

OAE Design & Technology Curriculum: Long Term Plans KEYSTAGE 3 (2023/24)

In these years we reinforce and build on the knowledge and skills students have developed in the primary curriculum and begin to extend the big ideas from the Primary curriculum into our core concepts. Key stage three operates on a rotation basis. We see each student on over a 10-week time period. In each year, we **multiple representations** to build **conceptual understanding** of the entire design process.

In Year 7, students will understand the **core** health and safety requirements in a workshop, develop an understanding of design technology language like “Tenon Saw, Dowell, Belt Sander, Pillar Drill and Evaluation. Students will learn to use the machines and will concentration on one material: Manufactured board. Concepts of the two other timbers – Softwood and hardwood”

In Year 8, students will **build** on the **knowledge** and skills from the previous year and will expand their knowledge with key terms such as “context, design brief, specification, product analysis and evaluation”, from there the **focus** shifts to building **fluency** in in **practical outcomes** and **problem solving**. Moreover, a **conceptual understanding** of the entire design journey.

In Year 9, we continue to lay the **foundations** for strong subject **knowledge** and being to **embed** computer aided design skills in readiness for students picking this subject in year ten.

Literacy: In these year’s students will do literacy activities on Mondays. The booklets are in teaching/curriculum shared folder.

Numeracy: 15-20 mins of the last lesson of the week is going to be Numeracy session. The students are going to use Numeracy Ninja resources.

	Rotation 1	Rotation 2	Rotation 3	Rotation 4
Year 7 Rotation of 9-10 hours 1 lesson a week, 9/10 weeks	D&T Workshop Practice Spinning Top Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: Evaluation of product	D&T Workshop Practice Spinning Top Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: Evaluation of product	D&T Workshop Practice Spinning Top Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: Evaluation of product	D&T Workshop Practice Spinning Top Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: Evaluation of product
	Rotation 1	Rotation 2	Rotation 3	Rotation 4
Year 8 Rotation of 9-10 hours 1 lesson a week, 9/10 weeks	D&T Workshop Practice Coat Hook Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: research and design file, production plans, evaluations and practical outcomes.	D&T Workshop Practice Coat Hook Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: research and design file, production plans, evaluations and practical outcomes	D&T Workshop Practice Coat Hook Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: research and design file, production plans, evaluations and practical outcomes	D&T Workshop Practice Coat Hook Project Key Objectives: to understand and work safely in a D&T workshop. Learn to use equipment materials and processes, safely and consistently. Assessment: research and design file, production plans, evaluations and practical outcomes
Year 9 Rotation of 9-10 hours 1 lesson a week, 9/10 weeks	Developing Product Design practice Wind Chime & 2D Design Practice Key Objectives, Communicating in design, working to a Client Brief, using 2D software Creating 2D & 3D products Assessment: A4 presentation sheets, small design presentation file, 2D & 3D visual work	Developing Product Design practice Wind Chime & 2D Design Practice Key Objectives, Communicating in design, working to a Client Brief, using 2D software Creating 2D & 3D products Assessment: A4 presentation sheets, small design presentation file, 2D & 3D visual work	Developing Product Design practice Wind Chime & 2D Design Practice Key Objectives, Communicating in design, working to a Client Brief, using 2D software Creating 2D & 3D products Assessment: A4 presentation sheets, small design presentation file, 2D & 3D visual work	Developing Product Design practice Wind Chime & 2D Design Practice Key Objectives, Communicating in design, working to a Client Brief, using 2D software Creating 2D & 3D products Assessment: A4 presentation sheets, small design presentation file, 2D & 3D visual work

The national curriculum breaks Design and Technology into these four categories.

Design

- Use research and exploration, such as the study of different cultures, to identify and understand user needs.
- Identify and solve their own design problems and understand how to reformulate problems given to them
- Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses
- Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools

Make

- Select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture
- Select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

Evaluate

- Analyse the work of past and present professionals and others to develop and broaden their understanding
- Investigate new and emerging technologies
- Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
- Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists²

Technical knowledge

- Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- Understand how more advanced mechanical systems used in their products enable changes in movement and force
- Understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

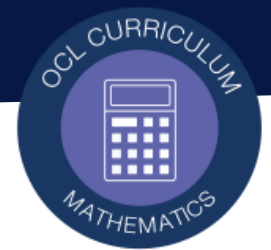
Oasis Enfield Key Concepts in Design and Technology:

#1: Why is Health and Safety in workshop important?

