

Design & Technology St Osmund's Middle School

This document is designed to give you an overview of Design Technology at St Osmund's in terms of expectations and routines, along with the curriculum intent, implementation and impact.

Clarification

In KS2 students will work within each of the three Design Technology specialism; Food and Nutrition, Textiles and Resistant Materials (STEM is experienced through workshops delivered by STEM works). Students remain with their teacher and the teacher delivers lessons in all three areas. KS2 lessons are an hour and the lesson begins with 'design of the week' (DNA – Do now activity). Teachers and students follow the department Health and Safety policies, in accordance with the BSI for DT classrooms and practical activities. Through the MAT, there is a collaboration of schools in the area, in which a spiral curriculum is developed. The knowledge is built from what students have discovered in Year 4 and there is a clear expectation of what is required for Year 5 learners at St Osmund's. Close communication with the feeder schools, enables the building of composite skills to engineer success for every student.

In KS3 students will experience three areas of Design Technology; Food and Nutrition, Resistant Materials and Textiles. Students will rotate to different specialisms in small groups of 20 (in accordance with the Design Technology Health and Safety policy). Students will experience double lessons, to achieve more opportunity for 'iteration' in their design process at KS3. In order for the students in year 7&8 to understand that they are now starting to study the subject at KS3 and will be looking at more design problems, Product Analysis will be taught and students will be introduced to the technical term 'iteration' which will aid the transition to GCSE. Students will work in an iterative way, so that they are well practised of this way of learning before KS4. All students must also be aware that the subject is compulsory at Year 9 in our main feeder school: Thomas Hardy School. It is our job in the middle school to ensure that the students arrive at THS with extensive prior knowledge and skills needed for GCSE and beyond. The department leader has been liaising with Simon Patel at THS to ensure a smooth transition and key prior knowledge is covered particularly focussing on KS3.

Expectations and Routines

During Lessons:

- ✓ Students will be given a Design Technology workbook. They will complete the daily tasks in the booklet.
- ✓ DNA activities will be subject specific and the DT staff will compile power-point presentations with the DNA for each lesson.
- ✓ DNA activities for Practical lessons will differ and be focussed on gathering the correct equipment and have clear expectations of the practical task, given that year 5 & 6 have only an hour to cook in food.
- ✓ Focus on presentation and key vocabulary (Key Vocabulary A3 mats are available for each specialism and Knowledge organisers with Key Vocabulary is in the work books)
- ✓ Presentation Promise is available in the workbook, to enable students to see the expectation for written communication

- ✓ Each lesson will include a recap of the students learning, using effective questioning to stretch the students thinking (quick retrieval questioning).
- ✓ Learning Objectives are clear and explained within the introduction to the lesson.
- ✓ When demonstrations are shown, students will engage in an extensive Q&A session to further their thinking with extended questions (metacognition)
- ✓ Students will record key information from the demonstration in their learning booklets, to ensure that they have the necessary information to complete the task. This is vital for year 7&8 as a two week period will have passed before they can carry out the manufacture/make activity.
- ✓ A 'top tip' box in the booklets is also included on the demonstration pages, so that students can write notes about their 'top tips'
- ✓ If a **practical lesson**, students will have a clear instruction of the task, the Learning Objectives will be displayed on the board and a brief recap of the process will take place. Health and Safety will be the main focus and students will be able to independently complete the making task. If students need reminding of the task, they will be reminded and a consistent pace will ensure the lessons move forward. The visualiser will be used to show delicate operations and to model any assessment or key written work/designs
- ✓ Students will have the opportunity to peer assess in small focus groups in the Testing and Evaluation of the product.

Product Analysis Tasks

- ✓ Students will be given key information to ensure that they can complete the task and understand how products work. Students will understand the acronym ACCESS FM when focussing on product Analysis.

Assessment

- ✓ Students will reflect on their own learning and use DIRT time to improve and add further targets. This will be done in a purple pen.
- ✓ Students will have an opportunity to peer assess, in the learning booklets (dedicated peer assessment spaces on the page) Key guidelines and Vocabulary mats will be available for this.
- ✓ Once per half term, students will be given Key DT words to learn, a 5min end of term test will be given in literacy, to ascertain the progress made in technical vocabulary and literacy in DT.
- ✓ Targeted questioning
- ✓ Regular routine quizzes, tests and exercises to build memory
- ✓ Live marking and use of a visualiser
- ✓ Peer and self-assessment
- ✓ End of unit summative assessment (there are 3 formal assessments for each year group)
- ✓ Use of **Knowledge Organisers** for recall and revision (these will soon be redesigned to enable SEND to use them effectively in accordance with the school SEND policy)
- ✓ SLT meetings and learning walks are scheduled to complete book scrutiny and to moderate assessment tasks

Curriculum Development:

- ✓ The SL has worked from March 2020 to develop the DT curriculum in line with whole school expectations and to formulate a plan to support students transitioning to THS, working alongside the MAT schools.
- ✓ The SL has developed a new rotation system mirroring that of a secondary school, to prepare students for working with multi skilled teachers in the three dedicated areas of DT: Resistant Materials, Textiles and Food/Nutrition.
- ✓ Meetings with the other middle schools will promote the sharing of good practice.
- ✓ Meetings with first schools (feeder) to ensure there is a clear expectation for year 5 learners and to support them with the DT spiral curriculum.

