

KS5 Manufacturing

Subject curriculum intent:	In manufacturing students will embed and deepen their understanding of cottage industry manufacturing & social enterprise over a 3 year period. Students will develop skills to create a range of products including ceramics, candles, wax melts and cards. Students will develop personal skills and qualities related to vocational learning such as time management, independence, confidence, decision making, team work and problem solving. When taught in parallel with other NRHS Social Enterprises, students will gain a clear knowledge and understanding of transferrable work place skills.		
End of KS3 intent/outcome	End of KS4 intent/outcome	End of KS5 intent/outcome	
Pupils will have engaged in art and DT lessons creating a variety of projects, in a range of styles and using a variety of materials. Pupils will begin to develop communication skills to discuss and evaluate their work and follow the structure of design, make and evaluate within their work.	Pupils will have participated in a vocational learning day each week and develop basic skills for the work place. Pupils will have built on skills developed in KS3 and start to explore manufacturing processes through creative lessons.	By the end of KS5 pupils will have developed skills needed to succeed in work, social and further learning settings. Pupils will have developed an understanding of the world of work and begin to map out their futures. Pupils will be able to transfer skills into a variety of settings.	
Intent for this topic:	Students will develop their understanding of materials and equipment needed to manufacture safely. Students will understand the production process including planning, health & safety and selling via online and physical platforms. Students will have the opportunity to think creatively, devise new products, problem solve processes and explore target markets. Students will develop an understanding of the environmental impact NRGC has and how we aim to become a sustainable business.		
Core vocabulary needed for this subject/topic:	Manufacturing, company, equipment (clay, rolling pin, cutter, wax, stamp), PPE (gloves, goggles, apron), safe, danger, hazard, impact, quality (good/bad/high/poor), customer, survey, feedback, advertise, marketing, etsy, sales, packaging.		
Vocabulary pupils will have accessed in other topics or subject areas:	Creative, create, make, design, evaluate, equipment (brush, rolling pin, board, stamp etc.), safe, danger, art, craft, model, media, promote.		
Key skills taught in this subject/topic	<p>Reasoning - Students will predict and extract information from a range of sources.</p> <p>Evaluating - Students will express their own views and preferences against agreed criteria to evaluate the success of their own work and the work of others. Students will evaluate production lines/sales.</p> <p>Empathy - Students to understand what customers might be thinking or feeling in different situations</p> <p>Social skills - When working collaboratively, students will listen to and respect other people's ideas. They will undertake a variety of roles in group contexts.</p> <p>Communication - Students will develop their ability to discuss as they work collaboratively in paired, group and whole-class contexts. Pupils will use communication tools to work within a production line.</p> <p>Reading skills: will be used when following a range of instruction to complete products and to follow health and safety signage.</p>		

Prior knowledge: what pupils may already have studied				
Key stage	Subject	Topic title	Term/year taught	Content/What might pupils already know?
KS3	Art/ DT	Various topics	Taught over a 3 year cycle	Pupils will know how to investigate and experiment with different materials. Pupils will know basic skills to manipulate different different materials
KS4	Art award Creative Manufacturing as part of vocational curriculum.		Taught over a 2 year cycle.	Pupils will know different types of art based activities e.g. music, sculpting, drama. Pupils will have learnt the skills required for a specific arts project and plan their own art project.
KS5	cooking	Health and safety	Taught weekly.	Pupils will recognise hazards in the kitchen and understand how to keep themselves safe. Pupils will know the impact of certain hazards and the importance of a safe working environment.
Links to other subjects: ICT - Researching information, use of online tools, navigating websites, uploading information, creating adverts Maths - handling money Drama - to create video advertisements. Vocational - following instructions and health and safety rules. English- reading and understanding safety signage. Reading and following visual/written instructions.				

RRS Articles: This unit of work is linked to **Article 29 - the goals of education**

Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures and the environment.

