

CURRICULUM SUBJECT: TECHNOLOGY

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“Enjoy failure and learn from it. You can never learn from success.”– James Dyson

CURRICULUM INTENT

Why is it important that pupils at Vale of York study Technology?

Understanding and immersing themselves in Technology is important for students' future paths. In our lessons Students will gain a better understanding that Technology is all around us and that problem solving starts with research, design and make/model.

Students will learn a lot of transferable skills from analytical skills, research skills to team working skills. Due to the versatility of Technology, students will find career paths within their community or further afield.

After completing KS3, students will be able to complete a variety of dishes that can sustain a healthy and varied diet. This will not only enable students to be more confident when cooking for themselves or others later on in life but could also lead to various career paths within the Food and consumer industry.

York is very fortunate to be a leading city in the UK for STEM, being home to York Science Park, Science City York, the National STEM Centre, and the National Science Learning Centre. This provides an abundance of additional opportunities for pupils with an active interest in this area of the curriculum.

CURRICULUM STATEMENT

At KS3: To create a real sense of achievement by allowing students to explore and take responsibility for their own learning. Students will design and make in a real life context and make products they can be proud of. To ignite student’s curiosity about food preparation and nutrition and to promote their love of cooking. To be able to be independent in decision making when preparing foods that are nutritious and cost effective.

CURRICULUM SEQUENCE

Key Stage 3:

	Year 7	Year 8	Year 9
Curriculum time	<i>3 hours per fortnight</i>		
Curriculum framework	<i>National Curriculum</i>	<i>National Curriculum</i>	<i>National Curriculum</i>
Personal attributes evolved that support learning	<i>Independent study through homework and project work</i> <i>Resilience - Try, try and try again attitude</i> <i>Team work -sharing resources and helping each other</i> <i>Decision Making - judging information and ideas from the world around you</i> <i>Confidence - it’s okay to get it wrong attitude</i>		
Disciplinary Literacy	<i>In KS3 Technology, literacy skills are integrated into lessons and activities as a way of enhancing students' understanding of the subject. For example, be taught how to write a sequence of making or annotate design ideas</i> <i>Students are also taught subject specific vocabulary and how to use it accurately in speech and written language. This involves the use of strategies such as skimming, scanning, and close reading.</i>		

Overall, the goal of teaching literacy in KS3 Technology is to help students develop the skills they need to critically analyse and communicate Technology based ideas and information terminology

KS3 Curriculum plan - Content covered for End Point 1: February Year 7

Unit title	What is the key knowledge/understanding covered	Which key subject skills will be developed
<i>Multi Tool suitable for a teenager</i>	<i>Understand the difference between softwoods and hardwoods Understand how materials be combined to enhance products</i>	<i>Sketching in 2d, Rendering, Marking out and measure on wood Follow a plan of manufacture Cutting wood safely Drilling holes safely using a pillar drill Preparing the surface safely using a vertical sander</i>
<i>Personal pennant</i>	<i>Introduction to types of textiles Introduction to methods of embellishment</i>	<i>Mark out and measure on textiles Safely cut textiles Use a variety of stitches for surface decoration and construction Evaluate a design</i>
<i>Health and Safety</i>	<i>Working safely in a kitchen Making products that are safe to eat</i>	<i>Basic knife skills Basic dough making skills</i>
<i>Eat well guide and healthy eating</i>	<i>Understanding of the eat well guide Understanding of the importance of each section of the eat well guide</i>	<i>Basic dough making skills</i>

KS3 Curriculum plan - Content covered for End Point 2: June Year 7

Unit title	Key knowledge covered	Subject skills developed
<i>Personal pennant</i>	<i>Health and Safety in a textiles room</i>	<i>Apply dye safely to change the colour of fabric</i>

