

OCR (B) Physics GCSE

Topic 4.1 - What are forces?

Flashcards

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How do forces arise?



How do forces arise?

From the interaction between two objects.



State Newton's third law



State Newton's third law

When two objects interact, they exert forces on each other which are **equal and opposite**.



What are the two objects/forces called in an interaction?



What are the two objects/forces called in an interaction?

An interaction pair.



What are the two types of forces?



What are the two types of forces?

Contact (when objects physically touch)
and non-contact.



Give two non-contact forces



Give 2 non contact forces

1. Electrostatic
2. Gravitational



Give two contact forces



Give 2 contact forces

1. The normal contact force (felt opposite and perpendicular to the plane of contact)
2. friction



What is friction?



What is friction?

The interaction between two surfaces sliding relative to each other. Each surface experiences a force to prevent movement.



What is the normal contact force?



What is the normal contact force?

The interaction between an object and the surface it rests on. The surface pushes upwards with equal and opposite force on the object.



What is a vector?



What is a vector?

A quantity that has both magnitude and direction.



What is a scalar quantity?



What is a scalar quantity?

A quantity with just magnitude, no direction (so can only take positive values).



How can vectors be represented?



How can vectors be represented?

Lines with arrows to show directions and length to show magnitude.



Define mass



Define mass

A measure of the amount of matter in an object, and a measure of its resistance to acceleration.



How would a person's mass on the moon compare to their mass on Earth?



How would a person's mass on the moon compare to their mass on Earth?

It would be the same; mass is independent of gravity.



Define weight



Define weight

The force acting on an object due to its mass and gravity.



Give the equation for weight, including all
SI units



Give the equation for weight, including all SI units

Weight (N) = mass (kg) x gravitational
field strength (kg/N)



How can weight be measured?



How can weight be measured?

- A force meter (spring balance).
- A weighing scale, which measures weight and converts it into mass (by dividing by g).



What does g represent?



What does g represent?

The gravitational field strength.



What is the value of g at Earth's surface?



What is the value of g on Earth's surface?

10 N/kg.



Define the term *centre of mass*



Define the term *centre of mass*

The single point through which the force of an object's weight is considered to act through. (A single force acting on the centre of mass would have no turning effect.)

