

**Curriculum Intent Statement
Department of Design and technology
De Warenne Academy**

Transition Statement 2020

As a Design and Technology team we have taken the decision to move towards a three year Key Stage 3 and a two year Key Stage 4 curriculum model. The intent of this is to expose pupils to a broad and ambitious Design and Technology Curriculum which is rich in skills and knowledge. This document details the transition from our current model to our new one. Students complete 3 rotations in a year between different aspects of Design and technology, including; Resistant materials, CAD CAM, and food (food has its own 5 year plan)

Current Y8 pupils will no longer choose their options in Year 8 but rather in Year 9, allowing us to give pupils more opportunity to practice basic skills they have learnt and to create a wide level of knowledge to prepare them for any specialism they may choose into Key Stage 4. The course currently offered at Key Stage 4 is BTEC Construction and the built environment.

We will also endeavor to enrich the curriculum more, with opportunities including a after school activities, visiting speakers and demonstrations and hope to develop links with local businesses

Lessons for all year groups are outlined below in the curriculum statement below

Intent

We believe that pupils deserve a broad and varied Design and Technology curriculum, throughout resistant material and CAD CAM strands we want students to develop their practical skills alongside relevant knowledge. Our curriculum will provide basic life skills that will hopefully foster a further interest in this area. Our Design and Technology curriculum will give pupils the opportunity to:

- understand how to work safely within a workshop environment
- experiment with different materials and how to accurately combine them
- learn how to use a variety of tools for their intended purposes
- learn how to modify materials
- create a number of different products relating to a brief
- analyse the various materials by structure and physical properties
- evaluate their own and others practical skills
- learn how to use computer software to design products
- develop an understanding of 2d and 3d models
- develop maths and science skills in relation to construction
- develop an understanding of the social and economic benefits of construction
- develop an understanding of a varied range of job roles and responsibilities within the sector

Pedagogy	Enrichment	Sequencing	Key Concepts/Skills
Our pedagogy is underpinned by: <ul style="list-style-type: none"> • combining practical skills alongside key knowledge • a focus on developing pupils' basic techniques of design and making • the regular use of live modelling and products to demonstrate processes, standards and expectations • a range of strategies to deepen knowledge so that it is committed to long term memory • the importance of giving pupils regular opportunities to improve work • pupils understanding what they are doing well and how they need to improve • pupils developing a rich and deep subject knowledge of the various roles within this sector 	We will enrich our curriculum by: <ul style="list-style-type: none"> • establishing cross-curricular links, for example, measurements that link to the maths and science curriculum, • providing opportunities for pupils to extend their skills outside the curriculum time • visits to professional environments 	Pupils develop basic skills and knowledge in Key Stage 3 that is then deepened into Key stage 4 as <ul style="list-style-type: none"> • it allows pupils to revisit key areas and embed their knowledge as the curriculum progresses • it means that pupils are able to make relevant links between different materials and their uses • there is an increasing level of challenge and complexity to practical tasks 	Key techniques developed throughout Design and Technology; <ul style="list-style-type: none"> • health and safety skills • safe and correct use of various tools and equipment • Properties of materials and their uses • Designing a product to meet a brief

Design and Technology Curriculum Plan 2019-24

Key Stage 3	7.1	7.2	8.1	8.2	9.1	9.2
CAD CAM	CAD CAM	CAD CAM	CAD CAM	CAD CAM	CAD CAM	CAD CAM
Knowledge	Set up of CAD CAM soft ware Basic tools and options Colour Following schematics	More advanced tools and options How to render drawings	Use of dimensions Use of angles Basic design skills	How to follow a design brief How to create initial ideas; aesthetics, cost, client, ergonomics, size, safety, function and manufacture	Types of drawings; Front Elevations; Side elevations, Plan elevations, Cross section drawings, Working Drawings	Line types Communicating information via media Construction components, walls Construction components, roofs Hatching symbols, Positioning of components Use of Scale Title Bar
Skills/Concepts	Use of tools; Select tools, Line, shape, path, grid lock, deletion, attach, boundary Graffiti art Creating pixel art Create a schematic drawing Produce I Phone drawing	Logo trace, Isometric drawing skills Design and make a keyring using CAD CAM technology Using rendering tools	Use of tools; Select, Line, shape, path, grid lock, deletion, attach, boundary, fillet tools, CAD design and create own personalised ruler CAD a personalise set square CAD a personalised protractor CAM laser cut a ruler CAM laser cut a set square CAM laser cut a protractor	Use of tools; Line, shape, path, grid lock, deletion, attach, boundary, dimension tools, fillet tools, copy and paste, explode Drawing nets Forming initial design ideas CAD design ear phone wrap, CAD design a phone stand CAM laser cut phone stand	Production of drawing types; Produce house drawings to include; Front elevations, Side elevations, Plan Views, Produce Strip Foundations Produce Cavity wall drawing Use of text, annotations	Production of drawing types; Produce house drawings to include; Roof overhang details, cross section drawings, Roof truss details to include use of angles, use of text for annotations
SMSC – British values	•		•			
Literacy focus	Instructions to set up CAD CAM	How to use select tools	How to use boundary fill tool	Product evaluation	Drawing Types	Construction drawing production plan
Links to prior learning	N/A	7.1	7.1, 7.2 (RM 8.1)	7.1, 7.2, 8.1, (RM 8.1, 8.2)	7.1, 7.2, 8.1, 8.2	7.1, 7.2, 8.1, 8.2, 9.1
Preparation for future learning	7.2, 8.1, 8.2, 11.1, 11.2	8.1, 8.2, 11.1. 11.2	8.2, 11.1, 11.2	10.3, 11.1, 11.2	10.3, 11.1, 11.2	10.3, 11.1, 11.2
Assessment	Demonstrate booklets and practical work assessment	CAD CAM Y7 mini assessment Demonstrate booklets and practical work assessment	Demonstrate booklets and practical work assessment	Demonstrate booklets and practical work assessment	Demonstrate booklets and practical work assessment	Demonstrate booklets and practical work assessment

