

HALF TERM

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Topic	P5 Forces and C4 Chemical Changes					
Challenge Objective and Content (for all learners)	P5 -Identify and measure forces acting on objects -Describe the differences between contact and non-contact forces. -MS 3b,c Calculate weight and work done -MS1c, WS 4.5 Convert between newton-meters and joules -RP6 Investigate the link between force and extension with springs. -MS 3c Describe a moment as a turning force and be able to calculate moment using force and distance. -Express a displacement in terms of magnitude and direction -MS 3b, c Calculate speed using distance travelled and time -Draw and interpret velocity time graphs -Apply Newton's Laws C4 – Investigate and predict chemical changes in substances -Explain oxidation and reduction in terms of loss or gain of oxygen -Experiment and describe reactions of metals with water and dilute acids -Interpret and evaluate metal extraction processes -Explain oxidation and reduction in terms of loss and gain of electrons. -Write ionic equations for displacement reactions. -Explain reactions of acids with metals -Predict products from given reactants -Use the pH scale to identify acidic or alkaline solutions -Describe and explain the process of electrolysis -RP Investigate the electrolysis of aqueous solutions -Write half equations					
Inspire Opportunities	P5 - Determine speed, acceleration and distance from multiple graphs using mathematical tools such as area under line and gradient. C4 - Explain any observed changes in mass in non-enclosed systems during a chemical reaction given the balanced symbol equation for the reaction and explain these changes in terms of the particle model.					
Assessment Opportunities	End of Topic Tests and Autumn Term Assessment					

CHRISTMAS

Spring Term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	HALF TERM
Topic	P5 Forces and C5 Energy Changes			B5 Homeostasis and Response and P6 Waves			
Challenge Objective and Content (for all learners)	P5 -Identify and measure forces acting on objects -Describe the differences between contact and non-contact forces. -MS 3b,c Calculate weight and work done -MS1c, WS 4.5 Convert between newton-meters and joules -RP6 Investigate the link between force and extension with springs. -MS 3c Describe a moment as a turning force and be able to calculate moment using force and distance. -Express a displacement in terms of magnitude and direction -MS 3b, c Calculate speed using distance travelled and time -Draw and interpret velocity time graphs -Apply Newton's Laws C5- Explain how the interaction of particles often involves transfers of energy. -Describe the differences between exothermic and endothermic reactions. -RP Investigate the variables that affect temperature changes. -Draw and analyse simple reaction profiles. -Calculate the energy transferred in chemical reactions. -Describe the effects of changing conditions on a system at equilibrium can be predicted using Le Chatelier's Principle.			B5 – Describe the structure and function of the nervous system and the hormonal system. -Define 'homeostasis' -Explain the role of homeostasis in the control of blood glucose, body temperature and water levels. -Describe the structure and function of the nervous system -MS Extract and interpret data from graphs -RP 7 Investigate the effect of a factor on human reaction time. -Explain how the human endocrine system is controlled. -WS 1.3 Evaluate information around the relationship between obesity and diabetes. -Describe the role of hormones in human reproduction, including the menstrual cycle. -WS 1.3 Discuss why the issues regarding contraception cannot be answered by science alone. P6 Show how changes in velocity, frequency and wavelength, in transmission of sound waves from one medium to another, are inter-related. -Provide examples of transfers of energy by electromagnetic waves. - Explain the uses and dangers of electromagnetic waves.			
Inspire Opportunities	P5 - Determine speed, acceleration and distance from multiple graphs using mathematical tools such as area under line and gradient. C5 - Interpret appropriate given data to predict the effect of a change in temperature on given reactions at equilibrium.			B5 - Explain the role of the reflex arc in reflex actions. P6 -Explain that a perfect black body is an object that absorbs all of the radiation that hits it. No radiation is reflected or transmitted.			
Assessment Opportunities	End of Topic Tests						

	Week 1	Week 2	Week 3	Week 4	Week 5	EAST
Topic	B5 Homeostasis and Response and P6 Waves		B6 Inheritance, Variation and Evolution and C6 The Rate and Extent of Chemical Change			

Challenge Objective and Content (for all learners)	B5 – Describe the structure and function of the nervous system and the hormonal system. -Define 'homeostasis' -Explain the role of homeostasis in the control of blood glucose, body temperature and water levels. -Describe the structure and function of the nervous system -MS Extract and interpret data from graphs -RP 7 Investigate the effect of a factor on human reaction time. -Explain how the human endocrine system is controlled. -WS 1.3 Evaluate information around the relationship between obesity and diabetes. -Describe the role of hormones in human reproduction, including the menstrual cycle. -WS 1.3 Discuss why the issues regarding contraception cannot be answered by science alone. P6 Show how changes in velocity, frequency and wavelength, in transmission of sound waves from one medium to another, are inter-related. -Provide examples of transfers of energy by electromagnetic waves. - Explain the uses and dangers of electromagnetic waves.	B6 Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred. -Understand the differences between mitosis and meiosis. -WS 1.2 Model behaviour of chromosomes during meiosis. -Describe the structure of DNA -Describe the importance of the human genome -Draw genetic diagrams to show the possible genotype and phenotype of offspring -MS 1c, 3a use direct proportion and simple ratios to express outcomes of genetic crosses. C6 - Understand energy changes that accompany chemical reactions. -MS 1a Recognise and use expressions in decimal form. -MS4a Translate information between graphical and numerical form -Calculate mean rate of reaction. -Describe and explain factors which effect the rate of reaction, including concentration and surface area.
Inspire Opportunities	B5 - Explain the role of the reflex arc in reflex actions. P6 -Explain that a perfect black body is an object that absorbs all of the radiation that hits it. No radiation is reflected or transmitted.	B6 Consider and debate the ethical considerations of cloning. C6 - Explain why catalysts increase the rate of reaction by providing a different pathway for the reaction that has a lower activation energy.
Assessment Opportunities	End of Topic Tests and Spring Term Assessment	

HALF TERM

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Challenge Objective and Content (for all learners)	B6 Compare asexual and sexual reproduction, with relation to number of chromosomes and explain how favoured characteristics can be selectively bred. -Understand the differences between mitosis and meiosis. -WS 1.2 Model behaviour of chromosomes during meiosis. -Describe the structure of DNA -Describe the importance of the human genome -Draw genetic diagrams to show the possible genotype and phenotype of offspring -MS 1c, 3a use direct proportion and simple ratios to express outcomes of genetic crosses. C7-Explain the importance of carbon compounds as organic compounds, in terms of structure and properties. -Recognise substances as alkanes given their formulae in these forms. -Recognise substances as alkenes given their formulae in these forms -Describe the process of fractional distillation	
Inspire Opportunities	B6 Consider and debate the ethical considerations of cloning. C7 - Determine name and therefore properties from chemical formula.	
Assessment Opportunities	End of Topic Tests	