

Year 12 Curriculum Overview Food Science and Nutrition 2023-24

		Lesson Focus	Homework	Assessment
Autumn 1	02.09.19	Week 1 Micro Organisms, Food Safety Legislation, HACCP, Food Premises, <b>Homemade Puff Pastry Dish</b>	Watch episode of Food Inspectors	RAG Content Self Assessed Exam Question
	09.09.19	Week 2 Responsibilities of Food Handlers Important Temperatures, Protective Clothing, Training <b>Homemade Filo Pastry Dish</b>	Revise functions of Macro Nutrients	RAG Content Self Assessed Exam Question
	16.09.19	Week 3 Classification of Nutrients (4methods) Sources of Macro Nutrients, Functions of Macro Nutrients <b>Choux Pastry Dish</b>	Revise functions of Micro Nutrients	RAG Content Teacher Assessed Exam Question
	23.09.19	Week 4 Sources of Micro Nutrients, Functions of Micro Nutrients, <b>Pate Sucree Dessert</b>	Revision for Assessment	
	30.10.19	Week 5 Sources of Minerals, Functions of Minerals, <b>Enriched Sweet Dough</b>	Minerals A01 Questions	Assessment (Content Covered So Far)
	07.10.19	Week 6 <b>Pavlova Meringue Roulade</b> Functions of Nutrients in growth and development Functions of Nutrients in Energy Production Functions of Nutrients in Regulating Metabolism		RAG Content Peer Assessed Exam Question
	14.10.19	Week 7 Unsatisfactory Nutritional Intake Obesity, CVD, Diabetes, Dental Disease, Cancer, Digestive Disorders <b>Panna Cotta Fruit Decoration</b>	Case study exam question	RAG Content Peer Assessed Exam Question
	21.10.19	Week 8 Unsatisfactory Nutritional Intake Rickets, Osteoporosis Anaemia, Skin Disorders <b>Chocolate Decoration Set Cheesecake</b>	Case study exam question	RAG Content Teacher Assessed Exam Question
Autumn 2	04.11.19	Week 9 Effects of Processing on Nutrients Effects of Cooking Methods on Nutrients Effects on Nutrients from Food Preservation Methods	Revision for Assessment	RAG Content Self Assessed Exam Question

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		Effects on Nutrients from Food Packaging and Storage <b>Genoese Sponge</b> <b>Homemade Pasta</b>		
11.11.19	Week 10	Antioxidants Fortification of Foods Cholesterol Lowering Products Assessment (Content Covered So Far) <b>Béchamel Sauce</b>	Corrections on Assessment	Assessment (Content Covered So Far)
18.11.19	Week 11	Nutritional Needs of Specific Groups Food Environments Calculating Nutritional Needs Life Stages <b>Hollandaise Sauce Dish</b>	Life stages report	RAG Content Self Assessed Exam Question
25.11.19	Week 12	Nutritional Needs of Specific Groups Activity Levels Sports Nutrition Medical Conditions Culture <b>Crème Anglaise</b>	Case study exam question	RAG Content Peer + Self Assessed Exam Question
02.12.19	Week 13	Analysis of Diets Eating Patterns, Dietary Guidelines, Fitness for Purpose, Sustainable Diets <b>Butchery of Chicken</b> <b>Butchery of Fish</b>	Revision for Assessment	RAG Content Peer + Self Assessed Exam Question
09.12.19	Week 14	Revision for theory assessment Dish selection for practical assessment Timeplan production for Practical Assessment Theory Assessment	Timeplan completion	Assessment (Content Covered So Far)
16.12.19	Week 15	Analysis of all 3 coursework tasks- Students to choose one and gather background research towards chosen task		Practical Assessment (1 Dish of Choice)

