

Science Medium Term Plan: 3A Teeth and Healthy Eating

School -

Year 3:

Term: Spring 1

<p>Differentiation and support (Detailed differentiation in weekly plans.)</p> <p>SEN: write up investigations on writing frames. Support from more able partners in mixed ability work. Additional adult support.</p> <p>GT: provide headings for experiment sections. Send off to experiment sooner than rest of group. Provide with equipment, but provide less scaffolding on how to conduct the experiment. Encourage conclusions that draw on scientific knowledge and enquiry skills.</p>	<p>ICT: Children will use laptops to undertake virtual experiments and research topics</p> <p>Numeracy: Children will be categorising / sorting objects and drawing results tables and bar charts</p> <p>PSHCE: Children will be learning how to stay healthy</p> <p>Literacy: children will be writing up experiments in sequence using technical language.</p>
<p>Vocabulary: words and phrases related to life processes (e.g. feed, feeding, growth, activity), words to name and describe groups of foods (e.g. vegetables, meat, fish, sugars and starches, fruit, fats), names of different teeth (e.g. incisor, molar, canine) and words which have different meanings in other contexts (e.g. diet, root, activity, decay, evidence, conclusion)</p>	

The schools that I have worked at in London have access to Collins Virtual Experiments through the London Grid for Learning (LGFL). If you are in London, and google LGFL virtual experiments, from your school you should be able to automatically access them. From home you need your frontier log-in and password. Otherwise there is the option to purchase them. Teeth and Eating is a tough unit to do practical investigations for without the virtual experiments.

W	Learning objective	Teaching activities	Assessment: Success Criteria	Resources	Lesson Evaluation
1	<p>Self-assess knowledge of teeth and healthy eating</p> <p>(20 mins)</p> <p>Use secondary sources to make notes</p> <p>Know the different parts of a tooth</p> <p>Annotate a diagram</p> <p>(40 mins)</p>	<p>Children complete a mind map on what they already know about teeth and healthy eating.</p> <p>Intro: Explain that different parts of the tooth have different names and different functions. Display diagram of tooth and model how to do independent work (10 mins)</p> <p>Main: Print off unlabelled diagram of a tooth available at: http://www.abcteach.com/free/d/diagram_tooth_unlabeled.pdf Using the following links children research the different parts of the tooth and annotate the diagram: http://www.childrensuniversity.manchester.ac.uk/interactives/science/teethandeating/structure.asp http://www.crickweb.co.uk/assets/resources/flash.php?&file=teeth LGFL virtual experiments – teeth and eating – introduction (2nd part of it) Also look in books from the library on parts of a tooth (30 mins)</p>	<p>Formative assessment exercise</p> <p>MUST: label some of the different parts of a tooth</p> <p>SHOULD: add some information to their annotations about what each part of the tooth is for</p> <p>COULD: cross-check information from one source with information from another source and identify inconsistencies</p>	<p>Mind map frames</p> <p>Laptops</p> <p>Diagrams of tooth</p>	

		<p>Plenary: Discuss why it was useful to look in more than one source for information:</p> <ul style="list-style-type: none"> Information might be incorrect so we can cross-reference it One source might have more information than another (10 mins) 			
2	<p>Use secondary sources to make notes</p> <p>That humans have teeth – molars for chewing, canines for tearing, incisors for cutting – and that teeth help us to eat</p> <p>That the shape of the teeth makes them useful for different purposes</p> <p>(1 hour)</p>	<p>Intro: Children bite something you need to tear (liquorice lace) to eat and an apple and think about where in their mouth / which teeth they use to bite, tear or chew. Discuss findings (10 mins)</p> <p>Main: Explain independent tasks</p> <p>Watch video (which tells you the names of the teeth, where they are found and what they are for) as a class available at: http://www.videojug.com/expertanswer/dentistry-basics/what-types-of-teeth-do-i-have</p> <p>Watch video once without making notes, then a couple more times making notes.</p> <p>Children label diagram of the mouth at http://www.crickweb.co.uk/assets/resources/flash.php?&file=teeth</p> <p>This allows them to check their answers and print the diagram.</p> <p>Children make notes on different types of teeth and draw each type of tooth. Half the class research in books, half the class research by going on laptops and looking at:</p> <ul style="list-style-type: none"> http://content.lgfl.org.uk/secure/ve34/ http://www.childrensuniversity.manchester.ac.uk/interactiv es/science/teethandeating/types.asp http://www.simplestepsdental.com/SS/ihtSS/r.WSIHW/st.31843/t.31885/pr.3.html http://library.thinkquest.org/22484/noframes/teeth_.html <p>Swap over between laptops and books (30 mins)</p> <p>Plenary: Children create questions for their partner to answer using the information they have found out. (10 mins)</p>	<p>MUST: realise that different teeth have different functions</p> <p>SHOULD: know where different teeth are located in the mouth, what shape they are and what the different function of each type of tooth is</p> <p>COULD: cross-check information from one source with information from another source and identify inconsistencies</p>	<p>Apple</p> <p>Something you need to tear to eat (liquorice lace)</p> <p>Laptops</p> <p>Frame to make notes / draw teeth on</p>	

