Academic Learning Journey - Key Stage 3 and Key Stage 4

Design and Technology

Design and Technology encourages pupils to become problem solvers and critical thinkers. Pupils will analyse existing products and investigate the work of others to inform their own designs. They will handle a range of materials to understand material properties and learn to cut, shape, join and finish these materials using a variety of tools and equipment safely in a workshop. Pupils will be taught to act responsibly and to consider the needs and wants of others and the environment.

GCSE Exam Board - Assessment objectives (See information below)

AQA Design and Technology – AO1, AO2, AO3, A04
Edexcel Art and Design: 3D – AO1, AO2, AO3, AO4
AQA Engineering – AO1, AO2, AO3, AO4

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 7	**Unit 1: Materials and their properties** In this module, pupils will be inspired by Tatty Divine to create a silhouette keyring out of timber, polymer and textiles. To do this they will learn how to use hand tools and the pillar drill safely. They will classify materials and understand properties of each.		**Unit 2: Bot-Blocks** This unit is designed to develop the pupils' skills and knowledge from Unit 1, with a focus on their quality control and accuracy. Pupils will learn how to draw in isometric and will be introduced to common standard components and timber finishes.		**Unit 3: Storage** Pupils will develop their knowledge of natural fibres and create a storage solution for a particular client using denim. They will learn how to apply surface design using applique, embroidery and patchwork. Pupils will also be introduced to life cycle analysis.	
Year 8	**Unit 1: Design Movements and Mechanisms** Pupils will investigate the technological development of the clock over time and analyse existing products. They will research key design movements and design a clock inspired by this, which they will then manufacture. Pupils will learn core knowledge of powering systems and mechanisms.		**Unit 2: Print and Pattern** Pupils will be introduced to perspective drawing, ergonomics and anthropometrics. They will be creating a mobile phone holder in the style of a deckchair for Ikea. Fabric designs will be inspired by Marimekko and printed in thermochromic inks which will introduce pupils to smart materials.		**Unit 3: Architecture** Building upon the perspective drawing they have learnt in unit 2, pupils will design a building to scale. They will learn how to utilise research and to design for the needs of a client. Pupils will be able to utilise their knowledge of powering systems and smart materials. They will include structural knowledge in their design.	
Year 9	**Unit 1: Collaborative Design** Pupils will work in teams to form their own business and respond to a live brief. Pupils will explore key roles of creating and selling their products. They will produce prototypes and present their design ideas to others. They will learn scales of manufacturing.		**Unit 2: Felting** Pupils will research the work of others and produce samples of these to inspire a final textile design. There will be a focus on theory and pupils will learn the dying process. To present their textile outcomes, pupils will produce a timber frame with mitre joints.		**Lighting** Pupils will focus on metals and electronics within this unit to create a functioning light. They will investigate the work of Alessi.	
Year 10 Engineering 3D Design	**Unit 1: Materials and their properties** Pupils will produce three practical projects within this unit, each becoming progressively more difficult and building upon prior knowledge of cutting, shaping and forming. Pupils will learn how to read engineering conventions and be able to create their own drawings by hand and using computer aided design.		**Mechanisms, Motion and Electronics** Working in team's pupils will produce a model race car. This will enable them to learn key knowledge of mechanisms, motion and electronics.	**Engineering in practice** Pupils will engineer an educational you for children. They will utilise their prior knowledge and build a portfolio. They will plan for production and make a prototype of their design. Prototypes will be tested and evaluated.		**NEA Contextual Challenge** As set by the exam board. This will contribute to 40% of the final GCSE grade for pupils and will continue during the first part of year 11.
	NEA: Lion King			**NEA: Sense of Place**		**NEA: Identity**
Year 11 Engineering Design and Technology	**NEA Contextual Challenge** As set by the exam board. Pupils must respond to a brief and submit a portfolio of evidence along with a prototype of their resolution. This NEA will contribute to 40% of the final GCSE grade for pupils.			**Exam Preparation** Pupils will recap and review their current knowledge in readiness for the written exam which is worth 60% of their final GCSE grade.		
	NEA Contextual Challenge As set by the exam board. Pupils must respond to a contextual challenge and submit a portfolio of evidence along with a prototype of their resolution. This NEA will contribute to 50% of the final GCSE.			**Exam Preparation** Pupils will recap and review their current knowledge in readiness for the written exam which is worth 60% of their final GCSE grade.		