

CLEVEDON SCHOOL and ROSEHILL INTERMEDIATE SCHOOL

Unit Planner



Teacher	Joyce Shankar/ Adam Easton	Class / Year	8
Unit Title	Agricultural Day (AG Day)	Duration	5/6
ELA	Science; Technology and Maths	Term/Wks	3 (Week 1-8)
Strand(s)	See below	Level	4

This unit is jointly taught across both the home school classroom and a specialist technology provider classroom. The unit will be taught within the technology classroom during their 1 ½ hours per week and in the home school classroom during several sessions a week. Success Criteria for the learning intentions will be gathered from the students themselves.

BIG IDEAS:

- *All materials have properties*
- *Properties of a material affect its uses*
- *Statistical surveys have a real life application*

LEARNING AREAS:

Numeracy: Statistical Investigation (Level 4)

Statistics Strand

Statistical investigation

- Students will plan and conduct investigations using the statistical enquiry cycle:
 - determining appropriate variables and data collection methods
 - gathering, sorting, and displaying multivariate category, measurement, and time-series data to detect patterns, variations, relationships, and trends
 - comparing distributions visually
 - communicating findings, using appropriate displays.

Statistical literacy

- Students will evaluate statements made by others about the findings of statistical investigations and probability activities

Science: Material World (Level 4)

Material world Strand

Properties and changes of matter

- Students will group materials in different ways, based on the observations and measurements of the characteristic chemical and physical properties of a range of different materials.
- Students will compare chemical and physical changes

Chemistry and society

- Students will make connections between the concepts of chemistry and their applications and show an understanding of the role chemistry plays in the world around them.

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Technology (Level 4)

Technological Knowledge Strand-Technological Products

- Students will understand that materials can be formed; manipulated, and/or transformed to enhance the fitness for purpose of a technological product.

Technological Practice - Brief Development

- Students will justify the nature of an intended outcome in relation to the need or opportunity. Describe the key attributes identified in stakeholder feedback, which will inform the development of an outcome and its evaluation

LINKS TO KEY COMPETENCIES:

Key competencies/Habits of Mind:

1. **Managing self** - self-motivation, a “can-do” attitude, and the ability to establish personal goals, make plans, and set high standards for oneself
 - **Strive for quality and accuracy**
 - **Taking responsible risks**
 - **Find humour**
 - **Organise their time and equipment**
2. **Participating and contributing** - in local, national, and global communities, including places of learning, work, and recreation, which may be based on kinship, interest, or culture
 - **Think Interdependently**
 - **Contributing towards a local community**
 - **Meeting the needs of the local community**
3. **Using language, symbols, and texts** - working with the codes in which knowledge is expressed
 - Are I.T. literate
 - Are numerate
 - Are able to learn and apply a specialist vocabulary associated with a particular context or subject

Our core values of **PRIDE** – are embedded into the day to day life and work of the school and will be re affirmed in BOTH of our classrooms:

