

Subject	Year	Specialism
Level 3 Food science and Nutrition	13	Term 1 and 2
Project		
Unit 3 – Experimenting to solve food production problems		
Content (Intent)		
Prior Learning: Year 12 Certificate In food science and nutrition / GCSE Food Preparation and Nutrition		
Future Learning: Possibility of higher education and studies in food related subjects		
How will knowledge and skills be taught (Implementation)		
<p>Learners will: The aim of this unit is for learners to use their understanding of the properties of food in order to plan and carry out experiments. The results of the experiments would be used to propose options to solve food production problems.</p> <p>Unit introduction Why does ice cream freeze? How do I stop cream curdling? How do I make cakes rise? Why do salad dressings separate? Making use of the way certain foods change in order to create new dishes has been the foundation of food development. Food producers and chefs develop new and interesting dishes by experimenting with the properties of food. Today, even greater understanding of the scientific principles of food provides chefs with a range of options as they come up with more and more innovative dishes and ideas. Individuals, chefs and employees within the food industry can now produce dishes that do not use standard ingredients or methods, but provide the consumer with interesting and exciting food choices. This unit will provide learners with an understanding of the scientific properties of food and how these properties contribute to the changes that occur in food. You will also draw on your learning from Unit 1: Meeting Nutritional Needs of Specific Groups and Unit 2: Ensuring Food is Safe to Eat. You will use this learning to plan and carry out experiments with different types of food. By carrying out these experiments, you will be able to propose options to solve food production problems.</p> <p>Learners need to know and understand: -understand the scientific properties of food -be able to scientifically investigate changes to food -be able to solve food production problems</p> <p>Learners will: AC1.1 explain how food properties can be Changed Learners should gain a theoretical and practical understanding of the scientific properties of food and how these are changed through the processes identified. AC1.2 explain variables that affect physical properties of food Learners should gain an understanding of the effect of the listed variables on properties of food. AC2.1 set success criteria for scientific Investigations Learners should learn how to write success criteria that are clear, measurable and appropriate to the scientific investigation. AC2.2 obtain outcomes from scientific Investigations Learners should be taught how to carry out scientific investigations that lead to valid and reliable outputs and how to check for validity and reliability. AC2.3 record outcomes of investigative work - Learners need to be able to devise - documentation for recording outcomes; ensuring the documentation allows for clarity and accuracy of recording. Learners also need to learn how to collect accurate data. AC2.4 process data Processing of data includes analysis and evaluation of data collected. It also includes the manipulation of data, using appropriate mathematical and statistical techniques. Learners should learn how to process data using with and without the use of ICT software. AC2.5 review suitability of investigative methods Learners should gain an understanding of different approaches to scientific investigations and how to make judgements regarding the suitability of approaches for the purpose. AC3.1 analyse food production situations Learners should gain an understanding of food production situations so that they can analyse information to identify specific issues. AC3.2 propose practical options to solve food production problems Learners should develop communication skills to make proposals. AC3.3 scientifically justify proposed options Learners should develop sufficient understanding to use primary and secondary data and information to justify proposals made.</p>		
How will your understanding be assessed & recorded (Impact)		
<p>Assessment Work will be assessed in a variety of ways Teacher assessment – books will be checked and marked on a regular basis Written and verbal feedback will be given Practical work – verbal feedback given Homework will be assessed in line with dept policy These will be used to build up a clear picture of student effort and progress which will be communicated to parents in interim reports, main school reports and during parents' evenings. Main areas of assessment: Trial piece - marked feedback will be issued to pupils Unit 3 – real task – marked and moderated in school and then moderated by exam board – no formal feedback by teacher allowed Marked according to assessment criteria issued by examination board and shared with pupils Link to mark book - https://www.wjec.co.uk/umbraco/surface/blobstorage/download?nodeId=5429</p>		

How can parents help at home?

Students will complete their work in school for the assessment. It would be great if you could talk to your child about their work and ensure tasks are completed to the best of their ability. In addition, it would be good if you could look at the vast resources on our Food and Nutrition VLE pages – especially on the Unit 3 tab – where you will find lots of information and guidance to help complete this task.

Helpful further reading/discussion (including Reading and Vocabulary Lists)

Reading

The department will issue a textbook and has an extensive range of books to support your learning – which pupils may borrow at any time
Others include

McGee H. *Food and Cooking: An Encyclopaedia of Kitchen Science, History and Culture*: Hodder-Stoughton: 2004
Barham P. *The Science of Cooking*. Springer-Verlag 2001
Blumenthal H. *Heston Blumenthal at home*: Bloomsbury publishing: October 2011
Joachim D and Schloss A. *The Science of good food*: Robert Rose Inc: October 2008

Vocabulary

- Denaturation
- Gelatinisation
- Caramelisation
- Emulsification
- Sols-gels
- Temperature
- Chemical reactions
- Manipulation

Careers Links

Find out about all aspects of food careers
<https://tastycareers.org.uk>

<https://www.foodafactoflife.org.uk/whole-school/careers-in-food/>

Websites

http://www.visionlearning.com/library/module_viewer.php?mid=62
<http://www.exploratorium.edu/cooking/icooks/11-03-03.html>
<http://www.exploratorium.edu/cooking/eggs/eggscience.html>
http://en.wikipedia.org/wiki/Gelatin_dessert
<http://www.food-info.net/uk/colour/caramel.htm>
<http://www.foodnetwork.com/how-to/how-to-emulsify-liquids/index.html>
http://www.rsc.org/Education/Teachers/Resources/kitchenchemistry/00_video.htm
<http://sam.davyson.com/a2/chemistry/fssn/>
<http://foodtech-llangefni.co.uk/en/>
<http://www.thefatduck.co.uk/Heston-Blumenthal/>