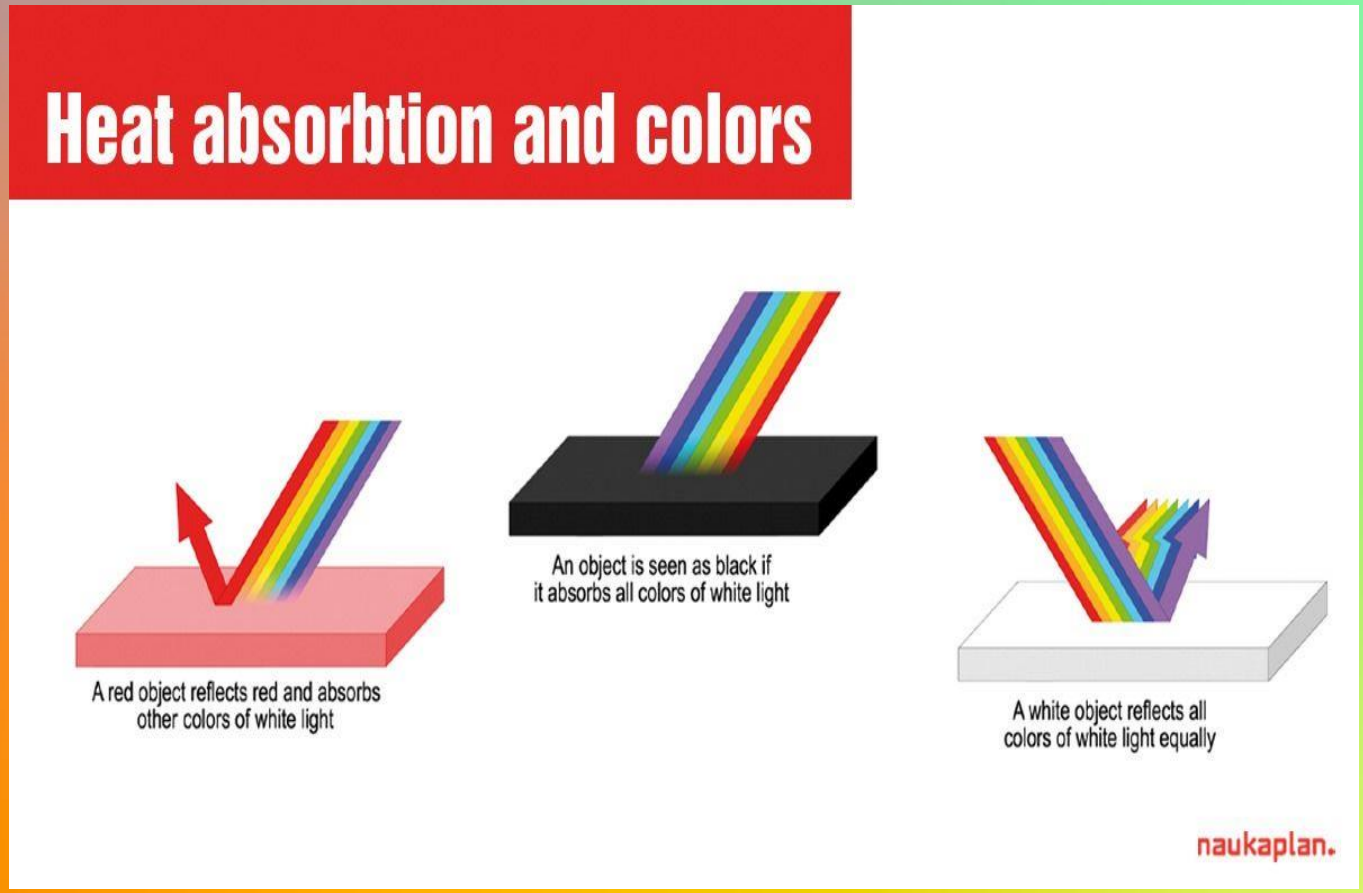
Introduction

I wanted to do this project because it sounded fun, and it could help with deciding what color car you should buy.

Many people have a black car (like my parents), and I wonder that if some car colors are much cooler, if it would help some people decide what the color of their next car will be.

Background information

- White light is all the colors of the rainbow combined.
- Black absorbs white light.
- White reflects white light.
- A red object would absorb all colors of the rainbow, except for red, and reflect the red.
- A white object will still get a little hot, just not as much because light still hits it, but it just reflects the light.
- Dark colored cars get hotter than light colored cars.



Question and Hypothesis

Question:

What color car absorbs the most heat, or gets the hottest, out of the colors, black, silver, white, blue, and red?

Hypothesis:

I think that black will be the hottest color, because black absorbs all colors. I also think that red will be the second hottest because it is a darker color.

Materials

- Pencil
- Clipboard
- Temperature laser gun
- Different color cars
- Paper

Procedure

1. Drive to a place with lots of cars. (I went to a car dealership.)
2. Ask for permission to check the heat of the cars
3. Check the heat of 5 red cars with laser gun pointed at driver's door.
4. Check the heat of 5 blue cars with laser gun pointed at driver's door.
5. Check the heat of 5 black cars with laser gun pointed at driver's door.
6. Check the heat of 5 white cars with laser gun pointed at driver's door.
7. Check the heat of 5 silver cars with laser gun pointed at driver's door.
8. Record the heat of each car in categories based of the color.
9. Find the average temperature of each category, and see which has the highest temperature.
10. Repeat these steps on 2 different days with different temperatures outside.