Positive Attitude

Responsibility

Individuality

Diligence and

Excellence

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<p>Maths: Statistics(ST)</p> <p>Science: Material World (SC)</p> <p>Technology: Technological Practice: Brief Development(BD)</p>	<p>Overall Learning Goal: Using the data collected to make informed decisions</p> <p>Technology: WALT- Use the data to brainstorm ideas</p> <p>School: WALT- Analyse data using online tools and excel</p>	<p>Rubric</p> <p>Results and analysis form survey</p>	<p><u>Week 2:</u> (ST & SC) Statistics: Analysing the results of the survey using excel documents</p>	<p><u>Week 2:</u> (BD) Students bring their survey data/ interpretations collected to Technology class</p>	<p>Figure it Out- Statistics 3/4 page 6 and 7</p> <p>Definitions http://www.technologystudent.com/joints/matprop1.htm</p> <p>Definitions http://www.bbc.co.uk/schools/ks2bitesize/science/revision_bites/materials1.shtml</p> <p>Questions to ask http://www.primaryresources.co.uk/science/materials.htm</p> <p>Activities http://www.sycd.co.uk/primary/pdf/materials/5.1_solids.pdf</p> <p>Online interactive Activity http://www.schoolsliason.org.uk/material/quiz.htm http://video.about.com/chemistry/Cabbage-pH-Indicator.htm</p> <p>Online interactive Activity http://www.bbc.co.uk/schools/ks2bitesize/science/activities/materials.shtml</p> <p>http://www.mimioconnect.com/content/lesson/properties_matter</p> <p>http://www.aeb.org/egg-industry/egg-facts-101 http://baking-management.com/rd_applications/bm_imp_8806/ http://www.aeb.org/egg-industry/egg-facts-101</p>
			<p>Continue with ideas for their AG day food item from tech class e.g research/ brainstorming possible ideas, looking at recipes to make more personal choices Research/ brainstorm possible ideas... -explore recipe books and internet, find/create suitable recipes, possibly sketch drawings</p>		
			<p>Science: Start with a recap of the topics covered in science earlier in the year- element etc. Then start to re introduce the properties of materials.</p> <p>Discuss the different types of properties of materials- online interactive activity good way to introduce them.</p> <p>PH of ingredients and other materials showing examples of bases through to acids.</p> <p>Homemade PH indicators made with purple cabbages.</p> <p>Real life application - why do we put milk in our eyes if they are burning from swimming in a pool etc. What are the properties of bases/acids that allow them to be used in these ways? Are there any others that they know of?</p>	<p>Use this data/ interpretations to make informed decisions about the variety of possible products</p> <p>Identify key attributes Students to brainstorm the attributes for possible products e.g. Sweet, cooked all the way through, golden brown, soft texture etc</p> <p>Decide on the type of outcome to be made for the AG Day</p> <p>Establish a conceptual statement that communicates the nature of the outcome. Sentence starters: - I am designing a (what)... - For (Stakeholder) - Using (materials)..... - Because (why)... - To be make by (when)... - Where?</p>	
	<p>Conceptual statement/ attributes</p> <p>PH indicators</p>				

