

BALLOON POWERED CAR Follow Up Experiments



Watch the video of the car working here: https://video.deakin.edu.au/media/t/1_impfjgit

Once your car construction is complete you can work on improving the distance travelled by the car.

You might investigate some or all of the following (*Note: it is advised to do the 'Adding Weights' experiment first*):

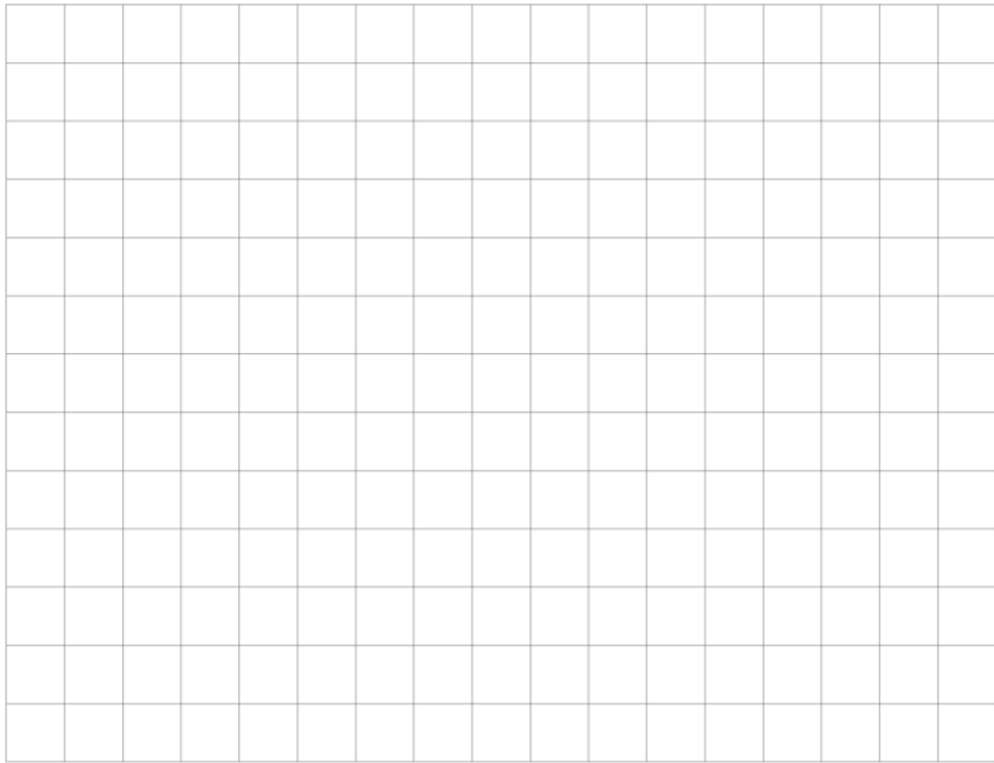
- Adding Weights
- Changing the Weight Distribution
- Changing Surfaces
- Changing Type of Balloon

Adding Weights

Questions:

1. Do you think adding weight will increase the distance the car will travel? Why? Why not?

3. Construct a graph below of your findings using appropriate titles and correctly labelled axes.



4. a. Explain what happened when you added more and more weight to the car.

- b. Is there an optimal weight for the car?

- c. What else could be impacting the distance travelled by the car?

Changing the Weight Distribution

For this experiment you will only use the optimal weight you found in the “Adding Weights” section and see how the location of the weight impacts how the car travels, e.g. veering left or right.

Note: All other variables must remain constant. EG. The surface the car travels on, the size of the balloon blown up to.

Questions:

1. Do you think changing the placement of the weight will affect the distance travelled by the car? How?

2. Did the location of the weight impact the distance travelled? Were some locations more or less effective? Please elaborate.

Type of Balloon Used

For this experiment you will only use the optimal weight you found in the “Adding Weights” section and see if balloon types impact the distance travelled.

Note: All other variables must remain constant. E.g. Surface used, weight used etc.

Questions:

1. Do you think a certain kind of balloon (e.g. round [helium and non-helium], long, foil etc.) will increase the distance travelled? Why? Why not?

- Do you think the size of the balloon blown up to will be detrimental to the cars distance travelled? Why? Why not

For this experiment you must measure your cars distance using only 1 balloon, then increase the size of the balloon blown up to and enter data and other observations into table below.

Note: All other variables must remain constant. EG. The surface the car travels on, the weight used in the car.

Type of balloon used and size blown up to	Distance Travelled (cm)	Observations

3. Construct a graph below of your findings using appropriate titles and correctly labelled axes.



Using the optimal weight fixed to one spot, blow the cars balloon up and use it on any surface you would like to investigate (e.g carpet, sandpaper). Input data and observations of the car in table below.

Type of Surface	Surface Description E.g. Slippery, rough	Distance Travelled (cm)	Observations

3. Describe what happened when using different surfaces. Was the car always propelled forward? If not, where did the potential energy go?

4. Choose one surface and theorise how you could improve the distance travelled by the car.

Summarise

Using the experiments and data you completed above summarise what you have learnt. You should include such things as: constants and variables, friction, energy, energy loss, which activity you think had the most impact on the distance travelled? Could you combine modifications to keep improving the car?

Design Your Own Experiment

In the space below outline your own experiment and test accordingly. Be sure to include the variables you are measuring, changing and controlling. Display your data using tables, charts or graphs.

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