## Procedure

1. Lay the board flat on the floor. Using blue tape, mark a starting line on the board at 24 inches (if it hasn't already been done).

2. Mark a finish line on the floor with blue tape 1.5 m beyond the **end** of the board.

3. Place a barrier after the finish line.

4. Prop up the other end of the board (using books) to make an incline (minimum of 10).

    *Use a protractor to measure the angle that the board makes with the ground.

5. Record the angle in your data table.

6. Working in groups of <u>three</u>, have one person hold the can so that the front of the can is even with the starting line. As the *holder releases the can*, the other two students should start their stopwatches.

7. **One timer** should stop their stopwatch when the can reaches the <u>end of the incline</u>.

8. The **second timer** should stop their stopwatch when the can reaches the <u>finish line</u>.

9. Record the times to the bottom of the ramp and to the finish line in the columns labeled Time 1 and Time 2.

10. Repeat Steps *6–9 two more times* (trials 2 & 3).

11. Repeat Steps 4–10 three more times, making the ramp gradually steeper each time.

12. For each angle of the incline, complete the following calculations and record them in your data table.

    a. Find the average time the can takes to get to the bottom of the ramp (Time 1).

    b. Find the average time the can takes to get to the finish line (Time 2).

    c. Subtract the average Time 1 from the average Time 2.

    D. Calculate the average speed for each angle.
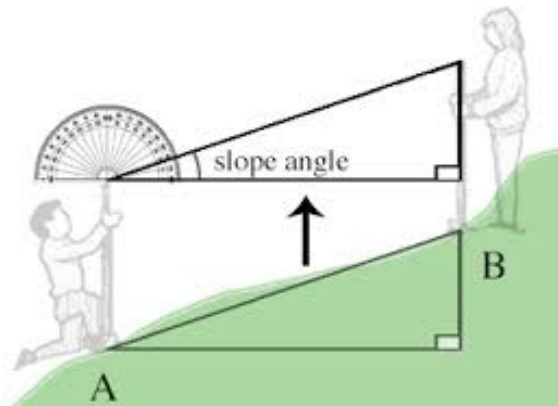
Angle (degrees)	Trial number	Time 1 (to bottom) (s)	Time 2 (to finish) (s)	Average time 1 (s)	Average time 2 (s)	Average time **2** -Average time **1**	Average speed (m/s) *1.5 meters
	1 2 3	_____ _____ _____	_____ _____ _____				
	1 2 3	_____ _____ _____	_____ _____ _____				
	1 2 3	_____ _____ _____	_____ _____ _____				
	1 2 3	_____ _____ _____	_____ _____ _____				

Graphing

1. On a graph, plot the speed of the can (on the y-axis) against the angle of the ramp (on the x-axis).

2. Connect the points on your graph. Use the space below to make your graph.
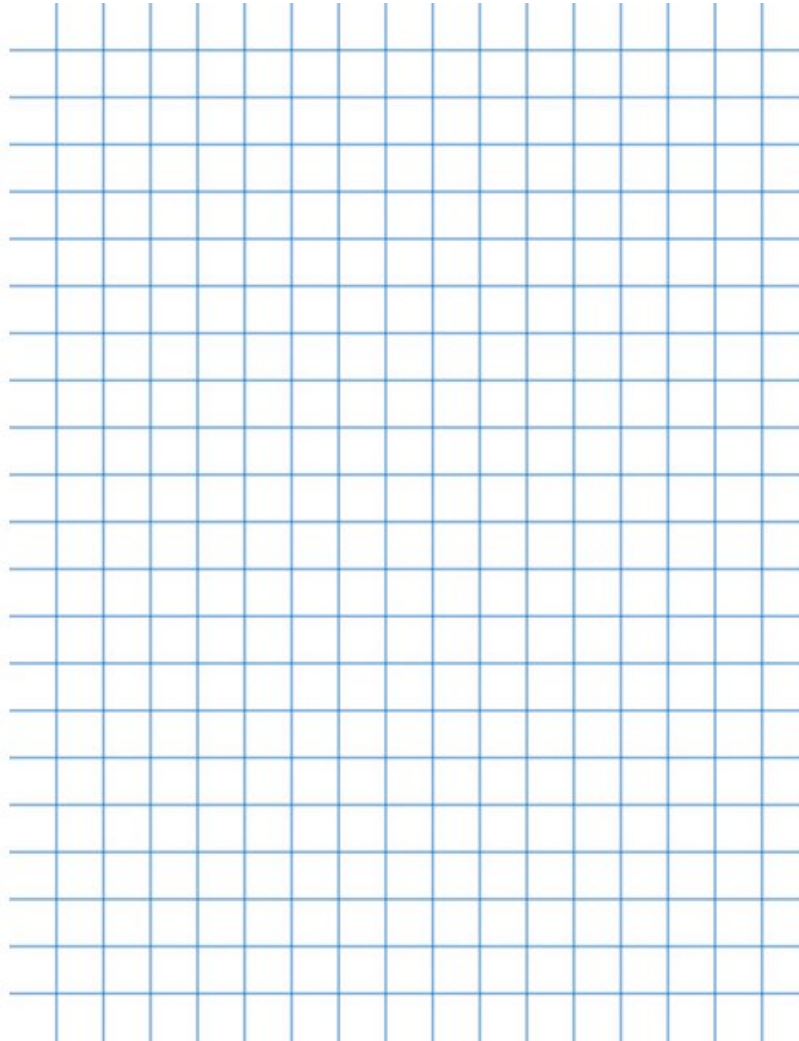
3. *Drawing Conclusions*: What does the shape of your graph show about the relationship between the can's speed and the angle of the ramp?

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