DESIGN AND TECHNOLOGY DEPARTMENT

READING IMPACT STATEMENT

Reading is a priority across the whole curriculum. We strive to provide language rich environments and a curriculum where children actively engage with high quality vocabulary.

DESIGN AND TECHNOLOGY IMPLEMENTATION	DESIGN AND TECHNOLOGY IMPACT
Staff engage in CPD related to general literacy strategies, reading and disciplinary literacy.	General literacy strategies, reading and disciplinary literacy approaches are written into schemes of learning, and notes on power point resources *e.g. 'This is how we read like a designer.'* All staff are instructed how to deliver these strategies.
We give explicit vocabulary instruction	Etymology of words and prefixes and suffixes are explored e.g., teaching 'tensile' from the Latin meaning 'stretched or drawn out' in relation to the tensile strength of materials. Pupils are enabled to use tier 2 and 3 vocabularies verbally and in written work.
We use reciprocal reading strategies - questioning, clarifying, summarising and predicting	This contributes to students improving their reading comprehension, and thus becoming better readers.
Incorporating non-fiction reading texts into our curriculum	This fosters curiosity and allows us to add breadth to the curriculum. Some are written into homework tasks. Some are turned into Microsoft Teams comprehension activities that all pupils engage with.
Modelling the use of new vocabulary in class	By modelling the use of sophisticated words, we promote students' vocabulary growth and word consciousness. This can be selected from suggested subject specific tier 2 and 3 vocabulary words.
Marking and feedback where we use the code 'V' to highlight vocabulary that is tier 1 and should be made tier 2 by the pupil and the code 'Sp' to alert pupils to spelling they need to correct	This improves pupils' literacy by allowing them to self check and review their work within the subject.
There are specific references in our Schemes of Learning to what language is to be taught and how	This ensures consistency of approach from all staff teaching the subject and does not rely on assumption of what each teacher knows.

VOCABULARY GUIDANCE FOR DESIGN AND TECHNOLOGY

TIER 2 VOCABULARY:

Tier 2 vocabulary refers to a specific category of words that are **more advanced and sophisticated than basic, everyday words** but **not** as specialised as domain-specific or technical words. These words found in various contexts and are crucial for understanding and expressing oneself effectively in both written and spoken communication.

Tier 2 vocabulary consists of words that are commonly used by educated individuals, including professionals, academics, and individuals with higher levels of literacy. They are often found in literature, newspapers, magazines, and formal conversations. These words are more precise, nuanced, and specific in meaning, allowing for greater clarity and depth of expression.

Examples of tier 2 vocabulary in Design and Technology include words like "analyse," "innovate," "prototype," "iterate," "fabrication," "automation," "interdisciplinary," and "precision." These words go

beyond simple everyday language and provide a higher level of precision and sophistication in communication.

Proficiency in tier 2 vocabulary is important for academic success, professional advancement, and effective communication in various domains. It helps individuals express complex ideas, engage in critical thinking, and comprehend advanced texts. Building a strong tier 2 vocabulary is often a focus of language instruction and literacy development, as it enhances language skills and expands one's ability to navigate and participate in higher-level communication.

TIER 3 VOCABULARY:

Tier 3 vocabulary refers to words that are **highly specialised, technical, or domain specific**. These words are usually limited to specific fields, such as science, mathematics, technology, law, medicine, or other specialised areas of knowledge. Tier 3 vocabulary is not commonly used in everyday conversations or general writing.

Unlike tier 2 vocabulary, which consists of words that are more broadly understood and used by educated individuals, tier 3 vocabulary is more specific and less likely to be encountered outside of specific contexts. These words often require a deep understanding of a particular subject or domain to comprehend and use them accurately.

Examples of tier 3 vocabulary include terms like "polymerisation," "isometric," "CNC machining," "rapid prototyping," "biomimicry," "nanotechnology," and "elastomer." These words are highly technical and carry specific meanings within Design and Technology.

Mastery of tier 3 vocabulary is essential for individuals working or studying in specialised fields. It allows professionals to communicate precisely and effectively within their area, understand technical literature, and engage in specialised discussions.

When teaching or learning tier 3 vocabulary, it often requires specialised instruction and exposure to the relevant field or subject matter.

YEAR 7 GRAPHIC DESIGN		
Tier	**Word**	**Definition**
2	**Design**	The process of creating something with a purpose, like a logo or a poster.
2	**Imagery**	Using pictures and visuals to express ideas and messages.
2	**Composition**	Arranging and organising different parts (like images and text) in a design.
2	**Typography**	The style and appearance of letters and text in a design.
2	**Colour theory**	Learning how colours work together and what feelings they can evoke.
2	**Colour association**	Connecting specific colours with feelings or ideas.
3	**Logo**	A special symbol or design that represents a brand or a company.
3	**Poster**	A big picture or image used to advertise or promote something
3	**Digital**	Relating to technology and using computers or digital tools for design
3	**Appropriate**	Choosing things that are suitable or right for a specific purpose
3	**Hierarchy**	Arranging things in order of importance or importance levels
3	**Contrast**	Differences between colours, sizes, or shapes to make things interesting
3	**Alignment**	Making sure everything is in the right place and looks neat
3	**Balance**	Making things look steady and equal in a design
3	**Proportion**	The sizes and ratios of different parts in relation to each other
When explaining these terms, you can use examples that are relatable to their daily lives, such as comparing designing a logo to drawing a special symbol for their favorite sports team or discussing how		

