Long Term Mapping 2025 – 26

KS3 – Year 9 – Design and Technology

Subject Intent/ Aims:

The hope is that Design and Technology provides knowledge and builds on the realisation that most of the items or products we interactive with on a daily basis are designed by humans, for humans for a reason. Students should be made aware that Design and Technology provides solutions for human needs and desires. Students are to know that design is there to aid comfort, transport, physical needs, communication, health and also for aesthetic reasons. Real world problems are used to develop the students understanding of the huge, life-changing role and impact a designer can have.

The Design and Technology department has a programme of study the follows the aims of the national curriculum. Within this, pupils are given the opportunity to learn how to understand and apply basic principles of Design and Technology, analyse problems whilst confidently providing solutions, and acquire competency in using the design process.

The overall intention of the Design and Technology department at St Philip Howard to provide the pupils with a safe and engaging learning environment, that will foster a love for learning and acquire a wide range of knowledge and skills that could have a huge benefit on their lives in and out of school.

St Philip Howard Catholic Voluntary Academy
Department Planning

Key Concepts - Advent	Key Concepts – Lent	Key Concepts - Pentecost
• Health and Safety Introduction- how to be safe in DT. • The Design Brief – Introduction to the project and design process. • Analysis- 5 concepts – Target market, aesthetics, function, safety and Materials and processes	• Research – existing products, logos, and slogans. • Specification – To learn the specifics and requirements of the brief. • Designing – Incorporate all aspects from research and analysis and design their project.	• Development- Model ideas • Making- Using the required tool , equipment and materials . Make their project from their design ideas. • Assessment and evaluation of project.
National Curriculum Coverage	**National Curriculum Coverage**	**National Curriculum Coverage**
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture] and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. • Analyse the work of past and present professionals and others to develop and broaden their understanding. • 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 by analyzing different areas such as function, safety , aesthetics and materials and processes..	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture] and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. • 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 to generate creative ideas and avoid stereotypical responses.	Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in the manufacturing process. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture] and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. •Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups • Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations. Making- Using the required tool, equipment and materials. •Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

St Philip Howard Catholic Voluntary Academy
Department Planning

Components		Components		Components	
Term 1	*Term 2*	*Term 1*	*Term 2*	*Term 1*	*Term 2*
• Revision of Health and Safety- workshop, tools and materials. • Graphics and Resistant Materials projects. Cam toy project. • Develop/ revisit an understanding of the Design Process. • Steps 1-8: • Design brief, Analysis, Research, Specification, Design Ideas, Development, Making and Evaluation.	• Pupils understand how to analyse a product. This is where pupils demonstrate an understanding of the design brief. Pupils will conduct existing product research and analysis in the form of a mind map in preparation for designing.	• Pupils understand how to research existing products. This is where pupils develop a further understanding of the design brief. Pupils will conduct existing product research. Conduct research and development in preparation for designing.	• Specification • This is where pupils develop an understanding of the design brief and become specific about the outcome they produce. Specifics – Eg. Must have a working cam. Must be aesthetically pleasing. • Designing – Initial, develop and final In relation to Cam toy • Pupils will take their research and analysis and develop a range of design ideas. This give the pupils the opportunity to Retrieve, Revisit and Recall prior knowledge. Pupils will apply an element of math's to their design by adding dimensions to drawings. This also prepares the pupils for future curricular links to Engineering. • Motion and different types of movement.	• Modelling • Pupils will develop their design ideas and then create a design of a cam toy. This will involve Math and Science knowledge making sure they understand how the cam operates. • Final design • Pupils will then take their chosen design and make it. This combines all prior knowledge (RRR). Health and safety, designing and modelling. • Making • Pupils learn and develop a range of new practical skills. Use of machines. Pupils put these skills into practice. Example- Independently using a scroll saw or a pillar drill.	• Production and finishing of a product/project. This is to include an evaluation of the project. • Pupils will peer assess each other's work. Reference to TLJ- a literacy task will be completed where pupils reflect upon their learning and make reference to the design process. This will include RRR all different aspects of the project from start to finish. Mnemonic – reference to design process. Dual coding technique linked to metacognition (thinking emoji) and questioning linked to TLJ.