Curriculum Intent:

Subject design

Design Technology Curriculum Statement

Sustainable development is defined as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs."

***Sustainable design** is also called "environmental **design**" and "environmentally-conscious **design**." No matter what it is called, this kind of a **design** is just as much a philosophy as it is a practice. It is based on economic, ecological, and social principles regarding the importance of sustainability.*

There is no future without a sustainable present. We aim to instill into our young designers that planned obsolescence is no longer an option. That sustainable, reusable, recycled and rediscovered design is the only way to preserve our future and that of the generations to follow.

Intent

"Design and technology is an inspiring, rigorous and practical subject. 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. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art." (DfE, 2013)

Design, Technology have a rich cultural heritage in this country and remain a vital industry for our economic success. We remain world leaders across Design and Engineering sectors, and the Industries contribute significantly to the national, and local, economies. Through our rich and varied curriculum, pupils will enjoy positive experiences and learn how to take risks, becoming resourceful and innovative while developing their confidence and resilience through creative problem solving. They will learn to critically evaluate products and technology and to understand how it impacts on our lives, society and the world as a whole.

Students will learn to:

- Develop the creative, technical and practical expertise needed to participate in, and contribute to, an increasingly technological world
- Apply recognised approaches to product design to ensure effective and efficient working practices.
- Build and apply a repertoire of knowledge in order to design and make high-quality prototypes and products for a variety of users, and in a variety of materials, considering their needs and the needs of the environment.
- Test and evaluate their ideas and products and the work of others, critically and develop resilience and perseverance to overcome problems
- Understand and apply the principles of nutrition and learn how to cook.

	TERM 1.1		TERM 1.2		TERM 2.1		TERM 2.2		TERM 3.1		TERM 3.2	
YEAR 5	1	ATL INTERIM LEVEL	1	FINAL LEVEL	2	ATL INTERIM LEVEL	2	FINAL LEVEL	3	ATL INTERIM LEVEL	3	FINAL LEVEL
	Baseline TEST 1		End of project test		LITERACY TEST 2		End of project test		LITERACY TEST 3		End of project TEST	
YEAR 6	4			FINAL LEVEL	5			FINAL LEVEL	6			FINAL LEVEL
	Baseline TEST 1	ATL INTERIM LEVEL	End of project test		LITERACY TEST 4	ATL INTERIM LEVEL	End of project test		LITERACY TEST 5	ATL INTERIM LEVEL	End of project TEST	
YEAR 7	7				8			9				Final end of year level
	Baseline Test 1	ATL Interim level	IN LEARNING BOOKLET: LITERACY TEST 1	Final Level	AFL Interim level	IN LEARNING BOOKLET: LITERACY TEST 2	Final Level	ATL Interim level	IN LEARNING BOOKLET:			
YEAR 8	10				11			12				Transit ion and Final KS3 TEST
	Baseline Test 1	ATL Interim level	IN LEARNING BOOKLET: LITERACY TEST 1	Final Level	ATL Interim level	IN LEARNING BOOKLET: LITERACY TEST 1	Final Level	ATL Interim level	IN LEARNING BOOKLET: LITERACY TEST 1			

Progression through the curriculum

The curriculum is being adapted through the use of new resources to ensure that it is rigorous in all areas. The whole curriculum has been reviewed to ensure greater depth in knowledge and understanding. There will be a clear focus on designers (that are in the GCSE specification) that will allow students to discover industrial processes and Key Vocabulary. Throughout KS2 and KS3, students will investigate the work of others through product analysis, analysing first hand products and suggesting design improvements. Students will be introduced to an 'iterative approach' which is vital for the preparation of GCSE Design Technology. Students will understand the importance of re-designing a product and how this is important in everyday objects (linking to planned obsolescence). The KS3 units include the challenge of GCSE standard work. All of the year 7 & 8 Schemes of Work are designed to meet the new specification GCSE standards and encourage stretch and challenge. Students will obtain vital skills in the manufacture of demanding products

The curriculum includes regular opportunities to assess student progress. It is designed to build skills and knowledge and to recall previous knowledge to maintain progress in all aspects DT.

