

Curriculum Assessment Map: Year 10 Level 1/2 Engineering

	Autumn Term One	Autumn Term Two	Spring Term One	Spring Term Two	Summer Term One	Summer Term Two
Topic	Skills Building Design Challenge	External based coursework Unit R039	External based coursework Unit R039	External based coursework Unit R039 / Dyson Product Disassembly	Skills and knowledge building: Bottle opener project	External based coursework Unit R040
Key Learning & Skills	<ul style="list-style-type: none"> Mini Design challenge based on children's toy – Introduction to CAD software (Autodesk Inventor Professional) Students to learn the basic tools of CAD software Learn how to create 3D models for CAM outputs such as 3D printers Produce a portfolio of evidence for assessment Theory based activity 1/3 lessons per week 	<ul style="list-style-type: none"> Topic Area 1: Interpretation of a specification Topic Area 1: Manual production of freehand sketches using a range of techniques Topic Area 1: Analysis of design proposals using annotation Topic Area 1: Design development Topic Area 2: Manual production of engineering drawings in 2D and 3D with dimensions and assembly drawings 	<ul style="list-style-type: none"> Topic Area 3: Use of Computer Aided Design (CAD) Topic Area 3: Use of CAD to produce models of design proposals Topic Area 3: A 3D virtual model consisting of many components Topic Area 3: Views of final product from a variety of angles to display model in comprehensive detail 	<ul style="list-style-type: none"> Catchup of units to enhance marks awarded Explore different STEM careers with Dyson. Explore a Dyson product, disassembling the components and gain knowledge of how the product was manufactured and assembled. Produce a basic portfolio of evidence to communicate and present the students work for assessment. 	<ul style="list-style-type: none"> Interpretation of a specification Be able to use CAD software to produce a 2D technical specification Export CAD specifics in order to produce a CAM version of a template Use CAD to create a 3D model of intended end product Practical task – manufacture of product to meet specification criteria. Theory based activity 1/3 lessons per week 	<ul style="list-style-type: none"> Topic Area 1: Produces product analysis of key features of existing products using ACCESSFM Topic Area 1: Provides a description of strengths and weaknesses of existing products – Primary and Secondary form required Topic Area 1: Use of an Engineering Matrix
End points	<p>A portfolio of evidence in PowerPoint including:</p> <ul style="list-style-type: none"> Key tools and processes of the use of software in the form of screenshots. Design proposals consisting of a variety of components with screenshot evidence and completed assemblies/animations. 	<p>Unit R039 saved in assessment specific location</p> <ul style="list-style-type: none"> Production and interpretation of a specification Scans of 2D and 3D freehand sketches with the addition of rendering Fully annotated initial and developed design proposals 2D engineering drawings displayed orthographically with and without measurements 	<p>Unit R039 saved in assessment specific location</p> <ul style="list-style-type: none"> Stages of CAD production in chronological form. Captions included to present an understanding of software tools and product features 3D virtual model of final design proposal Screenshot of various view points to display product detail comprehensively 	<p>R039 catchup on any missing content / or enhancement of marks awarded.</p> <p>Dyson Product Disassembly</p> <ul style="list-style-type: none"> Students have a clear understanding of STEM careers linked to the Dyson project. Portfolio of evidence demonstrating skills and knowledge of the product disassembly. 	<ul style="list-style-type: none"> Practical skills to include the following skills: <ul style="list-style-type: none"> Marking out accurately Drilling correctly and safely Cutting and filing the mild steel material, using the correct tools and processes. Applying a suitable 	<p>Unit R040 saved in assessment specific location</p> <ul style="list-style-type: none"> Production and interpretation of a specification Primary research of existing products with evidence of product features and details such as maintenance being tested manually. Evidence presented in PowerPoint Secondary research to include existing products displaying strengths and weaknesses, plus the



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		<ul style="list-style-type: none"> 3D isometric CAD drawing – exploded view displaying a variety of components 			<p>finish to the metal.</p> <ul style="list-style-type: none"> Students must be able to work safely, following all Health & Safety procedures Portfolio of evidence demonstrating the practical task outcomes in comparison to the original engineering drawing. 	<p>use of an Engineering Matrix</p>
<p>Informal (formative) Assessment</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>	<p>Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT</p>
<p>Formal (summative) Assessment</p>	<p>Project marked using Explore, Create & Evaluate on assessment grid marking sheet</p> <p>Test - 60 marks referring to the OCR assessment criteria.</p>	<p>Completion of Unit Recording Sheets (URS)</p>	<p>Completion of Unit Recording Sheets (URS)</p>	<p>Completion of Unit Recording Sheets (URS) and final submission</p> <p>Project marked using Explore criteria (Dyson)</p>	<p>Project marked using Explore, Create & Evaluate.</p> <p>Test - 60 marks referring to the OCR assessment criteria.</p>	<p>Completion of Unit Recording Sheets (URS)</p>

