Vertical acceleration of a centre of mass

A plastic triangle is thrown with rotation. The centre of mass is marked with a cross.

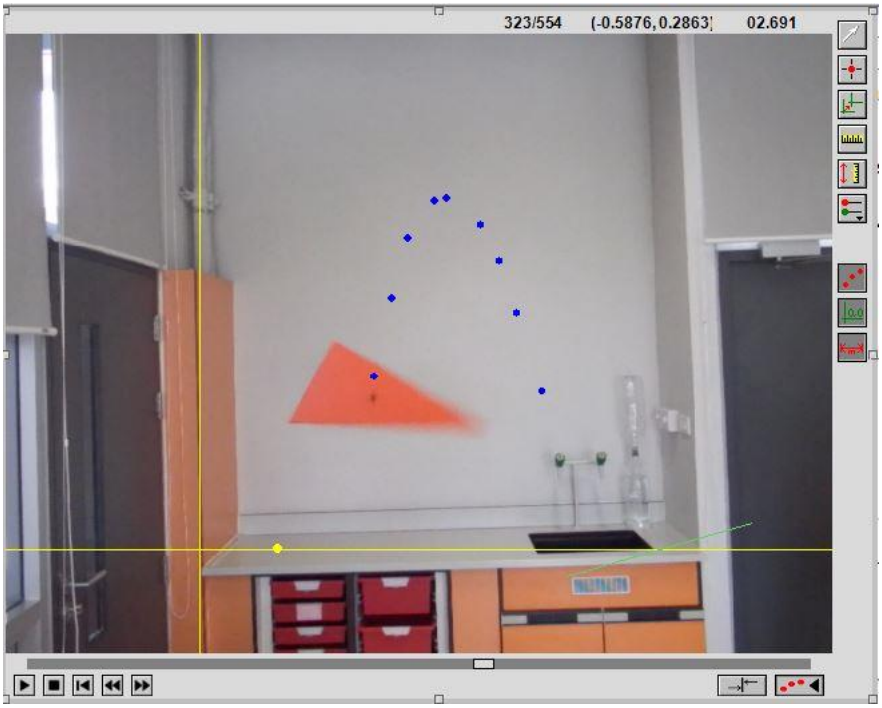

Fig 1 – the triangle is 70 cm on the long side and rotates as it rises and falls.

Analysis

Download the video clip taken at 120 fps [Media]. Open Logger Pro and plot a position/time graph.

1 By fitting a parabola to the first section of the trajectory show that air resistance is an important factor.

2 Fit a straight line to vertical velocity/time data and find the acceleration with a likely error.

Homework

Put together a one page word document with your name, class, and screen captures of your two graphs. State a possible reason for the low value of the measured acceleration due to gravity.

Email the file to Dr. Ian ….