

Speed, Forces & Gravity

Speed: How much distance is covered in how much time.
Average speed: The overall distance travelled divided by overall time for a journey.
Relative motion: Different observers judge speeds differently if they are in motion too, so an object's speed is relative to the observer's speed.
Acceleration: How quickly speed increases or decreases.
Weight: The force of gravity on an object (N).
Non-contact force: One that acts without direct contact.
Mass: The amount of stuff in an object (kg).
Gravitational field strength, g: The force from gravity on 1 kg (N/kg).
Field: The area where other objects feel a gravitational force.

Electricity

Potential difference (voltage): The amount of energy shifted from the battery to the moving charge, or from the charge to circuit components, in volts (V).
Resistance: A property of a component, making it difficult for charge to pass through, in ohms (Ω).
Electrical conductor: A material that allows current to flow through it easily, and has a low resistance.
Electrical insulator: A material that does not allow current to flow easily, and has a high resistance.
Negatively charged: An object that has gained electrons as a result of the charging process.
Positively charged: An object that has lost electrons as a result of the charging process.
Electrons: Tiny particles which are part of atoms and carry a negative charge.
Charged up: When materials are rubbed together, electrons move from one surface to the other.
Electrostatic force: Non-contact force between two charged objects.
Current: Flow of electric charge, in amperes (A).
In series: If components in a circuit are on the same loop.
In parallel: If some components are on separate loops.
Field: The area where other objects feel a gravitational force.

Energy costs & Energy Transfer

Power: How quickly energy is transferred by a device (watts).
Energy resource: Something with stored energy that can be released in a useful way.
Non-renewable: An energy resource that cannot be replaced and will be used up.
Renewable: An energy resource that can be replaced and will not run out. Examples are solar, wind, waves, geothermal and biomass.
Fossil fuels: Non-renewable energy resources formed from the remains of ancient plants or animals. Examples are coal, crude oil and natural gas.
Thermal energy store: Filled when an object is warmed up.
Chemical energy store: Emptied during chemical reactions when energy is transferred to surroundings.
Kinetic energy store: Filled when an object speeds up.
Gravitational potential energy store: Filled when an object is raised.
Elastic energy store: Filled when a material is stretched or compressed.
Dissipated: Become spread out wastefully.

Sound & Light

Vibration: A back and forth motion that repeats.
Longitudinal wave: Where the direction of vibration is the same as that of the wave.
Volume: How loud or quiet a sound is, in decibels (dB).
Pitch: How low or high a sound is. A low (high) pitch sound has a low (high) frequency.
Amplitude: The maximum amount of vibration, measured from the middle position of the wave, in metres.
Wavelength: Distance between two corresponding points on a wave, in metres.
Frequency: The number of waves produced in one second, in hertz.
Vacuum: A space with no particles of matter in it.
Oscilloscope: Device able to view patterns of sound waves that have been turned into electrical signals.
Absorption: When energy is transferred from sound to a material.
Auditory range: The lowest and highest frequencies that a type of animal can hear.
Echo: Reflection of sound waves from a surface back to the listener.
Incident ray: The incoming ray.
Reflected ray: The outgoing ray.
Normal line: From which angles are measured, at right angles to the surface.
Angle of reflection: Between the normal and reflected ray.
Angle of incidence: Between the normal and incident ray.

Refraction: Change in the direction of light going from one material into another.
Absorption: When energy is transferred from light to a material.
Scattering: When light bounces off an object in all directions.
Transparent: A material that allows all light to pass through it.
Translucent: A material that allows some light to pass through it.
Opaque: A material that allows no light to pass through it.
Convex lens: A lens that is thicker in the middle which bends light rays towards each other.
Concave lens: A lens that is thinner in the middle which spreads out light rays.
Retina: Layer at the back of the eye with light detecting cells and where image is formed.

Contact forces & Pressure

Equilibrium: State of an object when opposing forces are balanced.
Deformation: Changing shape due to a force.
Linear relationship: When two variables are graphed and show a straight line which goes through the origin, and they can be called proportional.
Newton: Unit for measuring forces (N).
Resultant force: Single force which can replace all the forces acting on an object and have the same effect.
Friction: Force opposing motion which is caused by the interaction of surfaces moving over one another. It is called 'drag' if one is a fluid.
Tension: Force extending or pulling apart.
Compression: Force squashing or pushing together.
Contact force: One that acts by direct contact.
Fluid: A substance with no fixed shape, a gas or a liquid.
Pressure: The ratio of force to surface area, in N/m^2 , and how it causes stresses in solids.
Upthrust: The upward force that a liquid or gas exerts on a body floating in it.
Atmospheric pressure: The pressure caused by the weight of the air above a surface.

Magnetism

Electromagnet: A non-permanent magnet turned on and off by controlling the current through it.
Solenoid: Wire wound into a tight coil, part of an electromagnet.
Core: Soft iron metal which the solenoid is wrapped around.
Magnetic force: Non-contact force from a magnet on a magnetic material.
Permanent magnet: An object that is magnetic all of the time.
Magnetic poles: The ends of a magnetic field, called north-seeking (N) and south-seeking poles (S).

Work, Heating & Cooling

Work: The transfer of energy when a force moves an object, in joules.
Lever: A type of machine which is a rigid bar that pivots about a point.
Input force: The force you apply to a machine.
Output force: The force that is applied to the object moved by the machine.
Displacement: The distance an object moves from its original position.
Deformation: When an elastic object is stretched or squashed, which requires work.
Thermal conductor: Material that allows heat to move quickly through it.
Thermal insulator: Material that only allows heat to travel slowly through it.
Temperature: A measure of the motion and energy of the particles.
Thermal energy: The quantity of energy stored in a substance due to the vibration of its particles.
Conduction: Transfer of thermal energy by the vibration of particles.
Convection: Transfer of thermal energy when particles in a heated fluid rise.
Radiation: Transfer of thermal energy as a wave.

Wave effects & properties

Ultraviolet (UV): Waves with frequencies higher than light, which human eyes cannot detect.
Microphone: Turns the pressure wave of sound hitting it into an electrical signal.
Loudspeaker: Turns an electrical signal into a pressure wave of sound.
Pressure wave: An example is sound, which has repeating patterns of high-pressure and low-pressure regions.
Waves: Vibrations that transport energy from place to place without transporting matter.
Transverse wave: Where the direction of vibration is perpendicular to that of the wave.

Transmission: Where waves travel through a medium rather than be absorbed or reflected.