

KS4 Manufacturing

The purpose of Manufacturing is to develop pupils design and technology skills through a variety of practical and creative activities. Pupils will be taught the knowledge and skills creativity and imagination through practical learning opportunities to design and make products for a wide range of users.

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 curriculum intent:	The purpose of Manufacturing is to develop the skills, confidence, independence and creativity through practical lessons. The pupils will learn about designing a product, making it and evaluating it. Pupils will take part in a variety of creative and practical activities to design and make a product; sensory shoeboxes with a purpose to be used by pupils within school. Lessons are structured so they are practical to equip students with the skills they can use in a they promote participation and teamwork encouraging students to work co-operatively.	
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.	The purpose of Manufacturing is to develop the pupils skills, confidence, independence and creativity through practical and creative lessons. Pupils will learn and make decisions about designing, making, and evaluating a product. Pupils will learn how to research products, understanding the health and safety requirements, how to design and make a product using a range of materials and develop an understanding of how to solve problems. Pupils will be able to identify what has worked well and areas they could improve to refine their product for the user. 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 to 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:	<p>The purpose of Manufacturing is to develop the pupil's skills, confidence, independence and creativity through practical and creative activities. Pupils will design, make and evaluate a product. Pupils will understand health and safety issues in Manufacturing. Pupils will research user needs and materials needed. Pupils will use a range of different materials to construct their own product learning about decision making through the process. Pupils will use problem solving skills to solve their design problems. Pupils will evaluate their product identifying what worked well and areas for improvements.</p> <p>Pupils will use their skills for life throughout the lessons problems solving, team work, self-management, communication and self-belief preparing and developing their skills for KS5, adulthood and future employment.</p>
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Core vocabulary needed for this subject/topic:	Design, make, evaluate, materials, creative, practical, construct, school, support, needs, shoe box, sensory, research, design problems, plan, communicate, ideas, detailed plan, maths, computer, present, tools, techniques, range, changes, worked well, improvement, wood, card, paper, plastic, environment.
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Vocabulary pupils will have accessed in other topics or subject areas:	Puppet, plan, design, template, material, fabric, felt, decoration, purpose, features, evaluate, product, tools, glue, scissors, safety, needle, thread, theatre, show, stick, finger, voices,
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Key vocabulary taught within this topic:	Design, make, create, evaluate, build, research, design, feedback, plan, sensory needs, sensory toy, fidget, source, advertise, feedback.
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Prior knowledge: what pupils may already have studied

Key stage	Subject	Topic title	Term/year taught	Content/What might pupils already know?
KS3	DT	Puppets	Year 3	The emphasis is on designing and making a set of puppets together with a puppet theatre, which the children themselves can use in putting on a performance
KS3	DT	Mini Enterprise	Year 3	<p>Design and sell products from a range of materials..</p> <p>They develop their designs by thinking about the purpose of their product and the needs of possible users: to mark, measure, cut, and bake.</p> <p>They use a variety of tools with precision and care.</p> <p>They will consider appearance of their product to make it sell able</p> <p>They will market it appropriately with posters advertising</p>

English- reading, key words and SPAG.
 Maths- numeracy, measurements.
 Science- physics.
 Geography and history- countries where materials are sources, Changes in history of products.
 PE- active healthy lifestyles.
 Art - design and painting.
 Skills for life; problem solving, teamwork, communication, self-belief, and self-management.

Links to Equality and diversity: Ralph Braun

Much of the mobility assistance equipment used in vehicles across the world can be traced back to Ralph Braun. Despite being diagnosed with muscular dystrophy, it was perhaps no surprise that Braun would go on to become an inventor. By the age of 15, nine years after his diagnosis, Braun had created a motorised wagon with his father to help him get around.

Braun would go on to become the founder and CEO of the Braun Corporation, whose seminal inventions included the world's first wheelchair-accessible vehicle.

