Car and Ramp Experiment
Speed and Acceleration

Instructions:

1) Turn on CPO Timer by the switch on the left.
2) Hold the car at the top of the ramp.
3) Set the green light on the CPO Timer to "Interval."
4) Press the red Reset Button.
5) Let the car go!! When the car reaches the bottom, the data from the gates gets stored in the CPO Timer.
6) Using the CPO Timer, write down the time it took for the wing of the car to go through the top Gate A by lighting only the A button. Record this value as "Time A". Do the same for Gate B by lighting only the B button. Record as "Time B".
7) Now write down the time it took for the wing of the car to get from Gate A to Gate B by lighting both the A and B buttons. Record this as "Time AB".
8) Calculate the Acceleration and Speeds of the car using the equations below.

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\text{Speed} = \frac{\text{Distance}}{\text{Time}}
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\[
\text{Speed A} = \frac{0.05 \text{ m} \times \text{width of car wing}}{\text{Time A (seconds)}}
\]

\[
\text{Speed B} = \frac{0.05 \text{ m} \times \text{width of car wing}}{\text{Time B (seconds)}}
\]

\[
\text{Acceleration} = \frac{\text{Change in Speed}}{\text{Time Taken}}
\]

\[
\text{Acceleration AB} = \frac{\text{Speed B} - \text{Speed A}}{\text{Time AB (seconds)}}
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