St Philip Howard Catholic Voluntary Academy
Department Planning

HO Knowledge		**HO Knowledge**		**HO Knowledge**	
Term 1	*Term 2*	*Term 1*	*Term 2*	*Term 1*	*Term 2*
❖ Can evaluate and interpret a design brief. ❖ Can analyze a product using 5 key areas. ❖ Can suggest a range of solutions to potential safety issues.	❖ Can research the most important features of a product. ❖ Can combine multiple skills and knowledge to produce a well-presented presentation.	❖ Can interpret their research and produce a detailed specification. ❖ Can determine the situation of a product and identify their target market.	❖ Can create a range of initial ideas using their research. ❖ Can create a range of designs from their initial ideas. ❖ Can make judgement on how to create a final design idea.	❖ Can create a model from their final design idea. ❖ Can experiment with different graphics materials and media to create an accurate model. ❖ Can effectively use a range of tools and processes to make their final design idea.	❖ Can recognize previous learning to make their final product. ❖ Can carry out quality control when making. ❖ Can include numeracy when making. ❖ Can evaluate in detail and reflect on previous learning.

Composite Skills		**Composite Skills**		**Composite Skills**	
Term 1	*Term 2*	*Term 1*	*Term 2*	*Term 1*	*Term 2*
➢ The dangers of a DT workshop (recap). ➢ Methods to stay safe in the workshop(recap). ➢ The Design Process- ➢ Pupils need to understand where they are working and how to progress in the subject/topic. • Analysis • Research • Specification • Design ideas. • Development • Making • Evaluation.	➢ Produce a spider diagram: ○ Aesthetics ○ Function ○ Safety ○ Target Market ○ Materials and processes. ➢ Cross curricular links with English, Math's, Science, Art, and Engineering. This will be done by including sizes. Researching different materials (metals and polymers), research and analysis of products. Research different cultures from around the world. Designing using different graphics media.	➢ The use of different software (Techsoft and PowerPoint) ➢ Technical knowledge of Cam movements. ➢ understand different Cam movements and identify how reciprocating motion turns into linear motion.	➢ Understand how to use their research and analysis and create some initial design ideas. ➢ Using initial designs create a range of ideas in more detail with reference to their specification. ➢ Incorporate all design ideas and produce a final idea. Reference to the brief and their research and analysis must be evidenced.	➢ Pupils will make cross-curricular links with maths and engineering This will include a design task. Pupils understand the link by designing. ➢ Pupils get to use the equipment in the Design and Technology building. Laser cutter, scroll saw, different range of hand tools, different graphics media and software.	➢ understanding of the design process. This will be completed and end with an evaluation of the stages. ➢ Pupils are to reflect on their work. Emphasis on being a critical thinker as well as being positive. WWW & Presented in an extended writing task. This will include RRR all different aspects of the project from start to finish. Mnemonic – reference to design process. Dual coding technique linked to metacognition links to TLJ.

St Philip Howard Catholic Voluntary Academy
Department Planning

Final composition/ Deliberate Practice		Final composition/ Deliberate Practice		Final composition/ Deliberate Practice	
Term 1	*Term 2*	*Term 1*	*Term 2*	*Term 1*	*Term 2*
○ Written skills in analysis and product research.	○ Discussion about product analysis and presentation of their findings. ○ Introduction to logo and cam movements.	○ Pupils will complete a PowerPoint and complete research with reference to the design brief.	○ Pupils will complete a specification. Pupils will be verbally tested and metacognition RRR techniques will be practiced in class. ○	○ Pupils will develop initial design ideas. They will use their initial designs and select a range of ideas to then create a final idea. Pupils must understand cam movement – reciprocating motion to linear.	○ Pupils will manufacture their product. ○ Pupils will evaluate their product. ○ Pupil will prepare and complete the end of project assessment