Results: Day 1 at 11:45 am

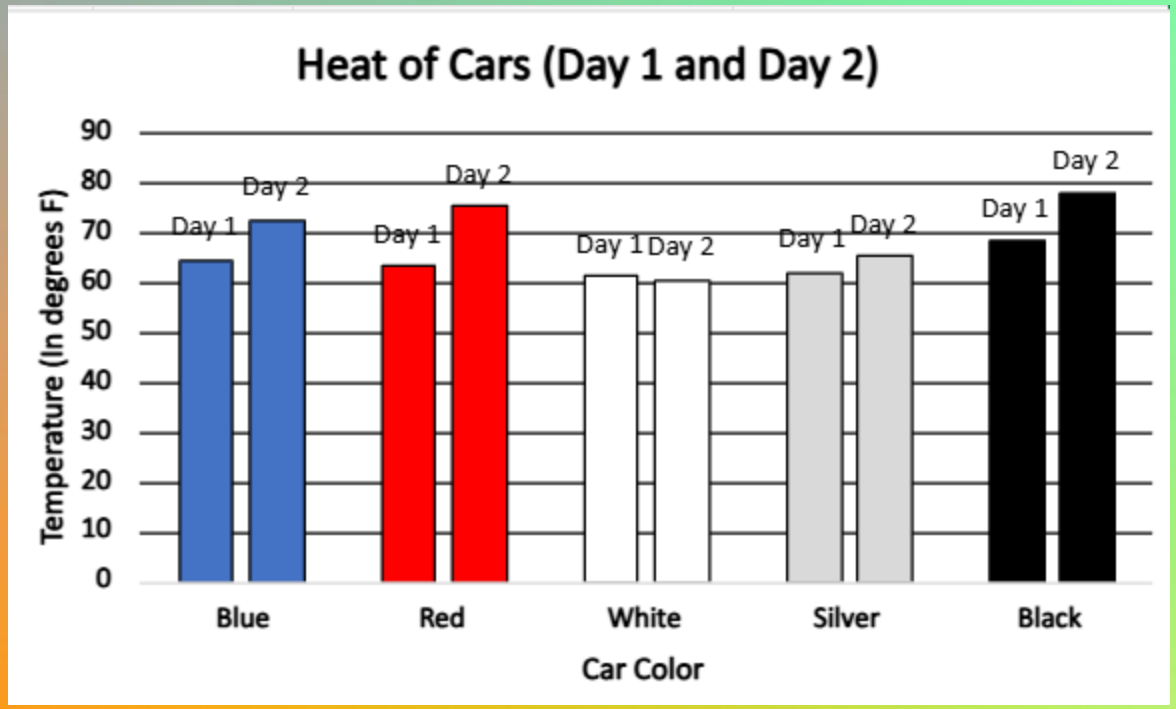
Color of car	Blue cars	Red cars	White cars	Silver cars	Black cars
Car number	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit
Car 1	63.4	70.1	61.6	72	81.6
Car 2	76.5	95.5	64.7	71	79.3
Car 3	80.7	71	58.4	64.4	75.4
Car 4	71	69	60.8	58	77
Car 5	72.1	72.3	58.4	61.8	76.6
Average	72.74	75.58	60.78	65.44	77.98

Results: Day 2 at 1:15 pm

Color of car	Blue cars	Red cars	White cars	Silver cars	Black cars
Car number	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit	Temperature in Fahrenheit
Car 1	64	66.5	65.3	65.1	70
Car 2	66.7	64.7	61.5	67.2	69.4
Car 3	65.4	61.8	60.4	58.2	67.4
Car 4	63.7	62	60	60	68
Car 5	63.6	62.7	60.4	60.2	67.6
Average	64.68	63.54	61.52	62.14	68.48

Results: Day 1 and Day 2

	Blue cars	Red cars	White cars	Silver cars	Black cars
Day 1	64.68	63.54	61.52	62.14	68.48
Day 2	72.74	75.58	60.78	65.44	77.98



Colors of Cars I Tested

Pictures of Cars I Tested

Discussion and Interpretation

- Based on my observations, I found out that the hottest color car was black, then red, then blue, then silver, then white. My hypothesis that black would be the hottest and red would be the second hottest, was correct. So, if you want your car to be cooler in the summer, you should get a white or silver car.
- One limitation is the number of cars I tested on two days. To be more precise I could do it on more days and more cars. To control some variables like that some cars were in the shade and some were not, I went to a car dealership where the cars were all the same brand and equally spaced out minimizing any differences of being in the sun. I wondered if the distance which I held the thermometer gun from could change the results.

Implications & Ideas for Future Research

- This project is helpful for deciding what color your next car should be. If you live in a hot or cold place this could impact you. I think that project is helpful for anyone in my community because I live in a hot place.
- Some ideas for future research are, if the brand of the car changed the results. And if I tested the heat in a different place on the car, would it change the results? I also think that for this project to be more helpful, I could test the temperature of the inside of the car.

References

- https://www.linkedin.com/posts/naukaplan_understanding-how-colors-affect-heat-absorption-activity-7183049841948672000-qmLe
- https://www.npr.org/2025/08/27/nx-s1-5518006/darker-cars-absorb-more-heat-and-make-cities-feel-hotter

- Thanks to Precision Toyota Dealership