

Year 9 Design & Technology - Computer Control Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme? How to apply computing to embed intelligence in products; how to use programmable components that respond to inputs and control outputs. How to use block-based programming language to control a buggy. The source, categories and types of metals; the impact of metal processing has on the environment. How designers use a range of design influences and tessellation to create original ideas.</p> <p>Where have I seen this learning before? In Year 8 design & technology you will have learnt about electronic systems using input, process and output components. You will have used computer aided design. You will have learnt about the sources of different materials and how they are processed including their impact on the environment.</p> <p>What could I use it for? You will apply your knowledge of computer control and metal materials when studying the GCSE Design & Technology exam. You can use hand tools to create metal items in your everyday life.</p>	<p>Literacy:</p> <ul style="list-style-type: none"> • Capital letters must be used at the start of sentences and for the first letter of proper nouns • Full stops must be used at the end of a sentence • Question marks must be used at the end of a question • Apostrophes should only be used for possession or omission • Days of the week and months must be spelled correctly • Key words must be spelled correctly
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<p>In LP4.1, I will know: 04/03/24 - (WK 1)</p> <p>how computing can embed intelligence in product through the use of programmable components; that the Crumble microcontroller is a programmable component that has inputs and outputs; how to construct a crumble programmable buggy structure.</p>	<p>Key Vocabulary</p> <p>Microcontroller</p>	<p>Homework</p> <p>Microcontrollers in everyday products.</p>
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<p>In LP4.2, I will know: 11/03/24 - (WK 2)</p> <p>my strengths and areas for development from my learning so far; how to create simple block-based programming to control crumble output components.</p>	<p>Key Vocabulary</p> <p>Coding</p>	<p>Homework</p> <p>Design a livery for the Crumble Buggy.</p>
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<p>In LP4.3, I will know: 18/03/24 - (WK 1)</p> <p>how to programme the crumble buggy to create motion.</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Analogue</p>	<p>Homework</p> <p>Advantages & disadvantages of programmable components.</p>
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<p>In LP4.4, I will know: 25/03/24 - (WK 2)</p> <p>how to problem solve errors in a code.</p>	<p>Key Vocabulary</p> <p>Autonomous</p>	<p>Homework</p> <p>New and emerging technologies.</p>
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<p>In LP4.5, I will know: 15/04/24 - (WK 1)</p> <p>how to programme the crumble buggy so that it performs a variety of tasks.</p>	<p>Key Vocabulary</p> <p>AI (Artificial intelligence)</p>	<p>Homework</p> <p>Learning review task.</p>
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<p>In LP4.6, I will know: 22/04/24 - (WK 2)</p> <p>the source of metals and how they are processed into stock forms; the difference between ferrous, non-ferrous and alloy metals;</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Ore</p>	<p>Homework</p> <p>Identifying metals.</p>
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<p>In LP4.7, I will know: 29/04/24 - (WK 1)</p> <p>the names, properties and uses of different metal types; how to present original ideas for the mobile phone holder, using sources of inspiration.</p>	<p>Key Vocabulary</p> <p>Inspiration</p>	<p>Homework</p> <p>Metals & the environment.</p>
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<p>In LP4.8, I will know: 06/05/24 - (WK 2)</p> <p>how tessellation is used in manufacturing and why it is important; the four different scales of production and the differences between them.</p>	<p>Key Vocabulary</p> <p>Tessellation</p>	<p>Homework</p> <p>Orthographic projection of mobile phone.</p>
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<p>Resources to support learning:</p> <p>The following websites contain extensive revision material and information to increase design & technology subject knowledge:</p> <p>www.technologystudent.com;</p> <p>www.mr-dt.com;</p> <p>www.bbc.co.uk/bitesize.</p>
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<p>FFET Award Challenge for this Learning Programme:</p> <p>Computer Control - Create an informative poster/ video/ blog/ vlog about New & Emerging Technologies</p>