they can use different colours and pictures to create a cool poster for their school event.		
YEAR 7 PRODUCT DESIGN		
Tier	**Word**	**Definition**
2	**Product design**	The process of creating and planning a useful item, like a torch, that people can use.
2	**Hand tools**	Tools that you use with your hands, like a junior hacksaw, file, sandpaper, vice, and screwdriver.
2	**Workshop**	A special place where you can work on your projects, usually equipped with tools and equipment.
2	**Design brief**	A description or set of instructions that tells you what to create and what it should be like.
2	**Acrylic**	A type of strong and transparent plastic material that can be shaped and used for making things
2	**LED**	A small and energy-efficient light bulb that can emit light when electricity passes through it.
2	**Nuts and bolts**	Small metal pieces that can be screwed together to hold parts of a product together.
2	**Cultures**	The ideas, customs, and ways of life of different groups of people from around the world.
3	**Personal protective equipment**	Special items you wear, like aprons and eye protectors, to keep yourself safe during activities.
3	**Junior hacksaw**	A small saw with a handle that you can use to cut through materials
3	**File**	A tool with a rough surface that you can use to shape and smooth rough edges.
3	**Sandpaper**	Rough paper used for smoothing surfaces and making them even.
3	**Vice**	A device with movable jaws that you can use to hold materials securely while working on them
3	**Screwdriver**	A tool used for tightening or loosening screws.
When explaining these terms, you can provide examples specific to their project, such as describing how they can use sandpaper to make the surface of their acrylic torch smooth or how they should wear eye protectors to keep their eyes safe while using tools. Additionally, you can discuss the different cultures they could explore for inspiration, such as using patterns or symbols from different countries to decorate their torch.		
YEAR 8 RESISTANT MATERIALS		
Tier	**Word**	**Definition**
2	**Resistant materials**	Materials that are durable and can withstand wear and tear.
2	**Computer-aided design (CAD)**	Using computer software to create and design products.
2	**Computer-aided manufacture (CAM)**	Using computer-controlled machines to manufacture or produce products.
2	**Design brief**	A description or set of instructions that outlines what the product should be like and what it needs to do.
2	**Manufactured board**	A type of wood-based material that is made by binding wood fibres or particles together, such as MDF (Medium-Density Fibreboard), plywood, and chipboard.
2	**Analyse:**	: To carefully examine and study the design brief to understand its requirements and constraints.
2	**Outcome**	The final result or product that is produced based on the design brief.
2	**Precision**	The quality of being accurate and exact in measurements and cuts.
3	**2D Design**	A specific computer software program used for creating 2D designs and

		drawings.
3	**MDF (Medium-Density Fibreboard)**	A manufactured board made by compressing wood fibres with resin to create a strong and smooth material.
3	**Plywood**	A type of manufactured board made by layering thin sheets of wood veneer together with adhesive.
3	**Chipboard**	A type of manufactured board made from wood chips and resin, often used for furniture or construction.
3	**Design and technology**	A subject or unit of work that involves designing and making products using various materials and technologies.
3	**Laser cutting**	A process that uses a laser beam to precisely cut or engrave materials.
3	**Laser cutter**	A machine that uses a laser beam to cut or engrave materials with precision.
3	**Constraints**	The limitations or restrictions that need to be considered when designing and manufacturing a product.

When explaining these terms, you can provide examples that relate to their project, such as describing how they will use the computer software to create a design for their product or how the laser cutter will help cut the manufactured board accurately. Emphasise the importance of following the design brief and considering the different materials available for their project.

YEAR 8 TEXTILES

Tier	Word	Definition
2	**Textiles**	Materials or fabrics used to make products like clothing or accessories.
2	**Manufacture**	The process of making or producing something, in this case, a textile product.
2	**Felt**	A type of fabric made from compressed fibres, often used for crafts and soft toy.
2	**Hand sewing**	Sewing by hand using a needle and thread.
2	**Needle**	A thin, pointed tool used for sewing, with a small hole for threading the thread through.
2	**Thread**	A thin strand of material used for sewing, usually made of cotton or synthetic fibres.
2	**Stitches**	The basic loops or patterns made by sewing with a needle and thread.
2	**Cross stitch**	A type of stitch that forms an "X" shape, often used for decorative purposes.
2	**Running stitch**	A simple stitch made by passing the needle in and out of the fabric in a straight line.
2	**Back stitch**	A strong and durable stitch made by passing the needle backward to create overlapping stitches.
2	**Blanket stitch**	A decorative stitch often used to edge or secure the fabric, creating a looped appearance.
2	**Applique**	The technique of attaching one fabric onto another, often used for decorative purposes.
3	**Environmental implications**	The impact on the environment caused by certain actions or practices, such as the production and disposal of textiles.
3	**Ethical implications**	The moral considerations and consequences related to the choices made in the textile industry, such as fair treatment of workers or sustainable practices.
3	**Fast fashion**	A term used to describe the quick production and consumption of inexpensive, trendy clothing that may contribute to environmental and social issues.
3	**Man-made fabrics**	Fabrics created through chemical processes or synthetic fibres, like polyester or nylon.