Curriculum encompassing literacy, careers and enrichment as well as interconnectivity with other subjects

Curriculum Assessment Map: Year 11 GCSE Design & Technology

	Autumn Term One	Autumn Term Two	Spring Term One	Spring Term Two	Summer Term One	Summer Term Two
Topic	External based coursework Unit R040	External based coursework Unit R040	External based coursework Unit R040	External based coursework Unit R040	External based coursework Unit R040 / Unit R038 revision	Preparation for examination
Key Learning & Skills	<ul style="list-style-type: none"> Topic Area 1.1: Introduction to the set assignment scenario and specification Carry out product analysis of existing products in primary and secondary form Effective use of a customer driven Engineering Matrix 	<ul style="list-style-type: none"> Topic Area 1.2: Disassembly of a product showing an understanding of H&S considerations. Analysis of individual components 	<ul style="list-style-type: none"> Topic Area 2.1: Produce 2D and 3D virtual models using CAD Display an understanding of individual components using 3D virtual models Demonstration of complex industry-level CAD activities 	<ul style="list-style-type: none"> Topic Area 2.1.2: Description of planning stages to be used in prototype manufacture Display an understanding of H&S considerations Topic Area 2.1.2: Prototype production with photographic evidence and clear use of PPE Topic Area 2.1.2: Production of an evaluation against the original specification 	<ul style="list-style-type: none"> Catchup of units to enhance marks awarded Revision tasks in preparation for examination unit R038 	<ul style="list-style-type: none"> Final revision tasks in preparation for examination
End points	<p>A portfolio of evidence in PowerPoint including:</p> <ul style="list-style-type: none"> Production and interpretation of a specification Produce evidence of Primary research of existing products – displaying an understanding of details such as function, performance and maintenance Secondary research of a variety of products displaying strengths and weaknesses – Use of ACCESSFM Display use of an Engineering Matrix to display successes of each product 	<p>A portfolio of evidence in PowerPoint including:</p> <ul style="list-style-type: none"> Detailed Risk Assessment Detailed analysis of specific components showing an understanding of materials, production methods, assembly methods and manufacturing methods Chronological stages of disassembly photographed showing components and use of correct tools and appropriate PPE. H&S factors must be considered 	<p>A portfolio of evidence in PowerPoint including:</p> <ul style="list-style-type: none"> Produces 2D models of the product which is intended to be manufactured. Key dimensions and components included. Uses CAD software to create individual components of the product intended for manufacture. CAD software used to create an assembly. All evidence recorded in PowerPoint Presents an understanding of industry-level CAD activities and processes 	<p>A portfolio of evidence in PowerPoint including:</p> <ul style="list-style-type: none"> Creates a plan of the key manufacturing stages. Details such as materials, tools, processes and expected time must be included. Detailed Risk Assessment Photographs of each stage of manufacture must include key components, tools, processes and effective use of appropriate PPE Produces an evaluation successes and difficulties related to the original 	<p>R039 catchup on any missing content / or enhancement of marks awarded.</p> <p>Complete tasks in Engineering Revision Guide and Workbook ISBN 978-1-00-911929-0</p>	<p>Complete tasks in Engineering Revision Guide and Workbook ISBN 978-1-00-911929-0</p>



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				specification and production plan		
Informal (formative) Assessment	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT	Feedback on skills relative to progression Whole class feedback GRIT tasks DIRT
Formal (summative) Assessment	Completion of Unit Recording Sheets (URS) Test - 60 marks referring to the OCR assessment criteria.	Completion of Unit Recording Sheets (URS)	Completion of Unit Recording Sheets (URS) Test - 60 marks referring to the OCR assessment criteria.	Completion of Unit Recording Sheets (URS)	Completion of Unit Recording Sheets (URS) and final submission	Unit R038 external examination

Curriculum encompassing literacy, careers and enrichment as well as interconnectivity with other subjects