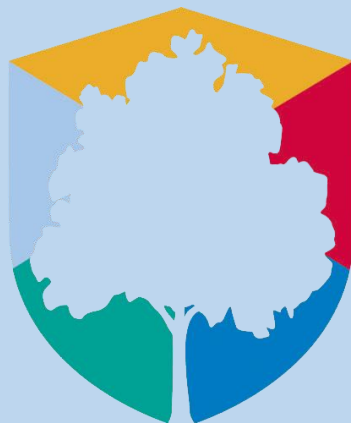
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Spring 1	06.01.20	Week 16	Dish selection for menu (3 courses with accompaniments) Menu creation (Computer) Introduction and Response email typed up <b>(3.3)</b>	Recipe research	This is the students coursework so is all assessed. Students are require to complete this coursework within 9.5hrs of typing time.		
	13.01.20	Week 17	Analysis of target audience, nutritional needs <b>(3.3)</b>	Students can use this time to prepare notes and research additional information for their coursework. 9.5hr time does not allow work to be completed at home.			
	20.01.20	Week 18	Assess how different situations affect nutritional needs <b>(3.4)</b> How the menu meets the needs of specific groups <b>(4.2, 2.1)</b>				
	27.01.20	Week 19	Explanation of how nutrients are structured <b>(2.1)</b> Classifying nutrients <b>(2.2)</b>				
	03.02.20	Week 20	Description of nutrient sources, function and unsatisfactory intake <b>(2.2, 3.1, 3.2)</b>				
	10.02.20	Week 21	Nutritional Analysis of Dishes and evaluation for suitability <b>(4.1)</b> Assess the impact of food production methods on nutritional value of dishes <b>(2.3)</b>				
Spring 2	24.02.20	Week 22	Timeplan for Dishes <b>(1.4, 5.2)</b>			Assessment Interview	
	02.03.20	Week 23	Explanation how individuals can take responsibility for food safety, keep themselves clean and hygienic and areas clean and hygienic <b>(1.1, 1.2, 1.3)</b>				Coursework Deadline
	09.03.20	Week 24	Preparation for Interview Preparing responses to interview questions				
	16.03.20	Week 25	Coursework Completion Interview Week				
	23.03.20	Week 26	Coursework Completion Practical Exam				
	30.03.20	Week 27	Coursework Completion				

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Summer 1	20.04.20	Week 28	Exam Skills- Section 3 of the Exam Part a Part b Part c	Exam Question- Section C	RAG Content Peer + Self Assessed Exam Question
	27.04.20	Week 29	Health, Hygiene and Safety Revision	Exam Question	RAG Content Peer + Self Assessed Exam Question
	27.04.20	Week 30	Functions of Nutrients, Vitamins and Minerals revision	Exam Question	RAG Content Peer + Self Assessed Exam Question
	04.05.20	Week 31	Unsatisfactory Nutritional Intake Revision	Exam Question	
	11.05.20	Week 32	Nutritional Needs of Specific Groups Revision	Exam Question	
	18.05.20	Week 33	Chemical Structures	Revision	
Summer 2	01.06.20	Week 34	Exam Week		External Exam

**Knowledge Organiser**  
**Level 3 Diploma in**  
**Food Science and**  
**Nutrition Yr12/13**



**Mildenhall College**  
A C A D E M Y

Examination dates: Unit 1 June, 2024

Total taught weeks: 30weeks

**Exam specification: WJEC Food Science and Nutrition Level 3 Diploma**

[https://www.edugas.co.uk/qualifications/food-science-and-nutrition/wjec-applied-dip-in-food-science-nutrition-spec-from-2015-e%20281118.pdf?language\\_id=1](https://www.edugas.co.uk/qualifications/food-science-and-nutrition/wjec-applied-dip-in-food-science-nutrition-spec-from-2015-e%20281118.pdf?language_id=1)

**Essential textbooks:**

Campbell J (et al) (2011) *Practical Cookery Level 3* Hodder Education

Cesarani V (2002) *Advanced Practical Cookery: A Textbook for Education and Industry* Hodder Education

Food Standards Agency. (2008). *Manual of Nutrition* (11th Ed). London, UK:

Stationary Office Jeukendrup, A. and Gleeson, M. (2004). *Sport Nutrition: An Introduction to Energy Production and Performance*. Leeds, UK: Human Kinetics

**Transition Assessment Structure: Complete the 50 questions I should know assessment.**

**Best websites for Study periods:**

[www.foodsafety.gov](http://www.foodsafety.gov)

<http://homefoodsafety.org/app>

BBC Health: [www.bbc.co.uk/health/healthyliving](http://www.bbc.co.uk/health/healthyliving)

British Nutrition Foundation: [www.nutrition.org.uk](http://www.nutrition.org.uk)

CORE: <http://www.corecharity.org.uk/>

Department for Health: [www.dh.gov.uk](http://www.dh.gov.uk)

<http://www.dynamic-learning.co.uk/Product.aspx?productID=164>

[www.excellencegateway.org.uk/askbutler.examples.id295](http://www.excellencegateway.org.uk/askbutler.examples.id295)

