MR SULLY UNFOLDS PHYSICS

Weight and work done

AQA 4.5.1.3 · 4.5.2
Forces · Paper 2
Foundation & Higher

Name _____ Class _____ Date _____

Weight is the force acting on an object due to gravity. When a force moves an object, **work is done** and energy is transferred.

KEY EQUATIONS

W = m g
weight (N), mass (kg), gravitational field strength (N/kg). On Earth g = 9.8 N/kg.

W = F s
work done (J), force (N), distance moved along the line of the force (m). 1 J = 1 N m.

Section A · Recall and calculate

Grade 4–5

1 What is the difference between mass and weight? [2]

2 Calculate the weight of a 65 kg person on Earth. [2]

3 Calculate the work done when a 40 N force pushes a box 3 m. [2]

Section B · Rearrange and apply

Grade 5–6

4 An astronaut has a mass of 80 kg. The gravitational field strength on the Moon is 1.6 N/kg.

a Calculate her weight on the Moon. [2]

b State her mass on the Moon. Explain your answer. [2]

5 Complete the table. [3]

Force (N)	Distance (m)	Work done (J)
25	8	
150		600
	0.6	300

6 A student pushes a heavy box across a rough floor. Explain why the box gets warmer. [2]

Section C · Stretch

Grade 7+

7 A crane does 54 000 J of work lifting a load 12 m vertically at a steady speed. Calculate the mass of the load. (g = 9.8 N/kg) [3]

Exam-style question

AQA style

8 A cyclist pedals with a constant force of 120 N and travels 500 m along a flat road.

a Calculate the work done by the cyclist. [2]

b The cyclist and bike have a combined mass of 90 kg. Calculate their combined weight. [2]

c The cyclist's speed stays constant. Explain what this tells you about the resistive forces. [2]

Total: _____ / 24

How confident am I?	Not yet	Nearly	Got it
I can explain the difference between mass and weight	☐	☐	☐
I can use W = mg	☐	☐	☐
I can use W = Fs and link work done to energy	☐	☐	☐