	BIG PICTURE CURRICULUM PLANNING - KEY STAGE 3 DESIGN AND TECHNOLOGY
The big aims of KS3	Our curriculum design seeks to combine practical and technological skills with creative thinking, in order to design and make products and systems that meet human need. Pupils will learn to use current technologies and consider the impact of future technological developments, and will learn to think creatively and intervene in order to improve quality of life. They will solve problems as individuals and as members of a team. Pupils will develop core technical, designing and making principles involving a wide range of design processes, material techniques and equipment. They will work in stimulating contexts that provide a range of opportunities and draw on the local ethos, community and the wider world in order to identify needs and opportunities, to which they will respond with ideas, products and systems. They will combine practical and intellectual skills with an understanding of aesthetic, technical, cultural, health, social, emotional, economic, industrial and environmental issues. As they do so, they will evaluate present and past design and technology, its uses and its effects. Through design and technology pupils will develop confidence in practical skills and become perceptive evaluators of their own products. They will apply their creative thinking and learn to innovate.
Characteristics of a compelling learning experience	Compelling Learning in Design and Technology is characterised by giving importance to a number of Engineering Habits of Mind (EHOMS). These include: **creativity** - encouraging pupils to seek relevant and **innovative** ways to solve a problem; **open-mindedness; curiosity -** wanting to explore the world and question; **risk-taking -** understanding that *"Sometimes when you innovate, you make mistakes and it is best to admit them quickly, and get on with improving your other innovations."- Steve Jobs*; and **perseverance** - through promoting **resilience** and encouraging **iterative approaches** to design. Compelling Learning also embraces a methodology based on a cyclic process of prototyping, testing, analysing, and refining a product or process. Pupils will develop their ability to communicate their ideas, solutions and evaluations using a variety of media with **integrity** and **objectivity** (use of data and or information to validate observations and explanations fairly). **In ways appropriate to the various disciplines, the curriculum also provides opportunities for pupils to:** • Analyse products to learn how they function • Undertake focused tasks that develop knowledge, skills and understanding in relation to designing and making high-quality prototypes and products for a wide range of users • Engage in design and make assignments in different and progressively more complex contexts, including for purposes and uses beyond the classroom • Develop a pupil's ability to work confidently, safely and skilfully with a range of equipment and ingredients independently • Work individually and in teams, taking on different roles and responsibilities • Work with designers and makers where possible to develop an understanding of the product design process • Use ICT, as appropriate, for image capture and generation, data acquisition, capture and handling, controlling and product realisation • Make links between design and technology and other subjects and areas of the curriculum • Critiquing, evaluating and testing their ideas and products and the work of others • Explore and solve different design problems that relate to real-life contexts, incorporating products from disciplines including Material Technologies, Electronics and Systems, Food Preparation and Nutrition and Textiles
Key concepts	Design and Technology will prepare pupils to participate confidently and successfully in an increasingly technological world. Pupils will gain awareness and learn from wider influences in Design and Technology including historical, social, cultural, environmental, scientific and economic factors.

| | There are a number of key concepts that underpin and are integral to the study of Design and Technology and enhance their engagement with the processes and content of the subject. Pupils need to understand these concepts in order to **deepen and broaden their knowledge, skills and understanding**.

Designing and making: understanding that designing and making has aesthetic, environmental, technical, economic, ethical and social dimensions and impacts on the world. Pupils will understand that products and systems have an impact on the quality of life and explore how products have been designed and made in the past, how they are currently designed and made and how they may develop in the future. They will apply mathematical and scientific concepts alongside the knowledge of materials and production processes to design products and produce practical solutions that are relevant and fit for purpose.

Cultural understanding: understanding how products evolve according to users' and designers' needs, beliefs, ethics and values and how they are influenced by local customs and traditions and available materials as well as exploring how products contribute to lifestyle and consumer choices.

Thinking creatively: making links between principles of good design, existing solutions and technological knowledge to develop innovative products and processes. Pupils will reinterpret and apply learning in new design contexts and communicate ideas in new or unexpected ways, experimenting with ideas, materials, technologies and techniques.

Critical evaluation: analysing existing products and solutions to inform designing and making. Pupils will evaluate the needs of users and the context in which products are used to inform designing and making. They will explore the impact of ideas, design decisions and technological advances and how these provide opportunities for new design solutions.

Design and Technology in Society: pupils will learn about the responsibilities of engineers, designers and technologists by exploring the social, moral, cultural and environmental factors that influence the design of products from 'cradle to grave'. |
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| **Key knowledge** | In order to make effective design choices students will need a breadth of core technical knowledge and understanding particular to the design and technology area they are studying. Please refer to the 'Big Aims' of each individual discipline. |
| **Key skills** | Design and technology develops confident individuals who become increasingly independent and able to take the initiative as they plan and organise activities, and then shape, form, assemble and finish materials and components. Design and Technology enables pupils to try new things and to make the most of opportunities relating to the 'made world'. Pupils can recognise their talent as they visualise alternative solutions when designing and making products and systems. Exploring their own and others' ideas and values, pupils respond resourcefully as they anticipate and overcome difficulties when implementing their ideas. All this increases their confidence in their own abilities and opinions, enhances their feelings of self-worth and prepares them to live safe, healthy and fulfilling lives. A range of technology is available to pupils at Falinge Park High School, offering a broad scope of options with which to manufacture. This includes laser cutting, CNC engraving and routering, CAD packages to design, simulate and communicate (in both 2D and 3D), plotters, thermoforming and metal fabrication.

Skills are taught through iterative processes in which ideas are refined and improved through:

Design - use a variety of techniques and approaches to respond creatively to briefs, developing their own proposals and producing specifications to design products for familiar and unfamiliar contexts. Some of these products will be manufactured by the pupils but some will stop at the design stage, therefore being unconstrained by the need to subsequently make them. Pupils will use their understanding of others' designing in order to inform their own. |

	Make - use a wide range of specialised tools, kitchen appliances, equipment, processes and materials in order to safely create and manufacture prototypes, models and finished products. Sometimes these will be products that the students have designed themselves and sometimes these will be from plans provided for them. Pupils will plan their work and then shape, form, mix, assemble and finish materials, components and ingredients. **Evaluate** – pupils will develop evaluation skills through making and testing/evaluating their own practical work and products, and those of others. They will also evaluate whether tools, equipment and processes were the most appropriate and suggest and justify improvements. Pupils will reflect throughout their development and manufacture, considering the criteria used to: • Judge the quality of products including fitness for purpose, the extent to which they meet a clear need and whether resources have been used appropriately • Establish the impact of products beyond meeting their original purpose and how to assess products in terms of sustainability • Assess aesthetic, technical, constructional and relevant wider issues that may influence designing, selection of materials, making and product development **Communicate -** pupils will be able to communicate their ideas, designs and understanding of technological concepts using a variety of different media including text, a range of drawing techniques, modelling and through talking and discussion.