

		Lesson Focus	Homework	Assessment
Autumn 1	Week 1	AC1.1- How food properties can be changed Theoretical and practical understanding of Denaturation- Egg Experiment Gelatinisation- Sauce and Pasta Experiment-	Flipped Learning- Read given notes on next week's content to secure basic information prior to lesson	
	Week 2	AC1.1- How food properties can be changed Theoretical and practical understanding of Caramelisation, Emulsification, Sols-gels- Meringue, Honeycomb	Flipped Learning- Read given notes on next week's content to secure basic information prior to lesson	
	Week 3	AC1.2- Variables that affect physical properties of food Theoretical and practical understanding of Temperature- Freezing and Heating Chemical Reactions- Baking Soda, Acids to marinade Manipulation (Stirring, Beating, Whisking)- Cake experiment- Well mixed vs Poorly mixed	Produce a guide to common faults in pastry	
	Week 4	Detailed Functions of Pastry Ingredients Pastry Making Common faults in pastry Pastry types sensory analysis		
	Week 5	Detailed Analysis of 'Problem Product' Type up functions of ingredients	Type up analysis of existing product	Assessed Coursework
	Week 6	Setting of success criteria. SMART targets	Type up SMART targets	Assessed Coursework
	Week 7	Detailed explanation of planned investigations	Type up investigation overview	Assessed Coursework
	Week 8	Experiment 1	Record and analyse findings from experiment	Assessed Coursework
Autumn 2	Week 9	Experiment 2	Record and analyse findings from experiment	Assessed Coursework
	Week 10	Experiment 3	Record and analyse findings from experiment	Assessed Coursework
	Week 11	Experiment 4	Record and analyse findings from experiment	Assessed Coursework

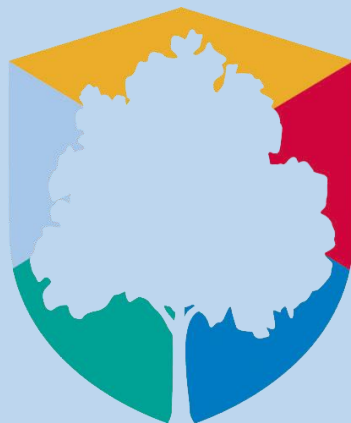
Year 13 Curriculum Overview Food Science and Nutrition 2023-24

	Week 12	Experiment 5	Record and analyse findings from experiment	Assessed Coursework
	Week 13	Justified solution- Linking back to success criteria	Type up solution with justification	Assessed Coursework
	Week 14	Coursework Completion	Complete coursework for Christmas deadline	Assessed Coursework
	Week 15	Coursework Completion		
Spring 1	Week 16	<u>Introduction Lesson</u> Key temperatures, storage rules, 4C's, 3 types of contamination, personal and kitchen hygiene <u>AC1.1- Micro-organisms</u> Bacteria, Fungi (Mould & Yeast) and Viruses	Further Reading – Food Standards Agency 'Safe at Home' Further Reading- Medical New Today 'Bacteria'	
	Week 17	<u>AC1.2- Conditions for Growth</u> Temperature, PH, Oxygen, Water, Nutrients and links to different environments AC1.2 Practical		
	Week 18	<u>AC1.3 How Micro-organisms affect food quality</u> Bacteria, Fungi and Viruses Appearance, Texture, Smell, Aroma, Taste, Non-visible effects, Nutritional content AC1.3 Practical		
	Week 19	<u>AC1.4 Food Preservation</u> Freezing, Jamming, Pickling, drying, salting, additives AC1.4 Practical	Further Reading – Food Standards Agency 'Additives'	
	Week 20	<u>AC2.1 Intolerances</u> Lactose, Coeliac/Wheat, Chemicals AC2.1 Practical	Bring in selection of food packaging	
	Week 21	<u>AC2.2 Allergies</u> Eggs, Milk, Soya, wheat, peanuts, crustaceans, nuts, fish	Complete online FSA Allergy Training and further reading of Food Standards Agency	

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		Immunological response and physiological causes FSA Online Food Allergy Training	'Allergens and Intolerances', 'Allergen Advice' and NHS 'Allergies'	
Spring 2	Week 22	AC2.3 Food Poisoning Food borne and food poisoning illnesses, onset time, duration, vehicles, sources, high and low risk food, metal/plant and fish food poisoning AC2.4 Symptoms Visible and Non-Visible symptoms	Further Reading – Food Standards Agency 'Food Poisoning' Further Reading – Food Safety News 'Outbreaks'	
	Week 23	AC3.1 Environments AC3.1 Practical	Further Reading – Virtual College Article 'Common hazards in a kitchen'	
	Week 24	AC3.2 Risk Likelihood of hazard, potential of hazard to harm, differentiate between hazard and risk AC3.3 Control Measures Understand the risks posed and how to minimise these with control measures AC3.4 Justify To present a case for action and use of evidence to support proposal	Further Reading – Food Standards Agency 'Food Safety' and 'HACCP'	
	Week 25	Practice Exam 8 hours timed assessment, exam conditions, use previous past paper	Past paper	Assessed Practice Exam/Case Study
Summer 1	Week 26 Week 27 Week 28 Week 29	Exam Preparation, Revision, Organisation of Notes, completion of Unit 2 exam Unit 2 released on May 1 st , students will have 8 timed hours to complete the assessment independently and in exam conditions Students will complete time/log sheet, attendance log and other admin sheets		Assessed 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

