Curriculum Intent – Design & Technology

Knowledge Rich- to pass on knowledge and skills to future generations, and to accumulate a wealth of powerful knowledge.

Focus On Mastery of skills to enable high quality manufacture of products and dishes.

Emphasis on long term memory and recall.

Inclusion for all students so that all have access to the same experiences regardless of background.

Building a solid skill base that develops their finesse and quality of practical work.

Covid-19 amendment.

The following information in red will cover what we are currently doing as a department in light of the pandemic. We will revert back to the information below as soon as is safe to do so.

Due to the global pandemic we are unable to commence with our planned units of work as they involve practical work and the use of many different types of equipment and tools. We are also unable to safely socially distance students in a practical environment. To ensure our students can still experience important elements of Design and Technology we have planned a range of Graphics based units which will give students a sound starting point for when practical activities can commence. Students will also experience recorded Food Technology demonstrations and the theory knowledge that relates to food safety, hygiene and nutrition. These units aim to underpin future learning and will embed knowledge and understanding of key principles which include; accurate presentation of work, competent use of a ruler to draw and measure accurately in millimetres, basic Graphics skills such as Typography, logo and brand design, technical drawing techniques and layout and composition. In Food Technology students will gain secure knowledge of Health & safety in the kitchen, safe and hygienic working practices, healthy eating, knowledge of equipment and cooking methods and nutritional knowledge such as planning meals for special dietary requirements and understanding facts about the different food groups including sugar, fat, carbohydrate, protein and allergens.

The aim of the Design and Technology curriculum at Willenhall is:

- to develop students that are both skilled in the practical aspects of the subject and creative and innovative in their thinking and problem solving.
- to enthuse our students and challenge their thinking to be the Designers, chefs, Architects, trades people and technologically minded workforce of the future.
- encourage creativity and innovation, allowing students to experiment with their ideas, teaching them that it's ok if things don't work and develop their resilience to tackle design problems.

Throughout their experience in Design Technology we want to **push the boundaries of students thinking**, encourage them to master the **disciplinary knowledge** which is to evaluate, analyse and work through design issues and practical problems. We want them to become **independent learners**, have the ability to **communicate their ideas both verbally and in written form**. We want them to be able to work

effectively as a team, taking on board the opinions of others whether that be their peers or a design client. We want them to **work coherently under pressure and at pace when cooking**.

Design Technology lends itself naturally to the **development and refinement of practical based skills**. Students will have access to Resistant Materials, Textiles and Food Technology at KS3 where they will work on and re-visit their cooking, workshop based woodwork skills and the decoration and construction of fabrics. We want our students to be proud of what they achieve, wanting to take their products home to their families. We also want to enthuse students to cook a variety of dishes regardless of their background; ingredients can be provided for our more vulnerable students where necessary. The socio economic background of our students means that many of them will come from disadvantaged situations. We want to make sure that, by designing our curriculum with Textiles, Food and Resistant Materials, they have the **transferrable skills to run a successful home in the future**. To be able to repair items around the house to discourage and move away from a throw-away society. **We also want to give our students the confidence** to repair, improve or upcycle items that make them more individual and interesting as people.

Building on pupils' prior knowledge and experiences

Students at primary school age experience Design Technology to varying degrees, depending on a number of factors including staff expertise, available equipment and time allocated within the curriculum. We aim to ensure that all students throughout KS3 experience all areas of Design Technology on a rotation basis thus giving **every student the same opportunity to use our specialist equipment and resources**. It is about striking the **balance between breadth of knowledge and depth of knowledge** and not just honing in on one area. We will also hold primary school skill enhancement days within the department during the summer term; these are a way of closing some of the gaps and putting right any misconceptions students may have before they join us.

Curriculum design and sequencing

The curriculum is sequenced in such a way that students will **build upon and re-visit knowledge and skills from year 7 to 9**, some of the skills will be covered in all three material areas such as marking out, measuring, health & safety, properties of materials and the design process to name but a few. Other skills such as the use of the sewing machine will be re-visited in year 7, 8 and 9, with a slightly more complex focus each time. This method of working **embeds those skills and allows students to master the knowledge that underpins them**. Those students with a particular interest in Design Technology will have opportunities to attend extra -curricular activities and take part in competitions to showcase their talents such as Construction club and Chefs club. We want to **increase the cultural capital of our students** by delivering skills to ensure our students are socially mobile. We want to provide them with relevant skills to enable them to obtain better jobs, leading to a more fulfilled life.