Food and Drink Federation: [www.fdf.org.uk](http://www.fdf.org.uk)

Food Standards Agency: [www.food.gov.uk/aboutus/publications/industrypublications/](http://www.food.gov.uk/aboutus/publications/industrypublications/)

Food Vision: [www.foodvision.gov.uk](http://www.foodvision.gov.uk)

Health Development Agency: [www.hda.nhs.uk](http://www.hda.nhs.uk)

<http://www.hoddereducation.co.uk/Colleges/Hospitality---Catering/Practical-Cookery-series-page/Practical-Cookery-Level-3-supporting-resources.aspx>

NHS: <http://www.nhs.uk/livewell/healthy-eating/Pages/Healthyeating.aspx>

National Obesity Forum: <http://www.nationalobesityforum.org.uk/>

Physical Activity and Nutrition Wales: [www.physicalactivityandnutritionwales.org.uk](http://www.physicalactivityandnutritionwales.org.uk)

The British Dietetic Association: [www.bda.uk.com](http://www.bda.uk.com)

Vegetarian Society: [www.veg.soc.org.uk](http://www.veg.soc.org.uk)

#### **Wider reading to inspire:**

Bender, D. (2002). *An Introduction to Nutrition and Metabolism* (3rd Ed). Oxford, UK: Taylor and Francis Ltd

Brown, A.C. (2010). *Understanding Food: Principles and Preparation* (4th Ed). USA: Wadsworth Publishing

Drummond, K.E. and Breferre, L.M. (2009). *Nutrition for Foodservice and Culinary Professionals* (7th Ed). Hoboken, NJ, USA: John Wiley and Sons

Foskett D, Cesarani V, (2007) *Cesarani and Kinton's The Theory of Catering*

Food Standards Agency. (2008). *Manual of Nutrition* (11th Ed). London, UK:

Stationary Office Jeukendrup, A. and Gleeson, M. (2004). *Sport Nutrition: An Introduction to Energy Production and Performance*. Leeds, UK: Human Kinetics

Smith, M. and Morton, D. (2001). *The Digestive System: Systems of the body*. London, UK: Churchill Livingstone

**You should have a folder which has these sections:**

- **Unit 1a External Exam Revision**
- **Unit 1b Internal Coursework**

**Essential Maths that you will need to know.**

**A-level potential links to Maths and Science:**

**Science:**

Understand the chemical structures of proteins, fats and carbohydrates.

- **Food Chemistry**
- **The structure of food and impacts under different conditions.**
- **Extrusion**
- **Compounds**

Effective selection of materials to allow for recyclability, biodegradability and stability.

Ensure products are designed to take account of environmental factors.

Determining quantities of materials.

An awareness of scientific advancements/discoveries and their potential development.

**Maths Links:**

- Analysis of data obtained from testing
- Calculation of quantities of sizes and costs.
- Calculating BMI and Muscle Mass.
- Interpretation of market research data, calculating costs and profit.

**Examination structure: 1 External exam – Paper 1 = Nutritional needs of different groups**  
**1 Internal exam – NEA = Nutritional needs of different groups**

**The external exam:**

Details of the external assessment are as follows:

- 90 minute examination; plus 15 minutes reading time
- Total of 90 marks
- Three sections on each paper o Section A is short answer questions o Section B is extended answer questions o Section C relates to a case study
- Each paper will be available in June of each year
- Learners are allowed two resit opportunities. The highest grade will contribute towards the overall grade for the qualification
- WJEC will produce a mark scheme which will be used as the basis for marking the examination papers
- The paper will be graded Level 3 Pass, Level 3 Merit and Level 3 Distinction. See section 4 for further details
  - This paper makes up 50% of your year 12 grade.



