Key Stage 3 Design and Technology.
Design & Technology Materials.

Term	Year 7			Year 8			Year 9		
	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment
Term 1	**Design and Technology: Spinner Project. (Specialist Rooms (DT2 & CADCAM)** The project focusses on the structure of a frame work for a child's spinner toy where a handle is turned to rotate a character around a top axel. A wood based product where CADCAM is used to create a character front on the laser cutter. Skills based project to introduce the students to the workshop. Pupils will be introduced to the design process and how it is used to create new designs and products in the expanding current industry.	Pupils will produce skills using a number of different hand tools and fixing procedures to familiarise them with wood working skills. Pupils will also learn how to work safely in a workshop environment and how to recognise dangers. Pupils will also learn different finishing techniques to finalise a finished product.	Pupils will complete a baseline test at the start of the year. Throughout the project pupils will assess other pupils work through peer marking and also produce a final self-assessment through the completion of their evaluation. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment. Final rotation assessment will be completed to acknowledge understanding of the topic.	**Design and Technology: Night Light Project. (Specialist rooms DT2 & CADCAM)** The project is a light activated circuit with LED to enhance an acrylic character. Wood work skills are also used to create the base. Skills based project to introduce the students to the workshop. Pupils will reengage with the design process and how it is used to create new designs and products in the expanding current industry by focusing on Briefs, Analysis, Design Ideas and Evaluations.	Pupils will produce skills using a number of different hand and power tools with an overview of fixing procedures to familiarise them with wood working skills. Pupils will undergo an electronics task where they will be introduced to the soldering process and how system and control circuits are produced to create a working product. Pupils will also learn how to work safely in a workshop environment and how to recognise dangers. Pupils will also learn different finishing techniques to finalise a finished product.	Pupils will complete a baseline test at the start of the year. Throughout the project pupils will assess other pupils work through peer marking and also produce a final self-assessment through the completion of their evaluation. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment. Final rotation assessment will be completed to acknowledge understanding of the topic.	**Starte Project – Garden Hanger.** The project is a basic starter project for pupils to gain hand-eye coordination as well as build skills such as patience and resilience. Pupils will also start to learn how to use basic hand tools. **Advance Project – Holder** The project is a carrier that can be used to carry any small item. Pupils will build on more advanced skills in using templates, producing finger joints and learning how to use the pillar drill correctly. The projects will embed the pupils knowledge to health and safety and how to function correctly with an understanding on how to use other hand and power tools and how to create certain fixing joints throughout practical lessons.	Pupils will start to learn how to handle certain tools correctly and safely, how to mark out with precision ruler skills and try square and produce basic joining techniques. Pupils will also be introduced to the theory side of the subject reviewing key points that have a connection to the practical task:- • Woods (Timber) • Boards • Cuts and Grain • Hand Tools • Joints • Dimensions • Health and Safety • 2D CADCAM • Adhesives • Pillar Drill	**Skills** • Patience and concentration. • Tool and machine handling. • Wood working shaping and forming • Measuring and marking out. Ongoing assessment throughout the term will be completed by:- • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • Final assessment of exam type questions completed each term based on theory content covered in lesson.

Term 2									
Term 3									

Food & Nutrition.

Term	Year 7			Year 8			Year 9		
	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment

Term 1	**Design and Technology: Food and Nutrition.** In Year 7 students will learn how to store, prepare and cook food safely and hygienically. Students will also understand how to make healthy food choices for everyday life and refer to the Eatwell guide.	Pupils will develop basic knife skills, weighing and measuring accurately and how to use equipment safely and correctly. Students will also learn in-depth about the Eatwell guide and apply the information to adapt recipes for different dietary needs.	**Skills** • Using hob and oven safely • Weighing and measuring • Knife skills • Combining ingredients • Rubbing in method • Glazing • Coating **Assessment** Pupils will complete a baseline test at the start of the year. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment.	**Food Preparation and Nutrition:** Students will continue to develop their practical skills in Food Preparation and Nutrition. They will also have a greater understanding of food science and investigate enzymic browning.	Pupils will learn about different dietary needs and what food choices they should be applying to have a healthy and balanced lifestyle. Students will have a further understanding about where food comes from and the impact the industry is having on the environment. Students will also investigate the science behind food.	**Skills** • Using hob and oven safely • Weighing and measuring • Knife skills • Rubbing in method • Coating • Rolling out • Kneading • Cutting out • Using a temperature probe • Use of electrical equipment • **Assessment** Pupils will complete a baseline test at the start of the year. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment. • End of project practical assessment (Food)	Food Safety Students will begin by reviewing health and safety and food hygiene, identify conditions for microorganisms to grow through temperature, moisture, food and time. Nutrition Reintroduced to the eat well guide and identify the 3 macro nutrients, and micronutrients with their function and food sources. Food Science Understand physical properties or fats, proteins and carbohydrates in baking and cooking dishes through practical lessons. Food Provenance Understand how food is grown, reared and caught. Ethical and moral issues related to intensive farming and fairtrade products.	**Food Preparation and cooking skills** Pupils will undergo a variety of practical tasks to ensure they can understand the food science behind methods such as rubbing in to create scones, laminating to create puff pastry, aeration to create Swiss rolls and gelatinisation to complete mac and cheese. Food Science – Shortening, Laminating, gelatinisation, aeration. Dietary needs Dietary needs and nutrition Students will focus on linking food nutrition to meal planning for different age groups and dietary needs.	**Skills** Weighing and measuring Advanced knife skills Kneading Rubbing in method Creaming Melting Use of electrical equipment Reduction Combining Weighing and measuring Advanced knife skills Kneading Use of electrical equipment Piping Shaping Creaming method Conducting investigation Research Evaluation Use of raising agents **Assessment** • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment with evaluations for each dish. • End of topic summative assessment.

Brayton Academy

Term 2									
Term 3									

Textiles.

Term	Year 7			Year 8			Year 9		
	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment	Topic	Knowledge	Skills/Assessment
Term 1	**Design and Technology: Textiles Juggling balls** Skills based project to introduce students to the Textiles room and equipment. Students will focus on basic skills and understand how to safely and confidently use specialist equipment.	Students will be introduced to fibres and how they are used to construct materials. Students will then learn the different properties of materials and understand why different materials are used for different textiles products. Students will use recycled materials to make their juggling balls and bag and use specialist equipment confidently and safely to construct their project. Throughout the project students will assess their own and peers work which will enable them to problem solve and develop their resilience skills.	**Skills** • Pining • Tacking • Hand stitches • Use of sewing machine accurately and safely **Assessment** Pupils will complete a baseline test at the start of the year. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment.	**Design and Technology: Textiles – Kooky Kritters.** Skills based project to develop students practical skills. Students will demonstrate the full design to manufacture process.	Students will develop their textiles knowledge and practical skills. During this project students will research, design, develop, manufacture and evaluate. Students will use a range of recycled materials to create their unique Kooky Kritter. They will develop their practical skills by adding a range of embroidery, applique, embellishments and decorative stitches to their product. Throughout the project students will self and peer assess to improve their practical work, they will work independently and create a time plan to manage their time efficiently. At the end of the project students will have a summative assessment.	**Skills** • Pattern cutting • Pining • Tacking • Hand stitches • Use of sewing machine accurately and safely • Applique • Embellishment • Embroidery stitches **Assessment** Pupils will complete a baseline test at the start of the year. • Constant verbal feedback. • Ongoing teacher, self and peer formative assessment • End of project summative assessment.			
Term 2									