3	**Natural fabrics**	Fabrics made from naturally occurring materials, like cotton or wool.
When explaining these terms, you can use examples and visuals related to their textile project, such as discussing how to hand sew felt to create a soft toy or explaining the different types of stitches they can use to secure fabric pieces together. You can also discuss the importance of considering the environmental impact of the textile industry and the choices we make in terms of fabric selection and production methods.		
YEAR 9 GRAPHIC DESIGN		
Tier	**Word**	**Definition**
2	**Graphic design**	The art of combining visuals and text to create visual communication.
2	**Colour theory**	The study of how colours work together and the emotions they can evoke.
2	**Colour association**	The connection between specific colours and the feelings or ideas they represent.
2	**Composition**	The arrangement and organization of visual elements in a design.
2	**Saturate**	To increase the intensity or purity of a color in a design.
2	**Resolution**	The clarity and detail of an image, often measured in pixels per inch (PPI) or dots per inch (DPI).
2	**Gradient**	A gradual transition between colors or tones in a design.
2	**Symmetry**	The balanced distribution of visual elements on either side of a central point or axis.
2	**Typography**	The art and technique of arranging and designing type, including fonts and letterforms.
2	**Emphasis**	The strategic use of visual elements to draw attention to a specific part of a design.
2	**Brand Identity**	The visual elements that represent a brand, including logos, colors, and typography.
2	**Suitability**	The appropriateness or fit of a particular design choice for a specific purpose or audience
2	**Target audience**	The specific group of people that a design or product is intended for.
3	**Pixlr**	A digital graphics software used for editing and creating images.
3	**Surrealist**	Referring to the art movement characterized by dream-like or fantastical imagery and unexpected combinations.
3	**Collage**	A technique that involves combining different images or materials to create a new visual composition.
3	**PNG images**	Images with a file format that supports transparency, allowing the background to be removed.
3	**DPI (Dots Per Inch)**	A measure of printing or display resolution.
3	**Serif font**	A font style with small decorative strokes at the ends of characters, often used for formal or traditional designs.
3	**Sans-serif font**	A font style without decorative strokes, known for its clean and modern appearance.
3	**Monochrome**	A design that uses various shades and tints of a single colour, creating a grayscale effect.
3	**Complementary**	Pairs of colours that are opposite each other on the colour wheel and create contrast.
3	**Analogous**	Colours that are next to each other on the colour wheel and create harmony when used together.
3	**Triadic**	A colour scheme that uses three colours evenly spaced on the colour wheel.
When explaining these terms, provide examples and relate them to their design projects. For instance, discuss how complementary colours can create contrast in a logo design, or how the choice of		

typography can affect the overall tone and style of the design. Encourage students to evaluate their designs by considering how well they meet the requirements of the design brief and whether they effectively communicate with the intended target audience.

YEAR 9 ENGINEERING

Tier	Word	Definition
2	**Engineering Design**	The process of creating plans and systems to solve problems or meet specific needs.
2	**Sustainable**	Capable of being maintained over the long term without causing harm to the environment.
2	**Prototype**	A first or preliminary model of something from which other forms are developed.
2	**Implications**	The possible effects or consequences of a particular action, decision, or design.
2	**Materials Use**	The selection and application of materials in the design and construction of a product.
2	**Conversion**	The process of changing or adapting something, in this case, converting shipping containers into other uses.
2	**Model Making**	Creating physical representations of designs to test, visualise, or communicate ideas
2	**Digital Prototyping**	Using computer software to create virtual models of designs for testing and evaluation.
3	**Shipping Container**	A large metal box used for transporting goods across long distances
3	**Sustainability**	The ability to meet present needs without compromising the ability of future generations to meet their own needs.
3	**Adaptability**	The quality of being able to adjust to different conditions or changes
3	**Structural Integrity**	The ability of a structure to withstand its intended load without failing
3	**Renewable Resources**	Resources that can be naturally replenished, such as solar or wind energy
3	**Energy Efficiency**	Using less energy to provide the same service or product
3	**Insulation**	Material used to prevent heat, sound, or electricity from escaping or entering an area
3	**Aesthetics**	The study of beauty and taste, especially in the visual aspects of design
3	**Life Cycle Analysis**	Assessment of the environmental impact of a product throughout its entire life, from production to disposal.

When introducing these terms, it may be helpful to provide real-world examples and encourage discussions about how these concepts apply to the specific unit of work. Encourage hands-on activities—sketching ideas for their prototypes—and highlight the importance of "prototype" and "model making." Discuss the "implications" of their design choices, emphasising how sustainable features positively impact communities and the planet. This approach ensures that students not only understand the terminology but can also apply it meaningfully to their hands-on engineering project.