<p>3</p>	<p>State that animals have different diets and may have different kinds of teeth</p> <p>(1 hour)</p>	<p>Intro: Explain the terms carnivore, omnivore and herbivore. Display definitions on the board Explain independent work (10 mins)</p> <p>Main: Venn diagram with the headings carnivore, herbivore and omnivore. Children need to:</p> <ol style="list-style-type: none"> 1. Use three names already in the Venn to complete sentences 2. Research new animals to put in the Venn in books and on National Geographic at http://animals.nationalgeographic.co.uk/animals <p>Extension: Look at diagrams of dog and sheep teeth. Write a paragraph about the similarities and differences between them with comparative and explanatory connectives in every sentence. (30 mins)</p> <p>Look at pictures of teeth. What differences are there? Why (depends on whether animal is an omnivore, carnivore or herbivore? Activity on BBC website on different sets of teeth for different animals at http://www.bbc.co.uk/schools/ks2bitesize/science/activities/teeth_eating.shtml (10 mins)</p> <p>Plenary: Revise meaning of carnivore, omnivore and herbivore and the link between animals teeth and what they eat.</p>	<p>MUST: know that different animals eat different things</p> <p>SHOULD: know what a carnivore, a herbivore and an omnivore are and categorise animals as one of these in a Venn diagram</p> <p>COULD: spot differences between teeth of different animals and make the link with what they eat</p>	<p>Laptops</p> <p>Venn diagrams</p> <p>Diagrams of dog's and sheep's teeth</p> <p>Teeth photos</p>	
<p>4</p>	<p>Describe an adequate and varied diet for humans, recognising that there are many ways of achieving this</p> <p>(1 hour)</p>	<p>Intro: Go through PP on balanced diet, which explains food groups and what different foods are good for e.g. protein is good for growth. Explain concept of a food pyramid and why we need to have certain amounts of each food group. Watch youtube video on the food pyramid at http://uk.youtube.com/watch?v=7qHSz2GQ0D8&feature=related Give children a chance to ask questions. (15 mins)</p> <p>Main: Children:</p> <ul style="list-style-type: none"> • label the different sections of a pyramid with each food group: carbohydrates, proteins, calcium, vitamins and minerals, fats and sugars • stick clipart of different types of food on a food pyramid • colour the food pyramid to show how much of each type of food you should have, with a key to show what each 	<p>MUST: learn that foods can be grouped by how much of them we should eat</p> <p>SHOULD: learn the names of the different food groups and draw plates to show different ways a varied diet can be achieved</p> <p>COULD: create a key to provide information about the food pyramid</p>	<p>PowerPoint on balanced diet</p> <p>Food pyramids</p> <p>Clipart of food</p>	