Anything that can cause an accident is a hazard. A risk is the likelihood of a misfortune occurring caused by a hazard. Carrying out practical work in design and technology is hazardous and we should protect ourselves and other people by taking actions to remove or minimise the risks to our health and safety. Students will learn how to identify risks in the workshop. How to minimise risk in the workshop. How to identify the correct personal protective equipment.

#2: Interleaving of English literacy and Maths

Understanding the key vocabulary and definitions in Design & Technology is vitally important, as is literacy in all subjects. During our practical modelling lesson, students will learn and understand the vocabulary that will be embedded throughout the three rotations they have in Key Stage 3. Maths is included when marking out materials to be cut and to create accurate polygons using a compass



#3: Why is precision important

Students will also learn how to cut materials with precision and refine the finish with appropriate tools such as sanding wood after cutting or a more precise filing after roughly cutting out a shape. Students will learn all the machine and tool names along with their definitions. And become accustomed to tools like rules and tri squares. Students that can cut with precision will see a higher degree of success with their products.

#4: Interpretation of design briefs and Specifications

Students will be taught that when interpreting a design brief, careful attention should be paid to each listed element. Students will be taught that the starting point is to always read through it thoroughly, more than once. Students will understand the anatomy of a design brief, being able to detail the Project overview, Goals and objectives, Target audience and Design requirements. Students will develop an understanding of a design specification. They will know that this is a detailed document that sets out exactly what a product or a process should present. Students will be able to write their own design specification which could include required dimensions, environmental factors, ergonomic factors, aesthetic factors etc. Being able to write their own design briefs and specifications leads on to being able to create and develop successful design ideas that match and hopefully exceed client expectations.

#5: Properties of materials and evaluation

Each material has properties that make them good for specific tasks, eg cotton is lightweight and absorbent. The properties of materials must be considered when designing a product, eg a steel pan handle would conduct too much heat and burn the user, whereas beech would be more appropriate as it is tough but a poor conductor of heat. Students will learn and understand which material to select for their projects and know what the working and physical properties are. Students will be able to test, evaluate and refine their ideas and products against their specification, considering the views of intended users and other interested groups.

#6: CAD/CAM Product testing and technical knowledge.

Having developed their knowledge in Key Stage 3, students will now have full access to CAD/CAM in school. Focus will be on creating 3D working prototypes of their own design in CAD, and transferring these design into 2D files to be laser cut. They will understand and use the properties of materials and the performance of structural elements. Understand how more advanced mechanical systems used in their products enable changes in movement and force. Students will develop and understanding of how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs] and finally they will apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

Key concepts that are interleaving throughout key stage 3 and 4.

Key Concepts covered in Yr7: #1 #2 #3

Key Concepts covered in Yr 8: #1 #2 #3 #4

Key Concepts covered in Yr 9: #1 #2 #3 #4 #5

Key Concepts in Yr 10 & 11: All.

At Oasis Enfield, we feel that CAD/CAM is a vital part of the DT curriculum, so an amount of key concept #6's CAD work will be present throughout all years.

OAE Design & Technology Curriculum: Long Term Plans KEYSTAGE 4 (2023/24)

In Y10, students enter the first year of formal study for BTech, core knowledge and skills are revisited, to ensure that students have the **fluency** and **conceptual understanding** necessary to access the entire KS4 curriculum. Having revisited knowledge and skills from KS3, students are equipped to fully explore the core concepts of generating ideas in art and design, to visually communicate ideas. This enables the students to create a portfolio of design movements, designer, design practice research and visual design work.

Literacy: In this year students will do literacy activities with TheDay, for 20 minutes every two weeks..