<b>Outcomes</b>	<b>Assessment Criteria</b>	<b>Marks</b>	<b>%</b>
<b>LO1</b> Understand the importance of food safety	<p><b>AC1.1</b> Explain how individuals can take responsibility for food safety</p> <p><b>AC1.2</b> Explain methods used by food handlers to keep themselves clean and hygienic</p> <p><b>AC1.3</b> Explain methods used to keep work areas clean and hygienic</p> <p><b>AC1.4</b> Analyse risks associated with food safety</p>	14-22	15-25%
<b>LO2</b> Understand properties of nutrients	<p><b>AC2.1</b> Explain how nutrients are structured</p> <p><b>AC2.2</b> Classify nutrients in foods</p> <p><b>AC2.3</b> Assess the impact of food production methods on nutritional value</p>	14-22	15-25%
<b>LO3</b> Understand the relationship between nutrients and the human body	<p><b>AC3.1</b> Describe functions of nutrients in the human body</p> <p><b>AC3.2</b> Explain characteristics of unsatisfactory nutritional intake</p> <p><b>AC3.3</b> Analyse nutritional needs of specific groups</p> <p><b>AC3.4</b> Assess how different situations affect nutritional needs</p>	22-31	25-35%
<b>LO4</b> Be able to plan nutritional requirements	<p><b>AC4.1</b> Evaluate fitness for purpose of diets</p> <p><b>AC4.2</b> Calculate nutritional requirements for given individuals</p>	22-31	25-35%
<b>TOTAL</b>	<b>90</b>	<b>100%</b>	

## **The internal coursework (NEA)**

A typical style of brief is shown below. The overall mark will be awarded as a pass, merit or distinction.

Under the process of task taking, controls are set for the key aspects of time, resources, supervision and collaboration.

- The time taken will be specified within the model assignment
  - Resources must be provided that give learners fair and full access to the marking criteria and are appropriate for the assessment and requirements of the unit. Details of specific controls will be given within the model assessment
  - Directions on where direct supervision is provided in the model assignment
- Directions on where collaboration is allowed within this unit will be detailed in the model assignment for this unit
  - Guidance on collaboration, and where it is permitted, will be given with the model assignment.

### **Example 1**

A Personal Trainer could introduce learners to one or more of their clients. Learners develop their communication skills by working with the clients to determine their activity levels and diet. Learners identify nutrient needs based on the individual and calculate BMR, taking into account physical activity factor. Having calculated their nutritional requirements, learners work with the personal trainer to develop nutritious dishes. They prepare and cook the dishes and share these with the clients of the personal trainer, together with details of how the dishes meet their clients' nutritional needs.

### **Example 2**

Learners are provided with information, including medical information, on groups of people within a care environment. Learners work in groups to develop a generic daily menu that includes all vital nutrients and meets the requirements of all. Learners advise the Care Manager or Catering Manager of their recommendations and produce the dishes for tasting by the residents. Learners receive feedback from the residents and the Care and Catering Managers on the quality of their food and menus.

## **Grade Descriptors**

### **Level 3 Pass**

Learners have gained a basic understanding of food science and nutrition and the impact of food and nutrition on the lives of individuals and on society today. They will have gained a basic understanding of how to identify hazards and minimise risks when producing food to meet the nutritional needs of specific groups. They demonstrate some knowledge of the different properties of nutrients, how the body processes nutrients and how nutritional needs change over time. They are able to use their understanding and knowledge to plan dishes and dietary plans to meet nutrition needs of specific individuals. Learners can carry out practical tasks (including experimental work), analyse results and draw basic conclusions from their findings. Learners will be able to use a number of generic skills e.g. research, analysis, planning and evaluation fairly independently, in order to address food safety scenarios in a range of environments, and/or to produce a research project on a chosen issue within food science and nutrition. Learners will be able to identify and transfer knowledge and understanding from one task to another, thus using learning in an integrated and synoptic way.

### **Level 3 Merit**

Learners have gained a good understanding of food science and nutrition and the impact of food and nutrition on the lives of individuals and on society today. They will have gained a clear understanding of how to identify hazards and minimise risks when producing food to meet the nutritional needs of specific groups. They demonstrate good knowledge of the different properties of nutrients, how the body processes nutrients and how nutritional needs change over time. They are able to use their understanding and knowledge to accurately plan dishes and dietary plans to meet nutrition needs of specific individuals. Learners can carry out practical tasks with ease and can analyse results and draw basic conclusions from their findings. Learners will be able to use competently a number of generic skills e.g. research, analysis, planning and evaluation in order to address food safety scenarios in a range of environments, and/or to produce a good research project on a chosen issue within food science and nutrition. Learners will be able to identify and transfer accurately knowledge and understanding from one task to another, thus clearly demonstrating using learning in an integrated and synoptic way.