		<p>colour means (30 mins)</p> <p>Plenary: Display work by someone who has done the exercise well, and revise the names of each group, what should go in them and how to use a key (10 mins)</p> <p>Watch funny video on five food groups at http://uk.youtube.com/watch?v=VZXDuPcJxSE&feature=related (2 mins)</p>			
<p>Visit from school dental nurse to show children how to brush and look after their teeth</p>					
5	<p>Plan an experiment for someone else and evaluate their experiment</p> <p>(1 hour)</p>	<p>Explain the scenario: 3 friends had a bet. George said he didn't believe that what you ate made any difference to how much weight you gained or lost, so he bet his friends that he could eat a really unhealthy breakfast each day and would not gain any more weight than they did. (10 mins)</p> <p>Children given information on what each person has for breakfast each day for a year, and how much they weigh at the start of the year.</p> <p>Children need to plan an investigation, including an aim, their prediction and a fair test, for George and his friends. (15 mins)</p> <p>Children given information on how much each person weighed at the end of they year (which shows that George didn't gain the most weight). Children need to do a results table to calculate how much weight each one of the friends gained, and then draw a graph to show these results. (20 mins)</p> <p>Children write a conclusion linking back to their prediction and explaining how George might have kept his weight down even though he ate the unhealthy breakfasts (by making the test 'unfair', e.g. doing more exercise) (10 mins)</p> <p>Extension: Tell children that in fact George started to cheat in July by doing more exercise and eating all healthy meals except for breakfast. They draw a line graph to show how his weight might have changed each month over the year. (15 mins)</p>	<p>MUST: design an investigation on an investigation frame and record the results in a pre-drawn table and on a bar graph frame</p> <p>SHOULD: design an investigation <i>without</i> an investigation frame and record the results in a table and a bar graph they draw independently themselves</p> <p>COULD: draw a line graph by deriving estimates and extrapolations from given data</p>	<p>Investigation frames</p> <p>Graph frames</p> <p>Graph paper</p> <p>Scenario sheets</p>	

6	<p>Plan and carry out a virtual experiment</p> <p>Explain how to carry out a simple fair test</p> <p>Identify patterns and results and use these to draw conclusions</p> <p>Explain how they should look after their teeth and recognise why they need to do so</p> <p>(1 hour 30 mins)</p>	<p>Discuss with the children how they could find out which toothpaste is best at cleaning your teeth.</p> <p>Plan a fair test fair: conditions the same.</p> <ul style="list-style-type: none"> • Force with which you scrub • Timing (how long you scrub for) • Toothbrush that you use • Amount of staining agent <p>Discuss how changing these things would be unfair and explain why this is the case. (15 mins)</p> <p>Children write aim, prediction and method, then I carry out the virtual investigation on the IWB: (30 mins)</p> <p>10 minute break</p> <p>Model recording of investigation in a bar chart and explain how to use tick list on investigation frame. Write conclusion, encouraging use of scientific words such as most / least, effective and because (30 mins)</p> <p>Plenary: Look at model investigation that I have written. What is good about it? (15 mins)</p>	<p>MUST: plan and carry out a virtual experiment by using an investigation frame, <i>with</i> adult support</p> <p>SHOULD: plan and carry out a virtual experiment by using an investigation frame, <i>without</i> adult support</p> <p>COULD: independently plan and carry out a virtual experiment without adult support or an investigation frame</p>	<p>Laptops</p> <p>Investigation frames</p> <p>Bar graph frames</p> <p>Model investigation</p>	
7	<p>Plan and carry out a virtual experiment</p> <p>Explain how to carry out a simple fair test</p> <p>Identify patterns and results and use these to draw conclusions</p> <p>Explain how they should look after their teeth and recognise why they need to do so</p> <p>(1 hour 30 mins)</p>	<p>Discuss with the children how they could find out if brushing your teeth for longer makes any difference.</p> <p>Plan a fair test fair: conditions the same.</p> <ul style="list-style-type: none"> • Force with which you scrub • Toothpaste that you use • Toothbrush that you use • Amount of staining agent <p>Discuss how changing these things would be unfair and explain why this is the case. (15 mins)</p> <p>Children write aim, prediction and method, then I carry out the virtual investigation on the IWB: (30 mins)</p> <p>10 minute break</p> <p>Record cleanliness as a % and explain % as being 'out of 100'. Model recording of investigation in a line graph and explain how to use tick list on investigation frame. Write conclusion, encouraging use of scientific words such as most / least, effective and because</p> <p>Ask children to include a prediction for what would happen if you brushed your teeth for 3.5 and 4mins (35 mins)</p> <p>Plenary: Discuss predictions on brushing for 3.5 and 4 mins. Ask children to give reasons for their predictions. (10 mins)</p>	<p>MUST: plan and carry out a virtual experiment by using an investigation frame, <i>with</i> adult support</p> <p>SHOULD: plan and carry out a virtual experiment by using an investigation frame, <i>without</i> adult support</p> <p>COULD: independently plan and carry out a virtual experiment without adult support or an investigation frame</p>	<p>Laptops</p> <p>Differentiated investigation prompt sheets</p> <p>Line graph frames</p>	

