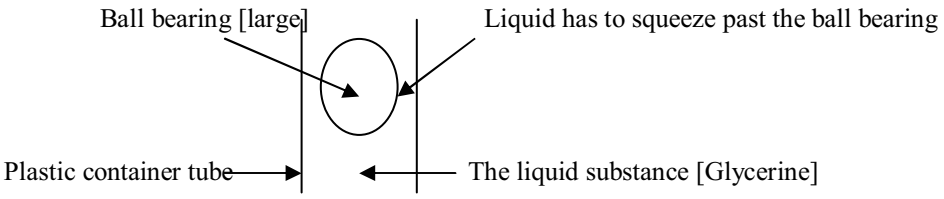
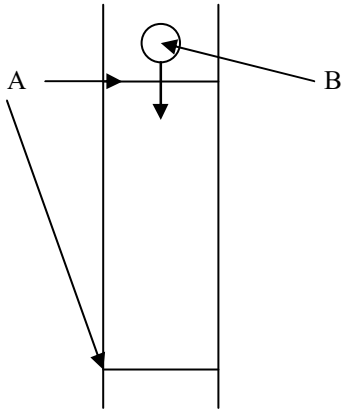
An Investigation into Ball bearings different speeds and surface areas, through glycerine.

Myself and my experiment partner recorded some times of metal ball bearings passing through Glycerine, a type of oil. There were nine different ball bearings used, ranging from a minute diameter of 1.45 mm to a large 24.92. Three different times were recorded for each ball bearing. From my knowledge I know that if an object has the same density as the liquid it is in, then it will not sink or float, but stay still, just as the liquid will. I therefore predict that, the larger the ball bearing, the faster it will pass through the Glycerine. However, there is one slight drawback to this statement. The tube filled with the glycerine only has a circumference of about 24 or 25 cm. This means that after the diameter of the ball bearings become larger than about ten or eleven cm, then the time taken to pass through the Glycerine of seventy cm, will increase. This owes to the fact that if the ball bearing is so large that the liquid, glycerine, cannot pass it, easily.



To carry out this experiment we used the measurements in millimetres and centimetres. The amount of time was measured in seconds, not to minute's e.g. 125.83 SECONDS. We used stopclocks to time the ball bearing passing from the start of the seventy centimetres to which we calculated the speed. To help explain, here is a diagram to aid.



This diagram shows the ball bearing falling through the Glycerine. The arrow pointing down from the ball bearing, B shows the point of direction of the ball bearing. The other letter, A, has been put there to represent where the seventy centimetres starts and stops. These two lines were used to time the ball bearing passing through them. As soon as the ball passed the first line, we started our stopclock, timing the balls speed in cm per seconds. As soon as the ball reached the bottom line, the stopwatch was stopped. This then gave us the amount of time it took the ball bearing to travel seventy centimetres.

In this experiment, the ball bearings diameter is changed. The ball was timed three times, so as to give us three times to look at. The liquid substance, Glycerine, was kept the same. Nothing was added to the Glycerine, and none of the Glycerine was taken away. In the same way, the Glycerine was not made thicker or in any way thinner. The two lines of where we timed the ball were always kept the same, seventy centimetres.