

Design and Technology Overview

Intent

Our school ethos (*Intellect, Courage and Empathy*) and the 10 characteristics of the IB learner profile (*Knowledgeable, Balanced, Open-minded, Reflective, Principled, Caring, Thinker, Risk-taker, Communicator and Inquirer*) are at the core of our intent throughout our curriculum, at every key stage.

We aim:

- to provide lessons and opportunities that enable students to experience a **balance** of the **intellectual challenge** and fun of developing new concepts into products as well as the **knowledge** required to become accurate **communicators** of their ideas both graphically and as models and as working prototypes.
- to develop confident designers, who are able to present and **justify** their decisions, analyse restraints; students who are *courageous* and **take risks** and aren't afraid to make mistakes, but **reflect** upon them and learn from them on the way to finding achievable solutions to real world problems.
- to facilitate understanding of international trade and the different approaches to engineering, manufacturing and sustainability around the globe. Create **caring, empathetic** designers who are **open-minded** and **principled** about cultural differences, and who are **inquisitive** about and appreciate the need to design for the end user, client and customer in whatever context the need arises.

We enable:

- All students to rotate during year 7-9 in order to access the same coverage of subject knowledge throughout the year and specifically in year 9, all students receive the same standard of teaching for Food by the specialist Food teacher and RM and Graphics & Textiles by the subject specialists in those fields.
- The focus of year 7 to be 'the individual' and incorporate outside influences such as design eras or seasonality. With this approach, students develop their own skill set and theory knowledge.
- Year 8 students to work more collaboratively in groups and to begin to consider designing for a larger audience with specific needs.
- Year 9 students who have now developed their skills and increased technical knowledge to extend the theory content further to encompass the global impact of the decisions made by designers, engineers and those in catering industries. We emphasise core GCSE and IB theory on production methods and techniques as well as marketing and sustainability. We also encourage our students to be able to work for a particular client and market sector.
- Our KS4 students to be taught by specialist teachers so that theory content and skills are delivered to a high standard. The end of year 10 and beginning of year 11 sees the start of the coursework so the focus shifts to producing meaningful research, justified criteria and top quality modelling, testing and making of products and meals.
- Our KS5 students to receive a combination of teaching by DT teachers which enables specialist knowledge to be taught by specialists which builds on and extends prior learning.

Implementation

Design options and challenges

Year 7 Individual	RM desk Organiser Multiple material based	CAD = 3d Sketch up modelling and virtual vs physical modelling theory	Food = Knife skills / Nutrition / Packaging design / Cooking for individual needs.
Year 8 Group	RM = Container Design structures and analysis.	CAD & Electronics = desk lamp design. Programming; Die Cutting & Laser cutting.	Food = Cooking for groups and diverse needs. Heat transfer.
Year 9 Wider world	Fantastic Plastic Modelling	Survival Clothing Ocean Living	Food = Food Sustainability; Food science; managing resources. Industry day.
Year 10-11	Design & Technology GCSE	Food Preparation & Nutrition GCSE	STEM project = Arkwright Scholarship
Year 12-13	IB Design Technology		

- At all stages, aspects of theory learned in the prior Key Stage are repeated or extended in the next.
- Our referencing backwards and forwards adds credence to the need for revision and preparing revision materials while note taking, as is promoted in KS4.
- Students present their ideas verbally to a greater extent in KS4 and KS5 with a view to receiving constructive feedback or 'feed forward'. This experience of collaborative design helps to encourage our students to design for others and become more empathetic.
- Our classrooms / food rooms and workshops are managed well, with a focus on 'non negotiables' and a fun and interactive atmosphere due to regular Q & A sessions.
- All practical work is taken into account when grades are awarded in line with the proportion of marks awarded at the Key Stage.
- Context sheets and seating plans maximise the learning environment for all students including SEND students whose specific needs are readily available and catered for.
- Teachers utilise the behaviour policy to ensure work is completed and that re-working is carried out where required.
- DIRT time enables students to see the benefit to receiving criticism and proactively addressing their work in order to attain a higher standard. Regular and ongoing feedback is pre-emptive in nature and one to one coaching within lessons and boosters enables students to be given the attention they need.
- The Arkwright competition is run annually. DT club is weekly and there are numerous boosters for students to attend every week in order to complete work to a high standard.
- The DT department also supports all STEM initiatives as well as Industry Day.

Curriculum time:

	Number of 50 minute lessons per fortnight:
Year 7:	2
Year 8 and 9:	3
Year 10 and 11:	6
Year 12 and 13:	8

Curriculum

- The curriculum is an even blend of subject specific knowledge being taught theoretically alongside and complementing skills based learning that prepares students for a similarly high proportion of theory content and coursework and making in GCSE and IB.

Leadership

- DT staff have all contributed and continue to contribute to the schemes of work and resources taught throughout the DT curriculum.

Impact

Monitoring of Quality of Teaching

- Consistently high grades attained alongside positive VA levels in DT and Food give a clear indication that students are well taught and given the opportunity to exceed expectations.
- Regular Department meetings and one to one catch-ups enable staff to give and receive regular feedback and support in terms of teaching and practical resources.
- Our performance management system enables us to jointly consider targets and to redress shortfalls with additional training, be it external or internal CPDs.
- Regular learning walks, lesson observations and monitoring of reports enables an overview of teaching to be ascertained. CPDs are utilised to improve the quality of teaching and experience of teachers.
- Regular reports and feedback through line management meetings as well as the Head teacher's annual report and Department Improvement Plan ensure our departmental efforts and focus are in line with the school wide targets set.
- Moderation takes place throughout the year and Schemes of Work adjusted appropriately.

Monitoring of marking and feedback

- All students in years 7-9 have mark sheets that are provided in order to enable recording of verbal feedback, reflections and targets for improvement. Teachers are able to record grades for students to see and report grades which are a cumulative summary of the student's progress and their potential grade were that trajectory to continue through to year 11. Teachers maintain their own records as well.
- Year 10 and 11 and IB student progress is tracked by teachers and regular feedback is given. Report grades are again cumulative in nature, meaning that attainment grades are expected GCSE grades based on all work and feedback recorded to date.
- Regular feedback and one to one assessment of work means that teachers are aware of and able to facilitate any gaps in work being caught up. Midterm and end of year assessments further inform staff of the progress students are making and to enable areas of deficiency to be revisited.

Monitoring of subject impact school wide and university destinations:

- Ultimately, exam reports and coursework reports inform areas for improvement in our delivery of the subject and the attainment of our students. We also recognise that positive feedback from students and parents alike can be taken as a yardstick for how well we deliver the content of Design and Technology subjects given that we aim to make our lessons both enjoyable and challenging.
- We have one or two Design and Technology and Food Preparation and Nutrition GCSE classes each year and an IB class every year. A high proportion of IB students go on to do DT based subjects at university.
- The department enlists DT prefects from year 12 each year who are encouraged to get involved in DT club and Open Evenings. Other students volunteer as well and house STEM and Food competitions are always very well represented in this school, which further evidences our success at making the subject popular and accessible to all.
- Approximately half of DT IB students go onto to study Engineering, Architecture or Design based subjects at degree level.