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://homefoodsafety.org/app>

BBC Health: www.bbc.co.uk/health/healthyliving

British Nutrition Foundation: www.nutrition.org.uk

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

Department for Health: www.dh.gov.uk

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

www.excellencegateway.org.uk/askbutler.examples.id295

Food and Drink Federation: www.fdf.org.uk

Food Standards Agency: www.food.gov.uk/aboutus/publications/industrypublications/

Food Vision: www.foodvision.gov.uk

Health Development Agency: 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

The British Dietetic Association: www.bda.uk.com

Vegetarian Society: 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.

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

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
LO1 Understand the importance of food safety <ol style="list-style-type: none"> 1. AC1.1 Explain how individuals can take responsibility for food safety 2. AC1.2 Explain methods used by food handlers to keep themselves clean and hygienic 3. AC1.3 Explain methods used to keep work areas clean and hygienic 4. AC1.4 Analyse risks associated with food safety 				
LO2 Understand the properties of nutrients <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>				
LO3 Understand the relationship between nutrients and the human body <ul style="list-style-type: none"> • AC3.1 Describe functions of nutrients in the human body 22-31 • AC3.2 Explain characteristics of unsatisfactory nutritional intake • AC3.3 Analyse nutritional needs of specific groups AC3.4 Assess how different situations affect nutritional needs 				
LO4 Be able to plan nutritional requirements <ul style="list-style-type: none"> • AC4.1 Evaluate fitness for purpose of diets • AC4.2 Calculate nutritional requirements for given individuals Addition and Fabrication 				

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?		
Question	Answer	Corrected answer
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?		
Question	Answer	Corrected answer
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?		
Question	Answer	Corrected answer
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?		
Question	Answer	Corrected answer
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

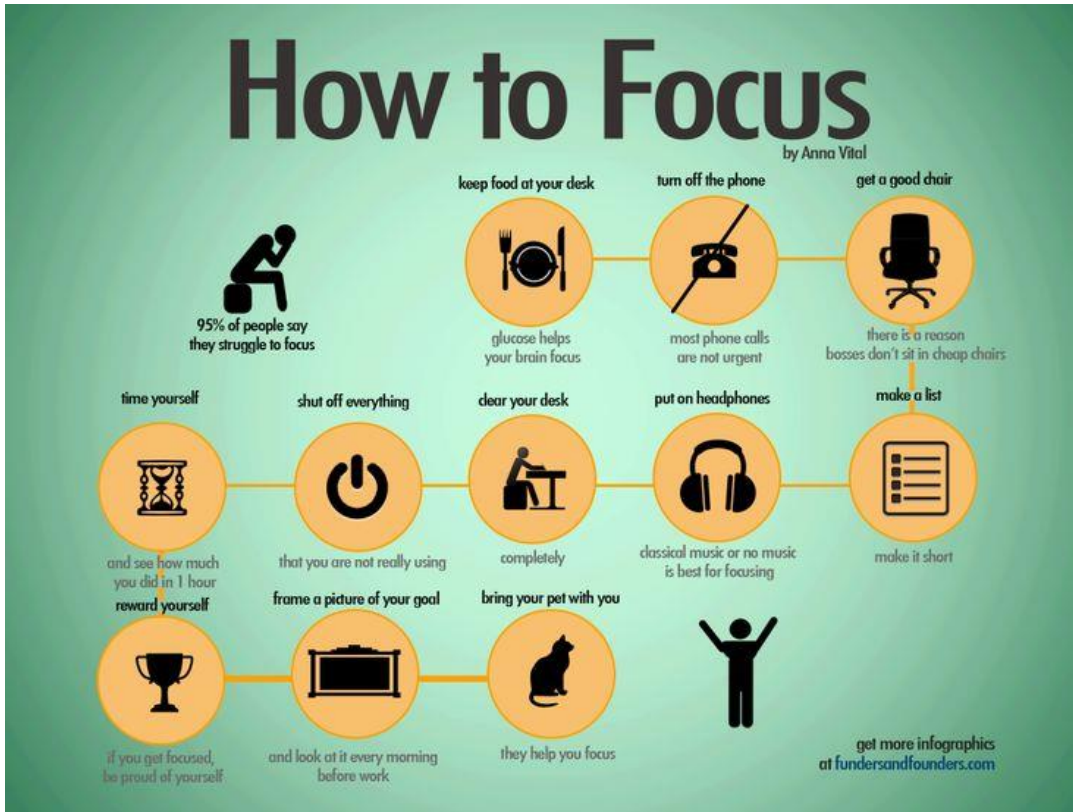
Repeat - (the pattern) Maths specific; repeat a given pattern