8a	<p>Plan and carry out the first part of an investigation</p> <p>Explain how to carry out a simple fair test</p> <p>Explain how they should look after their teeth and recognise why they need to do so</p> <p>(1 hour)</p>	<p>Intro: Show children equipment and ask them what experiment we could do with it Explain that we are going to put the coins in different drinks and see which drink cleans them the best What might this experiment tell us? (which drinks are worst for your teeth because they strip the enamel, not which are best at cleaning your teeth) Leave the coins in the drinks the night before to make sure that the soft drinks, in particular coke, has time to clean them (10 mins)</p> <p>Main: Go through aim, prediction, fair test section and rest of method for the investigation plan Children need to pick 4 from the following to make a fair test</p> <ul style="list-style-type: none"> • Amount of drink in the cup • How often you look at the cup, without touching it • Whether you leave the cup on a wooden or plastic table • How long you leave the coin in the drink • How often you take the coin out of the drink • The pen you use to write your initials on the cup • How dirty the coins are <p>If children can think of other things to keep the same then let them come up with their own as well (30 mins)</p> <p>Plenary: Discuss our predictions and our reasons for them. Discuss what we needed to keep the same to make a fair test – can we think of anything to add to the list? (10 mins)</p>	<p>MUST: plan and carry out an experiment by using an investigation frame, <i>with</i> adult support</p> <p>SHOULD: plan and carry out an experiment by using an investigation frame, <i>without</i> adult support</p> <p>COULD: independently plan and carry out an experiment without adult support or an investigation frame</p>	<p>Fizzy drinks, milk, fruit juice and water</p> <p>Dirty coins</p> <p>Investigation frames</p> <p>Paper towels</p>	
8b	<p>Identify patterns and results and use these to draw conclusions</p> <p>Explain how they should look after their teeth and recognise why they need to do so</p>	<p>Intro: Next day children take the coins out of the drinks and see which ones are the cleanest Explain how we are going to create a set of results by giving the coins a percentage in terms of their cleanliness, with 0% being dirty and 100% being clean. (10 mins)</p> <p>Main: Record cleanliness as a % and explain % as being 'out of 100'. Model recording of investigation in a bar graph and explain how to use tick list on investigation frame. Write conclusion, encouraging use of scientific words such as most / least, effective and because (30 mins)</p> <p>Plenary: Plenary: which liquid was most effective and why? Did different groups get different results? Compare and discuss results. (15 mins)</p>	<p>MUST: record their results in a table and by completing a bar graph frame</p> <p>SHOULD: record their results in a table and by drawing a graph independently, linking their conclusion to their results</p> <p>COULD: evaluate how reliable their results by comparing their results to other people's and evaluate how 'fair' their test was and how it could be improved</p>	<p>Bar graph frames</p> <p>Investigation frames</p> <p>Coins in drinks from previous day</p>	

9	Self-assess knowledge of teeth and healthy eating (20 mins)	Children return to their mind maps from the first week and add what they have learnt over the past few weeks to them in a different coloured pencil. This will hopefully show me (and them) what they have learnt.	Colouring pencils	Mind maps from first lesson	
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An alternative investigation and source of primary data is to survey how many teeth children have kept / lost in different year groups and analyse the results, if you cannot use the virtual experiments.

Assessment

Some children will not have made so much progress and will:	Most children will:	Some will progress further and achieve
<ul style="list-style-type: none"> describe some of the types of food that they eat recognise they need to take care of their teeth make observations and record these in tables 	<ul style="list-style-type: none"> describe an adequate and varied diet for humans, recognising that there are many ways of achieving this explain how they should look after their teeth and recognise why they need to do so suggest questions about diet to be investigated make relevant observations and present results in bar charts and tables 	<ul style="list-style-type: none"> evaluate how strongly the evidence they have collected supports the conclusion they have drawn state that animals have different diets and may have different kinds of teeth