### **Level 3 Distinction**

Learners have gained an in depth understanding of food science and nutrition and the impact of food and nutrition on the lives of individuals and on society today. They will have gained a sound understanding of how to identify hazards and minimise risks when producing food to meet the nutritional needs of specific groups. They demonstrate detailed knowledge of the different properties of nutrients, how the body processes nutrients and how nutritional needs change over time. They are able to use their understanding and knowledge to plan complex dishes and in depth dietary plans to meet the nutrition needs of specific individuals. Learners can carry out practical tasks, competently and confidently demonstrating flair and precision and analyse results and draw sound conclusions from their findings. Learners will be able to use a range of generic skills e.g. research, identification of key factors, analysis, planning and evaluation independently and with ease and accuracy, in order to address food safety scenarios in a range of environments, and/or to produce an in depth research project on a chosen issue within food science and nutrition. Learners will at every opportunity be able to identify and transfer accurately in depth knowledge and understanding from one task to another, thus clearly demonstrating using learning in an integrated and synoptic way.

### **Making contacts**

Examples of organisations that may be approached to provide help include:

- Environmental Health Departments
  - NHS professionals
  - Catering managers
- Contract catering organisations
- Charities that provide food to service users
  - Hotels and restaurants
- Food production organisations.

**On a study period Year 12?**

These are the tasks you need to complete:

1. Summary notes or Mind maps on all the following sections (in addition to you class notes)
2. Summary Questions at the end of chapter in your textbook.
3. Exam questions on each of the sections on website

**Technical Project – First Project – Year 12**

Principles	Covered Yes/No	Assessed Grade	Understood	Mastered
<b>LO1 Understand the importance of food safety</b> <ol style="list-style-type: none"> <li>1. AC1.1 Explain how individuals can take responsibility for food safety</li> <li>2. AC1.2 Explain methods used by food handlers to keep themselves clean and hygienic</li> <li>3. AC1.3 Explain methods used to keep work areas clean and hygienic</li> <li>4. AC1.4 Analyse risks associated with food safety</li> </ol>				
<b>LO2 Understand the properties of nutrients</b> <p>AC2.1 Explain how nutrients are structured</p> <p>AC2.2 Classify nutrients in foods</p> <p>AC2.3 Assess the impact of food production methods on nutritional value</p>				
<b>LO3 Understand the relationship between nutrients and the human body</b> <ul style="list-style-type: none"> <li>• AC3.1 Describe functions of nutrients in the human body 22-31</li> <li>• AC3.2 Explain characteristics of unsatisfactory nutritional intake</li> <li>• AC3.3 Analyse nutritional needs of specific groups AC3.4 Assess how different situations affect nutritional needs</li> </ul>				
<b>LO4 Be able to plan nutritional requirements</b> <ul style="list-style-type: none"> <li>• AC4.1 Evaluate fitness for purpose of diets</li> <li>• AC4.2 Calculate nutritional requirements for given individuals Addition and Fabrication</li> </ul>				

**Cornell note taking practice in the...**

Read the powerpoint on Proteins.

Once you've read it, fill in below.

Key points	Notes
Summary	

**Use your resources to find the answers to these fifty key facts**

Question	Answer	Corrected answer
What is a NSP?		
Explain a polypeptide link		
What are the categories of lipids?		
Explain Hydrogenated fat		
What are DRV's?		

Explain how individuals can take responsibility for food safety		
Explain methods used by food handlers to keep themselves clean and hygienic		
Explain methods used to keep work areas clean and hygienic		
What are the risks associated with food safety?		
Name 5 food poisonings		
Which food poisoning poses a threat to pregnant women?		
What are the differences between Macro and Micro Nutrients?		
<b>Question</b>	<b>Answer</b>	<b>Corrected answer</b>
What is the chemical structure of protein?		
What is the chemical structure of Lipids?		
What is the chemical structure of Carbohydrates?		
What is BMR?		
State 2 causes of food contamination		

What is meant by High Risk Food		
Describe one dietary function of protein		
State one difference between HBV and LBV		
Explain the difference between soluble and insoluble NSP's		
State 2 functions of fat in the diet		
State 2 reasons why foods are fortified		
What deficiency causes rickets?		
<b>Question</b>	<b>Answer</b>	<b>Corrected answer</b>
Give a symptom of protein deficiency		
Why is an adequate water intake essential in the diet?		
What is the difference between monosaccharides and disaccharides?		
What is Glucose?		
Explain a complex polysaccharide		

