

Slavery

and the natural world



Key Stage 3
Science and slavery lesson plan

Key Stage 3: Science and slavery lesson plan

Lesson duration: 50–60 minutes

Learning outcomes

- Students will have a greater understanding of how scientific thinking can be applied in different cultural contexts.
- Students will have an increased understanding of diet in the historical context of the transatlantic slave trade.
- Students will be able to compare diets and consider their effect on health.

Curriculum links

Science and the slave trade lessons support the following areas of the Key Stage 3 National Curriculum for science:

Organisms, behaviour and health

c conception, growth, development, behaviour and health can be affected by diet, drugs and disease

Curriculum opportunities

- a** research, experiment, discuss and develop arguments
- c** use real-life examples as a basis for finding out about science
- d** study science in local, national and global contexts, and appreciate the connections between these
- h** explore contemporary and historical scientific developments and how they have been communicated
- k** make links between science and other subjects and areas of the curriculum

Science and the slave trade also contributes towards the QCA/DCSF schemes of work:

Science at Key Stage 3 (Year 7)

Unit 7I: Energy resources

Science at Key Stage 3 (Year 8)

Unit 8A: Food and digestion

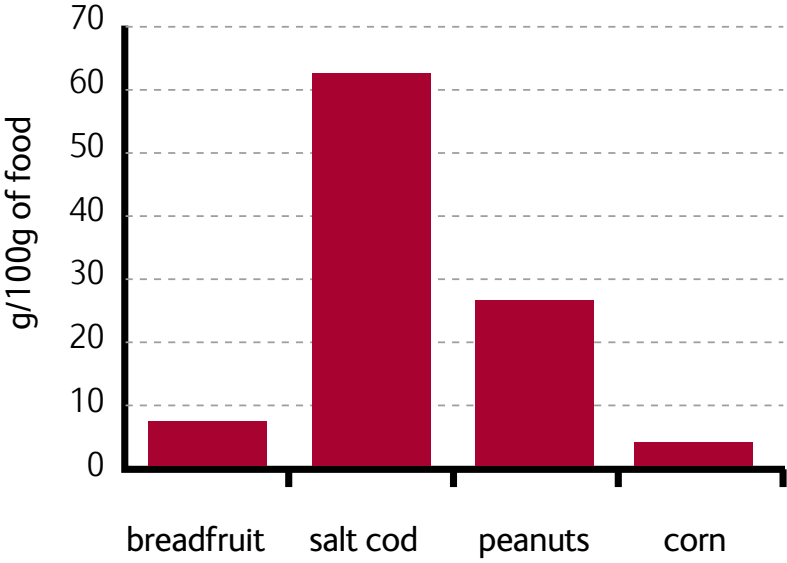
Science at Key Stage 3 (Year 9)

Unit 9B: Fit and healthy

Unit 9D: Plants for food

Activities	Resources
<p>Part 1 Starter: Staple foods (10–15 mins)</p> <p>Discussion: As a class, brainstorm students' favourite meals. What foods do they know about that come from different cultures? Ask students what a staple food is.</p>	<p>Staple foods such as bread, potatoes, rice, noodles, beans, sweet potatoes, plantains, or images from:</p> <p>Resource 1 – traditional staple foods from around the world</p> <p>Resource 2 – food selection guides</p>
<p>A staple food is something that forms a main part of the diet that is eaten regularly in large quantities. The definition of a staple food depends on the context. Sweet potato is an interesting example as it is not normally considered a staple, except in Jamaica. Staple foods can usually be stored for use throughout the year and are the basis of traditional diets. Staple foods are usually relatively cheap, high carbohydrate foods from plants that give a lot of energy such as bread, rice, maize, etc.</p>	

