

Highfield Middle School

Design and Technology

Intent, Implementation and Impact

2022

Intent

Studying Design and Technology should include the use of a broad range of knowledge, skills, and understanding, and should prompt engagement in a wide variety of activities throughout KS2 & KS3. Pupils are given the opportunity to design and make products that solve real and relevant problems within a range of contexts and cover all aspects of the Design Technology curriculum; design, resistant materials, textiles and food.

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.

When designing and making, pupils should be taught to:

Design

- identify and solve their own design problems and understand how to reformulate problems given to them
- develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations
- develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools

Make

- select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided design
- select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties

Evaluate

- investigate new and emerging technologies
- test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups
- understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists

Technical knowledge

- understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
- understand how more advanced mechanical systems used in their products enable changes in movement and force

Implementation

Pupils within KS2 are given a single 55min lesson/week throughout the year. They have the same teacher throughout the year for all aspects of Design Technology. Pupils in Yr 5 & 6 spend Autumn term covering textiles, Spring covering resistant materials and design and Summer they cover food. Design is covered throughout all projects.

Pupils within KS3 have a different curriculum setup. In both Yr7 & Yr8 two form groups are joined together then split into 3 equal groups, with a maximum of x20 pupils per group and a total of 6 groups per year group. The carousel runs all year long and pupils stay in the same carousel group for the full keystage. A group will start in September with either food, art or resistant materials and complete a 7 week project before moving onto the next part of the carousel for a further 7 weeks. In January the groups go to their remaining carousel until February half term. By this point all pupils have attended all parts of the Art/DT carousel once. The carousel is repeated for the second part of the academic year covering Textiles, Art & Resistant Materials with design. All carousel lessons are a double period (1 hour 50 mins).

Covid hugely impacted Design Technology as we were unable to teach in specialist rooms. The decision was made to provide all classes with a textiles project that could be taught within each bubble. Pupils also covered food theory, but this left resistant materials and design in a somewhat weaker position than previously. Once specialist practical classrooms were opened up again in September 2021 the decision was made to move the HOD from textiles and food into resistant materials and design making way for a NQT to cover food and textiles, and the chance for HOD to create new and invigorating projects for the resistant materials parts of the curriculum. The NQT is highly capable in both food & textiles skills and a huge asset to the department. Another NQT is covering maternity leave for a single Yr 5 class and is given regular support from HOD with resources & discussions about how best to complete tasks.

Year 5 pupils complete 4 projects: cross stitch bookmark; wooden sign; night light; food & nutrition including healthy V unhealthy lunch & an introduction to Eatwell guide.

Year 6 pupils complete 3 projects: minion keyring; travel game design (maths emphasis); food & nutrition including Eatwell guide; food is grown, caught, reared or processed and seasonality of food.

Year 7 pupils complete 4 projects: logo cushion design (textiles covering CAD); food & nutrition practicals including nutrition & impact of sugars; wooden puzzle design; acrylic/wooden clock design.

Year 8 pupils complete 4 projects: sock monkey (literacy link); food & nutrition including nutrition throughout the lifecycle; wooden pencil box; bird feeder (wood & metal).

All KS3 resistant material projects are new to the department this year to help upskill pupils where HOD perceived a weakness in pupil skills due to Covid.

There is an expectation for all pupils to build year on year on their previous skills gained and each year the projects get harder. Pupils who come to Highfield mid-way through a year and maybe do not have the previously taught skills are supported more closely by the teacher and/or paired up with buddies within the class; this strategy works well.

HOD has spent significant time previously planning with HOD (food/textiles & RM) from High School discussing expectations for Year 9 pupils & GCSE curriculum content. This has helped guide HOD choice of project and forms the basis for rationale behind each project covered.

Impact

Pupils are assessed at the end of each project which works fine for KS2 pupils. However, KS3 pupils have not all completed a full Art/DT carousel until February half term. All data is used to assess any strengths & weaknesses of skills & helps HOD to improve future teaching of same projects/skills. Data is also used to help identify gaps for any groups of pupils and to assess if pupils are on track to achieve what is expected.

Pupils during Autumn term were casually invited to attend lunchtime catch up club. During Spring term this 'casual' invite changed to a more formal invitation for identified pupils who were struggling to complete work in class. In Summer term, to help enhance attendance for catch up club, an after school catch up club alongside the lunchtime catch club will be offered to carousel groups by invitation only. This is to help all pupils excel as much as possible in DT.