

# Year 8: Physical World- Energy

	Check	Date
<b>Revise assumed knowledge:</b> <b>ST3-6PW</b> describes how scientific understanding about the sources, transfer and transformation of electricity is related to making decisions about its use <b>ST3-7PW</b> uses scientific knowledge about the transfer of light to solve problems that directly affect people's lives	<input type="checkbox"/>	
<b>PW3 Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems. (ACSSU155)</b>		
<b>EVERYDAY ENERGY</b>		
<b>4PW3a. identify objects that possess energy because of their motion (kinetic) or because of other properties (potential, chemical)</b>	<input type="checkbox"/>	
<b>Recall</b> the kinetic particle theory model	<input type="checkbox"/>	
<b>Define</b> the terms energy, potential energy, kinetic energy	<input type="checkbox"/>	
<b>Distinguish</b> between many different types of energy e.g. electrical, thermal, light, sound, kinetic, potential, nuclear and biomass	<input type="checkbox"/>	
<b>Identify</b> several examples of objects with each of the above energy types	<input type="checkbox"/>	
<b>CODE: 8PW1 First-Hand Investigation:</b> Rubber band boat (Oxford pg118)	<input type="checkbox"/>	
<b>CODE: 8PW2 First-Hand Investigation:</b> Determining chemical potential energy (Oxford pg120)	<input type="checkbox"/>	
<b>CODE: 8PW3 First-Hand Investigation or teacher delivered:</b> Sound energy (Oxford pg122)	<input type="checkbox"/>	
<b>LITERACY SET 1: COSMOS ARTICLE</b>	<input type="checkbox"/>	
<b>4PW3e. investigate some everyday energy transformations that cause change within systems, including motion, electricity, heat, sound and light</b>	<input type="checkbox"/>	
<b>Outline</b> the Law of Conservation of Energy	<input type="checkbox"/>	
<b>CODE: 8PW4 First-Hand Investigation:</b> Energy transformations: Making an electric jug	<input type="checkbox"/>	
<b>Research</b> the energy transformations involved in producing <b>motion</b> in cycling, Hybrid electric car, public transport trains v's long distance rural trains and Aircraft	<input type="checkbox"/>	
<b>Research</b> the energy transformations involved in producing <b>electricity</b> in Online gaming while using a wireless control unit and headset	<input type="checkbox"/>	
<b>Identify</b> the <u>three</u> methods <b>heat</b> can be transferred i.e. conduction, convection and radiation	<input type="checkbox"/>	
<b>Research</b> the energy transformations involved in producing <b>sound</b> in MP3 format, Mobile phone conversations and Wireless headphones	<input type="checkbox"/>	
<b>Research</b> the energy transformations involved in producing <b>light</b> in televisions, production of CD and DVD sound and image or others	<input type="checkbox"/>	
<b>4PW3b. describe the transfer of heat energy by conduction, convection and radiation, including situations in which each occurs</b>	<input type="checkbox"/>	
<b>Define</b> particle model, convection, conduction, radiation, conductors and insulators	<input type="checkbox"/>	
<b>Describe</b> the transfer of heat energy by <b>conduction</b> , including situations in which it occurs	<input type="checkbox"/>	
<b>CODE: 8PW5 First-Hand Investigation:</b> Conduction- Ball and Chain	<input type="checkbox"/>	
<b>CODE: 8PW6 First-Hand Investigation:</b> Investigating Convection	<input type="checkbox"/>	
<b>Describe</b> the transfer of heat energy by <b>radiation</b> , including situations in which it occurs	<input type="checkbox"/>	
<b>Identify</b> different types of radiation (visible light, UV, microwaves, IR)	<input type="checkbox"/>	
<b>CODE: 8PW7 First-Hand Investigation:</b> Investigating heating by radiation (Oxford pg136)	<input type="checkbox"/>	
<b>Assessment: Oxford online test-</b> Everyday Energy Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	

## ELECTRICAL ENERGY

<b>4PW3c. relate electricity with energy transfer in a simple circuit</b>	<input type="checkbox"/>	
<b>4PW3d. construct and draw circuits containing a number of components to show a transfer of electricity</b>	<input type="checkbox"/>	
<b>Define</b> voltage, current, resistance, parallel circuit, series circuit, resistance, ammeter	<input type="checkbox"/>	
<b>Identify</b> circuit components and symbols (power source, conducting wire, voltmeter, globe, ammeter)	<input type="checkbox"/>	
<b>Distinguish</b> between series and parallel circuits	<input type="checkbox"/>	
<b>CODE: 8PW8 First-Hand Investigation:</b> Drawing and connecting circuits (Oxford pg143)	<input type="checkbox"/>	
<b>Identify</b> how electrical energy is transported and stored (Oxford pg146)	<input type="checkbox"/>	
<b>CODE: 8PW9 First-Hand Investigation:</b> Simple circuits- Morse code	<input type="checkbox"/>	
<b>LITERACY SET 2: MIXED ACTIVITIES</b>	<input type="checkbox"/>	
<b>Assessment: Oxford online test-</b> Electrical Energy Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	
<b>PW4 Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120, ACSHE135)</b>		
<b>INCREASING ENERGY EFFICIENCY</b>		
<b>4PW4a. identify that most energy conversions are inefficient and lead to the production of heat energy, e.g. in light bulbs **</b>	<input type="checkbox"/>	
<b>Define</b> energy efficiency, by-product	<input type="checkbox"/>	
<b>Recall</b> the Law of Conservation of Energy	<input type="checkbox"/>	
<b>Identify</b> that most energy conversions are inefficient and lead to the production of heat energy, e.g. in light bulbs **	<input type="checkbox"/>	
<b>CODE: 8PW10 First-Hand Investigation:</b> Energy efficiency (Oxford pg150)	<input type="checkbox"/>	
<b>4PW4b. research ways in which scientific knowledge and technological developments have led to finding a solution to a contemporary issues, e.g. improvements in devices to increase the efficiency of energy transfers or conversions **</b>	<input type="checkbox"/>	
<b>Research</b> the history of the development of particular devices or <u>technologies</u> , e.g. circuitry through to microcircuitry (Solar panels, Wind turbines or Others)	<input type="checkbox"/>	
<b>Explain</b> the benefits of efficient electricity-generating devices (Star rating)	<input type="checkbox"/>	
<b>Assess</b> ways in which scientific knowledge and technological developments have led to finding a solution to a contemporary issue, e.g. improvements in devices to increase the efficiency of energy transfers or conversions i.e. LED lighting and Compact fluorescent lights (CFLs)	<input type="checkbox"/>	
<b>NUMERACY AND SKILLS SET</b>	<input type="checkbox"/>	
<b>Assessment: Oxford online test-</b> Increasing Energy efficiency Students to achieve 100% in Support and Consolidate <b>OR</b> Consolidate and Extend	<input type="checkbox"/>	
<b>Assessment: ENERGY CHAPTER TEST</b>	<input type="checkbox"/>	