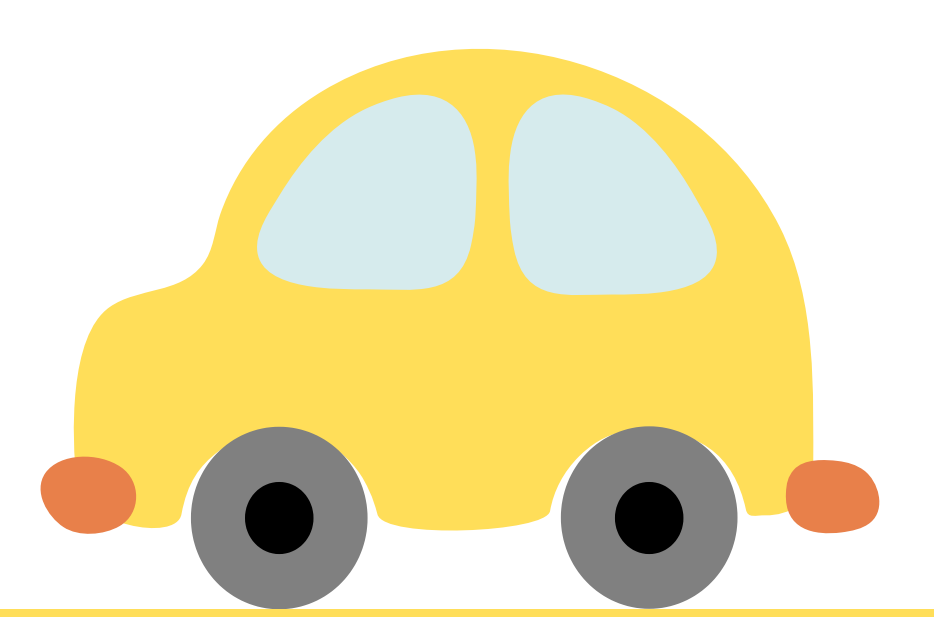


SOLAR CAR EXPERIMENT



AIM

To investigate how the car's speed is affected by the position and size of the wheels.

HYPOTHESIS

If the bigger the wheels are used for the car the speed will increase because each spin of the bigger wheels generate more power and travels further.

INTRODUCTION

With the growing climate crisis, there is an increasing need to reduce the use of fossil fuels. This experiment demonstrates the possibility of using renewable energy for cars. In this experiment, we made a mini car powered by a solar panel.

Solar panels use PV cells to absorb particles from the sun called photons. The electrons are then knocked free from their atoms, generating an electric current. This electric current flows into wires and can then be used to power household appliances, vehicles and more.