Activities	Resources
<p>Can students suggest the staple foods of different parts of the world?</p> <p>Activity: Staple foods</p> <p>Either use real foodstuffs (bread, potatoes, rice, noodles, beans, sweet potatoes, Plantains) or use the images in Resource 1 to encourage students to look at and handle a variety of staple foods from a range of cultures.</p> <p>Which staple foods do students recognise?</p> <p>Where are these foods grown?</p> <p>What else do students know about them?</p> <p>Activity: Food guidance</p> <p>Remind students of the eatwell plate they may be familiar with or food pyramids that illustrate the quantities of different foods suggested as healthy to eat.</p> <p>Students can then analyse the food selection guides in Resource 2.</p> <p>What differences are there between them? Discuss what might be healthy, to explore students' previous learning. Emphasise it is more useful to talk of healthy and unhealthy or balanced and unbalanced diets rather than individual foods. This could be illustrated by showing students different examples of meals such as those in Resource 1 and asking if they contain a good balance of foods or not.</p>	<p>Eatwell plate</p> <p>www.food.gov.uk/healthiereating/eatwellplate/</p>
<p>Part 2 Introductory activity</p> <p>Foods associated with the slave trade (10 mins)</p> <p>Activity: Show students the Summary of the slave trade powerpoint</p> <p>Discussion: Add some additional foods from the time of the slave trade to the list of foods used in the starter activity, such as salt fish, breadfruit, ackee, corn, dried meat, okra, peanuts (or use images from Resource 3).</p> <p>Which of these foods do students recognise?</p> <p>What can they remember about them from the powerpoint?</p> <p>Do they know where different food originated?</p>	<p>Summary of the slave trade (powerpoint)</p> <p>Resource 3 – foods from the time of the slave trade</p>
<p>Americas: cassava, sweet potatoes, maize, peanuts, tomatoes, peppers, soursop, kidney beans</p> <p>Asia: yam, breadfruit, rice, plantains, pigeon pea, tea, sugar</p> <p>Africa: ackee, okra, guinea corn/sorghum, rice (a different kind to Asia), coffee</p>	
<p>Discuss how the transatlantic slave trade affected the movement of foods around the world (for example, peanuts travelled from South America to Africa and back to America because of slave traders). Go back and discuss the specific examples of breadfruit and ackee from the powerpoint.</p>	

Activities	Resources										
<p>Part 3 Main activity options (25 mins)</p> <p>There are three optional activities to select from, each with a different focus:</p> <ul style="list-style-type: none">• nutrients• healthy diet• disease <p>They can be taught over one or more lessons, as standalone activities or as a sequence, and selected to match the interests and abilities of students.</p> <p>Option A: Graphing nutrients</p> <p>Use the nutrient content of foods most often eaten at the time of the transatlantic slave trade in Resource 4.</p> <p>Activity: Students can draw graphs, for example of the amount of energy in kilojoules, protein, carbohydrates, fats and fibre each food has per 100g.</p> <p>From the graphs students can answer:</p> <ul style="list-style-type: none">• Which food gives the most energy per 100g?• Which food has the least protein per 100g?• Which food has the least carbohydrate per 100g?• Which food has the most fat per 100g?• For the foods that give most energy, what is the main source of that energy – protein, carbohydrate or fat? <p>Example</p>  <table border="1"><thead><tr><th>Food</th><th>g/100g of food</th></tr></thead><tbody><tr><td>breadfruit</td><td>7</td></tr><tr><td>salt cod</td><td>62</td></tr><tr><td>peanuts</td><td>26</td></tr><tr><td>corn</td><td>4</td></tr></tbody></table>	Food	g/100g of food	breadfruit	7	salt cod	62	peanuts	26	corn	4	<p>Resource 4 – nutritional content of foods and GDAs</p>
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Activities	Resources
<p>Now use the table also in Resource 4 that gives the guideline daily amounts (GDAs) for calories and seven other main nutrients: protein, carbohydrate, sugars, fat, saturates (saturated fat), fibre and salt, for women, men and children.</p> <p>If an enslaved African was given approximately 200g of salt fish and 750g of corn a day, how much energy would they get?</p> <p>What would be missing in their diet?</p> <p>How much breadfruit would you need to eat to get your GDA of carbohydrates for a day?</p> <p>How much protein would this give you?</p> <p>Extension: Students can find out the nutritional values of their foods such as burgers or pizzas by looking at the food labels and plot their values. They could also carry out a complete nutritional analysis of a typical meal they eat at home. How does it compare to the range of foods in the diet of an enslaved African?</p>	
<p>Option B: Debate on diet</p> <p>Activity: Split students into groups and ask them to research and then debate which aspects of the diet of enslaved people were healthy or unhealthy.</p> <p>They can watch the powerpoint from the starter activity again and list foods enslaved people had available to them.</p>	<p>Resource 4 – nutritional content of foods and GDAs</p>
<p>Documents tell us that the standard ration for enslaved adults in the Americas was usually three pounds (1.36 kilogrammes) of salted pork or fish and a peck of corn (about six kilogrammes) per adult each week, given out on Sundays. Enslaved people supplemented this with fruit and vegetables they picked and grew (especially okra, salad greens, pulses and soursop) and fish, snakes and rats they hunted.</p> <p>We cannot say for certain what an enslaved person's diet consisted of, as it varied in different places at different times and there are no accurate records that include the additional foods enslaved people picked and grew.</p>	
<p>Ask students to think about what was missing in the diet given to enslaved people. What nutrients did the additional foods they picked and grew provide? (Use Resource 5 as a data source.) Students can list the aspects of the enslaved African's diet that were better or worse in a table.</p> <p>Students could take on the roles of a plantation holder and an antislavery campaigner and argue a case for continuing or ending slavery based on dietary factors alone (in history they may have discussed the other arguments for and against slavery).</p> <p>Extension: Discuss how the work of enslaved people may have affected their diet and health.</p>	

