

Oasis Media City Subject Curriculum Plan



Subject: Design Technology

Head of Subject: Mr Brandy

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This document is an overview of the learning that students will experience within their subject area. This is a working document that provides teachers, students and parents with a map of key content that will be delivered during lessons in each year group.

Design Technology at OAMCUK is not just about creating artefacts, but how the artefacts are developed and the impact they may have on people and our world'. KS3 projects have been designed with the theme of using DT to help people. This has been reflection in the programme of study from year 7 to year 11. After each KS3 project,, students monitor their own progress, evaluate their strengths and weaknesses and devise strategies for learning.

Year Term:	Half	1 (7 weeks)	2 (8 weeks)	3 (6 weeks)	4 (6 weeks)	5 (5 weeks)	6 (7 weeks)
		Carousel 1			Carousel 2		
7	<i>Topic(s):</i>	Passive Amplifier Project:	Introduction to Architecture. ShelterBox: Shelters: Research, development, Theory relating to exam criteria	Introduction to Architecture. ShelterBox : Shelters: Research, development, Theory relating to exam criteria	Passive Amplifier Project: <i>Careers, H&S, Accuracy , Marking Out</i> <i>Hand tools, machine tools accuracy CAD / CAM / Evaluation</i>	Introduction to Architecture: Shelters. ShelterBox: Research, development, Theory relating to exam criteria	Introduction to Architecture: Shelters. ShelterBox: Research, development, Theory relating to exam criteria
	<i>Key Words(1 p/wk):</i>	<i>Pillar Drill, Disc Sander, Vacuum former, Scroll saw, Perimeter lines, Accuracy, Tolerance, acoustics, Healh and Saftey</i>	Coping saw, Tenon saw, Junior Hack saw, bench hook Corrugated card, diagonal brace , horizontal beam, structure, Anderson shelter, toughness, resistance	Tsunami, architecture , Japan, tectonic plates, disaster shelter 3 rd party review, evaluating, testing,	<i>Pillar Drill, Disc Sander, Vacuum former</i>	Coping saw, Tenon saw, Junior Hack saw, bench hook Corrugated card, diagonal brace , horizontal beam, structure, Anderson shelter, toughness, resistance	Tsunami, architecture , Japan, tectonic plates, disaster shelter 3 rd party review, evaluating, testing,

<i>Link to National curriculum</i>	creative and practical activities – through these activities pupils are equipped with the	iterative process – when designing and making, pupils should engage in an iterative process.	when designing and making – pupils' learning within Design, Make,	creative and practical activities – through these activities pupils are equipped with the knowledge, understanding and	iterative process – when designing and making, pupils should engage in an iterative process. Through this process pupils' ideas	when designing and making – pupils' learning within Design, Make, Evaluate and Technical
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Oasis Media City Subject Curriculum Plan



	<p>knowledge, understanding and skills to engage successfully and independently in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn about D&T in the wider world, including existing products, materials and processes.</p>	<p>Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.</p>	<p>Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.</p> <p><i>'Avoid stereotypical responses'</i> and <i>'Identify and solve their own design problems'</i></p> <p>user needs – understanding needs is an essential part of designing for a client or user group. Pupils should be taught how to address the interests, problems and preferences of a wide range of people.</p> <p>Evaluation: <i>Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.</i></p>	<p>skills to engage successfully and independently in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn about D&T in the wider world, including existing products, materials and processes.</p>	<p>are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.</p>	<p>Knowledge should be developed as a connected, coherent whole when they are designing and making products.</p> <p>user needs – understanding needs is an essential part of designing for a client or user group. Pupils should be taught how to address the interests, problems and preferences of a wide range of people.</p> <p>Evaluation: <i>Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.</i></p>
<p>Link to context/Character/careers:</p>	<p>Context</p> <ul style="list-style-type: none"> • automation • computer aided design (CAD) • computer aided manufacture (CAM) 	<p>Careers-</p> <p>Architecture Engineering Design Construction Surveying</p>	<p>Careers-</p> <p>Architecture Engineering Design Construction Surveying</p>	<p>Context</p> <ul style="list-style-type: none"> • automation • computer aided design (CAD) • computer aided manufacture (CAM) 	<p>Careers-</p> <p>Architecture Engineering Design Construction Surveying</p>	<p>Careers-</p> <p>Architecture Engineering Design Construction Surveying</p>

