

NEWPORT GIRLS' HIGH SCHOOL

KS4 Curriculum Overview

Curriculum Intent & Organisation

A few sentences required: Why was this course chosen?

The AQA GCSE Design and Technology course has to prepare students to participate confidently and successfully in an increasingly technological world. This course is broad and allows students to gain subject knowledge in varying aspects relating to Design and Technology. This course supports the student in having the initial understanding and skills to progress on to A Level Product Design.

What are the intended outcomes?

Students will gain awareness and learn from wider influences on Design and Technology including historical, social, cultural, environmental and economic factors. Students will get the opportunity to work creatively when designing and making and apply technical and practical expertise. Our GCSE allows students to study core technical and designing and making principles, including a broad range of design processes, materials techniques and equipment.

How is the teaching organised -mixed ability option group / setted students etc.

The classes are of mixed ability and table settings allow pupils to share their strengths with other students, whilst allowing a focused approach for peer assessment and feedback.

Examination Information	EBACC?	P8 Bucket
Option subject examined end of Year 11 (50%) with Non-exam assessment folio of 20 A3 pages (50%).	Yes / No	Maths/English/EBACC/Other

Impact of Prior Learning from KS3

Year 7 & 8 students have previously completed numerous units of work using a variation of materials. Students apply their understanding of materials or technology when designing and making. Student reflect on their understanding and make links between designs or theories. Year 7 & 8 create the building blocks for KS4.

Equipment Required for this course

- Standard classroom stationery and Geometry set
- Mathematical calculator

Curriculum Implementation – Areas of Focus Year 9

Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Woods • Drawing Techniques • Presentation Techniques • Health and Safety • Safe Machine Use • Practical use of Tools and Equipment when working with timbers 	<ul style="list-style-type: none"> • Plastics • CNC processes • Presentation Techniques • Health and Safety • Safe Machine Use • Practical use of Tools and Equipment when working with Plastics 	<ul style="list-style-type: none"> • Metals • Casting • CNC Processes • Presentation Techniques • Health and Safety • Safe Machine Use • Practical use of Tools and Equipment when working with Metals

Subject: Design and Technology

Teachers: TW

Exam Board: AQA

Curriculum Implementation – Areas of Focus Year 10		
Autumn Term	Spring Term	Summer Term
<p>Written exam preparation focus whilst increasing skills, knowledge and understanding of a broad range of materials and processes.</p> <ul style="list-style-type: none"> • Sustainability and the environment • 6 R's • Energy generations • Modelling and construction • Design Brief and requirements • Ecological and social footprint • Mechanical Devices • Forces and stresses • Electronic systems, materials and components • Energy Storage • Polymers 	<ul style="list-style-type: none"> • Polymers forming (Injection Moulding, Extrusion, Blow Moulding) • Timber and Board based materials • Timber finishes • Graphical Techniques • Batch Production • CNC and Industry Systems 	<ul style="list-style-type: none"> • Physical and Mechanical Properties • Quality control • Textile Materials and Manufacturing • Metals Materials and Manufacturing Processes
Curriculum Implementation – Areas of Focus Year 11		
Autumn Term	Spring Term	Summer Term
<ul style="list-style-type: none"> • Focus on non-exam assessment (NEA): 100 marks, 50% of GCSE with evidence of the practical application of: • Core technical principles • Specialist technical principles • Designing and making principles • (Sept – Feb) • Design for disabled • Introduction to the project • Contextual challenge • Disability defined and explained, • Topic web • Task Analysis • Objectives • Research plan and reason for selection • Research (Primary/secondary) • Research analysis • Design Brief 	<ul style="list-style-type: none"> • Focus on non-exam assessment (NEA): 100 marks, 50% of GCSE with evidence of the practical application of: • Core technical principles • Specialist technical principles • Designing and making principles • (Sept – March) • Development • Prototyping • Testing • Final Design (3d Isometric, Orthographic, Exploded etc) • Manufacturing Plan and Cutting List • Making 3D Product • Diary of Making • Testing, Evaluation • Written exam preparation focus through class and homework tasks. 	<p>Specialist technical principles</p> <ul style="list-style-type: none"> • Selection of materials or components • Forces and stresses • Ecological and social footprint • Sources and origins • Using and working with materials • Stock forms, types and sizes • Scales of production • Specialist techniques and processes • Surface treatments and finishes. <p>Designing and making principles</p> <ul style="list-style-type: none"> • Investigation, primary and secondary data • Environmental, social and economic challenge • The work of others

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<ul style="list-style-type: none">• Specification (fully explained/justified) and under sub areas.• Initial Ideas annotated against Specification.• Extended research• Client feedback	<ul style="list-style-type: none">• Paper: 2 hours, 100 marks, 50% of GCSE.• Self-reflection• Traffic Light Revision Planning• Theory and revision lessons with a focus on specified material areas:• Papers and boards• Timber based materials• Metal based materials• Polymers• Textile based materials• Electronic and mechanical systems. <p>Core technical principles</p> <ul style="list-style-type: none">• New and emerging technologies• Energy generation and storage• Developments in new materials• Systems approach to designing• Mechanical devices• Materials and their working properties.	<ul style="list-style-type: none">• Design strategies• Communication of design ideas• Prototype development• Selection of materials and components• Tolerances• Material management• Specialist tools and equipment• Specialist techniques and processes
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Impact / Outcomes

Learning will be assessed throughout the course by:

- Key assessments are undertaken to gauge individual performance.
- Mock examinations indicate if individual pupils are on track to achieve their min Key Stage target and to practice.
- Tutorials (1 to 1)
- Questioning

Homework

Timely set to enhance folder for preparation of submission consolidate understanding of skill.
Homework is also used to prep pupils for upcoming lessons, increase skills, to aid progression and support pace of delivery of lesson.

Ways to support learning

- Utilise student 'out' folder for additional support materials set up by your teacher
- <http://www.technologystudent.com/> for supportive revision tasks and flash cards
- Animations of manufacturing processes accessed online can be supportive in gaining a clear understanding in each material area
- How's it made (selection of videos to support visual learning)
- AQA GCSE (9-1) Design and Technology Text book
- Parental support is always helpful, taking an active interest in design briefs, students work and time management of independent non-exam assessment.

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Field Work / Extension / Enrichment Opportunities

- Arkwright Scholarship Trust Application support to appropriate students
- Communication of Small Piece Trust short courses
- Communication of local/National Competitions
- STEM workshop activities
- Opportunity to lead a club for the lower years

Next Steps

This course supports the building blocks for the learning A Level Product Design

For more information, contact Miss T Wells