Year 9 Design & Technology - Dyson Iterative Design Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme? To know the characteristics of high and low income countries. To know about the development of humanitarian products. To know the difference between renewable and non-renewable energy sources. To apply the iterative design process to develop a humanitarian product; to understand the wider issues affecting design & technology.</p> <p>Where have I seen this learning before? In Y7 and 8 you will have modelled and tested ideas from card and foam. You will have discussed the environmental impact of using materials to make products.</p> <p>What could I use it for? You will apply the iterative design process extensively when designing and modelling your ideas for your GCSE Design and Technology non-examined assessment. You will also make links with topics studied in Geography.</p>	<p>Literacy:</p> <ul style="list-style-type: none"> • Capital letters must be used at the start of sentences and for the first letter of proper nouns • Full stops must be used at the end of a sentence • Question marks must be used at the end of a question • Apostrophes should only be used for possession or omission • Days of the week and months must be spelled correctly • Key words must be spelled correctly
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<p>In LP4.1, I will know: 04/03/24 - (WK 1)</p> <p>the difference between 'needs and wants'; the general characteristics of high and low income countries; how to show gratitude for my country and the opportunities available to me.</p>	<p>Key Vocabulary</p> <p>Humanitarian</p>	<p>Homework</p> <p>Research the Dyson company.</p>
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<p>In LP4.2, I will know: 11/03/24 - (WK 2)</p> <p>my strengths and areas for development from my learning so far; how the inventor Trevor Bayliss developed the idea of a wind-up radio; how to analyse the features and functions of existing humanitarian products and to demonstrate compassion when looking at others work.</p>	<p>Key Vocabulary</p> <p>Product analysis</p>	<p>Homework</p> <p>Interpreting data on a chart.</p>
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<p>In LP4.3, I will know: 18/03/24 - (WK 1)</p> <p>the impact of different energy sources on the environment and society; how to explore the Dyson humanitarian context using mind mapping.</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Renewable</p>	<p>Homework</p> <p>Wider issues in design & manufacture.</p>
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<p>In LP4.4, I will know: 25/03/24 - (WK 2)</p> <p>how to use design strategies to create original ideas using freehand sketches, labelling and annotation; how to use the SCAMPER strategy to improve and develop one design idea; how to demonstrate initiative when iterating my ideas.</p>	<p>Key Vocabulary</p> <p>Design strategy</p>	<p>Homework</p> <p>The sources of energy.</p>
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<p>In LP4.5, I will know: 15/04/24 - (WK 1)</p> <p>how the designers at Dyson produce prototypes through the iterative design process; the modelling materials used by designers.</p>	<p>Key Vocabulary</p> <p>Iterative design</p>	<p>Homework</p> <p>Modelling materials.</p>
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<p>In LP4.6, I will know: 22/04/24 - (WK 2)</p> <p>how to use a craft knife and hot wire sculptor to cut card and shape foam into a non-functioning prototype; how to use a hot glue gun safely to assemble my cardboard and foam parts into a non-functioning prototype.</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Block model</p>	<p>Homework</p> <p>The iterative design process.</p>
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<p>In LP4.7, I will know: 29/04/24 - (WK 1)</p> <p>how to test the ergonomics of my prototypes and gain feedback to suggest next improvements; how to continue to apply the iterative design process to further develop and finalise my prototype.</p>	<p>Key Vocabulary</p> <p>Ergonomics</p>	<p>Homework</p> <p>Modelling materials.</p>
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<p>In LP4.8, I will know: 06/05/24 - (WK 2)</p> <p>how to present my prototype to my peers and collate feedback on the suitability of my design.</p>	<p>Key Vocabulary</p> <p>Collaboration</p>	<p>Homework</p> <p>Learning review task.</p>
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<p>Resources to support learning: The following websites contain extensive revision material and information to increase design & technology subject knowledge: www.technologystudent.com; www.mr-dt.com; www.bbc.co.uk/bitesize.</p>
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<p>FFET Award Challenge for this Learning Programme: Complete research on three different humanitarian products designed to improve the lives of people living in low income countries.</p>
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Year 9 Design & Technology - Metals & Manufacturing Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme? The source, categories and types of metals; the impact of metal processing has on the environment. How designers use a range of design influences and tessellation to create original ideas. What quality control is and how to apply this when manufacturing with different materials.</p> <p>Where have I seen this learning before? In Year 7 & 8 design & technology you will have used these tools and equipment to make prototypes from timbers, papers & boards, textiles and polymers. You will have learnt about the sources of different materials and how they are processed.</p> <p>What could I use it for? You can use metal materials to manufacture products in design & technology over your next 5 years; you will apply your knowledge of metals in the GCSE Design & Technology exam. You can use hand tools to create metal items in your everyday life.</p>	<p>Literacy:</p> <ul style="list-style-type: none"> • Capital letters must be used at the start of sentences and for the first letter of proper nouns • Full stops must be used at the end of a sentence • Question marks must be used at the end of a question • Apostrophes should only be used for possession or omission • Days of the week and months must be spelled correctly • Key words must be spelled correctly
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<p>In LP4.1, I will know: 04/03/24 - (WK 1)</p> <p>how to present original ideas for the mobile phone holder, using sources of inspiration; how tessellation is used in manufacturing and why it is important.</p>	<p>Key Vocabulary</p> <p>Tessellation</p>	<p>Homework</p> <p>Calculating area and tessellation.</p>
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<p>In LP4.2, I will know: 11/03/24 - (WK 2)</p> <p>my strengths and areas for development from my learning so far; the four different scales of production and the differences between them what is meant by quality assurance and quality control in manufacturing.</p>	<p>Key Vocabulary</p> <p>Scale</p>	<p>Homework</p> <p>Scales of production.</p>
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<p>In LP4.3, I will know: 18/03/24 - (WK 1)</p> <p>what is meant by quality assurance and quality control in manufacturing.</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Quality</p>	<p>Homework</p> <p>Composite materials.</p>
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<p>In LP4.4, I will know: 25/03/24 - (WK 2)</p> <p>how use a template to manufacture identical products; how to use a range of precise wastage skills to cut and shape my holder.</p>	<p>Key Vocabulary</p> <p>Template</p>	<p>Homework</p> <p>Metal manufacturing processes.</p>
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<p>In LP4.5, I will know: 15/04/24 - (WK 1)</p> <p>how to use a range of precise abrading skills to shape my holder, using a file or abrasive paper.</p>	<p>Key Vocabulary</p> <p>Abrading</p>	<p>Homework</p> <p>Quality Control.</p>
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<p>In LP4.6, I will know: 22/04/24 - (WK 2)</p> <p>how to accurately thread an M6 bar using tap and die.</p> <p>Extended Task.</p>	<p>Key Vocabulary</p> <p>Thread</p>	<p>Homework</p> <p>Metal stock forms.</p>
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<p>In LP4.7, I will know: 29/04/24 - (WK 1)</p> <p>how to assemble and finalise the manufacture of my phone holder.</p>	<p>Key Vocabulary</p> <p>Finalise</p>	<p>Homework</p> <p>Manufacturing diary.</p>
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<p>In LP4.8, I will know: 06/05/24 - (WK 2)</p> <p>how to test and evaluate the design and manufacture of my mobile phone holder.</p>	<p>Key Vocabulary</p> <p>Evaluate</p>	<p>Homework</p> <p>Learning review task.</p>
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<p>FFET Award Challenge for this Learning Programme: Create a moodboard to assist with design inspiration. This can be based on nature, geometric forms, architecture or other forms of inspiration.</p>