<i>(part 2)</i>	<i>How to thread a sewing machine Types of settings on the iron when dealing with heat and fabric</i>	<i>Use the sewing machine safely Use an iron safely</i>
<i>STEM project- Solar powered car</i>	<i>Working with Polymers and basic circuit boards Design realisation using vacuum forming</i>	<i>Sketch in 3D simple shapes Apply rendering to show plastic as a texture Model in card simple designs Use a CAD package to draw 2D shapes Solder together a simple electronic circuit Use wet and dry on acrylic</i>
<i>Eat well guide continued but with emphasis on Carbohydrate and flour</i>	<i>Understanding where food comes from and how it is processed</i>	<i>Basic knife skills Basic dough making skills</i>
<i>Food Science and micronutrients</i>	<i>Basic understanding of heat transfer methods Basic understanding of some vitamins and minerals why they are needed in our diet</i>	<i>Basic knife skills Basic dough making skills Basic sauce making skills</i>

KS3 Curriculum plan - Content covered for End Point 3: February Year 8

Unit title	Key knowledge covered	Subject skills developed
<i>CAD/Cam project- hand held tools</i>	<i>Ergonomics Product analysis into Alessi products Modelling design ideas Design realisation using the laser cutter</i>	<i>CAD designing Card modelling Template making using card and acrylics</i>
<i>Fidget mats suitable for people suffering with dementia or anxiety</i>	<i>How does a design specification help create a specific design. Modelling design ideas</i>	<i>Revisiting hand stitches from Year 7 Revisiting the safe and controlled use of the sewing machine</i>
<i>Food Science</i>	<i>Understanding of raising agents</i>	<i>Knife skills</i>

	<i>Understanding of basic heat transfer methods Understanding the difference between different cooking methods and their uses</i>	<i>Dough making skills Sauce making skills</i>
<i>Pastry project</i>	<i>Understanding of the different types of pastry and their uses</i>	<i>Shortcrust pastry making skills Rough puff pastry making skills</i>
KS3 Curriculum plan - Content covered for End Point 4: June Year 8		
Unit title	Key knowledge covered	Subject skills developed
<i>Fidget mats suitable for people suffering with dementia or anxiety</i>	<i>Design realisation using a variety of enhancement techniques and components</i>	<i>Using the sewing machine independently Adapting the settings on the sewing machine as required Introduce how to attach components and fastening securely to fabric</i>
<i>STEM challenges in structures, mechanisms and electronics</i>	<i>6R's (rethink, repair, reduce, refuse, recycle and reuse) Smart and a modern materials Mechanical, pneumatic and electronic systems Embedded electronic systems Adapt designs for real life problems</i>	<i>Soldering more complex circuits Assemble pulleys and gears to change direction and increase or decrease speed Model and create frame structures and shell structures Program embedded circuits (BBC Microbit and Crumble)</i>
<i>Nutrition</i>	<i>Understanding of macro and micronutrients</i>	<i>Knife skills Dough making skills Sauce making skills</i>
<i>Nutritional analysis</i>	<i>Analysing a food product using a nutritional analysis tool Planning for own choice product</i>	<i>Knife skills Dough making skills Sauce making skills Analytical skills</i>

KS3 Curriculum plan - Content covered for End Point 5: February Year 9

Unit title	Key knowledge covered	Subject skills developed
<i>Environmental game, using 3D CAD CAM</i>	<i>Expand on CAD/CAM designing Application of research to own designs</i>	<i>Drawing in 2D and 3D multi material designs Marking out and cutting different materials Using templates</i>
<i>Fidget mats suitable for people suffering with dementia or anxiety</i>	<i>How does a design specification help create a specific design. Modelling design ideas Design realisation using a variety of enhancement techniques and components</i>	<i>Revisiting hand stitches from Year 7 Revisiting the safe and controlled use of the sewing machine Introduce how to attach components and fastening securely to fabric</i>
<i>Food choices and Food provenance</i>	<i>Dietary changes throughout life Importance of Food labelling Seasonality</i>	<i>Knife skills Dough making skills Sauce making skills</i>

KS3 Curriculum plan - Content covered for End Point 6: June Year 9

Unit title	Key knowledge covered	Subject skills developed
<i>Fidget mats suitable for people suffering with dementia or anxiety</i>	<i>Design realisation using a variety of enhancement techniques and components</i>	<i>Using the sewing machine independently Adapting the settings on the sewing machine as required Introduce how to attach components and fastening securely to fabric</i>
<i>STEM challenge- Emergency devices</i>	<i>Introduction to Crumble and programing simple loops Introduction into Autodesk CAD modelling</i>	<i>Using Crumble to understand coding Create systems for light signalling and morse code Use of Autodesk to simulate working design ideas</i>
<i>Cake project including Food Science</i>	<i>Introduction into Food Science experiment to understand the function of ingredients</i>	<i>Dough making skills Analytical skills</i>
<i>Food provenance</i>	<i>Build upon knowledge of the origins of food.</i>	<i>Knife skills</i>