Subject: Manufacturing

Suggested Flow of Learning

Term: 2022/2023

	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	Entry 3	Level 1
Core Learning					
<u>Subject specific knowledge</u>	To know materials directly related to their product such as: -clay -rolling pin -glaze -brush -wheel	To know materials directly related to their product such as: -clay -Rolling pin -Clay cutter -Card -Envelope -Die cutter	To know instructions come in a range of forms To know which tools/materials are needed for a given task and understand the tools purpose	To know items can be sold online To know online selling platforms: Etsy, Instagram, TikTok Shop To know what materials need to be sourced for a designed product	To know all products being sold To know the cost of producing and selling of products To know all materials and tools used within NRGC

	<p>To know which products they make</p> <p>To know that to manufacturing means making</p>	<p>To know that certain tools are needed to create particular products</p> <p>To know that manufacturing produces items to sell</p> <p>To know the name of key physical skills needed to produce 1 familiar product</p>	<p>To know that manufacturing is an industry that produces many common large and small items</p> <p>To know that other companies make the same or similar products and where to buy these</p> <p>To know some skills needed to complete steps in manufacturing</p>	<p>To know a range of tools used within NRGCo that are commonly used within other manufacturing settings.</p> <p>To know what skills are needed to complete certain tasks and identify which other work places they may be used in</p>	<p>To know the key skills needed to lead a small team (effective leadership) communication, organised, time keeping, teamwork, approachable</p>
<u>Subject specific skills</u>	<p>Is able to complete a single step of a task independently using a visual resource</p> <p>Is able to recognise symbols/signs/sounds related to a particular skill: rolling, stamping</p> <p>Is able to differentiate between a 'making' and 'selling'</p> <p>Is able to match a physical material to symbol upon collecting materials and tools</p>	<p>Is able to follow a sequence of up to 6 steps by reading written or visual instructions when prompted</p> <p>Is able to collect up to 3 specific materials for each station using a visual resource</p> <p>Is able to select the appropriate tool for a specific task from a small selection</p> <p>Is able to identify products which they make</p>	<p>Is able to follow a range of video, audio, written and visual instructions to contribute towards or complete a product</p> <p>Is able to independently complete at least 3 steps of a task</p> <p>Is able to set up a work table with the all of the correct materials using a simple checklist</p> <p>Is able to use search engines to find like for like products and where to buy these</p>	<p>Is able to identify and use an online platform such as Etsy or Pinterest to research and mind map designs for potential products</p> <p>Is able to identify the majority of materials needed to create a new product</p> <p>To know that tools differ for the same products in other workplaces depending on the size of the production,</p>	<p>Is able to lead small groups of up to 3 in the production of a familiar product</p> <p>Is able to break down production costs and use this information to establish an appropriate selling price that includes profit</p> <p>Is able to setup and close down a work station for a familiar product</p>

Key learning: Health & Safety

	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	Entry 3	Level 1
<u>Subject specific knowledge</u>	<p>To know items: apron, goggles and gloves keep them safe</p> <p>To know which areas on the body 1-2 PPE items protect</p> <p>To know that you wear PPE in the work place</p>	<p>To know the name of all safety items being used in the manufacturing session</p> <p>To know that being unsafe at work can result in someone being hurt</p> <p>To know the impact of not wearing an item of PPE in the workplace for example, not wearing a hard hat could hurt your head</p>	<p>To know and identify what a hazard is or looks like.</p> <p>To know that professional behaviour helps to keep people safe in the workplace</p> <p>To know that risks can cause a range of accidents and do not just impact a singular person</p> <p>To know that a risk assessment helps to prevent injury</p>	<p>To know all work places have safety procedures in place to keep everyone safe</p> <p>To know that a risk assessment in commonly used across all workplaces to keep people safe</p> <p>To know that workplaces implement health & safety introductions to new staff</p>	<p>To know where to find and how to check, safety documents for the workplace and know the importance of this being done regularly and consistently</p> <p>To know that everyone in the workplace is responsible for the safety of themselves and others</p> <p>To know appropriate ways to report a danger at work</p>

<u>Subject specific skills</u>	Is able to identify 1-2 pieces of PPE	Is able to identify up to 4 pieces of PPE	Is able to identify at least 3 safety hazards in the work place	Is able to follow a health and safety procedure checklist at all times in the workplace	Is able to lead on the safety in the workplace and safety of colleagues during production using Health & Safety procedure checklist
	Is able to identify areas of the body they protect	Is able to identify a hazard within the work room	Is able to remove obvious physical hazards from their work area before beginning the task	Is able to suggest ways to reduce the risks including work wear, use of signage, removal of physical hazards	Is able to identify hazards during work and halt production to enable reduction of risk
	Is able to collect/ direct staff to collect an apron before starting a task.	Is able to follow a simple checklist of 3 steps to ensure they are safe and ready from work: tables covered, aprons on, floor clear	Is able to follow a simple risk assessment to ensure they reduce the risk		
	Is able to identify 'safe' and 'unsafe' from an image				Is able assess risks when exploring tools for new/ other products