	OU P Steps P5-6	OU P Steps P7-8	OU NC step 1	OU NC Steps 2-3
Theme- Plan, design, make and evaluate sensory shoeboxes.				
<u>Subject specific knowledge</u>	<p>Know that you have to follow steps to make a product.</p> <p>To know materials directly related to their product such as: -box -string -scissors -glue -paint -similar related objects from a choice.</p> <p>Knows which products, they make from a choice.</p>	<p>Knows that you need to follow each step to make a product correctly.</p> <p>To know materials directly related to their product such as: -box -string -scissors -glue -paint -similar related objects.</p> <p>Knows a plan is used to make a product.</p> <p>Knows which products, they make.</p>	<p>Knows that instructions are a guide to make a product.</p> <p>To know materials directly related to their product.</p> <p>Knows that a plan helps to create a product.</p> <p>Knows what materials to use to create a product.</p> <p>Knows that sensory shoeboxes can support sensory needs.</p> <p>Knows that an evaluation can help improve a product.</p>	<p>Knows that instructions must be followed correctly to ensure a product is made to the required standard.</p> <p>To know a range of materials directly related to their product and alternatives which could be used.</p> <p>Knows the purpose of a design plan.</p> <p>Knows the purpose of a sensory shoebox.</p> <p>Knows what materials to use to create a product and why those materials will benefit the product.</p> <p>Knows how sensory shoeboxes can support sensory needs.</p> <p>Know the purpose of an evaluation.</p> <p>Knows that materials cost money and how to budget to make a profit.</p>
<u>Subject specific skills</u>	<p>Is able to follow TSI instruction (2 steps) to make a product.</p> <p>Is able to follow a key 1 step symbol instruction to create a product.</p>	<p>Is able to follow TSI instructions (3 steps) to make a product.</p> <p>Is able to follow symbol instructions to create a product.</p>	<p>Is able to follow a basic set of instructions to make a product.</p> <p>Is able to follow a plan to make a product.</p>	<p>Is able to follow instructions to make a product.</p> <p>Is able to create a design plan with relevant details, explaining the purpose and need.</p> <p>Is able to create a product using the required materials to a high specification.</p>

	<p>Is able to locate required materials from a limited choice.</p> <p>Is able to evaluate a product using a choice of 2 symbols.</p>	<p>Is able to locate required materials from a choice.</p> <p>Is able to evaluate a product using a choice of symbols.</p>	<p>Is able to follow instruction to create a product.</p> <p>Is able to locate required materials.</p> <p>Is able to evaluate a product identifying an area for improvement and an area which has worked well.</p> <p>Is able to identify a budget and not exceed the costs.</p>	<p>Is able to independently locate required materials.</p> <p>Is able to evaluate a product against a specification and explain areas for development and areas which have worked well.</p> <p>Is able to budget and cost materials to make a profit.</p>
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Theme- Health and safety

<p><u>Subject specific knowledge</u></p>	<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 workplace</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 workplaces have safety procedures in place to keep everyone safe</p> <p>To know that a risk assessment is commonly used across all workplaces to keep people safe</p> <p>To know that workplaces implement health & safety introductions to all staff.</p> <p>Knows the purpose of Health and Safety is to protect others and to prevent accidents or injuries occurring.</p> <p>To know that health and safety rules must be followed.</p> <p>To know the effects of people not following health and safety rules.</p>
<p><u>Subject specific skills</u></p>	<p>Is able to identify 1-2 pieces of PPE</p> <p>Is able to identify areas of the body they protect.</p> <p>Is able to collect/ direct staff to collect an apron before starting a task.</p> <p>Is able to identify 'safe' and 'unsafe' from an image.</p>	<p>Is able to identify up to 4 pieces of PPE.</p> <p>Is able to identify a hazard within the work room.</p> <p>Is able to follow a simple checklist of 2 steps to ensure they are safe and ready from work: tables covered, aprons on, floor clear.</p>	<p>Is able to identify at least 3 safety hazards in the workplace.</p> <p>Is able to remove obvious physical hazards from their work area before beginning the task.</p> <p>Is able to follow a simple risk assessment to ensure they reduce the risk.</p>	<p>Is able to follow a health and safety procedure checklist at all times in the classroom.</p> <p>Is able to understand and follow a range of rules to keep people safe.</p> <p>Is able to suggest a range of ways to reduce the risks including work wear, use of signage, removal of physical hazards.</p>

Personal development

Problem solving-

Linked to resolving any issues encountered, finding a way to solve the problem when designing, making and evaluating.

Communication skills-

Using full sentences/signs appropriate, to communicate instructions and ideas, listening and responding appropriately to other peoples ideas.

Self-belief-

Never giving up if unable to resolve the issues, continue to ask, listen and try different solutions.

Self-management-

Linked to managing equipment safely and managing behaviours appropriately.

Team-work-

Linked to working in small groups and realising a goal as a group, cooperating with a group and working together effectively.

Suggested activities

P5-L3

Health and safety

Identifying hazards.

Manufacturing trip to a production line.

Plan, design, make, evaluate activities.

Make shoeboxes.

Trip to shops to price and source materials needed.

Research.

Online resources

www.etsy.com

www.canva.com

www.amazon.co.uk

Evidencing Work

All worksheets, research and PowerPoint evidence needs to be printed off and marked. All picture and teacher evidence needs to be formatted within the ASDAN booklet.