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<p>Science: Material World (SC)</p> <p>Technology: Technological Practice: Brief Development(BD)</p>	<p>Overall Learning Goal: Explore the properties of materials</p> <p>Technology: WALT- identify the properties of basic ingredients.</p> <p>School: WALT- identify the properties of non food items (acids and bases)</p>	<p>Rubric</p>	<p><u>Week 3(SC)</u> Intro Question; Cake held up in front of the class: ask students what ingredients are in it? What has brought it to this point? Discussion around the basic properties of these ingredients: Milk flour ,eggs, sugar <i>Process of production</i> - wheat planting through to flour- class broken down into small groups brainstorming what they think the steps in the production of flour are - share ideas to the class. See whether any group’s feedback would change others perspective.</p> <p><i>Egg</i> –discuss different parts of eggs protein etc- labelling parts in diagrams. Must be covered by end of week 3 so how it changes will be covered in technology in week 4</p>	<p><u>Week 3(BD)</u> Revisit and refine a conceptual statement, from week 2.</p> <p>(Help students to make link to previous Soft materials Plastics unit. Re-cap on properties of plastics and link to properties of ingredients)</p> <p>Use <i>dough making</i> to learn about properties of the ingredients within the dough Discuss the properties of the basic ingredients: Milk, flour, eggs, sugar, oil/butter etc. (see websites)</p> <p>JIGSAW activity starting in 5 groups (one per ingredient) with an info sheet about the properties of that ingredient</p> <p>Questions to discuss. -what job does this ingredient do in dough? -what other jobs can this ingredient do in other food products?</p> <p>Group splits into new groups made up of one person per ingredient Share what they know about their ingredient with the rest of the group</p>	<p><u>Properties resources</u></p> <p>Reference books– <i>Understanding Ingredients, Anne Barnett</i></p> <p><i>Design and Technology – GCSE Food Technology Revision guide</i></p> <p><u>Notes...</u> Functional Properties for eggs Thickens liquids and make them into solids – coagulation Helps combine ingredients – emulsification Lighten mixtures and produce ‘open’ textures – foaming Binds ingredients together and stay in the desired shape – Coagulation Create coating which protects a product from heat.</p> <p><u>Websites...</u> Egg properties</p> <p>Definitions http://www.technologystudent.com/joints/matprop1.htm</p> <p>Definitions http://www.bbc.co.uk/schools/ks2bitesize/science/revision_bites/materials1.shtml</p> <p>Questions to ask http://www.primaryresources.co.uk/science/materials.htm</p>
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				<p>Practical activity: Create basic dough product e.g. pizza bread, scroll etc</p> <p>As it is cooking students will be introduced to the terms: -forming -manipulating -transforming</p> <p>Forming; bringing 2 or more material together to create a new material e.g. for baked products – mixing flour, water and salt to make pizza dough Did we do some forming? Examples...</p> <p>Manipulating; using existing materials in ways that do not change their properties or composition and their structure is not altered e.g. for baked products – shaping the dough into different shapes and sizes, finishing the dough with a glaze Did we do some manipulating? Examples...</p> <p>Transformation; changing the structure of an existing</p>	<p>ources.co.uk/science/materials.htm</p> <p>Activities http://www.sycd.co.uk/primary/pdf/materials/5.1_solids.pdf</p> <p>Online interactive Activity http://www.schoolsliaison.org.uk/material/quiz.htm</p> <p>Online interactive Activity http://www.bbc.co.uk/schools/ks2bitesize/science/activities/materials.shtml</p>
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				<p>material to change some of its properties but it remains the same material e.g. for baked products – beating an egg white</p> <p>Did we do we do some transforming? Examples...</p>	<p>ources.co.uk/science/materials.htm</p> <p>Activities http://www.sycd.co.uk/primary/pdf/materials/5.1_solids.pdf</p> <p>Online interactive Activity http://www.schoolsliaison.org.uk/material/quiz.htm</p> <p>Online interactive Activity http://www.bbc.co.uk/schools/ks2bitesize/science/activities/materials.shtml</p>
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<p>Science: Material World (SC)</p> <p>Technology: Technological Practice: Brief Development(BD)</p> <p>Technological Knowledge: Technological Products(TK)</p>	<p>Overall Learning Goal: Explore the properties of materials</p> <p>Technology: WALT- test our ideas based on the properties</p> <p>School: WALT- identify the properties of non food items (acids and bases)</p>	<p>Rubric</p> <p>Scientific inquiry process</p>	<p><u>Week 4:</u> Start to get them used to the scientific inquiry process; Investigate-what we will do? Predict- what do we think will happen? (hypothesis) Record- Our Findings Interpret- what have we discovered? What have we learnt? Non food items- plastics unit-they covered in technology last term, showing how properties can help items to be used in a variety of ways. Plastic Bags – ironed to laminate together and made into a material suitable for making products (a bags). Discuss & conduct Investigations about Oxidation/Enzymic and non enzymic browning. What is the difference? Properties Science Experiments. Lemon Juice on Apples etc Bananas and other fruit? Fermentation - Ginger Beer making in science</p> <p>Separating and purifying a mixture– give this a real life application by making reference to the oil disaster in the Gulf of Mexico - what are possible ways that have been tried and could be tried to solve the oil spill</p> <p>Conduct experiments to see how certain measures would work or not work to separate or purify a mixture</p>	<p><u>Week 4: (TK)</u> In pairs student to test and trial idea for AG day products</p> <p>Students to test recipes using different ingredients e.g. using white and wholemeal flour to make pizza bases. Using a combination white sugar and brown sugar to. Test which sugar is suitable</p> <p>Make links with properties of ingredients</p> <p>Carry out sensory evaluations to see fitness for purpose</p> <p>Worksheet: students identify the ingredients in their product and what properties they bring to making the product fit for purpose</p>	<p>Focus on Science: Materials and Change (Book)</p>
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<p>Science: Material World (SC)</p> <p>Technology: Technological Practice: Brief Development(BD)</p> <p>Technological Knowledge: Technological Products (TP)</p>	<p>Overall Learning Goal: Make decisions about the type of food and how the food may be sold</p> <p>Technology: WALT- test our ideas based on the properties and begin to formulate a final idea/s</p> <p>School: WALT- how to set up a stall. WAL - what solubility is.</p>	<p>Sensory eval's</p>	<p><u>Week 5</u> Investigations and prediction experiments continue - This time focusing on solubility as a property of items</p> <p>Experiment making crystals from salt and sugar dissolved in water: Highlight the following: Solubility- what is it? How does heat effect solubility?</p> <p>Get the students to make predictions about which will produce the best crystals. Have the following different samples:</p> <ul style="list-style-type: none"> • High concentration of sugar/salt • Low concentration of sugar/salt • Mixture placed in warm, well lit area • Mixture placed in warm, poorly lit area.(covered up) • Mixture placed in cool, well lit area(possibly outside-exposure to the weather) • Mixture placed in dark cool place. <p>Discuss results/findings at the end of the week.</p>	<p><u>Week 5</u> In pairs student to test and trial ideas for AG day products</p> <p>Students to test recipes using different ingredients e.g. using white and wholemeal flour to make pizza bases. Using white sugar and brown sugar to combine with sugar. Test which sugar is suitable Make links with properties of ingredients.</p> <p>Carry out sensory evaluations to see fitness for purpose</p> <p>Recap on enzymic browning and non enzymes browning/ caramelisation – baking – link to learning in Classroom E.g. why does apple and banana go brown when exposed to air..?? How do can we stop this?</p>	<p>Discuss around stall set up; money handling and advertising. Dividing and assigning different task</p>
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<p>Maths: Statistics (ST)</p> <p>Technology: Technological Practice: Brief Development(BD)</p> <p>Technological Knowledge: Technological Product(TP)</p>	<p>Overall Learning Goal: Develop a final outcome/s for AG Day</p> <p>Technology: WALT- develop a formulate a final recipe for AG Day</p> <p>School: WALT- develop a financial plan for AG Day</p>	<p>Rubric</p>	<p><u>Week 6</u></p> <p>Briefly cover what is a business plan and what you would need to have in a business plan if you wanted to get funding from a bank?</p> <p>Students to do research by going into different banks and finding out what the bank would like to see included in a start-up business plan.</p> <p>Have a feedback session where to highlight what needs to be included in their plan/portfolio file.</p> <p>Discuss costings to work out pricing. Go through how to work out accurate cost of each product. Discussing mark up/profit etc</p> <p>Drawing up checklists</p> <p>Working out quantities using final recipe</p>	<p><u>Week 6</u></p> <p>Final food outcomes for the AG Day decided</p> <p>Write a final conceptual statement.</p> <p>List final key attributes</p> <p>Students to write final recipes. Work out quantities using final recipe</p> <p>Create final version of food outcome</p>	<p>Figure it Out- Financial Literacy</p>
	<p>Overall Learning Goal: Formalise the set-up of stalls for AG Day</p> <p>School: WALT- manage time and resources.</p>	<p>Rubric</p>	<p><u>Week 7</u></p> <p>Recap of the integrated unit in preparation for the AG DAY</p> <p>The students will develop their products for AG Day.</p> <p>Packaging of their food items needs to be addressed - how are they going to sell them?</p> <p>Students to take photos of the development stage and the final products etc, so these can be added to their e-portfolios.</p>	<p>Technology cycle completed (Technology teacher joins classroom programme)</p>	