In Year 7 students will gain vital knowledge and understanding of health and safety within a food room and workshop; this is a fundamental starting point for all students from which we base every single practical activity. Student and staff safety has to be our priority right from the outset. This will

be re-visited regularly to ensure the safety and wellbeing of all, recapping and making safe working practices second nature. Students will then start to experience the use of specialist equipment relevant to each material area.

In **Resistant Materials** students will learn how to use basic tools such as Tenon Saw, Set- square, Vice and Sanding disc, they will also learn how to join timber using simple joints and adhesives. In **Textiles,** students will learn basic methods of applying colour to fabric such as the use of resist dye methods and Applique, they will learn how to hand stitch and use a sewing machine to create a basic seam and hem. They will do this first to create a platform to build upon all future skills. The future success of the students throughout KS3 and 4 will depend on their ability to use these basic tools, techniques and equipment correctly and safely, these are the fundamental elements that students need sound knowledge and understanding of, any tools equipment and techniques used in addition to these will only enhance their outcomes. This also applies to the basics needed to run a home as mentioned previously. Once they have mastered basic application of colour onto fabric and construction skills they will be able to develop this into more complex techniques in year 8 and 9. Being able to conduct basic repairs to clothing is also an important life skill for students whether it be replacing a button or hemming trousers. This is so relevant and important for our students in particular and the community we serve due to the fact that over 50% of our cohort claim free school meals. Being able to repair and modify items is invaluable, as is the ability to plan and cook meals on a budget**. In Food Technology**, alongside health and safety students will learn about the importance of good hygiene, safe cooking temperatures and cross contamination. They will also learn basic knife skills, using the hob to fry, oven to bake and start to gain confidence with following a recipe independently. All of these skills will form a firm foundation on which to further build, develop and refine throughout year 8 and 9. To be able to prepare and cook meals with a full understanding of hygiene and safety is a skill that students will take through their entire lives, planning and cooking meals is fundamental to health, well-being and survival.

The schemes of learning that facilitate this in KS3 are designed to enhance the cultural capital of our students, providing them with an insight into many areas including cuisine and pattern influence from other countries, the use of tools, machinery and equipment that they wouldn't otherwise experience and an introduction into possible careers in the Design and Technology and Hospitality sector.

Throughout Year 7 in Resistant Materials, students will gain skills and knowledge that will lead them to create a memory box, this could be for a loved one or to remember their unusual time during lockdown. The aim of the unit is to gain basic skills in cutting, shaping and joining materials whilst creating something to support their mental health and well- being. During their second Resistant Materials/Graphics unit, students will look at typography, they will gain an understanding of food packaging and the specification points included to make it successful. Students will be given a design problem to solve. **In Textiles students will work on techniques that build** towards them producing a useable cushion product based on the theme of 'Monsters'. This has been chosen as it covers the basic skills we want students to obtain, it gives students a real life product that they have made themselves, building on their sense of pride and achievement. The theme of monsters also enables them to have a little freedom with how they want to respond meaning that they can show their personality through their design. They will use techniques such as Applique, tie dye, and hand embroidery to add colour and pattern to their fabric. **Food Technology** will look at basic cookery skills which will underpin every aspect of not only their cooking experiences at school but also moving forward through their lives.

