



## DESIGN & TECHNOLOGY

### Curriculum Intent, Implementation and Impact

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#### Intent

*“Modern design is no longer confined to particular sectors or occupations. The skills, principles and practices of design are now widely used across many parts of the economy, while designers have always drawn on a range of different skills, tools and technologies to deliver new ideas, goods and services. Tomorrow’s innovative companies and organisations need people that have had exposure to disciplines outside their individual specialisms, that have experience of working in teams with other disciplines, and that are comfortable deploying their innate creativity and flexibility within teams and projects. Tomorrow’s innovative companies need design skills.”*

#### DESIGN COUNCIL ‘Designing a Future Economy’ February 2018

In the Design and Technology Department (D&T), examples of how our curriculum supports the school’s ethos statement are by providing an enriched experience in which students gain a varied breadth and depth of subject knowledge, core skills and a strong technical understanding which aids their personal development and provides every child with the opportunity to achieve whilst gaining life-long learning experiences.

The D&T curriculum at NHGS is a stimulating, rigorous and practical subject that encompasses different specialist areas: Textiles, Timber, Metals, Polymers, Electronics, Papers and Boards and Food, Preparation and Nutrition. Our challenging projects are not only designed to introduce new knowledge and skills but provide our students with the opportunity to revisit and build upon knowledge previously gained. Students are encouraged to demonstrate their resilience as they begin their D&T journey from Year 7, where their confidence builds so that they become more and more proficient at selecting from a range of specialist tools, techniques, processes, CAD and CAM, equipment and machinery.

Within each area we utilise staff expertise and their knowledge, and with this, our aim is to create the very best professionals who are *enquiring, confident* and *enthusiastic* to define and solve problems. By placing the ‘user’ at the heart of these problems we encourage our students to become knowledgeable about the resources needed to help them create even better solutions. We do this by teaching students how to analyse and disassemble products via procedural knowledge such as ACCESS FM and SWOT analysis, and how to critically evaluate, test and refine their ideas as they develop. Students are exposed to different cultures and the work of others past and present to develop and broaden their understanding as well as inspire the design of their own products.

We challenge students to think, act and speak like those working in the field would. We do this by equipping students with 21<sup>st</sup> century skills to empower impact and change; we challenge them to think about design, industrial developments and technological advancements,

environmental and economic factors, the role of sustainability and ethics in user-centred design, demographic change and sociocultural influences around the world in order to visualise future possibilities.

In Food, Preparation and Nutrition, students cover the relationship between diet, nutrition and health as well as the impact of a poor diet. We encourage them to make more informed choices about food whilst gaining an understanding of food provenance and food sustainability.

Our curriculum at NHGS goes far beyond what is taught in lessons, for whilst we want students to achieve the very best examination results possible, we believe our curriculum goes beyond what is examinable. As a department we offer practical extra-curricular clubs in Food, Preparation and Nutrition - we are passionate about students undertaking lots of cooking! In D&T we offer clubs in Textiles and D&T: Timber, Metals, Polymers and Electronics; this enables students to build confidence and increased proficiency in these areas. We believe these extra-curricular clubs help to fuse and build on the knowledge and skills gained in lesson time.

Prior to Covid we have taken students to the BBC Good Food Show, the Design Museum, Natural History Museum and the V& A in London, local college workshops and Land Rover/Jaguar. We now wish to kickstart our trips on offer and have already booked a STEM Day at Huddersfield University with Year 8 students in June. During Summer 2021 we took part in the summer school enrichment programme and introduced our new intake to range of design products and with the help of biomimicry, designed even better solutions.

We build ambition by directing students to careers that stem from our material areas and in Food, Preparation and Nutrition for example, we enable them to access future pathways in the industry.

Our curriculum in Design and Technology forms a backbone to our ethos statement. Examples of how our curriculum supports the ethos statement are through a range of *creative* activities that develop their skills in research, observation and empathy. Empathy in D&T has become more explicit thanks to the new GCSE specification; it has always been a part of the curriculum, but previously subtler. Covid has certainly brought this even more to the forefront and at NHGS, we encourage our students to design and make prototypes and products that solve real life problems within a variety of contexts, considering both their own and others' needs, wants and values. We believe this is a powerful learning experience that helps students avoid a stereotypical view. Students become much more engaged and concentrated when designing and developing solutions by having a greater understanding of people's needs. A journey of discovery might also take our students in a different direction.