<p>English: Writing explanations and recounts</p>	<p>Overall Learning Goal: Evaluate the success of their stalls at AG Day</p>	<p>Rubric</p>	<p><u>Week 8</u> Post Evaluation of AG DAY and the integrated unit.</p> <p>Get the students to write an explanation of the 'unit' and their collective AG Day experience</p> <p>Language features and style:</p> <ul style="list-style-type: none"> • Present tense • Third person • General • Factual • Technical vocabulary • Words that show sequence 		<p>OUP book on writing set-up</p>
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Other Learning Links:

ICT:

Input the data from the survey using *Microsoft Excel* to draw up the graphs etc.
 Use online possible facilities like *Monkey Survey* to get the feedback.
 Draw up a real copy of their explanation/observations etc on *Microsoft Office*
 Work out costings/formulae in *Microsoft Excel*.
 Posting their work onto their e-portfolio's

**Science:
Nature of Science**

*Students will:
Understanding about science*

Appreciate that science is a way of explaining the world and that science knowledge changes over time.

Identify ways in which scientists work together and provide evidence to support their ideas.

Investigating in science

Build on prior experiences, working together to share and examine their own and others' knowledge.

Ask questions, find evidence, explore simple models, and carry out appropriate investigations to develop simple explanations.

Communicating in science

Begin to use a range of scientific symbols, conventions, and vocabulary.

Engage with a range of science texts and begin to question the purposes for which these texts are constructed.

Physical World

Students will:

Physical inquiry and physics concepts

Explore, describe, and represent patterns and trends for everyday examples of physical phenomena, such as movement, forces, electricity and magnetism, light, sound, waves, and heat.

For example, identify and describe the effect of forces (contact and non-contact) on the motion of objects; identify and describe everyday examples of sources of energy, forms of energy, and energy transformations.

Literacy: Explanation writing about the unit at the conclusion of the unit in WEEK 11 for inclusion in to their portfolio

Social Sciences

Students will gain knowledge, skills, and experience to:

Understand how people pass on and sustain culture and heritage for different reasons and that this has consequences for people.

Understand how exploration and innovation create opportunities and challenges for people, places, and environments.

Understand that events have causes and effects.

Understand how producers and consumers exercise their rights and meet their responsibilities.

Understand how formal and informal groups make decisions that impact on communities.

Understand how people participate individually and collectively in response to community challenges.