Oasis Media City Subject Curriculum Plan



	<ul style="list-style-type: none"> flexible manufacturing systems (FMS) just in time (JIT) lean manufacturing. <p>Maths link- Synchronises with maths using metric units</p>	<p>Disaster Relief Entrepreneurship Town Planning</p> <p>The charity Shelterbox.org to judge the best design solution</p>	<p>Disaster Relief Entrepreneurship</p>	<ul style="list-style-type: none"> flexible manufacturing systems (FMS) just in time (JIT) lean manufacturing. <p>Maths link- Synchronises with maths using metric units</p>	<p>Disaster Relief Entrepreneurship Town Planning</p> <p>The charity Shelterbox.org to judge the best design solution</p>	<p>Disaster Relief Entrepreneurship Town Planning</p>	
Assessment Type:	H&S book, Accuracy challenge,	Practical assessment	Practical assessment Evaluations review	H&S book, Accuracy challenge,	Practical assessment	Practical assessment Evaluations review Practical	
Everyday Tasks:	<p>CAD Cam - helps with designing increasingly technological world - strong effect. project management - through the design process. health and safety, using tools correctly. Evaluation process from start to end.</p>						
8	Carousel 1			Carousel 2			
	Topic(s):	Introduction in 3D printing. Tinker CAD 3D modelling	Inclusive Design Part 1: Remodelling and prototyping	Inclusive Design Part 2: Robotic arm (Engineering)	Introduction in 3D printing. Tinker CSD 3D modelling	Inclusive Design Part 1: Remodelling and prototyping	Inclusive Design Part 2: Robotic arm
	Key Words(1 p/wk):	Extruding, 3D Modelling, Tinker CAD, Computer Aided Design, Computer Aided Manufacturing	Inclusive Design, Hydraulics, 3D Printing, Exclusive design, usability, ergonomics, anthropometrics, prototyping, modelling	Inclusive Design, engineering, Hydraulics, 3D Printing, Exclusive design, usability, ergonomics, anthropometrics, prototyping, modelling	Extruding, 3D Modelling, Tinker CAD, Computer Aided Design, Computer Aided Manufacturing	Inclusive Design, Hydraulics, 3D Printing, Exclusive design, usability, ergonomics, anthropometrics, prototyping, modelling	Inclusive Design, engineering Hydraulics, 3D Printing, Exclusive design, usability, ergonomics, anthropometrics, prototyping, modelling
	NC Links	They acquire a broad range of subject knowledge and draw on	Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of		They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science,	Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values	

Oasis Media City Subject Curriculum Plan

	<p>disciplines such as mathematics, science, engineering, computing and art ‘</p> <p>‘Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world’</p>	<p>contexts, considering their own and others’ needs, wants and values</p> <p>‘Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users’</p> <p>Engineering Link- Investigating different types of levers and hydraulics</p> <p>Evaluation: Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.</p>	<p>engineering, computing and art ‘</p> <p>‘Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world’</p>	<p>‘Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users’</p> <p>Engineering Link- Investigating different types of levers and hydraulics</p> <p>Evaluation: Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world.</p>		
Link to context/Character:	Careers	Visit (virtual tour) of Barton Brook Care home, Salford Inclusive Design Engineering		Visit (virtual tour) of Barton Brook Care home, Salford Inclusive Design, Engineering		
Assessment Type:						
Mitigating Lost Learning	Review of Health and Safety using the Health and safety Passports. Recap on Key words and recap using last year knowledge organisers.					
Everyday Tasks:	CAD Cam - helps with designing increasingly technological world - strong effect. project management - through the design process. health and safety, using tools correctly. Evaluation process from start to end.					
9	<p>Topic(s):</p> <p>Amplifier project: The Audio amplifier project is an introduction to The subject of amplification. Emphasis has been placed on providing a means to a quality design outcome.</p> <p>OBJECTIVES: Pupils should understand: • The need to investigate the</p>	<p>Architecture: Design and Development: Design and model development</p> <p>By the end of the series of lessons they will have designed and 3D printed an object and learnt about the basic theory of 3D printing. The materials can be taught in class or used as extended learning for</p>	<p>Architecture: Design and Development: Electronics- Commercial lighting</p> <p>By the end of the series of lessons they will have designed and 3D printed an object and learnt about the basic theory of 3D printing. The materials can be</p>	<p>Amplifier project: The Audio amplifier project is an introduction to The subject of amplification. Emphasis has been placed on providing a means to a quality design outcome.</p> <p>OBJECTIVES: Pupils should understand: • The need to investigate the background to a problem. • How to select appropriate components to build simple electronic circuits.</p>	<p>Architecture: Design and Development: Design and model development</p> <p>By the end of the series of lessons they will have designed and 3D printed an object and learnt about the basic theory of 3D printing. The materials can be taught in class or used as extended learning for homework or self-guided learning. All materials can be edited/differentiated to reflect the ability of your students.</p>	<p>Architecture: Design and Development: Design and model development</p> <p>By the end of the series of lessons they will have designed and 3D printed an object and learnt about the basic theory of 3D printing. The materials can be taught in class or used as extended learning for homework or self-guided learning. All materials can be edited/differentiated to reflect the ability of your students.</p>

