

Design Technology

"Design is not just what it looks like and feels like. Design is how it works." -Steve Jobs, co-founder of Apple, Inc.

At All Saints Academy the Design and Technology curriculum is designed alongside the Academy vision of *'Living well together with dignity, faith and hope.'* We want our learners to explore the disciplines of design and technology through product design and resistant materials so they can use this knowledge to flourish in the world of work. We hope that students can provide dignified responses to production briefs that are comparable to real world contexts. During the practical application of skills learners will develop confidence and show faith in their ability to design, aligning their hopes and visions to the outcome of the production brief. We would like students to understand how to conduct themselves safely and appropriately with manufacturing tools, including appreciating the origins of materials, their sustainability and ergonomics.

We will ensure all our learners have access to the materials required for production, and our pupil premium grant will be used to provide these students with access to a range of materials and resources for both construction and aesthetic finish. Our SEND learners will be provided with stepped guides and support to achieve production outcomes, with student support workers shadowing their use of the materials and machines. In Year 9 there will be additional opportunities for our learners to see design in action when they will visit the Warner Brothers Studios – Harry Potter experience in Leavesden - where students will experience a workshop from the props and set design teams.

Prior to arriving at All Saints Academy, students have learnt design and technology in a very limited way through arts and crafts lessons, and Key Stage 3 is the first opportunity to provide detailed lessons in design and technology.

Research informed practice in the Arts:

In the Arts faculty the department has used research by Dianne Minicucci (*Decolonising and diversifying the art curriculum*) and the NSEAD website (*National Society for Education in Art and Design*) to inform changes in the curriculum maps. It has allowed the lessons to incorporate more cultural capital and to broaden the focus away from traditional the canon of white, male, western artists. This has also made lessons more varied and added an extra dimension of interest to our students' work. In textiles and graphics the team have read work by Sarah Graham, Lucy Sparrow, Lekwena Mciver and Yinka Shonibare to improve aspects of planning, sequencing and subject specific knowledge. Finally, subjects have been more focused on knowledge rather than skills. This has helped student's analysis of art and design, and their understanding of context and cultural capital. This approach is advocated by authors such as Myatt in her book, *The Curriculum*.

Specific support planned for SEND students:

All students work towards the same outcomes. Support and differentiation occurs through the level and variety of skill used to reach a specific outcome. This makes each outcome achievable to a greater or lesser extent. This is highlighted in pink font on lesson slides. At specific parts of the lesson students receive 1:1 support; this is also signposted in pink pen in students' sketchbooks. Learning mats are used to remind students of key words and processes. Teachers model answers to all, and use insightful questioning to check understanding and progress. Sometimes, students support each other in this process too.

Year 7

Substantive Knowledge

Students will start the year with an introduction to design and technology, which incorporates health and safety when using tools and machinery, through to designing and manufacturing a product. Students are then exposed to a range of media and ambitious techniques, including problem solving, product design, and the manipulation of plastics through 3-D printing. Students will learn how designers must consider cultural differences and needs whilst problem solving and in what ways these considerations can influence a final product design. The design and technology projects are designed to develop the students' skill base and subject knowledge and give them confidence in their ability to speak about their own work and the work of others.

Disciplinary Knowledge

We ensure that every student has access to the necessary tools and materials to complete all of the design and make activities on this course. In term one, all students will learn how to use computer aided design (CAD) programmes to design a plant holder. This is built upon later in the year when the students learn how to 3-D print their design and further develop their research and analytical skills as they evaluate existing products before justifying their problem solving techniques.

Year 8

Substantive Knowledge

As learners join Year 8 they enhance their understanding of product design by exploring technology and identity, in the commercial world. They investigate and research organisations such as Dyson, Apple, Tesla from the modern era and compare them to classic ground-breaking companies like Tupperware, Ford and Amstrad. Through comparison and analysis of real-life examples learners will test, trial and collect data from users of the products.

Disciplinary Knowledge

The students will build on their disciplinary skills from Year 7 through designing a 'garden animal habitat' using recyclable and environmentally friendly materials. They will further develop their research and analytical skills as they discover and evaluate existing products. Students will create a prototype of their design from recyclable materials and use this to further develop and make improvements to their project. They will learn to use hand and machine tools to build their products and develop their understanding of manufacturing from Year 7. Students will learn how to aesthetically finish their product and how to then market and brand their finished product.

Year 9

Substantive Knowledge

As Year 9 starts there is a focus on the core elements of GCSE Design and Technology such as research, planning, making and evaluation. The skills based curriculum encourages learners to explore a range of factors that would impact designs in the real world including global costs, logistics, environmental weathering, and health and safety. Opportunities to exploit cross-curricular links with physics in key stage 3 will see students explore forces, weights, friction and other elements that would play a role in the construction of a bridge.

Disciplinary Knowledge

Students carry out four distinct activities across the year that help them build the skills needed for GCSE. In the research phase they explore both quantitative and qualitative methods of Bridge design and practicality. They then plan, using prototypes and models, a range of options. They revisit CAD and 3D printing as they design and make a bridge or weight bearing structure. The year will close with an evaluation and presentation of the final models that will be tested and analysed through both evaluative and data-driven information.