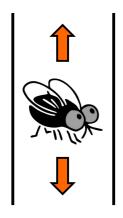
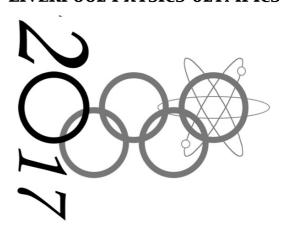
LIVERPOOL PHYSICS OLYMPICS





Fly in the Ointment

Aim	To determine the density of a 'fly' by timing its descent through a viscous liquid.
Materials	1 liquid-filled cylinder 2 rubber bands 1 stopwatch
Method	Drop the 'fly' into the liquid and time how long it takes to fall a known distance. Use this to determine the density (see over).
Conditions	Assume a spherical fly with uniform density.
Time Limit	25 minutes
Ranking	The ranking order will be determined by the difference between the calculated density and the known density.
Team	Result
Do not write belo	v this line

Rank

Stokes' Law

$$\eta = \frac{2gr^2}{9v}(\rho - \sigma)$$

 η = viscosity of fluid = 0.230 kg/ m·s

 $g = \text{acceleration due to gravity} = 9.81 \text{ m/s}^2$

r = radius of 'fly' = 2.025 mm

v = velocity

 $\rho = \text{density of 'fly'} = ?????$

 σ = density of fluid = 1.25 g/cm³