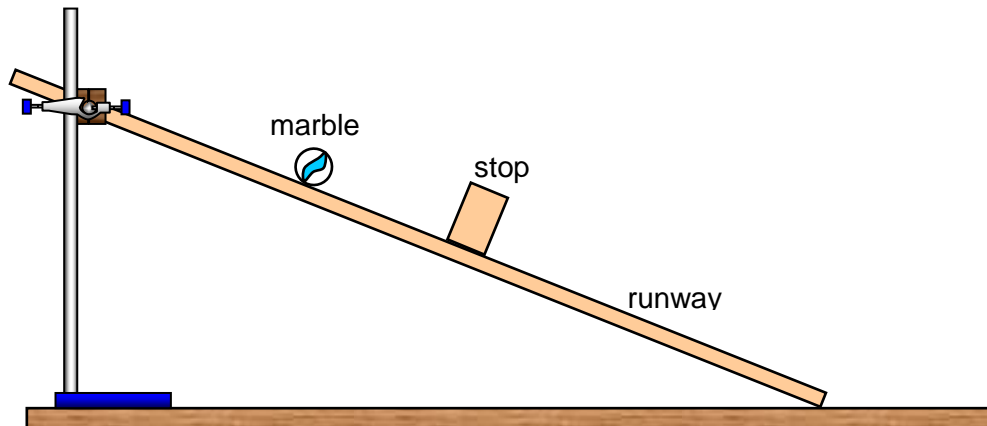


TAP 205- 1: Rolling balls down ramps

This is a version of the experiment that Galileo performed towards the end of the sixteenth century.



Apparatus required

- ✓ wooden runway
- ✓ digital stop clock
- ✓ metre rule to measure lengths along runway
- ✓ metre rule to act as a 'stop'.
- ✓ retort stand and clamp
- ✓ marble

Procedure

- Set the ramp at about 20° slope.
- Measure the time taken for the marble to run from the top of the slope to a rule ('stop') 10 cm along the slope. Repeat this measurement a sensible number of times to establish a mean value.
- Move the stop point to 15 cm from the top of the slope and repeat the process.
- Continue the process, at 5 cm intervals until the marble runs the length of the ramp.
- You are to draw up a suitable results table to record your measurements of distance and time in.

Analysis

Add an extra column to your results table with the heading "v" (for final velocity), and find the final velocity of the ball for each row of your data.

Add another column with the heading " t^2 ", and compute the values of t^2 for each row.

Plot a suitable graph of two columns of your table so that you can find the acceleration of the ball using the graph.