Key learning: Understanding Production lines

	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	<u>Entry 3</u>	<u>Level 1</u>
<u>Subject specific knowledge</u>	<p>To know a minimum of at least 2 steps needed to of a familiar product</p> <p>To know that working within a production line means working together with others</p> <p>To that a production line means to work 1 step at a time</p> <p>To know that the product is finished once at the end of the production line</p>	<p>To know the order of tasks to successfully complete/ make a product (ensuring they are sequential)</p> <p>To know when a product is finished (understanding the last instructions means it has been completed)</p>	<p>To know key roles in a production line (wax handler, quality checker, die cutter, pourer (wax))</p> <p>To know and identify what would happen if an instruction / step was missed</p> <p>To know 2-3 different types of production lines</p>	<p>To know how to break down stages of production</p> <p>To know the benefits of different types of production lines</p> <p>To know that production lines produce mass, identical, precise items</p>	<p>To know different types of production lines and areas they may be used</p> <p>To know a suitable production line for their product and justify their choice</p>
<u>Subject specific skills</u>	<p>Is able to follow simple visual instructions of up to 3 steps with gestural/verbal support</p> <p>Is able to identify when their task is complete</p> <p>Is able to direct an item in the correct direction within a production line</p>	<p>Is able to identify a suitable job for themselves within a production line</p> <p>Is able to identify when they have completed/finished one step and then move onto the next step independently</p> <p>Is able to pass their item to the next person within a production line</p>	<p>Is able to identify and delegate specific roles to a group of 4</p> <p>Is able to suggest a role suitable for themselves and justify choices</p> <p>Is able to suggest sequential seating plans to suit designated job roles</p>	<p>Is able to apply previous knowledge of TSI to plan steps for manufacturing a new product</p> <p>Is able to monitor the movement of a product within a production line and halt production upon seeing an problem</p> <p>Is able to complete the majority of steps needed to complete a product</p>	<p>Is able to plan a time frame within which to complete a product and manage this time using timers/calendars</p> <p>Is able to complete all steps needed to complete a product</p> <p>Is able to identify a fault during production and suggest a way to improve/ change</p>

Key learning: Quality Control					
	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	Entry 3	Level 1
<u>Subject specific knowledge</u>	<p>To know what 'good' and 'bad' means</p> <p>To know at least 1 fault commonly seen within a familiar product</p> <p>To know that customers will feel sad if they receive a 'bad' product</p>	<p>To know a number of key features of bad quality related to their product (squashed, compressed, chipped, missing glaze, missing background, not full (candle))</p> <p>To know the feelings of customer when buying good and bad quality products</p> <p>To know that bad quality items go to 'waste'</p>	<p>To know when a product is of bad quality and state why</p> <p>To know a range of ways that familiar products can be faulty</p> <p>To know the skills needed to ensure good quality production: slow pace, double checking, asking for support, comparing against a finished product.</p>	<p>To know that bad quality products need to be removed from production</p> <p>To know that there are ways to improve on bad quality items to reduce wastage</p> <p>To know some simple rights of customers upon buying a faulty item</p>	<p>To know and understand the time restraints of making a range of products</p> <p>To know the qualities and differences of handmade products compared to mass produced and understand the range of expectable differences</p> <p>To know all the rights of customers when buying items that are unwanted, faulty, not fit for purpose, unsafe</p>
<u>Subject specific skills</u>	<p>Is able to compare two products and identify which is of good quality and which is of bad quality</p> <p>Is able to communicate an obviously fault from a choice of 2 when given a faulty physical product</p>	<p>Is able to sort a number of products into good and bad quality</p> <p>Is able to use a simple visual checklist to monitor quality in a small batch of items</p> <p>Is able to move bad quality items into a 'faulty' area</p>	<p>Is able to complete a checklist to monitor good quality production for a large batch of items</p> <p>Is able to suggest ways to improve a faulty product</p> <p>Is able to identify the results of selling a bad quality item: returns, refunds, lost finance</p>	<p>Is able to halt production when identifying a fault during manufacturing</p> <p>Is able to suggest modifications to improve performance and product quality</p> <p>Is able to distinguish between a faulty product and a 'waste' product</p>	<p>Is able to evaluate the outcome of a number of products against the original specification</p> <p>Is able to suggest modifications to improve performance and product quality then implement these</p> <p>Is able to work out lost finance related to amounts of badly produced items within 1 week of manufacturing</p>
Key learning: Sustainability					
	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	Entry 3	Level 1
<u>Subject specific knowledge</u>	<p>To know what the natural environment is</p> <p>To know what waste is</p> <p>To know waste is "bad".</p> <p>To know at least 3 different types of materials e.g. paper, food, plastic.</p>	<p>To know at least 3 different types of pollution.</p> <p>To know recycling is where materials are reused.</p> <p>To name at least 3 different materials that can be recycled e.g. clay</p>	<p>To know that sustainability is to reduce waste.</p> <p>Knows and understands why materials are recycled.</p> <p>Knows how to recycle familiar materials in manufacturing - cards, wax melts.</p>	<p>To know that sustainable business means to use strategies to reduce environmental impact. E.g. purchasing less and reusing more.</p> <p>To know alternative materials that can be used in replace of plastics.</p>	<p>To know the impact sustainable strategies have on their local environment and the businesses.</p> <p>To know the comparative costs of packaging materials</p> <p>To know all the materials that are used in all products and know where to source them.</p>