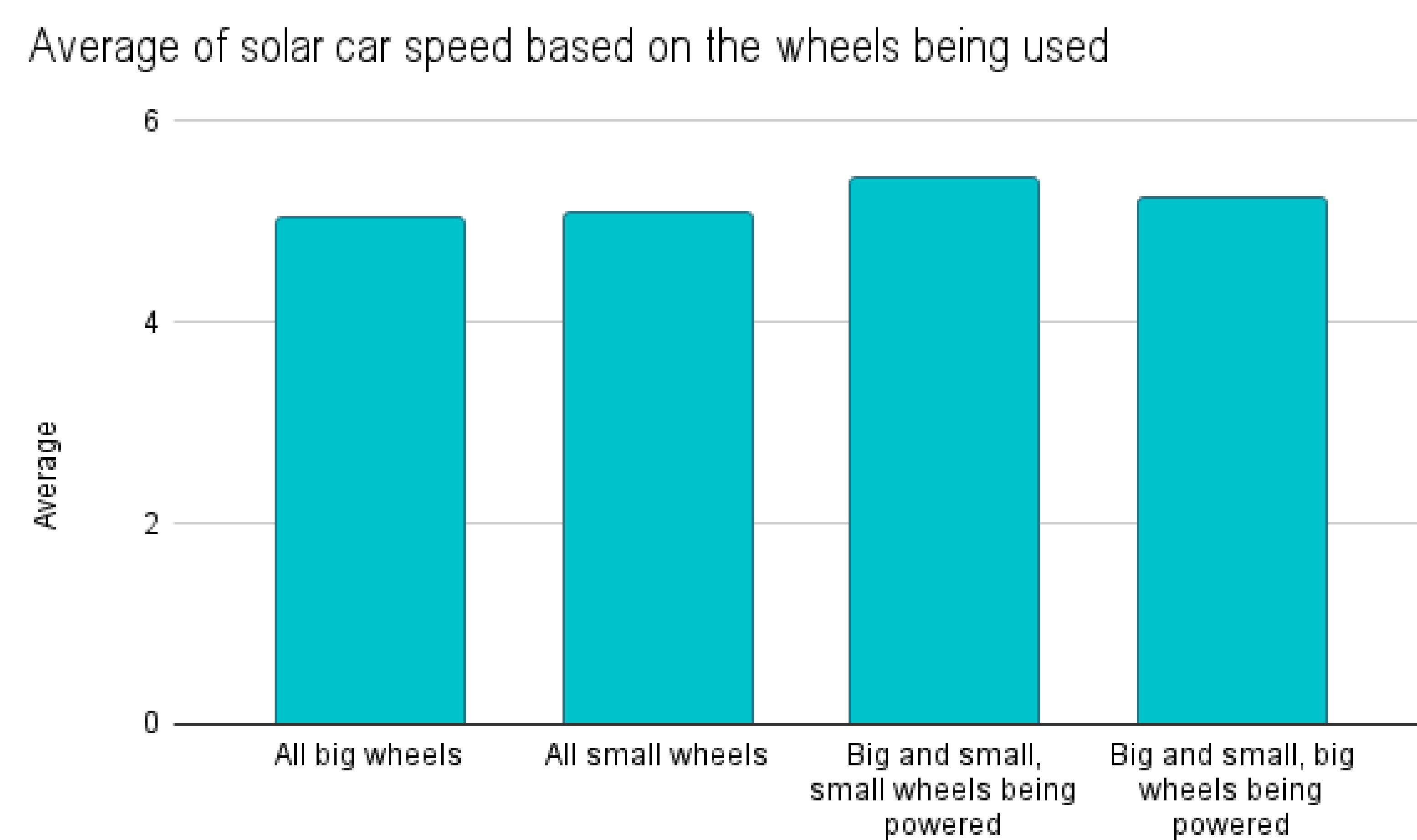
In this investigation, the size of the wheels was changed to see how this would affect the speed of the car. Newton's second law states the force of an object equals its mass times its acceleration, therefore when the mass of the wheels is increased, its force will increase.

METHOD

1. The solar car kit was collected
2. The solar car was assembled with small wheels at the front and big wheels at the back.
3. The motor was added to the back wheels
4. The solar car was tested and used batteries to ensure functionality
5. The solar panel was installed and tested
6. The measuring tape was laid down to mark ten metres and taped down to ensure stability
7. 5 trials were taken measuring the car's speed with a stopwatch across 10 metres.
8. The results were recorded and put into a results table on Google Docs.
9. The car was altered and different wheel combinations were evaluated.
10. Steps 6-8 were repeated with different wheel combinations.
11. The averages were calculated and transferred to a results table.

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average
All big wheels	5.01	5.36	4.76	5.08	4.91	5.024
All small wheels	5.22	5.41	4.88	4.90	4.97	5.076
Big & motor on small	5.44	5.44	5.37	5.54	5.41	5.44
Small & motor on big	5.04	5.34	5.45	4.89	5.49	5.242

RESULTS



DISCUSSION

This experiment shows that two sets of big wheels travelled the fastest with an average speed of 5.024s. The second fastest was the small and small with an average speed of 5.076s. The third fastest was big and small with the big powered with an average speed of 5.242s. The slowest was big and small with small powered with an average speed of 5.44s.

This proves our hypothesis correct. Bigger wheels increased the average speed because each spin of the bigger wheels generated more force which made the car travel further.

Our results show that for a more efficient car on a flat surface, bigger wheels should be used. Further experiments are required to show if these results are the same on a slope.

To improve upon the experiment you could use more accurate timing methods. You could also ensure the car travels straight, possibly by using a different track.

CONCLUSION

In this experiment we tested how a car's speed is affected by the position and size of the wheels. The results show that for the fastest car, bigger wheels should be used because according to Newtons Second Law objects with larger mass can create more force.