	Starting to understand food sustainability.	Dough making skills Sauce making skills
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CURRICULUM OPPORTUNITIES

Key stage 3:

	Year 7	Year 8	Year 9
Within the formal curriculum	<i>Students are introduced to Design Technology through a range of projects using a variety of materials. Lessons are taught in mixed ability classes and will focus on theory of materials and processes and focused practical tasks. In Food preparation students acquire basic food preparation skills that will enable them to follow a healthy lifestyle.</i>		
Links to other curriculum areas	<i>Measuring and orthographic drawing is taught in Technology and Mathematics. Technology uses the same methods and language as Mathematics to ensure students are able to see the link between the two areas. Science covers some elements of the Food Preparation and Nutrition such as nutrition, conducting Food investigation tasks or heat transfer models. Food and Nutrition also covers healthy eating and lifestyle which are also taught in PSHE and Physical Education. Sustainability is a key topic within Technology that is also covered in Geography.</i>		
Preparation for adult life	<i>Industrial processes are always referenced and pupils are shown how everyday products are manufactured in different scales of production and by different industrial processes. Sustainability and the role of a designer is also stressed as environmental issues are a hot topic. Students design and make products that can be put to practical use. Students are reminded, constantly, of the need to produce sustainable products and what the role of a designer is in our battle to reduce the carbon emissions that are contributing to global warming. Students have got a wealth of courses in post16. Apprenticeships in construction are currently delivered through Yok College. Other course in post 16 range from A-level Graphics, Design Technology to Electronics to name a few. <i>Food and Nutrition will equip students with the knowledge, understanding and skills required to cook and apply the principles of food science, nutrition and healthy eating. The curriculum will encourage students to cook and enable them to make informed decisions about a wide range of further learning opportunities and career pathways as well as develop vital life skills that enable them to feed themselves and others affordably and nutritiously, now and later in life.</i></i>		

Students can continue with A-level science if they want to pursue a career in Food Science in Nutrition. Another possible path would be Catering and Hospitality at York College or apprenticeships.

CURRICULUM IMPLEMENTATION

As an Academy we have a range of clear standards and expectations of our pupils however each subject area has its own individual practices and habits that ensure that it can function to its optimum.

Curriculum delivery:

In KS3, students are introduced to Technology through a range of projects using a variety of materials. Lessons are taught in mixed ability classes and will focus on theory of materials and processes, focused practical tasks leading to more open ended design challenges. During Food and Nutrition lessons, students are taken through a range of practical work using a variety of skills. Lessons are taught in mixed ability classes and will focus on theory of ingredients, methods and skills The skills set are developed from Y7-Y9 in a sequential manner allowing progression and development of key cooking skills

Homework:

	Frequency	Expected time to complete	Completion notes and handing in	What to do if stuck
7	<i>once per half term</i>	<i>Up to 30 min</i>	<i>Google classroom based. Homework is usually based around evaluation, additional research or a manufacturing diary.</i>	<i>Ask the classroom teacher or homework club</i>
8				
9				

SUPPORTING YOUR CHILD

	Resources to support your child	Relevance - How it helps
Key Stage 3	<p><i>DT- measuring exercises, free hand sketching, modelling on card, repairing items rather than throwing away.</i></p> <p><i>FPN- ingredients and container for food</i></p> <p><i>Allow your child to help in the kitchen with preparing ingredients towards the family meal</i></p>	<p><i>Help with organisation of child</i></p> <p><i>To improve technical skills for practical lessons.</i></p>

Link above

<https://www.focuseducational.com/login-to-focus-elearning/>

WIDER INTEREST

CAD program for designing if you would like to design create like a professional

<https://www.onshape.com/en/>

<https://www.sketchup.com/>

Website for York Society of Engineering

<https://www.yorksocietyofengineers.org/>