			Knows at least 4 materials that are sustainable e.g. paper, cardboard, soy wax.	To know the businesses can share resources to reduce waste.	To know how waste is created and reduced during the manufacturing process.
<u>Subject specific skills</u>	<p>Is able to identify natural items e.g. sticks, soil, ocean, trees.</p> <p>Is able to identify waste from other items and recognise waste typically goes in a bin.</p> <p>Is able to identify recycling bins from other items.</p> <p>Is able to sort items into the correct recycling bin which is labelled by symbols.</p>	<p>Is able to use symbols to identify forms of pollution in their local environment.</p> <p>Is able to recycle unwanted clay items.</p> <p>Is able to recycle at least 3 different items correctly</p>	<p>Is able to suggest ways they can make positive changes to their environment</p> <p>Is able to sort a range of objects to be recycled within the business enterprises.</p> <p>Is able to choose a sustainable form of packaging from a given choice.</p> <p>Is able to follow the steps to recycle clay, wax products and cards.</p>	<p>Is able to suggest ways to reuse materials.</p> <p>Is able to suggest ways to improve environmental impact within the business.</p> <p>Is able to research and suggest alternative materials which are environmentally friendly.</p> <p>Is able to identify items that can be sold in the café and shop.</p>	<p>Is able to research the cost of materials used in the businesses.</p> <p>Is able to compare prices and calculate savings made through using sustainable buying.</p> <p>Is able to purchase sustainable materials.</p> <p>Is able to control waste management within lessons. E.g. excess wax and create suggestions to improve this in the future.</p>

Key learning: Design

	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	Entry 3	Level 1
<u>Subject specific knowledge</u>	<p>To know that customers do not buy items that they do not like</p> <p>To know 1-2 materials needed to make an item or to package and sell an item</p> <p>To know that products they choose will be sold</p> <p>To know that a customer will buy a product during a sale</p>	<p>To know that different customers like different products</p> <p>To know a range of materials needed to package 1-2 different items for delivery or in-house sales</p> <p>To know that their choices will determine the appearance of a product</p>	<p>To know that customers can leave a reviews online</p> <p>To know all materials needed to send an item via the post office for an online order using simple instructions</p> <p>To know that the presentation of a product can determine whether it is sold or not</p>	<p>To know that customers can leave a reviews online which can affect future customer purchases</p> <p>To know that customers expect well-presented products</p> <p>To know that social media can help to advertise your products and your business</p> <p>To know some key skills for good customer service</p>	<p>To know that businesses use social media to advertise their business, employee skills and sell items</p> <p>To know the benefits of using social media to advertise</p> <p>To know that products can be sold world wide</p> <p>To know what good customer service looks like</p>
<u>Subject specific skills</u>	<p>Is able to choose from 2 simple physical designs for product labels or packaging</p> <p>Is able to sort materials into categories for making or for selling</p>	<p>To be able to choose an appropriate design for a product from a selection</p> <p>To be able to sell an item to a customer face to face using a simple script</p>	<p>To be able to design a simple label using a name, short description and a background using an online design tool</p>	<p>Is able to design a simple advert for a social media post using a background, company logo, images and text</p> <p>Is able to choose appropriate prices for a items for a sale</p>	<p>Is able to follow Etsy.com instructions to print a postage label and package an item to send via the post office</p>