Assessment/s (Formative and Summative)

Term Dates	Sept/Oct	Nov/Dec
Curriculum content (Ongoing formative assessments. WWW EBI)	Week starting 23-9-24 Week starting 21-10-24	Week starting 18-11-24 Week starting 16-12-24
Assessment (Summative assessment. Synoptic Quiz)	Week starting 14-10-24	Week starting 25-11-24
Feedback	Week starting 14-10-24	Week starting 9-12-24

**Dates are to be amended for future/new academic years.*

Assessment/s (Formative and Summative)

Term Dates	Jan/Feb	Feb/Mar/Apr
Curriculum content (Ongoing formative assessments)	Week starting 13-1-25 Week starting 10-2-25	Week starting 3-3-25 Week starting 31-3-25
Assessment (Summative assessment. Synoptic Quiz)	Week starting 20-1-25	Week starting 10-3-25
Feedback	Week starting 3-2-25	Week starting 24-3-25

Assessment/s (Formative and Summative)

Term Dates	Apr/May	June/July
Curriculum content (Ongoing formative assessments)	Week starting 28-4-25 Week starting 12-5-25	Week starting 16-6-25 Week starting 14-7-25
Assessment (Summative assessment. Synoptic Quiz)	Week starting 5-5-25	Week starting 30-6-25 (End of year assessment)
Feedback	Week starting 19-5-25	Week starting 7-7-25

St Philip Howard Catholic Voluntary Academy
Department Planning

Key Terms				Key Terms			Key Terms		
Term 1		*Term 2*		*Term 1*	*Term 2*		*Term 1*		*Term 2*
Health and Safety The Design process: Analysis Research Product analysis Specification Making Modelling Evaluation	Aesthetics Function Safety Target Market Materials Processes	Tenon saw Coping saw Scroll saw Sanding smooth Graphics Specification Target Market Function	Design Age Gender Eye catching Colour Form Function Logo Cam Reciprocating Linear motion	Research PowerPoint Software Annotate Design Shape Tools Customer	Initial Range Final Specify Quality Characteristics Cam Slider Mechanism Movement	Model Make Process Machine Feature Critical Transformation Variables Explain Describe	Product Analyse Existing Products Materials Processes Measure NET 3D Test Reciprocating Linear motion	Analytical Feature Critical Advantage Disadvantage Explain Describe Metal Cam Test	Dimensions Final Ergonomics Environmental Materials Quality checks Evaluative

St Philip Howard Catholic Voluntary Academy
Department Planning

Literacy/ Numeracy/ Cross-Curricular Links		Literacy/ Numeracy/ Cross-Curricular Links		Literacy/ Numeracy/ Cross-Curricular Links	
Term 1	*Term 2*	*Term 1*	*Term 2*	*Term 1*	*Term 2*
Literacy Opportunity for literacy – written analysis in the form of a spider diagram. Students will be required to answer questions and be successful metacognitive learners. **Numeracy** There is limited need for numeracy in this topic; there is a need for students understand dimensions and sizes. **Cross-Curricular** English and math. Literacy tasks in line with the learning journey. Numeracy tasks in line with the learning journey. Research – Literacy task different cultures and products. Cross-Curricular – English (literacy – write up tasks) Math (measuring and application of sizes and dimensions) Science (knowledge of materials such as wood, metals and polymers) Art (designing) Computer Science (use of computers and different programs eg Techsoft)	**Literacy** Opportunity to write up research and product analysis. Peer assess and self-reflection task **Numeracy** Numeracy use. Research and explain size of existing products **Cross-Curricular** English and math. Literacy tasks in line with the learning journey. Numeracy tasks in line with the learning journey. Links to KS4 subject Engineering. Reference made to materials.	**Literacy** links with English, Maths, Science, Computer Science, Art, History and Engineering. The main literacy will come from the students learning new terms within the topic. Key terms test will help with this. **Numeracy** – size and dimensions associated with project. **Cross curricular** This will be done by including sizes to drawings, researching different materials (metals and polymers), the use of different software (Techsoft and PowerPoint), research and analysis of products and different cultures from around the world and designing using different graphics media.	**Literacy** The main literacy will come from the students learning new terms within the topic. Key terms test will help with this. **Numeracy** Pupils will touch on numeracy briefly in this topic, as spreadsheets deals with numbers and data. **Cross-Curricular** Math's as numeracy will be used.	**Literacy** Evaluation – Literacy task Cross-Curricular – English (literacy – write up tasks) **Numeracy** size and dimensions associated to project Math (measuring and application of sizes and dimensions) Science (knowledge of materials such as wood, metals and polymers) **Cross-Curricular** Art (designing) Computer Science (use of computers and different programs eg Techsoft)	**Literacy** Evaluation task Reflection task linked to metacognition **Numeracy** Checking sizes QA and QC **Cross-Curricular** All revisited through revision sessions. Engineering QA and QC references.