Oasis Media City Subject Curriculum Plan



	<p>background to a problem.</p> <ul style="list-style-type: none"> • How to select appropriate components to build simple electronic circuits. • The importance of planned manufacture. • How to improve a product by evaluation. 	<p>homework or self-guided learning. All materials can be edited/differentiated to reflect the ability of your students.</p>	<p>taught in class or used as extended learning for homework or self-guided learning. All materials can be edited/differentiated to reflect the ability of your students.</p>	<ul style="list-style-type: none"> • The importance of planned manufacture. • How to improve a product by evaluation. 		
<i>Key Words(1 p/wk):</i>	<p>Prototype CAD CAM Tinker CAD Dimensions Scale Single point perspective Two point perspective Model Ergonomic Anthropometrics Planned Obsolescence</p>	<p>Prototype CAD CAM Tinker CAD Dimensions Scale Single point perspective Two point perspective Model Ergonomic Anthropometrics Planned Obsolescence</p>	<p>Electronics- Commercial lighting</p> <p>The use of light sensors, temperature sensors, Pressure sensors and switches.</p> <p>The use of programming microcontrollers as counters, timers and for decision making, to provide functionality to products and processes.</p>	<ul style="list-style-type: none"> ○ COMPONENT ○ BATTERY ○ RESISTOR ○ TRANSISTOR ○ LIGHT EMITTING DIODE ○ CAPACITOR ○ RELAY ○ DIGITAL ○ TIMER ○ AMPLIFIER 	<ul style="list-style-type: none"> ○ COMPONENT ○ BATTERY ○ RESISTOR ○ TRANSISTOR ○ LIGHT EMITTING DIODE ○ CAPACITOR ○ RELAY ○ DIGITAL ○ TIMER ○ AMPLIFIER 	<ul style="list-style-type: none"> ○ COMPONENT ○ BATTERY ○ RESISTOR ○ TRANSISTOR ○ LIGHT EMITTING DIODE ○ CAPACITOR ○ RELAY ○ DIGITAL ○ TIMER ○ AMPLIFIER
<i>Link to context/Character:</i>	<p>The contemporary and potential future use of:</p> <ul style="list-style-type: none"> • automation • computer aided design (CAD) • computer aided manufacture (CAM) • flexible manufacturing systems (FMS) • just in time (JIT) • lean manufacturing 	<p>The contemporary and potential future use of:</p> <ul style="list-style-type: none"> • automation • computer aided design (CAD) • computer aided manufacture (CAM) • flexible manufacturing systems (FMS) • just in time (JIT) • lean manufacturing 	<p>The contemporary and potential future use of:</p> <ul style="list-style-type: none"> • automation • computer aided design (CAD) • computer aided manufacture (CAM) • flexible manufacturing systems (FMS) • just in time (JIT) 	<p>They develop their understanding of designing and making by investigating products and finding out about the work of professional designers and manufacturing industry. They use computers, including computer aided design and manufacture (CAD/CAM) and control software, as an integral</p>	<p>They develop their understanding of designing and making by investigating products and finding out about the work of professional designers and manufacturing industry. They use computers, including computer aided design and manufacture (CAD/CAM) and control software, as an integral</p>	<p>They develop their understanding of designing and making by investigating products and finding out about the work of professional designers and manufacturing industry. They use computers, including computer aided design and manufacture (CAD/CAM) and control software, as an integral</p>

