

### P3 Energy Resources Knowledge Organiser

PT15.1

Power stations	<ul style="list-style-type: none"> <li>•Electricity is generated in power stations</li> <li>•In fossil fuel power stations, coal, oil or natural gas are burned.</li> <li>•Fossil fuels are non-renewable energy resources</li> </ul>	Hydroelectric power	<ul style="list-style-type: none"> <li>•Water is stored in reservoirs high up. When it is released the water flows down and turns the generators at the bottom of the hill</li> <li>•A renewable energy resource</li> </ul>
Bio fuels	<ul style="list-style-type: none"> <li>•Fuels that come from living or recently living sources e.g. Animal waste, ethanol from fermented sugar cane, methane from decaying rubbish or woodchip</li> <li>•Renewable energy resources</li> <li>•Carbon neutral because the amount of carbon dioxide released when the fuel is burned had already been taken in by the organism when living.</li> </ul>	Tidal power	<ul style="list-style-type: none"> <li>•Water from high tide is trapped behind a barrage and then released back into the sea. It turns generators as it flows over them.</li> <li>•A renewable energy resource.</li> </ul>
		Solar energy	<ul style="list-style-type: none"> <li>•Solar cells use light energy from the Sun to generate electricity</li> <li>•A renewable energy resource</li> <li>•Advantages: low/no running cost, no greenhouse gas emissions, useful in remote places or when small amounts of electricity are needed</li> <li>•Disadvantages: expensive to buy, need lots of solar cells to generate enough electricity to be useful, unreliable in cloudy areas</li> <li>•Solar heating panels use energy from the Sun to heat water for hot water in houses</li> </ul>
Nuclear fuel	<ul style="list-style-type: none"> <li>•Uranium and plutonium are nuclear fuels</li> <li>•Non-renewable energy resource</li> <li>•They release heat energy when they undergo nuclear fission (splitting up) and this heat energy is used to heat the water in a nuclear power station</li> <li>•Advantages: no carbon dioxide emissions, lots of energy transferred per kg of uranium than from fossil fuels</li> <li>•Disadvantages: the used fuel rods contain radioactive waste which stay radioactive for centuries and are difficult to store safely, accidents in a nuclear reactor could release radioactive material into the environment.</li> </ul>	Geothermal energy	<ul style="list-style-type: none"> <li>•Radioactive substances in the Earth release heat energy which heats the rock above. Water is pumped down and heated to produce steam to turn generators.</li> <li>•A renewable energy resource</li> </ul>
Wind power	<ul style="list-style-type: none"> <li>•Wind turns a wind turbine, which turns a generator to generate electricity.</li> <li>•Renewable energy resource</li> <li>•Advantages: no greenhouse gas emissions</li> <li>•Disadvantages: only generate electricity when there is wind, have to be placed carefully to reduce noise and visual pollution</li> </ul>	Energy supply and demand	<ul style="list-style-type: none"> <li>•Advantages: no greenhouse gas emissions, cheap to run</li> <li>•Disadvantages: Expensive to set up</li> </ul>
			<ul style="list-style-type: none"> <li>•Energy demands vary depending on the time of day</li> <li>•Different energy resources are used to meet these demands</li> <li>•Different energy resources have different start up times.</li> </ul>
Wave power	<ul style="list-style-type: none"> <li>•Uses waves to move a floating generator move up and down to generate electricity</li> <li>•Renewable energy resource</li> <li>•Advantages: no greenhouse gas emissions</li> <li>•Disadvantages: don't produce a constant supply of electricity, difficult to connect to the shore with cables, can disrupt tidal patterns which might impact marine life</li> </ul>		