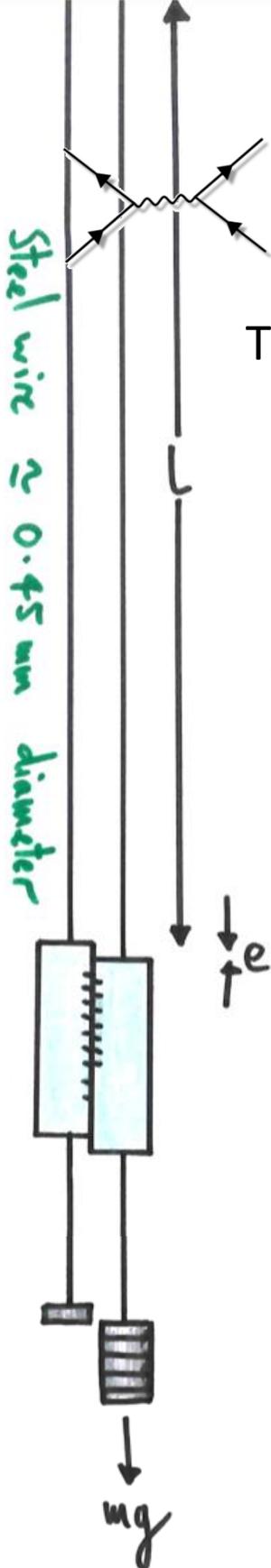


# A Level Physics Online

## The Young's Modulus (of Steel)

Steel wire  $\approx 0.45$  mm diameter



$$\text{Young's Modulus, } E = \frac{\text{Stress}}{\text{Strain}} = \frac{F/A}{e/L}$$

$$F = mg \quad A = \frac{\pi d^2}{4} \quad \underline{\underline{d \times 3}}$$

m/kg      e/m

e/m

gradient =  $\frac{e}{mg}$

mg/N

$$E = \frac{mgL}{Ae} = \frac{L}{A \times \text{gradient}}$$

$$E_{\text{Steel}} \approx 200 \text{ GPa}$$

Wire may snap  $\therefore$  Wear Goggles  
Weight may drop  $\therefore$  cushion it

