

Name ..... Class ..... Date .....

	Aiming for 4 (Foundation / Intermediate)	Aiming for 6 (Intermediate / Higher)	Aiming for 8 (Higher / Exceptional)
P3.1 Energy demands	I can identify which fuels are renewable and which are non-renewable.	I can outline the operation of a fossil fuel burning power station.	I can compare energy use from different sources and different societies from available data.
	I can identify activities that require large energy transfers.	I can outline the operation of a nuclear power station.	I can compare fossil fuels and nuclear fuels in terms of energy provided, waste, and pollution.
	I can state that biofuels are carbon neutral whereas fossil fuels are not.	I can explain why biofuels are considered carbon neutral.	I can discuss some of the problems associated with biofuel use and production.
P3.2 Energy from wind and water	I can state that wind turbines, wave generators, hydroelectric systems, and tidal systems are renewable energy resources.	I can describe the operation of a wind farm.	I can compare the operation of hydroelectric, wave, and tidal systems in terms of reliability, potential power
	I can state some simple advantages or disadvantages of renewable energy systems.	I can describe the operation of a hydroelectric system.	I can explain in detail the purpose, operation, and advantages of a pumped storage system.
	I can outline the operation of a renewable energy source.	I can suggest the most appropriate energy resource to use in a range of scenarios.	I can justify the choice of an energy resource by using numerical and other appropriate data.
P3.3 Power from the Sun and the Earth	I can explore the operation of a solar cell.	I can compare and contrast the operation of solar cells (photovoltaic cells) with solar heating panels.	I can analyse the power output of a variety of energy resources.
	I can state one difference between solar cells and solar heating systems.	I can describe the operation of a solar power tower.	I can calculate the energy provided by a solar heating system by using the increase in water temperature.
	I can state that radioactive decay is source of heating in geothermal systems.	I can describe the operation of a geothermal power plant.	I can plan in detail an investigation into the factors that affect the power output of a solar cell.

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P3.4 Energy and the environment	I can list some environmental problems associated with burning fossil fuels.		I can describe the effects of acid rain and climate change.		I can evaluate methods of reducing damage caused by waste products of fossil fuels and nuclear fuels.	
	I can identify the waste products of fossil fuels and nuclear fuel.		I can describe techniques to reduce the harmful products of burning fossil fuels.		I can discuss in detail the problems associated with nuclear accidents and the public perception of nuclear safety.	
	I can state simple advantages and disadvantages of a variety of renewable energy resources.		I can compare a wide range of energy resources in terms of advantages and disadvantages.		I can evaluate the suitability of an energy resource for a range of scenarios, taking into account a wide range of factors.	
P3.5 Big energy issues	I can rank the start-up times of various power stations.		I can use base load and start-up time data to explain why some power stations are in constant operation whereas others may be switched on and off.		I can use capital and operational costs of energy resources to evaluate their usefulness.	
	I can compare some of the advantages and disadvantages of various energy resources.		I can compare energy resources in terms of capital and operational costs.		I can form persuasive arguments for or against a variety of energy resources.	
	I can discuss the construction of a power plant in the local area in simple terms by using information provided.		I can debate the construction of a power plant in the local area by using a wide range of information, much of which is provided.		I can debate the construction of a power plant in local area by using a wide range of information, much of which is independently researched.	