Students are encouraged to form cross curricular links with other subjects such as the arts, science and maths and by recognising that D&T is the bridge to many other subjects helps to develop a more creative and innovative approach to designing. Skills gained in D&T are transferable across all other subjects.

As a knowledge engaged curriculum, we believe that knowledge underpins and enables the application of skills; both are entwined. As a department we define the powerful knowledge our students need and help them recall it by developing their technical skills that focus on visualisation and realisation of ideas and information. Our students have a clear understanding of where they are and what they need to do to improve through peer, self and teacher feedback. We focus on drawing, digital design, physical materials, prototyping, experimenting and sampling as well as knowledge and understanding of the current and emergent means of production, manufacturing and digital technologies.

We build the Cultural Capital of our students by ensuring they have an understanding of Britain's contemporary design practice and design heritage, as well as a knowledge of international design practice. We encourage wider reading and develop a hinterland of knowledge by introducing essential reads such as books, websites, articles as well as videos and podcasts.

Students gain knowledge of materials and component properties and characteristics through a tactile style of learning. Our curriculum strives to inspire, motivate and present a range of opportunities for students to develop their creative, practical and technical skills. We do this by providing a rich supply of resources and encourage curiosity outside of the classroom.

In Food, Preparation and Nutrition, we develop students' curiosity by investigating a range of recipes from around the world and so too cooking techniques and ingredients. Students will develop their empathy when exploring the foods and processes of different countries in the Global Food Market. From Sustainable foods to Fair Trade in low-income countries.

Further rationale behind our curriculum design includes building on the knowledge acquired at KS2 and exposing them to more complex and challenging content thereafter. In Design Technology we have carefully planned progression through our rigorous curriculum along with opportunities to revisit knowledge previously covered. Content, skills and cross curricular links are clearly defined in our schemes of work and knowledge organisers.

## **Implementation**

Collaborative curriculum planning lies at the heart of what we do in the department. These are focussed on embedding challenge, metacognition, memory techniques and literacy into our departmental curriculum.

Alongside our schemes of work, we are continuing to develop knowledge organisers at KS3. This is enabling us to define the core knowledge our students need to master as well as encouraging a much more independent approach to learning.

In Design Technology we also implement our curriculum through a variety of creative teaching approaches and tasks. We provide our students with an opportunity to design and make products that solve real and relevant problems within a variety of live contexts.

## **Impact**

We know our curriculum is working in the Design & Technology department through the upward trend in our results since we laid the foundations for our curriculum. Both Design & Technology and GCSE Food, Preparation & Nutrition ALPS scores have been increasing year on year over the last 3 years.

Both Design & Technology and Food, Preparation & Nutrition GCSE have shown an upward trend in grades 7-9 and have continued to maintain an overall higher standard in comparison to National Averages.

Observed through both departmental QA and student voice, our students are engaged, challenged and enjoy our subject and this can also be seen through the growing numbers signing up to our extra-curricular clubs. The quality of teaching and learning in D&T has been praised consistently during learning walks by both external and internal observers.

In the Design and Technology department at KS3, students build and apply a broad range of knowledge and skills to enable them to transition to our KS4 courses. We believe our students learn best by 'doing', we encourage them to experiment and take risks, in a safe and positive learning environment. This is achieved through inspiring and imaginative teaching that embraces new technologies and resembles modern industrial processes, whilst retaining the best of traditional practices.

At the heart of this, is the desire to deliver a curriculum in which students produce high quality outcomes, becoming self-confident and motivated. Students must learn about the social and ethical responsibilities of food producers, designers and engineers and the importance of managing finite resources with care.

By the end of KS3, whether our students choose to take our subject or not at KS4, our curriculum will have provided them with a rich tapestry of transferable skills that will allow them to perform everyday tasks with confidence.

We aim to provide a challenging, enjoyable and thorough grounding through a quality KS3 curriculum.

Our projects encourage students to:

- learn how to work safely within our different disciplines so that they are able to confidently navigate practical lessons when working with specialist materials, techniques and processes
- have empathy for different users' wants and needs
- identifying needs and opportunities
- learn about past and present professionals
- develop both designing and communicating skills
- solving problems and asking questions
- learn about the wider impact of designing and making through social, moral, environmental and cultural issues as well as energy storage and generation, new and emerging technologies.