Oasis Media City Subject Curriculum Plan



		Career links: Architecture, Engineering, Town planning	Career links: Architecture, Engineering, Town planning	• lean manufacturing Career links: Architecture, Engineering, Town planning	part of designing and making. They draw on knowledge and understanding from other areas of the curriculum.	draw on knowledge and understanding from other areas of the curriculum..	part of designing and making. They draw on knowledge and understanding from other areas of the curriculum.
	<i>Assessment Type:</i>	NE (coursework and practical) 50% End of Unit test 50%	NE (coursework and practical) 50% End of Unit test 50%	NE (coursework and practical) 50% End of Unit test 50%	NE (coursework and practical) 50% End of Unit test 50%	NE (coursework and practical) 50% End of Unit test 50%	NE (coursework and practical) 50% End of Unit test 50%
	<i>Mitigating Lost Learning</i>	Review of Health and Safety using the Health and safety Passports. Additional module based on CAD CAM that can to completed online Recap on Key words and recap using last year knowledge organisers. Will need ICT facilities					
	<i>Everyday Tasks:</i>	CAD Cam - helps with designing increasingly technological world - strong effect. project management - through the design process. health and safety, using tools correctly. Evaluation process from start to end.					
10		NEA Preparation. Design a educational	NEA Preparation. Design a sustainable solution to	NEA Preparation. Design a sustainable	NEA Preparation. Design a sustainable solution to support	2020 – 2021 GCSE NEA Start GCSE Exam Prep	2020 – 2021 GCSE NEA Start GCSE Exam Prep

Oasis Media City Subject Curriculum Plan



<p><i>Topic(s):</i></p>	<p>toy to support a developing country REASEACH IN DESIGN CONTEXT GCSE Exam Prep</p> <p>EXAM Prep:</p> <p>new and emerging technologies</p> <ul style="list-style-type: none"> • energy generation and storage • developments in new materials • systems approach to designing • mechanical devices • materials and their working properties 	<p>support a developing country Initial Design / Development Designs GCSE Exam Prep</p> <p>selection of materials or components</p> <ul style="list-style-type: none"> • 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>solution to support a developing country Final design / Modelling GCSE Exam Prep</p> <p>investigation, primary and secondary data</p> <ul style="list-style-type: none"> • environmental, social and economic challenge • the work of others • design strategies • communication of design ideas • prototype development • selection of materials and components • 	<p>a developing country Final Prototype GCSE Exam Prep</p> <ul style="list-style-type: none"> • environmental, social and economic challenge • the work of others • design strategies • communication of design ideas • prototype development 	<p>GCSE NEA Start: Initial Design / Development Designs</p> <p>Substantial design and make task</p> <ul style="list-style-type: none"> • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating 	<p>GCSE NEA Start: Initial Design / Development Designs</p> <p>Substantial design and make task</p> <ul style="list-style-type: none"> • Assessment criteria: • Identifying and investigating design possibilities • Producing a design brief and specification • Generating design ideas • Developing design ideas • Realising design ideas • Analysing & evaluating tolerances • material management • specialist tools and equipment • specialist techniques and processes.
<p><i>Key Words(1 p/wk):</i></p>	<p>Exam Key terms. Knowledge Organisers HT1</p>	<p>Exam Key terms. Knowledge Organisers HT2</p>	<p>Exam Key terms. Knowledge Organisers HT3</p>	<p>Exam Key terms. Knowledge Organisers HT4</p>		
<p><i>Link to context/Character:</i></p>						

Oasis Media City Subject Curriculum Plan



Assessment Type:							
Everyday Tasks:		CAD Cam - helps with designing increasingly technological world - strong effect. project management - through the design process. health and safety, using tools correctly. Evaluation process from start to end.					
Mitigating Lost Learning		Drop down days for the completion of coursework and practical refreshers . Recap on Key words and recap using last year knowledge organisers.					
11	Topic(s):	GCSE NEA Start: Initial Design / Development Designs Substantial design and make task <ul style="list-style-type: none"> Assessment criteria: Identifying and investigating design possibilities Producing a design brief and specification Generating design ideas Developing design ideas Realising design ideas Analysing & evaluating 	GCSE NEA Start: Final design / Modelling Substantial design and make task <ul style="list-style-type: none"> Assessment criteria: Identifying and investigating design possibilities Producing a design brief and specification Generating design ideas Developing design ideas Realising design ideas Analysing & evaluating 	GCSE NEA Start: Final design / Final Prototype / Evaluations Substantial design and make task <ul style="list-style-type: none"> Assessment criteria: Identifying and investigating design possibilities Producing a design brief and specification Generating design ideas Developing design ideas Realising design ideas Analysing & evaluating 	GCSE Exam Prep Revision Topics Section A – Core technical principles (20 marks) A mixture of multiple choice and short answer questions assessing a breadth of technical knowledge and understanding. Section B – Specialist technical principles (30 marks) Several short answer questions (2–5 marks) and one extended response to assess a more in depth knowledge of technical principles. Section C – Designing and making principles (50 marks) A mixture of short answer and extended response questions.	GCSE Exam Prep Revision Topics Section A – Core technical principles (20 marks) A mixture of multiple choice and short answer questions assessing a breadth of technical knowledge and understanding. Section B – Specialist technical principles (30 marks) Several short answer questions (2–5 marks) and one extended response to assess a more in depth knowledge of technical principles. Section C – Designing and making principles (50 marks) A mixture of short answer and extended response questions.	N/A
	Key Words(1 p/wk):	Exam Key terms. Knowledge Organisers HT1	Exam Key terms. Knowledge Organisers HT2	Exam Key terms. Knowledge Organisers HT3	Exam Key terms. Knowledge Organisers HT4	Exam Key terms. Knowledge Organisers HT5	
	Link to context/Character:						
	Assessment Type:	5 April 2019 Coursework deadline for GCSE Design & Technology	5 April 2019 Coursework deadline for GCSE Design & Technology	5 April 2019 Coursework deadline for GCSE Design & Technology	22 May 2020 Exam for GCSE Design & Technology (8552/W) Series: June 2020 Start time: pm Duration: 2h	22 May 2020 Exam for GCSE Design & Technology (8552/W) Series: June 2020 Start time: pm Duration: 2h	
Mitigating Lost Learning		Drop down days for the completion of coursework and practical refreshers. Recap on theory on pre-recorded lessons on Microsoft stream					