St Philip Howard Catholic Voluntary Academy
Department Planning

SMSC	British Value	RSHE
✓ *There will be multiple opportunities for students develop spiritually; being creative in their learning with the different ways in which they create a range of research and analysis.* ✓ *The high expectations placed on the student from the school and department mean that pupils will regularly be made aware of the right and wrong morally; especially through the use of Q and A in the classroom in line with the learning journey .* ✓ *Pupils are expected to share the views morally on the different topics but also show respect and appreciate others in the classroom.* ✓ *The majority of topics will give the students an opportunity to develop their social skills, from peer assessment opportunities to working in group tasks.* ✓ *When researching products from around the world pupils will understand and appreciation of different cultures.*	✓ *Students will be taught the legal implications of using the internet and social media.* ✓ *Students will be taught to fully appreciate other students' viewpoints and the importance of being respectful when researching on a computer.* ✓ *Students will be taught the importance of selecting valid information from reliable sources for any presentation tasks that they do.* ✓ *Students are taught how to contribute to life in modern Britain by learning about the history of products.* ✓ *Students will be learning how to display British Values to use the internet and social media positively. The rule of law associated to products that are imported into the country.*	✓ *The students will be taught about how to be safe online and the dangers.* ✓ *The students will be made aware of online relationships and the sexual issues that may arise.* ✓ *The students will be regularly conversed on their physical and mental health when overusing computers.* ✓ *Working collaboratively in the classroom. Peer assessing and buddy up low ability with higher ability.*

St Philip Howard Catholic Voluntary Academy
Department Planning

Adaptive Curriculum Content	Adaptive Curriculum Content	Adaptive Curriculum Content
• Clear instructions on PowerPoint • Adapted handouts • Demo of practical tasks • Extra time given during RRR and mid-term assessments • Homework adapted • The end of topic assessment modified to reflect the topics covered by certain classes and ability levels.	• Clear instructions on PowerPoint • Adapted handouts • Demo of practical tasks • Extra time given during RRR and mid-term assessments • Homework adapted • The end of topic assessment modified to reflect the topics covered by certain classes and ability levels.	• Clear instructions on PowerPoint • Adapted handouts • Demo of practical tasks • Extra time given during RRR and mid-term assessments • Homework adapted • The end of topic assessment modified to reflect the topics covered by certain classes and ability levels.

Adaptive Implementation Practices

Practices used during each unit of work

Adaptive Instruction: *Class instructions adapted to meet the needs of students by providing varied materials, activities, and assessments.*	***Scaffolded Instruction:*** *Break down complex concepts into smaller, more manageable steps, providing additional support and guidance as students' progress through the material.*	***Formative Assessment:*** *Use ongoing assessments, such as quizzes, discussions, and peer reviews, to continuously monitor student progress and provide timely feedback.*	***Pace:*** *Time given to students to organise equipment and resources at their own pace.*