State - Express clearly and briefly

What - (is) Give the correct information

General tips for independent study

Get in the right frame of mind



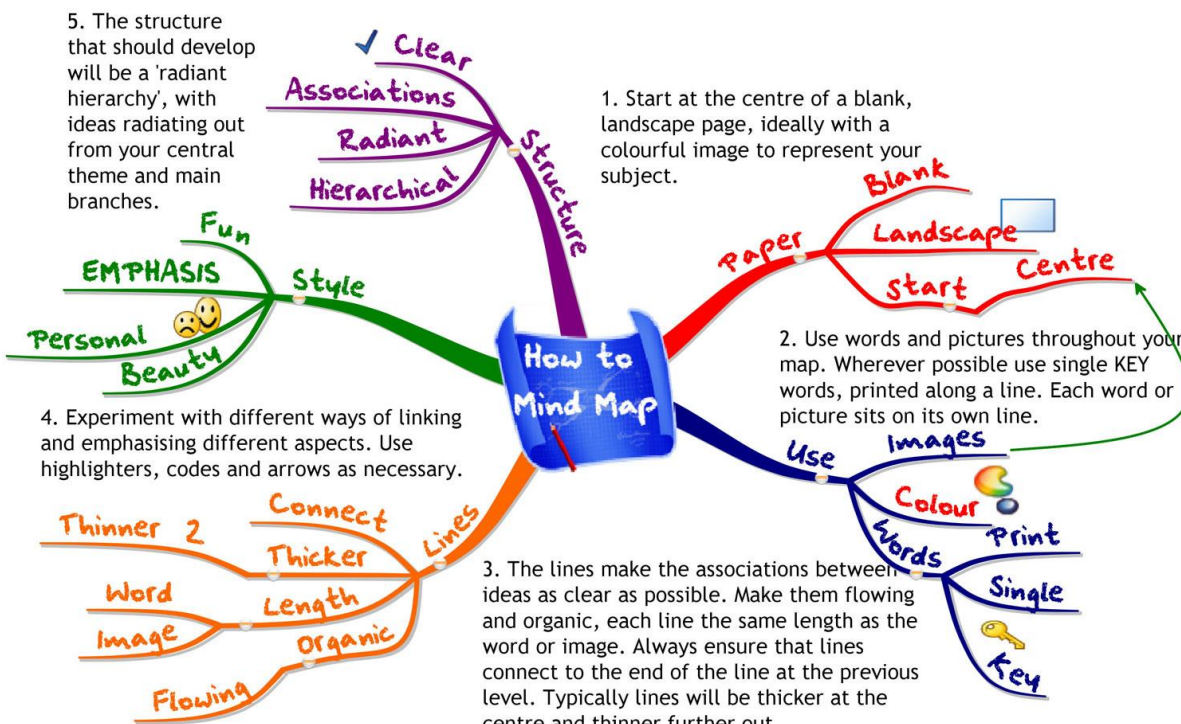
Mind Maps

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.

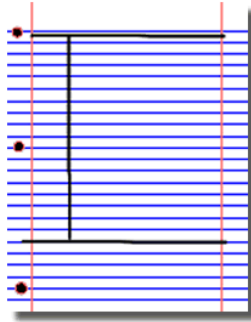
3. The lines make the associations between ideas as clear as possible. Make them flowing and organic, each line the same length as the word or image. Always ensure that lines connect to the end of the line at the previous level. Typically lines will be thicker at the centre and thinner further out.



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.

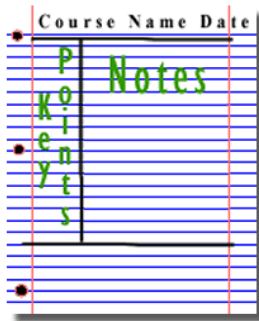
1. Divide your page into three sections like this



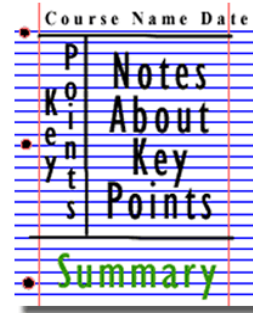
2. Write the name, date and topic at the top of the page



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