Brayton Academy

Term 3									

Key Stage 4 Design & Technology

Term	Year 10/11 – One Year GCSE Design Technology		
	Topic	**Knowledge**	**Skills/Assessment**
Term 1	**<u>Building Theory knowledge and Basic Skills.</u>** Pupils will be introduced to the subject with a small practical starter focusing of the use of the workshop environment. The topic will introduce the pupils to health and safety and how to function correctly with an understanding on how to use certain hand and power tools and how to create certain fixing joints throughout practical lessons. **<u>NON EXAM ASSESSMENT</u>** **<u>NEA – Introduction working through each section.</u>** **September - Completed by February half term.** Working through the NEA exploring their chosen brief to design and make an appropriate product. The product will be currently non-existent and will be designed to fit a purpose or solve a problem. Students will research, plan, design, make a model and evaluate their product. Theory lessons and exam preparation beginning **January** up until **mid April.** Focus will be back to the NEA. Ensuring final modelling of prototype is completed by February. **All lessons covering NEA until Easter half term.** Responding to feedback and making improvements.	Pupils will start to learn how to handle certain tools correctly and safely, how to mark out with precision ruler and try square and produce basic joining techniques. Pupils will also be introduced to the theory side of the subject reviewing key points that have a connection to the practical task:- • Woods (Timber) • Boards • Cuts and Grain • Hand Tools • Joints • Dimensions/ Tolerances • 2D CADCAM • Adhesives • Health & Safety/ Quality Control • Production methods. **Pupils will start to complete the 20 sheet coursework portfolio following the design process to answer the given brief and design and make a final product.** Substantial design and make task • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating Students will produce a prototype and a portfolio of evidence. Work will be marked by teachers and moderated by AQA. **Pupils will focus on the first 3 sections of the NEA looking at completing modules A,B & C.**	**SKILLS** • Workshop Safety • Hand Tools • Machine Forming Safety • Joints and Fixings • Dimensions and Markings • Independent Thinking • Design Process Understanding **ASSESSMENT** • Constant verbal feedback • Mid-project assessments based on class theory. • Ongoing teacher, self and peer formative assessment • Summerative assessments every 2-3 weeks based on theory content covered. • Termly GCSE Mock exam • Independent improvements to NEA and responding to feedback • NEA overall grade worth 50% of final GCSE
Term 2	**<u>NON EXAM ASSESSMENT</u>** **<u>NEA – Continuation working through each section.</u>** **September - Completed by February half term.** Working through the NEA exploring their chosen brief to design and make an appropriate product. The product will be currently non-existent and will be designed to fit a purpose or solve a problem. Students will research, plan, design, make a model and evaluate their product. Theory lessons and exam preparation beginning **January** up until **mid April.** **From mid November** – Focus will be back to the NEA. Ensuring final modelling of prototype is completed by February. **All lessons covering NEA until Easter half term.** Responding to feedback and making improvements.	**Pupils will continue to complete the 20 sheet coursework portfolio following the design process to answer the given brief and design and make a final product.** Substantial design and make task • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating Students will produce a prototype and a portfolio of evidence. Work will be marked by teachers and moderated by AQA. **Pupils will focus on the completion of the final 3 sections of the NEA looking at completing modules D,E & F.** Pupils will also continue with the theory side of the subject reviewing key points that have a connection to the specification:- • Environment & Eco Design • Production Techniques • Drawing Skills • Metals & Processes • Plastics and Processes • Smart Materials • Paper & Board • Textiles	**SKILLS** • 2D CAD Design • 3D Drawing Skills • Idea Generation • Material Testing & Choice • Modelling & Prototyping • Development and Evaluation **ASSESSMENT** • Constant verbal feedback • Ongoing teacher, self and peer formative assessment • Summerative assessments every 2-3 weeks based on theory content covered. • Homework set and feedback given (revision booklet) • Independent improvements to NEA and responding to feedback • NEA overall grade worth 50% of final GCSE

		• Motion & Forces	
Term 3	**Six lessons a week: Exam Revision** **5 revision booklets will be issued throughout the year to support with mock exams and revision.** **Revision Topics:** • Review of existing theory • Materials and their working properties • Robotics, automation and production • Enterprise and business • Society and sustainability • Energy generation • Core technical principles • Systems and Electronic systems • Mechanical systems • Developments in new materials • Material properties and selecting materials Independent revision when not in lessons. **Exam time: 2 hours** **Intervention lessons for specific NEA page completion and improvements OR extra exam support.**	Pupils will complete revision tasks and learn how to break down exam questions to maximise answers in order to achieve full marks. Pupils will review past theory work to the guidelines of the AQA specification to prepare for exam assessment. What's assessed • Core technical principles • Specialist technical principles • Designing and making principles In addition: • at least 15% of the exam will assess maths • at least 10% of the exam will assess science. How it's assessed • Written exam: 2 hours • 100 marks • 50% of GCSE	**SKILLS** • Revision Techniques • Breaking down and understanding exam questions • Key words and general knowledge in technology **ASSESSMENT** • Constant verbal feedback • Mid-revision assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term revision assessment • GCSE Written exam (2 hours)

