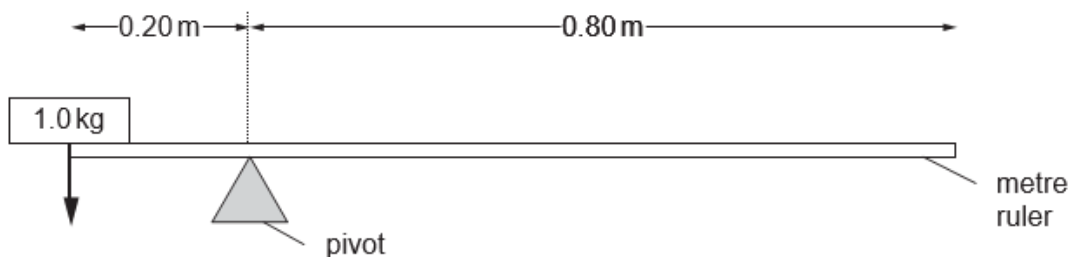


GCSE Physics B (Twenty First Century Science)
J259/03 Depth in physics (Higher Tier)

Question Set 11

- 1 Jack investigates using weights to balance a seesaw. He makes the seesaw out of a metre ruler with a pivot placed at the 20 cm mark, as shown in the diagram.

He places a 1.0 kg mass with its centre exactly at one end of the metre ruler.



- (a) Calculate the moment of the 1.0 kg mass about the pivot, in units of Nm.

Use the equation: moment of a force = force \times distance (normal to the direction of the force)

gravitational field strength = 10 N/kg

Moment = Nm [3]

- (b) Jack predicts where he should put masses on the right-hand side of the seesaw to make it balance.

He then carefully places those masses at points which make the seesaw balance and measures the actual distances to the pivot.

The table shows his results.

Mass (g)	Predicted distance to pivot (m)	Measured distance to pivot (m)
400	0.50	0.46
600	0.33	0.31
800	0.25	0.23
1000	0.20	0.19

- (i) The measured distances to the pivot are all slightly smaller than the predicted distances to the pivot.

Explain why.

[1]

- (ii) Suggest **one** way to improve his experiment to remove this difference.

[1]

Total Marks for Question Set 11: 5

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