Physics: Energy

1. ChemicalEnergy transferred during chemical reactionsApplianceUseful energyWasted energy2. KineticEnergy in moving objects20. Light bulbLight emitted from the glowing filamentHeat energy transferred from the filament3. Gravitational potentialEnergy stored in objects raised up against the force of gravity20. Light bulbLight emitted from the glowing filamentHeat energy transferred from the filament4. Elastic potentialEnergy stored in an object that has been stretched potential22. Electric toasterEnergy heating the breadEnergy heating the toaster case and the air around it5. NuclearEnergy stored in the nuclei of atoms that can fuse (nuclear fusion) or split (nuclear fission)23.Electric kettleEnergy heating the waterEnergy heating the casing of the kettle,6. MagneticEnergy stored in magnets that are attracting or repelling24. HairdryerKinetic energy of the air driven by the fan, Thermal energy heating the air.Sound of the fan motor, energy heating the hairdryer itself.	1. Energy and me	thods of tra	nsfer				3. Comparing energy use in electri	cal appliances
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Physics: Energy Resources

Resource	Renewable or Non-renewable	Uses	Advantages	Disadvantages
Fossil Fuel – coal, oil and natural gas	Non-renewable	Electricity Transport Heating	Reliable-electricity can be generated all the time. Relatively cheap way of generating electricity.	Produces carbon dioxide a greenhouse gas that causes global warming. Can produce sulfur dioxide, a gas that causes acid rain.
Nuclear fuel	Non-renewable	Electricity	Produces no carbon dioxide Reliable- can produce electricity all the time. More energy transferred per Kg compared to fossil fuels	Produces nuclear waste that remains radioactive for thousands of years. Expensive to build and decommission power stations. Danger of explosions.
Biofuel	Renewable	Heating and electricity	Carbon neutral	Production of fuel may damage ecosystem and create a monoculture
Wind	Renewable	Electricity	No carbon dioxide produced	Unreliable during low wind, expensive to construct
Hydroelectricity	Renewable	Electricity	No carbon dioxide produced	Blocks rivers stopping fish migration, unreliable as it may not produce electricity during a drought
Geothermal	Renewable	Electricity	No carbon dioxide produced, does not damage ecosystem	Fluids drawn from the ground may contain greenhouse gases which contribute to global warming
Tidal	Renewable	Electricity	No carbon dioxide produced	Unreliable as tides vary, may damage tidal ecosystem. Height of tide varies monthly and annually.
Waves	Renewable	Electricity	No carbon dioxide produced	Unreliable, does not produce electricity during calm seas
Solar	Renewable	Electricity and heating	No carbon dioxide produced	Unreliable, does not produce electricity at night. Limited production on cloudy days.