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Year 10	10.1	10.2	10.3	10.4	10.5	10.6
	Joinery/Carpentry	Joinery/Carpentry	Joinery/Carpentry	Social and economic benefits of construction	Designing buildings that meet clients' needs	Designing buildings that meet clients' needs
Knowledge	Hazards and control measures Risk levels Safe working practices How to make a halving joint Types of timber	Types of glue What are manufactured boards Types of fixings Implementation of working drawings working drawings	Types of joints Types of fixings Using working drawings Selecting appropriate tools	Social/economic benefits construction brings to a local community (Meadowhall) Construction jobs and roles National benefits of construction Designing for reasons – aesthetics, sustainability. What constraints may be faced Understanding clients needs	Features of a house; pitched roof, doors, windows, rendering Design styles Renewable materials	Designing for reasons – aesthetics, sustainability. What constraints may be faced Features of a house; pitched roof, doors, windows, rendering Design styles Renewable materials Interior design Evaluation skills
Skills/Concepts	Marking out Produce corner half/through/cross lap joint How to use power tools	Marking out Produce mortice and tenon bridle joint How to use power tools Gluing	Marking out How to use power tools Drawing Produce wooden frame Production of bedside cabinet	Designing a product from a brief	Designing a product from a brief Drawing house designs Reviewing and evaluating designs Creating floor plans	Designing a product from a brief Drawing house designs Reviewing and evaluating designs Creating floor plans
SMSC				•	•	•
Literacy focus	Risk assessment forms	Creating working drawings	Production plan and evaluation	Meadowhall case study PPoint	Letter to the Jones family	Project constraints letter to the Jones family
Links to prior learning	RM 7.1, 7.2, 8.1, 8.2	RM 7.1, 7.2, 8.1, 8.2 10.1	RM 7.1, 7.2, 8.1, 8.2	RM 8.1, 8.2 CAD 8.2	RM 8.1, 8.2 10.4	RM 8.1 CAD 8.2 10.4, 10.5
Preparation for future learning	11.1, 11.2	11.1, 11.2	11.1, 11.2	10.5, 10.6	10.5, 11.1, 11.2	11.1, 11.2
Assessment	Demo and connect booklet Assessment of final product – miniature photo frame Demo and connect booklet	Demo and connect booklet Assessment of final - 4 joint frame	Demo and connect booklet Assessment of 2 nd frame/bedside table	Demo and connect booklet PPoint case study – local/national benefits of construction	Demo and connect booklet	Demo and connect booklet Drawings Letter

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Year 11	11.1	11.2	11.3	11.4	11.5
	Construction technology	Construction technology	Maths and science in construction	Maths and science in construction	Maths and science in construction
Knowledge	Strength and stability of buildings Types of fire resistance materials and techniques Purpose of insulation Purpose of weather resistance Types of resistant materials; thermal, weather Types and location of sound insulation Pre- construction; planning, enabling, site set up Walls; types, construction, materials, functions Sub-structure and groundworks; hazards, water control, earthwork support Foundations; types, requirements	Flooring; types, materials used, functions Roofing; stages involved, materials used, finishes Sustainability; purpose and methods of ensuring, materials Low rise construction; cavity walls, cross wall, panel, cladding, timber framed Calculations; area, volume, dimension	Loads and forces; tensile, compressive, shear How to calculate the area of a circle Definition of Hooke's law	Hooke's law Modulus of elasticity Temperature change; effects on materials, effects of extremes How to use maths to solve construction problems	Pythagoras theory Trigonometry Tangents Volume calculations
Skills/Concepts	Explain advantages and disadvantages of different materials and techniques used in insulation, walls, sub-structures and foundations	Explain advantages and disadvantages of different materials and techniques used in flooring, roofing, sustainability and low rise construction	Calculating various forces Circle calculations	Calculating elasticity Using Hooke's law Calculating area and perimeter Problem solving Cost calculations Drawing graphs	Calculating lengths and angles Calculating volumes of paint Problem solving
SMSC		•			
Literacy focus	Analysis of materials and techniques	Analysis of materials and techniques	PPT / booklet - Effect of forces on construction materials	PPT / booklet - Effect of forces on construction materials	Describe the mathematical methods used to solve the maths problems
Links to prior learning	RM 7.2, 8.2, 10.1, 10.3	RM 7.2, 8.2, 10.1, 10.3		RM 7.1, 8.1 CAD 8.1 11.2	RM 7.1, 8.1 CAD 8.1 11.2
Preparation for future learning	Level 3 BTEC in Construction and the built environment Apprenticeships	Level 3 BTEC in Construction and the built environment Apprenticeships	Level 3 BTEC in Construction and the built environment Apprenticeships	Level 3 BTEC in Construction and the built environment Apprenticeships	Level 3 BTEC in Construction and the built environment Apprenticeships
Assessment	Exam questions and online quiz	Exam questions and online quiz Mock exam paper		Unit 2 internal assessed work – loft extension	Unit 2 internal assessed work – loft extension