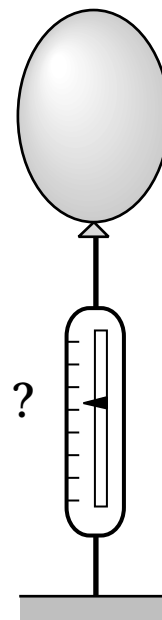


Liverpool Physics Olympics  
INTERNATIONAL 98

# Lift Off



**Aim** To estimate the vertical lift force produced by a helium-filled balloon.

**Materials** 1 metre rule      1 retort stand      1 2m length of string  
1 100g mass      10 rubber bands      1 pair of scissors

**Method** The estimate of the lift force can be derived in any way, but measurements can be made using only the materials provided.

**Conditions** –

**Time limit** 25 minutes

**Ranking** The ranking order will be determined by the difference between the estimated force and the force as measured by one of the judges.

**Team**

**Estimated Lift Force**

**mN**

Do not write below line

**Measured Lift Force**

**mN**

**Rank**