In Year 8, students will build upon their Design Technology skills through schemes of learning that are designed to begin to refine student's ability to shape and join materials. In Resistant Materials, students will look at how materials can be shaped into moving parts using simple mechanisms to create a levered lamp; they will look at cams and levers to underpin their knowledge. This unit will also support the 'Working from home theme'. The second Resistant Materials/Graphics unit will look at flat pack and how products can be developed for children. The unit will explore the creation of a flat packed activity set that can be delivered by post to entertain children during lockdown or illness. In Textiles students will look at the work of a Textiles artist who uses Machine applique and intricate fabric painting and dye sublimation printing to create an environmentally friendly bag for life based on the theme of confectionery. They will need to focus on accuracy, being able to execute their design in a sophisticated way. Students will explore the importance of sustainability and the impact that we have on the environment, they will do their bit to reduce their carbon footprint by making a useable bag. In Food Technology, students will start to understand the cuisine from different countries and will work with more unusual ingredients to create some of these more challenging dishes. They will start to consider the presentation of their dishes and their nutritional value.

In Year 9 students will re-visit and further embed their Design and Technology skills. In Resistant Materials students will again focus on the working from home theme, this time creating a work station, this may be in the form of a laptop tray that looks into ergonomics and anthropometrics. During this unit, students will develop their ability to cut and join materials using more complex methods. During the second Resistant Materials/ Graphic unit students will use computer software to design their dream home of the future, this will lead to them creating a foam board model to scale. This aims to raise aspirations of our students whilst preparing them with the tools to use software that many job roles in Technology require. In Food, students will start to move towards Hospitality and Catering, although still with a heavy practical focus. Students will learn more about the refinement of their dishes, how to present their food, and how to cater for those with special dietary requirements. The dishes they produce will also increase in complexity.

By the end of KS3 students will have a sound practical skill base in all material areas, being able to use tools equipment and machinery safely and with skill. They will be able to analyse and evaluate existing products and their own work as it develops, they will be able to design products that meet the specification of a design problem or dietary need and will be able to assess the aesthetics of their work and that of others. Students will know the key characteristics and properties of the materials and ingredients they use, they will know how to execute key techniques and processes and will have a firm understanding of commercial viability and how what they are doing links to possible careers.

Curriculum underpinned by key principles

The key principles that underpin all of the curriculum content and sequencing choices are; a strong emphasis on **challenging substantive knowledge such as specific vocabulary**, methods for how to carry out practical tasks, routines and health and safety. The content is structured to build on what came before, **serving long-term schema development** by ensuring ideas and content are connected. An example of this again would be health and safety, the design process and repetitive used of equipment such as the sewing machine. **The most important core knowledge is revisited and reviewed periodically to ensure retention in long-term memory**. For example, the health and safety rules are revisited at the start of each project, all projects feature a designing element where students are encouraged to follow the same design process

whether they are working in wood or fabric. In Food Technology the very nature of a practical lesson is repetitive with students following the same procedure at the start of the lesson (to get themselves and their work stations ready for practical), they follow a recipe (with scaffolding) and they clean their work areas. This becomes routine and second nature. **Students are taught disciplinary knowledge explicitly in the form of them exploring their ideas, evaluating and analysing products and their own work**. There is a strong emphasis on vertical progression within Design Technology, content is structured so that students gradually get better and master knowledge and skills, an example of this in Textiles would be that in Year 7 students are taught the basic use of a sewing machine, they learn how to stitch in a straight line and how to turn a corner. In year 8 they will learn how to use the sewing machine to stitch curves, not only with a straight stitch but to use a zig zag stitch to neaten an edge. In year 9 students will learn how to thread the machine and conduct basic maintenance, as well as mastery of straight and curved stitching.

The knowledge that we choose to be included in our curriculum is selected mainly to provide students with firm stepping stones to enable them to pursue the subject further, to spark an interest and provide fun, curiosity and innovation. We also include in our planning knowledge and skills that students could use throughout their lives, to enable them to be self -sufficient, independent, skilled individuals.

If students have been able to keep pace with our curriculum that increases in complexity, we know that they are making good progress. To help us identify what has been understood and what the misconceptions are we use a range of assessment methods. We use low stakes testing and quizzes through our 'Do now' activities and 'exit tickets' and recall. We check understanding of key vocabulary as we believe that if students can use key vocabulary in the correct context and understand its meaning then this has great value. Finally, and probably the most prevalent for Design Technology is looking to a high quality end task, whether it be a completed product that a student has created using all of the knowledge and skills they have developed which would be at the end of each project, or in terms of a completed dish cooked by students' week by week.