Hodgson Academy

AQA GCSE Design & Technology

KS4 Curriculum Overview

GCSE Design & Technology: KS4 Curriculum Overview

	Autumn Term		Spring Term		Summer Term	
	HT1	HT2	HT3	HT4	HT5	HT6
Year 10	CORE TECHNICAL PRINCIPLES **Unit 1 - New & Emerging Technologies** Industry & Enterprise Sustainability & The Environment People, Culture & Society Production Techniques & Systems Informing design ideas Skills – Single Lesson Practical workshop skills. **Research Skills** - Investigate and research the work of famous designers. - Product Analysis - 2D and 3D freehand sketching skills - Technical Drawing – Isometric and 3rd Angle Orthographic	CORE TECHNICAL PRINCIPLES **Unit 2 Energy, Materials, systems & devices** Energy Generation Energy Storage Modern Materials Smart Materials Composite Materials & Technical Textiles Systems Approach to Designing Electronic Systems Processing Mechanical Devices Mock NEA - Helping Around the Home **AO1 – Identify, investigate, outline design possibilities.** **Completion NEA Section A** - Exploring and - - understanding design possibilities. (To be reference throughout the NEA). - Identifying a client and establishing their wants and needs. - Analysing the work of others. - Establishing society, economic and social effects. - Analysis and evaluation of research stage	SPECIALIST TECHNICAL PRINCIPLES **Unit 3 Materials** Papers and boards Timbers Metals and Alloys Polymers Textiles Mock NEA - Helping Around the Home **AO2 – Design & make prototypes that are fit for purpose.** **NEA Section C** - Generating a range of imaginative and innovative design ideas. - Communicating ideas through a range of design strategies. - Analysis and evaluation of design decisions in iterative process.	SPECIALIST TECHNICAL PRINCIPLES **Unit 4 Common Specialist Principles.** Forces & Stresses Improving Functionality Ecological & Social Footprint The 6 R's Scales of Production Mock NEA - Helping Around the Home **AO2 - Design & make prototypes that are fit for purpose.** **Completion NEA Section E** - Skilfully using a range of tools and machinery to construct a high quality, well finished prototype that is fit for purpose. - Communicating manufacturing stages in diary/log form. - Evaluating each stage of manufacturing process.	SPECIALIST TECHNICAL PRINCIPLES **Unit 5 – Focussed Materials.** 5b Timber based Materials. 5c Metals 5d Polymers **All contain:** Sources, Origins & Properties Working with Manufacture, Processes & Finishing Mock NEA - Helping Around the Home **AO2 - Design & make prototypes that are fit for purpose.** **Completion NEA Section E** - Skilfully using a range of tools and machinery to construct a high quality, well finished prototype that is fit for purpose. - Communicating manufacturing stages in diary/log form. - Evaluating each stage of manufacturing process.	DESIGNING AND MAKING PRINCIPLES **Unit 6 – Designing Principles** Investigation, primary and secondary data. The Work of Others Design Strategies Communication of Design Ideas **Unit 7 – Making Principles** Selection of Materials and Components Tolerances Material Management Tools, equipment, techniques and finishes. Surface treatments and finishes NEA INTRODUCTION **NEA SECTION A** - Exploring ideas - Researching the problem - Client profile - Product Analysis **NEA SECTION B** - Design Brief - Design Specification
	AO1 – Identify, investigate, outline design possibilities. **Completion NEA Section A** - Exploring and understanding design possibilities. (To be reference throughout the NEA).	**AO2 – Design & make prototypes that are fit for purpose.** **NEA Section C** - Generating a range of imaginative and innovative design ideas.	**AO2 - Design & make prototypes that are fit for purpose.** **Completion NEA Section D** - Using a range of 2D and 3D techniques to fully explore, evaluate and develop ideas. - Producing a range of models to test, evaluate and modify ideas.	**AO2 - Design & make prototypes that are fit for purpose.** **Completion NEA Section E** - Skilfully using a range of tools and machinery to construct a high quality, well finished prototype that is fit for purpose.	**AO3 Analyse & Evaluate** **Completion NEA Section F** - Gathering and documenting client feedback on the final prototype. - Testing the final prototype against the	

Year 11

- Identifying a client and establishing their wants and needs.
- Analysing the work of others.
- Establishing society, economic and social effects.
- Analysis and evaluation of research stage.

AO1 - Identify, investigate, outline design possibilities.
NEA Section B

- Writing a detailed design brief that considers the clients wants and needs.
- Writing a relevant design specification that is well justified and incorporates the clients wants and needs.
- Analysis and evaluation of client wants and needs.

Theory Recall, Revisit, Review – Year 10

CORE TECHNICAL PRINCIPLES
Unit 1 - New & Emerging Technologies
Industry & Enterprise
Sustainability & The Environment
People, Culture & Society
Production Techniques & Systems
Informing design ideas

- Communicating ideas through a range of design strategies.
- Analysis and evaluation of design decisions in iterative process.

AO2 - Design & make prototypes that are fit for purpose.
NEA Section D

- Using a range of 2D and 3D techniques to fully explore, evaluate and develop ideas.
- Producing a range of models to test, evaluate and modify ideas.
- Analysis and research of relevant materials and their properties.
- Writing a comprehensive Manufacturing Specification.
- Final design idea.

Theory Recall, Revisit, Review – Year 10

CORE TECHNICAL PRINCIPLES
Unit 2 Energy, Materials, systems & devices

Energy Generation
Energy Storage
Modern Materials
Smart Materials
Composite Materials & Technical Textiles
Systems Approach to Designing
Electronic Systems Processing
Mechanical Devices

- Analysis and research of relevant materials and their properties.
- Writing a comprehensive Manufacturing Specification.

AO2 - Design & make prototypes that are fit for purpose.
NEA Section E

- Skilfully using a range of tools and machinery to construct a high quality, well finished prototype that is fit for purpose.
- Communicating manufacturing stages in diary/log form.
- Evaluating each stage of manufacturing process.

Theory Recall, Revisit, Review – Year 10

SPECIALIST TECHNICAL PRINCIPLES
Unit 3 Materials

Papers and boards
Timbers
Metals and Alloys
Polymers
Textiles

- Communicating manufacturing stages in diary/log form.
- Evaluating each stage of manufacturing process.

AO3 – Analyse & Evaluate
NEA Section F

- Gathering and documenting client feedback on the final prototype.
- Testing the final prototype against the specification that was written in section B.
- Redesign and suggested modifications of the prototype.
- General evaluation of the process.

Theory Recall, Revisit, Review – Year 10

SPECIALIST TECHNICAL PRINCIPLES
Unit 4 Common Specialist Principles.

Forces & Stresses
Improving Functionality
Ecological & Social Footprint
The 6 R's
Scales of Production

specification that was written in section B.
- Redesign and suggested modifications of the prototype.
- General evaluation of the process.

Theory – Revision

- Recap on materials section.
- Recap on manufacturing processes and scales of production.
- Recap on design strategies.
- Recap on sustainability.
- Recap on iconic designers and design companies.

Revision topics will change depending on wants and needs of the group.
Theory Recall, Revisit, Review – Year 10

SPECIALIST TECHNICAL PRINCIPLES
Unit 5 – Focussed Materials.

5b Timber based Materials.
5c Metals
5d Polymers

All contain:
Sources, Origins & Properties
Working with
Manufacture, Processes & Finishing