DMS Curriculum Plan 2026-27

SUBJECT: Resistant Materials

At Dorchester Middle School, as part of our planning in Design Technology we ensure that pupils can remember more and learn more by weaving knowledge and skills throughout units of learning so that children have time to practice, discuss, reflect and revisit what they have been taught. We carefully follow the National Curriculum and ensure learning is progressive and sequential, giving pupils the opportunity to build on and apply previous knowledge in all units before developing further skills in this subject.

Key Skills in this subject are:

KEY SKILL	EXPLANATION
Independent learning	By the end of the rotation, pupils will have grown in confidence and independence. They will know how to use the workshops safely and where to independently locate the equipment and resources they will need to succeed in the lessons. They will develop resilience and problem solving skills by engaging in practical design and making activities that support curricular learning at secondary education level. The curriculum is designed to encourage the development of important life skills in a practical, enjoyable and meaningful way.
Knowledge of specialist tools and equipment	They will have experienced using a range of specialist tools and equipment. They will learn the correct names and uses for a range of hand tools and machinery. They will know how to work safely in the workshops and develop skills to use the tools with accuracy.
Research and Design	They will have followed the design process in order to engage in the iterative process of design and making. They will have researched and investigated the problem, analysing existing products and considering ergonomics and the work of others. They will have developed and written their own specification to inform the design and function of their practical project. They will have used a variety of design strategies to develop their ideas and present them using 2D and 3D sketching techniques.
Making	They will have individually made a unique high-quality practical product in hard materials. They will have developed and mastered a growing range of skills and processes. Practical outcomes will be photographed and recorded in their books.

Evaluating	They will be able to analyse the work of other designers to broaden their understanding of function and aesthetics. They will be able to talk and write about their research, ideas and making reflecting upon their personal thoughts. This would include successes, challenges and product improvements. They will be able to analyse how the product fulfils their specification and the user's needs, wants and values. They will be key vocabulary alongside developing their spelling confidence.

- ✔ Knowledge pupils will have learnt by the end of each half term.
- ✔ Summative assessment completed by pupils to check their learning each term.

	Year 5 Acrylic Key Fob and Packaging Decorative Door Hanger	Year 6 Acrylic Cable Tidy Wooden Puzzle	Year 7 Decorative Storage Unit	Year 8 Acrylic Clock
KNOWLEDGE	How to use the workshops safely. How to research and design original ideas of their own. Know how to present design work to a high standard using coloured crayons and drawing methods. Know the correct names of tools and	How to use the workshops safely. How to research and design original ideas using ICT. Know the correct names of tools and equipment for working with a range of woods. How to use and select the correct	How to use the workshops safely. How to research existing ideas through a range of investigation techniques such as product analysis, ICT and media. How to develop different ideas using gathered research.	How to use the workshops safely. How to research existing ideas through a wide range of investigation techniques such as product analysis, ICT and media. How to use this research and develop design criteria to inform the design of

	equipment for working with hard materials acrylic and wood. How to use and select the correct tools for acrylic plastic and different types of wood. Know how to mark out and measure accurately. Know how to cut out accurately using hand saws. Know how to smooth acrylic and mdf wood to achieve a high-quality finish using hand tools and machinery. Know key generic design vocabulary relating to design technology such as design, research, ideas, evaluate.	tools for different types of acrylic and wood. Know how to mark out and measure accurately. Know how to cut out accurately using hand saws and the jigsaw. Know how to smooth and prepare woods and acrylic to achieve a high-quality finish using hand tools and machinery. Know and recognise key design vocabulary relating to Resistant Materials. Know how to decorate hard materials to achieve a high-quality finish. How to work independently on an individual project in order to achieve a	How to draw isometric and render using tone and texture. Know the correct names of a wider range of tools and equipment and how they are used to carry out practical tasks such as marking out, cutting, shaping and finishing. Know the correct names of machines and how to use them with accuracy including the sander, pillar drill and jigsaw. Know how to select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities. Know, recognise and learn the correct	innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. How to use ACCESS FM to develop a specification to inform the design of innovative, functional, appealing products that respond to needs in different situations. Know how to present a range of design ideas to a high standard using rapid drawing technique methods and orthographic projection. How to use iterative processes to develop an idea. Know how to select from and use specialist tools,

