Churchill Park School

Medium Term Plan – Key Stage 3 Year 7 and 8- - Books and Authors

Science

	Week 1	Week 2	Week 3	Week 4	Week 5
	Objective: To look at the reactants and products of photosynthesis **Success Criteria**: **Support:** I can explore and observe changes. **Core:** I can identify a plant needs light and water to grow **Extension:** I can describe how a plant makes carbohydrates in their leaves/ place the reactants and products on the correct side of the equation. LOtC: Go outside and look at different colours of leaves. Discuss why colour is important in photosynthesis. Collect words containing reactants and products around School, use for discussion/ activity back in class. Label students carbon dioxide / oxygen etc and get them to order themselves on correct side of equation in playground. SMSC: Work, successfully, as a member of a group or team Using IT: **Suggested Activities:** • Testing a leaf for starch using iodine. • Testing potato/ bread for starch. (Use of Iodine. Check CLEAPPS / health and safety)(Link to glucose product) Discuss link with Dickensian diet staples. • Set up / plant some plants. Discuss what you would need to do to keep them alive. Why? What happens if they don't get watered? Enough light etc.	**Objective**: To observe how leaves are adapted for photosynthesis **Success Criteria**: **Support:** I can draw a leaf and make simple observations. **Core:** I can identify different parts of a leaf and label it correctly **Extension: I can describe how a leaf is adapted for photosynthesis** LOtC: Go and collect leaves from outside. Discuss how think leaves are adapted for photosynthesis (size , shape , colour, pattern) SMSC Using IT: Use microscope linked to computer to examine leaf. **Suggested Activities:** • Observe leaves (particularly stomata) under microscopes. Draw pictures of them. Label and describe role / function. • Discuss importance of photosynthesis for growing vegetables. Meat was very expensive so most Victorians lived on carbohydrates for energy. etc. Link to greengrocers/ watercress sellers and how children would often sell it to pay rent / food. **Hwk: request family photographs for Heredity lesson week 6**	**Objective**: To look at glucose as a source of energy **Success Criteria**: **Support:** I can identify some reasons why food is important in a human. (energy, growth, production of new materials, body heat) **Core:** I can explain glucose is transported in the blood to be used in cells (eg muscle cells to make us move) **Extension: I can describe the basic process of aerobic respiration / place reactants and products on the correct side of equation.** LOtC: SMSC Using IT: **Suggested Activities:** • Samples of foods / food labels. Look at labels. Which gives us most energy? How do we know? Why? Include energy drinks. Look at glucose as main ingredient of energy drink. • More adventurous! • (Check CLEAPPS/ health and safety here and equipment) Burn sugar on tin lid. Measure temperature rise of boiling tube of water. http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/carbon_chem/8_energy2.shtml • http://www.victorianchildren.org/victorian-food/ Link to how poor diet led to poor growth in Children / health problems	**Objective**: To look at the reactants and products of aerobic respiration **Success Criteria**: **Support:** I can explore and observe changes **Core:** I can recognise that oxygen IS needed for aerobic respiration and carbon dioxide is a product. **Extension: I can describe the basic process of aerobic respiration / place the reactants and products on correct side of equation.** LOtC: Go and collect words containing reactants and products of respiration around School. Label students carbon dioxide / oxygen etc and get them to order themselves on correct side of equation in playground. SMSC: Work, successfully, as a member of a group or team Using IT: **Suggested Activities:** Make it clear that respiration is not breathing. • Investigating carbon dioxide using limewater. • Boiling tubes, limewater, straws. DO NOT DO THIS WITH STUDENTS WHO MAY SUCK THE LIQUID UP! • Give each student a small tube of limewater. Gently Blow bubbles through straw. Limewater turns from clear to cloudy in presence of carbon dioxide. • https://www.youtube.com/watch?v=6HuyUxJBY3E • Check health and safety CLEAPPS • Place reactants and products of respiration in correct order. • http://www.primaryhomeworkhelp.co.uk/victorians/children/working2.html Looks at jobs that Victorians did that would require very hard work	**Objective**: To look at the reactants and products of anaerobic respiration **Success Criteria**: **Support:** I can explore and observe changes **Core:** I can recognise that oxygen is NOT needed for anerobic respiration and carbon dioxide is a product. **Extension: I can describe the basic process of anerobic respiration / place the reactants and products on correct side of equation.** LOtC: Go and collect words containing reactants and products of anaerobic respiration around School. Label students carbon dioxide/ yeast/glucose etc and get them to order themselves on correct side of equation in playground. SMSC: Work, successfully, as a member of a group or team Using IT: **Suggested Activities:** • Fermentation experiment. (need glucose, yeast, limewater, method of keeping substances warm for good period of time) • NB: To test for carbon dioxide it is better to set this experiment up so it has at least a good couple of hours to work and give off carbon dioxide. (see anaerobic respiration powerpoint) • Links to Victorian lifestyle: What Victorians drank. Link to fact alcohol was safer than water due to bacteria: http://katetyte.com/thevictorians/what-did-the-victorians-drink-a-guide-to-boozing-in-the-1800s/
	Week 6	**Week 7**	**Week 8**	**Week 9**	**Week 10**
	Objective: To look at what heredity is and what it means **Success Criteria**: **Support:** I can match an animal and its young **Core:** I can sort things that can / cannot be inherited. **Extension:** I can suggest why individuals vary (using keywords genes, chromosomes, DNA) LOtC: Collect various pictures that are inherited not inherited for sorting activity in class. SMSC: Encouraging pupils to recognise and respect social differences and similarities Using IT: **Suggested Activities:** • Look at a famous family.	**Objective**: To make a model of DNA helix **Success Criteria**: **Support:** I can identify a piece of DNA **Core:** I can label basic parts of DNA helix **Extension:** I can describe the role(s) of some parts of the DNA helix LOtC: SMSC: Encouraging pupils to recognise and respect social differences and similarities Using IT: Research Watson, Crick, Wilkins and Franklin in development of DNA model. **Suggested Activities:** **Making a model of DNA using Sweets:** • **http://teach.genetics.utah.edu/cont**	**Objective**: To look at discontinuous and continuous variation **Success Criteria**: **Support:** I have explored discontinuous and continuous variation **Core:** I can sort factors into continuous discontinuous **Extension:** I can explain why a factor is discontinuous or continuous LOtC: Once data collected students could represent results on a graph themselves. SMSC: Encouraging pupils to recognise and respect social differences and similarities Using IT: Use MS Excel spreadsheet to produce graph of results.	**Objective**: To look at the process of Natural selection **Success Criteria**: **Support:** I have explored the process of Natural Selection **Core:** I can list a factor associated with Natural selection: adaptations, survival of fittest, characteristics **Extension:** I can describe Natural selection using keywords: adaptations, survival of fittest, characteristics LOtC: SMSC: Using IT: Research Charles Darwin. Make a profile about him. **Suggested Activities:** • Use mixture of sweets (both popular and unpopular) to demonstrate how the	**Objective**: To look at evolution **Success Criteria**: **Support:** I can recognise the difference between a common ancestor and modern day man **Core:** I can put evolution of man in order **Extension:** I can describe evolution LOtC: Collect the different evolutionary stages of man around School. Piece together back in class. SMSC Using IT: **Suggested Activities:** • https://www.youtube.com/watch?v=yGV82kE4IEc • Order pictures of homo habilis, homo neanderthalensis, to modern day homo sapiens

