26. DOMINOES

Team Croatia
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1. NAME OF THE PROBLEM

Stand a number of domino tiles in a long row and topple the first tile. **Investigate** the **speed** of toppling dominoes. Does it depend on the **distance** between the tiles?
DEMONSTRATION OF THE PHENOMENON
OUTLINE

Theoretical introduction
• Velocity calculation

Experiment
• Changing distance between the tiles

Results
• Result discussion
THEORETICAL INTRODUCTION

\[ v = \frac{s[m]}{t[s]} \]

\( v \) – velocity [m/s]

\( s \) – distance of first and last domino [m]

\( t \) – time [s]
HYPOTHESIS

1. Smaller distance $\rightarrow$ Bigger velocity
EXPERIMENT

- 20 dominos in a row
- Distances: 2 cm, 2.5 cm, 3 cm, 3.5 cm
- Measuring time with 5 stopwatches
- Measurements repeated 3 times
RESULTS

![Graph showing the relationship between distance between dominoes and time. The x-axis represents distance between dominoes in cm, ranging from 1.8 to 3.6, and the y-axis represents time in seconds, ranging from 0.2 to 0.9. The graph includes data points with error bars indicating variability. A linear trend line is also shown, indicating a positive correlation between distance and time.](image-url)
RESULTS

![Graph showing the relationship between distance between dominoes/cm and speed/(m/s).](image)

- Distance between dominoes (cm): 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6
- Speed (m/s): 0.75, 0.80, 0.85, 0.90, 0.95, 1.00, 1.05, 1.10, 1.15

The graph depicts a linear relationship between the distance between dominoes and the speed at which they fall.
CONCLUSION

- We have investigated the speed of toppling dominoes.

- By the bigger distance dominoes are toppling faster until the distance is bigger than domino tile’s height.
THANK YOU!

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ADDITIONAL SLIDES