Year 9 Design & Technology - Metals & Product Design Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme? The source, categories and types of metals; the impact of metal processing has on the environment. How designers use a range of design influences and tessellation to create original ideas. What quality control is and how to apply this when manufacturing with different materials.</p> <p>Where have I seen this learning before? You will build on your learning from the last Learning Programme in which you were introduced to working with metals in the D&T workshop.</p> <p>What could I use it for? You will use design inspiration to create original ideas in design & technology over your next 5 years; you will apply your knowledge of materials and manufacturing in the GCSE Design & Technology exam and non-examined assessment.</p>	<p>Literacy:</p> <ul style="list-style-type: none"> • Capital letters must be used at the start of sentences and for the first letter of proper nouns • Full stops must be used at the end of a sentence • Question marks must be used at the end of a question • Apostrophes should only be used for possession or omission • Days of the week and months must be spelled correctly • Key words must be spelled correctly
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In LP4.1, I will know:	04/03/24 - (WK 1)	Key Vocabulary	Homework
the source of metals and how they are processed into stock forms; the difference between ferrous, non-ferrous and alloy metals.		Ore	Identifying metals.

In LP4.2, I will know:	11/03/24 - (WK 2)	Key Vocabulary	Homework
my strengths and areas for development from my learning so far; the names, properties and uses of different metal types.		Material properties	Metals & the environment.



In LP4.3, I will know:	18/03/24 - (WK 1)	Key Vocabulary	Homework
how to present original ideas for the mobile phone holder, using sources of inspiration.		Inspiration	Orthographic projection of mobile phone.
Extended Task.			

In LP4.4, I will know:	25/03/24 - (WK 2)	Key Vocabulary	Homework
how tessellation is used in manufacturing and why it is important.		Tessellation	Calculating area and tessellation.

In LP4.5, I will know:	15/04/24 - (WK 1)	Key Vocabulary	Homework
how to initiate the manufacturing of my phone holder; the four different scales of production and the differences between them.		Scale	Scales of production.



In LP4.6, I will know:	22/04/24 - (WK 2)	Key Vocabulary	Homework
what is meant by quality assurance and quality control in manufacturing.		Quality	Composite materials.
Extended Task.			

In LP4.7, I will know:	29/04/24 - (WK 1)	Key Vocabulary	Homework
how to use a template to manufacture identical products; how to use a range of precise wastage skills to cut and shape my holder.		Template	Metal manufacturing processes.

In LP4.8, I will know:	06/05/24 - (WK 2)	Key Vocabulary	Homework
how to use a range of precise abrading skills to shape my holder, using a file or abrasive paper.		Abrading	Quality Control.

<p>Resources to support learning:</p> <p>The following websites contain extensive revision material and information to increase design & technology subject knowledge:</p> <p>www.technologystudent.com;</p> <p>www.mr-dt.com;</p> <p>www.bbc.co.uk/bitesize.</p>
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<p>FFET Award Challenge for this Learning Programme:</p> <p>Create a mood board to assist with design inspiration. This can be based on nature, geometric forms, architecture or other forms of inspiration.</p>