Key Stage 4 Food and Nutrition

Term	Year 10/11 – One Year GCSE Food & Nutrition		
	Topic	**Knowledge**	**Skills/Assessment**
Term 1	**Building theory knowledge and skills** Students will have 6 lessons a week of Food preparation and nutrition. 3-4 lessons per week they will be learning the content for the written exam. Students will then have 2-3 lessons per week developing their food preparation and practical skills.	Students will begin to have a deeper understanding of the 5 theory topics and develop their prior knowledge from KS3 which is needed for the written exam. This 5 topics include: • Food Nutrition • Food Safety • Food Science • Food Provenance • Food Choice Students will also develop the basic and medium skills they learnt in KS3 and develop them into medium and complex skills to prepare them for the NEA practical exam in term 2.	**Skills** • Weighing and measuring • Advanced knife skills • Kneading • Use of electrical equipment • Pastry making • Pasta making • Piping • Shaping • Melting • Meringue • Setting • Planning • Research • Evaluation • Food presentation • **ASSESSMENT** • Constant verbal feedback • Mid-project assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term assessment • Termly GCSE Mock exam

Term 2	**NEA1 15%** 2000 word report of the chemical and functional properties of ingredients. Briefs will be published by AQA 1st September. Students will be assessed on the below sections: • Research • Investigations • Analysis and evaluation Students will independently complete each section of the NEA, this will be completed by Christmas. **NEA 2 -35% of overall GCSE grade.** Food preparation task, Students will be given a brief and will research, develop, plan, prepare and cook and evaluate. This will be 50% of students overall GCSE grade. As part of their NEA students will complete a 3 hour practical exam to demonstrate a range of complex and medium skills they have learnt throughout their time in food, this will be completed by February half term. Students will work independently throughout to produce their NEA 2 to a high standard. Intervention lessons for specific NEA page completion and improvements **Food science** - students will learn and investigate the chemical and functional properties of macronutrients and apply this to exam questions. Intervention lessons for extra exam support.	**Pupils with start to complete the 20 sheet coursework portfolio to answer the given brief to plan, prepare, cook and present a range of dishes.** Assessment criteria: • Research • Selecting dishes • Developing technical skills • Planning for the final menu • Prepare and cook final menu • Analysis and evaluation Students will produce a portfolio. Work will be marked by teachers and moderated by AQA. **Food science** Students will learn about the chemical and functional properties of fats, protein and carbohydrates. Students will also learn the science of how and why food is cooked and the. Finally, students will understand how successful raising agents work and can be used in baked products.	**Skills** • Weighing and measuring • Advanced knife skills • Kneading • Use of electrical equipment • Pastry making • Pasta making • Piping • Shaping • melting • Meringue • Portioning chicken • Filleting fish • Setting • Planning • Research • Evaluation • Food presentation • **ASSESSMENT** • Constant verbal feedback • Ongoing teacher, self and peer formative assessment • Homework set and feedback given (revision booklet) • Independent improvements to NEA and responding to feedback • NEA 50% of overall grade
Term 3	**Revision and exam preparation** During term 3 students will revise all of the exam topics and practice their exam techniques and apply them to a range of exam questions in preparation for the summer exam. Students will learn though individual, group and practical work. 1 hour 45 minute GCSE exam 100 marks Section A – 20 marks multiple choice Section B – 80 marks written Intervention lessons for extra exam support.	Exam 50% - Revision of all 5 GCSE topics and exam technique preparation for the final exam. Revision topics include: • Food Nutrition • Food Science • Food Safety • Food Choice • Food Provenance Students will develop their exam techniques and apply it to a range of exam questions. Independent revision when not in lessons.	**Skills** • Short and long exam questions • Subject vocabulary • Understanding command words **ASSESSMENT** • Constant verbal feedback • Mid-revision assessments based on class theory. • Ongoing teacher, self and peer formative assessment • End of term revision assessment • GCSE exam