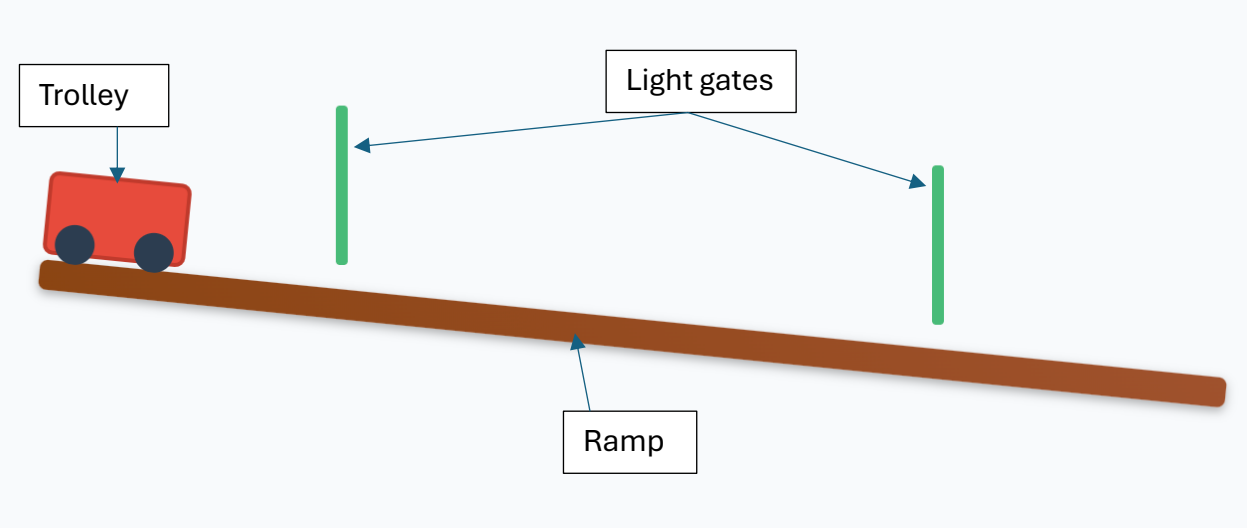
Investigating Motion

Measuring the average speed of a trolley down a ramp

Aim:

You are investigating how the height of a ramp affects the speed of a trolley rolling down it.



Method:

1. Set up a ramp at a certain height. Record this height in your results table.
2. Set up two light gates and measure the distance between them. Record this.
3. Release the trolley from the top of the ramp. Record the time taken to pass between the light gates.
4. Repeat this step two times and calculate an average time for this height.
5. Now adjust the height of the ramp and collect three new times.
6. You should have data for at least five different ramp heights.

Prediction:

What effect do you think the height of the ramp will have on the average speed of the trolley?

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Results:

Height of Ramp (m)	Distance between light gates (m)	Time taken (s)			Average time (s)	Average Speed (m/s)
		Trial 1	Trial 2	Trial 3		

Analysis:

Plot a graph to show your results. Plot the **Height of the Ramp** on the horizontal axis and the **Average Speed** on the vertical axis.

What relationship between height and speed does your graph show?

How does this compare with your prediction?

Evaluation:

How close are your plotted points to your line of best fit? Are there any anomalous results?