Success is a cohort of students who gain knowledge on a Design Technology journey of skills, Testing and Evaluation. Looking at the wider technological world and how we can become future designers using sustainable resources? It is important to educate students to investigate the problems that evolve with products and to discover solutions for the ever changing world.

To create independent 'thinkers' and 'problem solvers' who ask 'why and how' will be a key focus in Design Technology.

Exceeding expectations of progress.

Knowledge Organisers and **Key Skills sheets** are a valuable tool for regular home and class learning which are based on recall. Home learning challenges are also available for students.

Curriculum Implementation

Equality of opportunity:

The curriculum has been carefully designed in line with DATA and the preparation for GCSE, it can be accessed by all learners. SEND students are supported with literacy, where necessary, to ensure that they meet the same curricular goals confidently and successfully. **Knowledge Organisers** have proven to be a useful tool to help all students. Lessons will be differentiated and students will be identified on the teacher's class clipboard, highlighting important information, such as SEND, PP and More Able students. Information for each lesson will be in the students' booklets and additional sheets will be available to allow all students to access the curriculum. Key words, will be available around each specialist room and on mats for each table when accessing written work.

To ensure excellent implementation we endeavour to keep all our teaching materials up to date and relevant, for example the SL has just ordered a heat press to bring the Textiles area up to date with Computer Aided design and Manufacture. The SL will also train staff how to use the complex

Textiles machinery that is available. Regular updates will be investigated through the DATA websites and the links the SL has with Technology department through the Design Technology forum.

The Design Technology rotation (as per table) will enable all students to access all the specialisms throughout their journey through St Osmund's and further to THS. Keeping staff in their specialism in KS3, will enable students to have a wider and in-depth understanding of that specialism, as staff will be able to fine-tune areas that work and improve areas that do not work as well. Projects will be able to be reviewed, if certain elements need reviewing.

The SL has extensive knowledge of Design Technology GCSE and A-Level, so she will be able to implement key processes and knowledge to support students and their transition to THS.

Curriculum Impact:

- **Ensuring student progression**

Student's knowledge of Design Technology will grow through their journey from year 5 to year 8. Regular interim assessments will take place, to embed the theory knowledge needed for GCSE. Students will be introduced to key theory vocabulary and processes. The work of other Designers will be introduced and a 'Designer of the Week' will be on display. Through practical lessons, students will problem solve and create solutions, to complex design situations.

Underperforming students are identified in each class. Subject teachers offer support, which is mainly in class along with peer support which is evident in seating plans. Task planners and scaffolding within lessons, will enable these students to move forward.

- **Additional opportunities to learn**

The SL will organise Design Technology clubs after school, particularly in the area of Textiles. Students will also have access to the Half Termly Design Challenge and be able to create through discovery. The SL will investigate the possible extended learning opportunities by visiting the Victoria and Albert museum/Design Museum (when circumstances allow).

Year 5:

BENCHMARK PROJECT: Gyroscope

Food: Healthy me

Textiles: Felt creatures

Resistant Materials: Bridges and structures

Year 6:

BENCHMARK PROJECT: Gyroscope

Food: Funky Fruit

Textiles: Sea inspired cushion

Resistant Materials: photo frames

Year 7:

BENCHMARK PROJECT: Zoe-Trope

Food: Veggie Heaven

Textiles: Pencil cases

Resistant Materials: Bug hotels

Year 8:

BENCHMARK PROJECT: Zoe-Trope

Food: Food through the ages

Textiles: T-Shirt Project

Resistant Materials: Acrylic Clock

Each project will run for a whole term and the KS3 groups will move teachers, so that they experience different teachers throughout the carousel. The teacher will remain teaching in a 'specialism' and we will work with teachers whose strengths are in that specialism.

In KS2 the groups will remain with their teacher, but move to each of the specialist rooms, to allow for a more nurturing/primary approach.

Students will work in booklets

Students in KS3 will have Design Technology once per fortnight (double lesson) and will complete a practical lesson every second lesson where possible. This will be problematic in food with regards to the two week period between demonstration and practical completed by the students, however a brief re-cap will be given at the beginning of each practical. If students make excellent progress in the Textiles and Resistant Materials areas, students may be able to complete the practical in most lessons.

Students in KS2 will have an hour lesson once per week, and the group will be split into 15 to complete a practical. Students not cooking, will complete work in their booklets, with the support of a TA/technician.

Student numbers have been agreed for September 2022 and these will be 20 in each class throughout KS3 to allow for Health and Safety and in accordance with government guidelines.

In KS2, class sizes will be 30, the teacher will make informed decisions regarding the Health and safety, and only allow a small number of students to use the machines at any one time on a rotational basis. This will allow the students to experience using the equipment, with a thorough assessment to risk, being taken into account.