

Year 8 Science Half term 6 (5th June – 21st July)

Unit	Lesson Title	Objectives	Keywords.
Heating and cooling	Hot to cold energy changes - particle theory	Give examples of everyday energy changes. Describe how the movement of heat causes temperature change. Explain how changes in temperature affect particle behaviour.	freezing, melting, boiling, condensing, friction, thermal energy, temperature, particles, kinetic energy, vibration
	Conduction - Required practical	Predict which material will be the best conductor, with reasons. Show the results from the experiment in an appropriate graph. Explain using particle theory the properties of good conductors.	conductor, insulator, heat transfer, prediction, particle arrangement, density, kinetic, vibrate
	Expansion and contraction	Draw diagrams of solid, liquid and gas. Describe what happens to particles when heat energy is added or removed. Explain how this affects the shape and size of objects.	solid, liquid, gas, matter, expand, contract, thermal, kinetic, energy, transfer, vibrate
	Convection - Required practical	Draw a diagram to show the movement of hot and cold air/water. Predict what will happen to the potassium permanganate in water when it is heated. Explain how density changes result in particle movement.	convection current, potassium permanganate, particles, energy, density
	Radiation	Draw particle diagrams of gas and vacuum. Describe how infrared radiation travels. Explain how energy loss in buildings can be reduced.	vacuum, radiation, particle theory, conduction, convection, insulation, efficiency
	Insulation investigation - Required practical	Prediction. Record temperature change over time of a test tube of boiling water. Record temperature change of test tube of boiling water surrounded by others. Plot your results on a suitable graph with a key.	modelling, penguins, data, temperature change, hazard, risk
	Huddling test write up literacy task	Write a conclusion to your practical. Explain your findings in terms of energy transfer. Evaluate the reproducibility of your results. Produce a piece of extended writing using scientific language.	Evaluation, strengths, weaknesses, fair test, accuracy, reproducibility
	Revision	Revise for assessment.	
Energy Cost	Power	Use the correct unit for power. Explain power in terms of energy transfer. Compare the power rating of kettles and observe the affect this has on boiling time.	Power, watt, transfer, energy, rating

Power ratings and fuel bills (cost = power x time x price)	Identify the power rating of common electrical devices. Calculate energy cost for various devices. Calculate the cost of the school's electricity bill for 1 year.	Device, kilowatt hour,
Efficiency and Sankey Diagrams (Extension Lesson)	Define the term efficiency. Identify energy types wasted by various appliances. Draw Sankey diagrams and calculate energy efficiency.	Efficiency, Sankey diagram
Non-renewable energy sources	Name the three fossil fuels. Use diagrams to show how fossil fuels are formed. Evaluate the advantages and disadvantages of using fossil fuels.	Coal, oil, gas, fossil fuel, carbon dioxide, global warming
Renewable energy sources	Recall the main sources of renewable energy. Describe how they work. Evaluate the advantages and disadvantages of each.	Solar, wind, tidal, hydroelectric, wave, geothermal, nuclear, biomass
Renewable energy sources (continued)	Design and/or build an island served only by renewable energy resources.	
Increasing renewable energy literacy task	Create a newspaper/magazine article about renewable/non-renewable energy.	
Revision	Revise for assessment.	