	<p>Is able to choose items that they like to sell</p> <p>Is able to follow a simple visual instruction to package an item</p> <p>Is able to demonstrate good communication skills such as use of please, thank you, greetings, prices, good eye contact, respond to simple requests when serving a customer</p>	<p>To be able to package an item for an in house sale independently</p>	<p>To be able to package an item for in house sales or online sales independently</p> <p>To be able to demonstrate good communication skills whilst serving a customer</p> <p>To be able to list some details for a product when adding a new product to etsy.com using a visual resource</p>	<p>having completed market research</p> <p>Is able to prepare products and present these for a sale</p> <p>To be able to photograph and list a product using etsy.com</p>	<p>Is able to evaluate the success of a social media post using comments and likes</p> <p>Is able to demonstrate independence when listing, selling, packaging and posting an item</p> <p>Is able to calculate profit from a sale</p>
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Key learning: Marketing

	<u>Working Towards Entry 1</u>	<u>Entry 1</u>	<u>Entry 2</u>	<u>Entry 3</u>	<u>Level 1</u>
<u>Subject specific knowledge</u>	<p>To know that customers do not buy items that they do not like</p> <p>To know 1-2 materials needed to make an item or to package and sell an item</p> <p>To know that products they choose will be sold</p> <p>To know that a customer will buy a product during a sale</p>	<p>To know that different customers like different products</p> <p>To know a range of materials needed to package 1-2 different items for delivery or in-house sales</p> <p>To know that their choices will determine the appearance of a product</p>	<p>To know that customers can leave a reviews online</p> <p>To know all materials needed to send an item via the post office for an online order using simple instructions</p> <p>To know that the presentation of a product can determine whether it is sold or not</p>	<p>To know that customers can leave a reviews online which can affect future customer purchases</p> <p>To know that customers expect well-presented products</p> <p>To know that social media can help to advertise your products and your business</p> <p>To know some key skills for good customer service</p>	<p>To know that businesses use social media to advertise their business, employee skills and sell items</p> <p>To know the benefits of using social media to advertise</p> <p>To know that products can be sold world wide</p> <p>To know what good customer service looks like</p>
<u>Subject specific skills</u>	<p>Is able to choose from 2 simple physical designs for product labels or packaging</p> <p>Is able to sort materials into categories for making or for selling</p> <p>Is able to choose items that they like to sell</p>	<p>To be able to choose an appropriate design for a product from a selection</p> <p>To be able to sell an item to a customer face to face using a simple script</p> <p>To be able to package an item for an in house sale independently</p>	<p>To be able to design a simple label using a name, short description and a background using an online design tool</p> <p>To be able to package an item for in house sales or online sales independently</p> <p>To be able to demonstrate good communication skills whilst serving a customer</p>	<p>Is able to design a simple advert for a social media post using a background, company logo, images and text</p> <p>Is able to choose appropriate prices for a items for a sale having completed market research</p> <p>Is able to prepare products and present these for a sale</p>	<p>Is able to follow Etsy.com instructions to print a postage label and package an item to send via the post office</p> <p>Is able to evaluate the success of a social media post using comments and likes</p> <p>Is able to demonstrate independence when listing, selling, packaging and posting an item</p>

	<p>Is able to follow a simple visual instruction to package an item</p> <p>Is able to demonstrate good communication skills such as use of please, thank you, greetings, prices, good eye contact, respond to simple requests when serving a customer</p>		<p>To be able to list some details for a product when adding a new product to etsy.com using a visual resource</p>	<p>To be able to photograph and list a product using etsy.com</p>	<p>Is able to calculate profit from a sale</p>
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Personal development
 † Pupils engage in practical tasks aimed at developing individual and team work skills.
 Pupils are able to respond to and deliver peer mentoring, gaining an understanding of work place relationships and enabling them confidence when communicating with others.
 Pupils able to develop familiarity when completing familiar practical tasks, allowing pupils to embed processes and explore transferrable skills
 Pupils are encouraged to contribute towards creative changes and design choices, enabling them to gain confidence when making decisions at work

Suggested activities
 Creating products - ceramics, wax melts, candles.
 Creating products linked to certain themes of the year e.g. easter, Christmas
 Designing products and packaging
 Creating video reels for school website and Instagram page
 Planning and hosting sales
 Researching sustainable materials and identifying swaps which are more sustainable.

Online resources / Apps
www.etsy.com
www.canva.com
 NRGIC Instagram

Evidencing Work
 Lessons are evidenced via worksheets or practical (photo) evidence forms. All work is evidenced using the 6th form evidence sheet proforma. All pupils are assessed using bespoke assessment tool on Onwards and Upwards