	Know how to decorate acrylic and wood. How to work independently on an individual project in order to achieve a quality practical outcome. Know how to evaluate ideas and products reflecting upon their work.	high-quality practical outcome. Know how to test and evaluate ideas and products reflecting upon their work and that of others in the group.	spelling of key design vocabulary relating to Resistant Materials. Know how to achieve a high quality paint finish on wood. How to work independently on an individual project following the design process. Know how to evaluate ideas and products against design criteria and consider the views of others to improve the work.	techniques, processes, equipment and machinery including computer-aided manufacture Know how to select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties Know how to use CADCAM to produce high quality vinyl decorations. How to work independently on an individual project following the PRIME design process and stages of making. Know how to analyse the work of past and present professionals and others to develop

				and broaden understanding. How to test, evaluate and refine their ideas and products against a specification, taking into account the views of the intended user.
SKILLS	To use the specialist workshops safely. To research and design original ideas and present them neatly. To be able to select the correct tools for working with acrylic and different woods. To be able to mark out on acrylic and woods. To develop skills using hand tools and holding devices such	To use the specialist workshops safely and confidently. To research and design simple ideas and present them using sketching methods following their own brief and specification. To be able to select the correct tools for working with a broader range of materials including modelling prototypes.	To use the specialist workshops safely and confidently and be able to recognise risks and hazards associated with the specialist tools and equipment. To research and design original ideas and present them using different methods following a considered design brief and specification.	To use the specialist workshops safely and confidently and be able to recognise risks and hazards associated with the specialist tools and equipment. To research and design original ideas through a process of iteration exploring a wide range of possibilities To be able to present ideas using 3D drawing and

	as clamps and vices to cut and shape hard materials. To be able to experiment with new materials in order to create a quality practical outcome. To be able to evaluate their ideas and products and consider the views of others to improve their work. To be confident and independent makers..	To be able to mark out, measure and transfer design ideas onto hard materials using a variety of methods. To further develop skills and self confidence using hand tools and holding devices to cut and shape hard materials. To be able to experiment with new materials and processes in order to create a high-quality practical outcome. To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	To independently mark out, measure and transfer design ideas on to acrylic and woods using the correct tools with accuracy. To confidently be able to select the correct tools for working with a broader range of materials including adhesives, vinyls, colour fast finishes, acrylics, natural and manufactured wood. To consolidate learning and further develop self-confidence and resilience when making practical projects.	modelling methods to meet a considered design brief and specification written using ACCESS FM. To be able to select from and use a broad range of materials and components, according to their functional properties and aesthetic qualities while creating a high quality product. To confidently be able to select the correct tools and machinery for working with a broader range of materials drawing on knowledge from previous years.

SUMMATIVE ASSESSMENT 1	This will be predominantly formatively assessed based on their design technology workbooks and finished practical outcomes. The resistant materials work books will be used from year 5 through to year 8 highlighting progression for the duration of the rotation. Designing, making, evaluation and one piece of set homework will contribute to the overall end grade.			

Curriculum Enrichment Trips	Year 6 STEM workshops in partnership with Thomas Hardye School during the summer term to work on a Dyson Challenge. Groups of 16 x 2 workshops.
Maths	Measurement and shape.
English	Key word spellings, writing in full sentences, SPAG, writing extended paragraph for evaluations, and annotating design drawings. Written starter tasks. Glossary of terms and key spellings for reference in books.
Science	Properties of materials and adhesives. Environmental issues and forestry. Polymers and the effects of heat on acrylic.
Art	Drawing techniques. Rendering with crayons. Model making in card. Presentation of design ideas. Graphic designs. Painting and the colour wheel. History of design.
Geography	Eden project biomimicry.
STEM	Structures and joining methods.
ICT	CADCAM. Research and investigation using the internet.