What is modified starch?		
What chemicals make up protein?		
Explain the difference between monomers and polymers		
What are complementation foods and give an example		
How can denaturation be brought about?		
What is coagulation?		
What is gelatinization?		
<b>Question</b>	<b>Answer</b>	<b>Corrected answer</b>
What chemicals make up fat?		
Explain the term simple triglyceride		
What is CIS?		
What is TRANS		
What sources contain saturated fats?		
Name an unsaturated fat		



What is a coeliac?		
Explain a property of fats or oils		
What is anaemia?		
What is the danger zone and why is it dangerous?		
What is a lacto vegetarian?		
What is an ovo – lacto vegetarian?		
<b>Question</b>	<b>Answer</b>	<b>Corrected answer</b>
Draw the chemical structure of a monosaccharide		
Draw the chemical structure of protein		

**Consider the needs of the following groups. For each group explain the DRV and give examples of balanced meals explaining your choices.**

- Children
- Adults
- Elderly
- Pregnant women
- Type 1 and 2 diabetes
- Anaemia
- Lactose intolerant
- Coeliac
- Religious Beliefs

## Command Words:

These are key words and what they mean in your mark schemes both for the exam and coursework. It shows you how they are used in exam questions also.

**Analyse** - Separate information into components to identify their characteristics

**Apply** - Put into effect in a recognised way

**Argue** - Present a reasoned case

**Calculate** - Work out the value of something

**Compare** - Identify similarities and differences

**Complete** - Finish a task by adding to given information

**Consider** - Review and respond to given information

**Contrast** - Identify differences Define Specify meaning

**Describe** - Set out characteristics

**Discuss** - Present key points about different ideas or strengths and weaknesses of an idea

**Evaluate** - Judge from available evidence

**Examine** - Investigate closely

**Explain** - Set out purpose or reasons

**Give** - Produce an answer from recall

**How** - (far) Work out the correct answer

**Identify** - Name or otherwise characterise

**Justify** - Support a case with evidence

**Name** - Give the correct title or term

**Outline** - Set out main characteristics

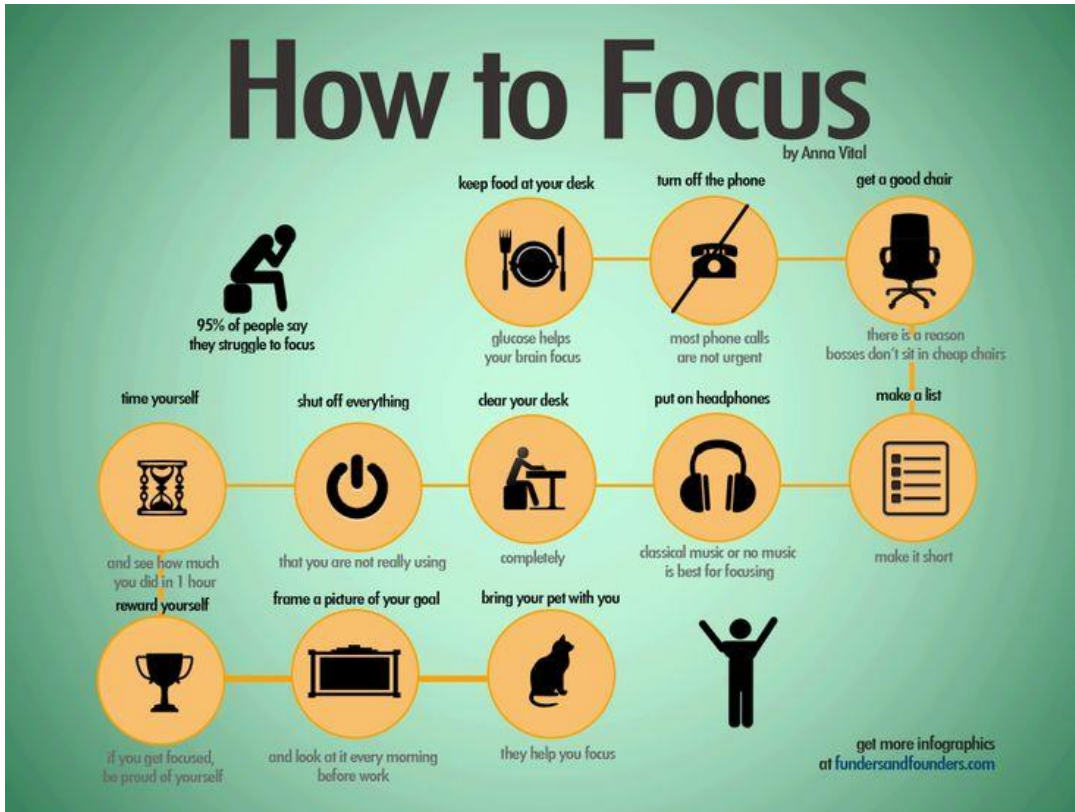
**Repeat** - (the pattern) Maths specific; repeat a given pattern