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	Contemporary (Kardashians) , Royal Family – link back to Queen Victoria. Look at eye colour / hair colour. What are the differences /similarities? • (using any family photographs sent in) Discuss features that are inherited such as: Left handed or right handed, eye colour, hair colour, height, tongue rolling. • Sort items that are inherited and not inherited. • As appoint of interest could discuss identical and non identical twins	**ent/dna/HaveYourDNAandEatItToo.pdf** **http://www.abpischools.org.uk/topic/genes-and-inheritance/2 (zooms in on DNA / chromosomes)**	**Suggested Activities:** • Class data collection on following: • Left right handed? • Height • Eye colour • Weight • Shoe Size • Another students might want to come up with themselves. Link to Victorian times: Compare rich and poor children. Which factors are likely to have been effected? Ie. Poor children probably wouldn't grow to their full potential as poor diet. They wouldn't weigh as much. Do you think they had shoe sizes then? Would all children have had shoes?	sweets with the best adaptations / characteristics (ie flavor) survive / get picked over unpopular sweets that get left. • http://www.ngkids.co.uk/science-and-nature/charles-darwin-and-the-mystery-of-life Look at aspects of natural selection in Victorian times. Link to health and disease. Infant and child mortality rate. General life expectancy of the day.	• Make / observe fossils using plaster of paris.
	Week 11				**Suggested Home Learning**
	Objective: To create an informative poster/map about Charles Darwins' voyage around the Galapagos Islands on the HMS Beagle **Success Criteria**: **Support:** I can create a poster/map **Core:** I can create a poster/map that includes pictures of things Charles Darwin saw on his voyage **Extension:** I can create a poster/map describing things Charles Darwin saw on his voyage LOtC: Pretend to get on the HMS Beagle and 'travel around School viewing sighs and picking up samples just like Charles Darwin did SMSC Using IT: Use to print off information / pictures from internet. **Suggested Activities:** • Create a poster/map detailing Charles Darwin voyage. Could make individual or collaborative poster/map as class. Could make poster / 3D map. • Board a virtual HMS Beagle and travel around School picking up samples/ making observations just like Charles Darwin did.				Find out the name of some more famous Scientists in Victorian times. Why were they famous? Did they make any important contributions to mortality rates? What impact did they have? Did Victorians have big families? Why do you think this was?