Oasis Media City Subject Curriculum Plan



Key Questions:

1. What is the overarching intent for your curriculum?

Oasis Media City Subject Curriculum Plan



To prepare students to participate confidently and successfully in an increasingly technological world. 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.

Design and Technology specification sets out the knowledge, understanding and skills required to undertake the iterative design process of exploring, creating and evaluating. The majority of the specification should be delivered through the practical application of this knowledge and understanding.

2. How does this curriculum build student's knowledge of the world around them both locally and nationally?

Design and Technology specification sets out the knowledge, understanding and skills required to undertake the iterative design process of exploring, creating and evaluating. The majority of the specification should be delivered through the practical application of this knowledge and understanding. From KS3 there is a strong focus in careers, using building contractors such as Laing O'Rourke and architectural focus, working with practitioners from Middlewood Lock.

3. How is this curriculum designed to engage students and develop a passion for the subject?

Design and Technology (D&T) is the inspiring, rigorous and practical subject which prepares all young people to live and work in the designed and made world. The curriculum builds on the knowledge that they acquire from year 7. With design technology, electronic, graphic design, architecture, CAD CAM are all a part of the projects that progressively build towards their GCSE.

4. How does this curriculum cater for the needs of our students?

D&T is often one of a child's favourite subjects. Children like making decisions for themselves and doing practical work. They love creating products they can see, touch – and even taste – for themselves. They feel proud to have done so.

D&T brings learning to life. It is a motivating context for discovering literacy, mathematics, science, art, PSHE and ICT. Primary Design and Technology also provides a firm basis for later learning in the subject and a platform for developing skills in literacy and numeracy.

Oasis Media City Subject Curriculum Plan



5. How is assessment used to improve learning?

Assessment focused on the NEA (coursework and practical) and the EA (Exam assessment) prep, similar to the KS4 GCSE format

6. What skills will students develop that can be used in other subject areas and beyond their school life?

Design and Technology is a practical and valuable subject. It enables children and young people to actively contribute to the creativity, culture, wealth and well-being of themselves, their community and their nation. It teaches how to take risks and so become more resourceful, innovative, enterprising and capable. Students develop a critical understanding of the impact of design and technology on daily life and the wider world. Additionally, it provides excellent opportunities for students to develop and apply value judgements of an aesthetic, economic, moral, social, and technical nature both in their own designing and when evaluating the work of others.

7. How is learning planned to progressively develop pupil's knowledge and understanding over time?

It leverages increasingly sophisticated resources, including dedicated teaching environments, manufacturing equipment and specialist teaching. As students progress through this phase, they may be given the opportunity to focus on specific aspects of the subject such as product design, engineering, systems and control, electronics, textiles and graphics. However, at its core is creativity and imagination.

8. How learning is sequenced over time to ensure students retain knowledge and are more successful at recalling?

Regular Knowledge organiser tests and exam practise

9. How is this curriculum adapted to cater for the needs of students with different starting points?

Differentiated activities

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10. How will you ensure teachers have the relevant knowledge, expertise and practical skills to deliver your curriculum effectively?

Robust SOW outlined for each individual project along with a week by week objectives outlined in the Scheme of Learning