Activities	Resources
<p>Enslaved Africans would often be woken at 4.00 in the morning, and work from 6.00 until 18.00. A six-day week could involve 96 hours work (more than twice the EU directives today).</p>	
<p>Can students find out the energy requirement for people who are very physically active such as sports men and women?</p> <p>If actual figures are hard to find, use a scenario where: an athlete may have an intake of 20,083kj but expends 19,946kj which is about balanced to maintain weight or where a labourer may eat 11,816kj but expend 14,433kj so they would lose weight, and a couch potato may eat 13,192 kj and only expend 10,347kj meaning they will gain weight.</p> <p>How do these figures compare to a student's own intake in kilojoules? And to the GDAs for women, men and children?</p>	<p>Resource 4 – nutritional content of foods and GDAs</p>
<p>Many representations of enslaved Africans (done by Europeans) often made people look well fed in terms of total energy intake but enslavement may have meant they lacked vital nutrients for health – this is the focus of the next activity.</p>	
<p>Option C: Disease and health</p> <p>Activity: Allocate groups or pairs of students a different disease suffered by enslaved people to research:</p> <ul style="list-style-type: none"> • kwashiorkor • beri-beri • pellagra • scurvy <p>(Use Resource 5 to explain the link between these diseases and diet at the time of the transatlantic slave trade).</p> <p>Students can present their findings using headings such as:</p> <ul style="list-style-type: none"> • What was the disease? • What were the symptoms? • How did diet make the disease worse (what were the nutrient deficiencies)? • How could diet make the disease better? <p>Extension: What kinds of foods may play a part in causing, preventing or reducing heart disease? (see for example: www.bhf.org.uk/living_with_a_heart_condition/understanding_heart_conditions/types_of_heart_conditions/cardiovascular_disease.aspx and www.foodfactoflife.org.uk/Sheet.aspx?siteId=19&sectionId=81&contentId=274)</p> <p>Has diet generally become better or worse over time?</p> <p>This is a debate students could continue for homework.</p>	<p>Resource 5 – background information on diseases'</p>

Activities	Resources
<p>Section 4: Plenary (10 mins)</p> <p>Discussion: How did the resourcefulness of enslaved people help them stay healthy?</p> <p>Use post-it notes in two colours for students to summarise positive and negative aspects of the diet of enslaved Africans that they have learned about.</p> <p>Ask students to stand either side of an imaginary line dividing the room depending on whether they think the diet today is better or worse than at the time of the slave trade. The closer they stand on one side or the other to the line allows for shades of grey rather than just a yes/no choice. Students must be able to justify their choices.</p>	