Numeracy: 15-20 mins of the last lesson of the week is going to be Numeracy session. The students are going to use Numeracy Ninja resources.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 10	<p>Generating ideas in Art & Design Key Objectives, A1: the purpose of research in Art & Design A2: Exploring Art & Design Practice. Assessment: Portfolio of design movement, designer, design practice research and visual design work.</p>	<p>Generating ideas in Art & Design Key Objectives, B1. Generating ideas in Art & Design, B2: Visually communicate Art & design ideas Assessment: Portfolio of design movement, designer, design practice research and visual design work.</p>	<p>Generating ideas in Art & Design Key Objectives, Learning aim A: Investigate Art & Design Practice. Learning aim B: Generate and communicate Art & Design Ideas Assessment : Portfolio of a range of design work demonstrating a wide range of skills</p>	<p>Developing practical skills in Art & Design Key Objectives, A1: Practical skills development, B1: Recording work, A2: Reviewing and improving skills Assessment: range of prototypes, testing material selection & processes.</p>	<p>Developing practical skills in Art & Design Key Objectives, A2: Reviewing and improving skills, B1: Recording work, B2: communicating skills development. Assessment : photographic story of making , evaluation or final designs & products</p>	<p>Developing practical skills in Art & Design Key Objectives, A2: Reviewing and improving skills, B1: Recording work, B2: communicating skills development. Formative Assessment: Independent student work</p>

OAE YEAR 11 (OCL SoL 2022-23)

In our students' final year of study, we begin by drawing on all of the knowledge and skills they have developed over their 4 years with us to introduce some of the most challenging BTECH content, including understanding and the needs of a client, developing practical outcomes from client briefs. Students are now refining and fully developing their **problem-solving** skills in preparation for their exam. In the periods of revision that are scheduled, teachers identify gaps in knowledge and underdeveloped skills in their students, and revisit elements of the KS4 curriculum accordingly. Often, these areas of weakness will not be in **fluency**, but in students' ability to **respond to a new brief** with the knowledge they have, or **problem-solve** in unseen situations. They will use this time to hone these core concepts fully.

Literacy: In this year students will do literacy activities on TheDay, every two weeks

Numeracy: 15-20 mins of the last lesson of the week is going to be Numeracy session. The students are going to use Numeracy Ninja resources.

<p>Year 11</p>	<p>Mock: Responding to a client brief Key Objectives, Learning aim A: Demonstrate understanding of client needs. Learning aim B: Develop and produce a response to a client brief, Learning aim C: Present a response to a client brief. Assessment: Portfolio of up to 8 pages of project outline, research, design development and production planning</p>	<p>Mock: Responding to a client brief Key Objectives, A1: Interpreting a brief, A2 Considering constraints and intentions, B1: working with the client brief, B2 Applying a creative process through different disciplines, C1: Reviewing work based on client needs, C2: Presenting own work to a client. Assessment: Recording of development and production of final product, with material and equipment selection and evaluation</p>	<p>Responding to a client brief Start external assessment 8/01/20 Activity 1: Project development: research & design ideas Activity 2: Development Review: SAM report 2,1/2 hour PDF Activity 3: final response: make final product, take photo's Activity 4: Produce a portfolio for a client: PDF 8 page portfolio. Assessment: External assessment portfolio PDF sent to Pearson's</p>	<p>Responding to a client brief Continue external assessment Activity 1: Project development: research & design ideas Activity 2: Development Review: SAM report 2,1/2 hour PDF Activity 3: final response: make final product, take photo's Activity 4: Produce a portfolio for a client: PDF 8 page portfolio. Assessment: External assessment portfolio PDF sent to Pearson's</p>	<p>Responding to a client brief complete external assessment Activity 1: Project development: research & design ideas Activity 2: Development Review: SAM report 2,1/2 hour PDF Activity 3: final response: make final product, take photo's Activity 4: Produce a portfolio for a client: PDF 8 page portfolio. Assessment: External assessment portfolio PDF sent to Pearson's</p>	<p>Grade submission First sampling by 15th May 2020 Second sampling (if needed) By 15th June 2020 Deadline for grade submission 30th of June 2020 PDF of external assessment folder, submission date to be confirmed.</p>
-----------------------	---	--	--	---	---	--