**State** - Express clearly and briefly

**What** - (is) Give the correct information

## General tips for independent study

### Get in the right frame of mind



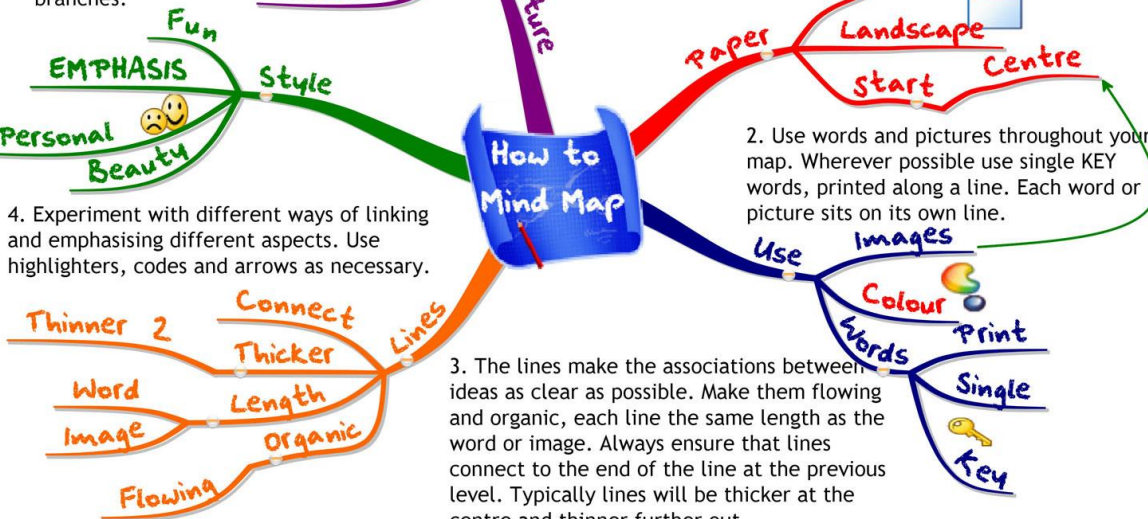
### Mind Maps

5. The structure that should develop will be a 'radiant hierarchy', with ideas radiating out from your central theme and main branches.

1. Start at the centre of a blank, landscape page, ideally with a colourful image to represent your subject.

2. Use words and pictures throughout your map. Wherever possible use single KEY words, printed along a line. Each word or picture sits on its own line.

3. The lines make the associations between ideas as clear as possible. Make them flowing and organic, each line the same length as the word or image. Always ensure that lines connect to the end of the line at the previous level. Typically lines will be thicker at the centre and thinner further out.

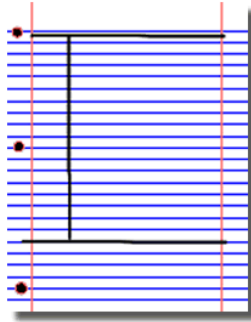


4. Experiment with different ways of linking and emphasising different aspects. Use highlighters, codes and arrows as necessary.

Note taking

Research, reading and note making are essential skills for study. This is an example of the 'Cornell Notes' method of note taking which you should use on you're a Level Product Design course.

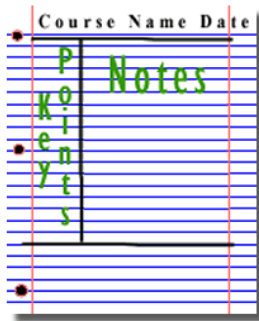
1. Divide your page into three sections like this



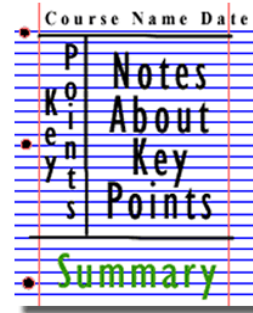
2. Write the name, date and topic at the top of the page



3. Use the large box to make notes. Leave a space between separate idea. Abbreviate where possible.



4. Review and identify the key points in the left hand box



5. Write a summary of the main ideas in the bottom space

