

RESISTANT MATERIALS at Elemore Hall School

Intent

The aim of the design and technology curriculum at Elemore Hall is to promote the development of technological enquiry, initiative, resourcefulness and discrimination. It will help pupils gain an understanding of the importance of social responsibility and the obligation of designers regarding sustainability and environmental issues in the modern world.

It will:

- Encourage technical awareness
- Promote attitudes of a; technical, creative, economic, moral, social and cultural nature
- Develop abilities to enhance the quality of the environment and the wider world
- Foster attitudes of co-operation and responsibility
- Provide experience of cross curricular themes within a relevant context
- Encourage pupils to evaluate and constructively criticise their own work
- Address specific pupil needs as outlined in the pupil's EHCP

Implementation

Schemes of work will be directed towards distinct objectives of Design & Technology. These are that a pupil at the end of their compulsory education should:

- Be able to design and make artefacts and systems using appropriate materials e.g. wood, plastics and other materials by applying technical, scientific, mathematical and other knowledge and skills;
- Be familiar with the designing process, including the importance of ICT, and have had experience of applying them to "real life" and vocational tasks within the constraints of time, money, available skills etc. paying due regard to cost, marketability, social environmental and other relevant factors;
- Appreciate the importance design has on the modern world, in terms of sustainability, environmental issues and the economic impact technology advances have on the quality of life;
- Have gained experience of specific techniques involved in research, investigation and evaluation;
- Have experience of working individually and as a member of a team;
- Be given the opportunity to develop those attitudes, skills and abilities which will enable them to contribute towards and exercise some control over the quality of their environment;
- Develop effective and appropriate forms of communication;
- Develop the ability to make and exercise value judgements of a technical, creative economic, aesthetic, social, cultural and moral nature;
- Have the confidence to identify their own problems and those of society and to contribute to their resolution through designing and making effective solutions;

- Have the confidence and communication skills to present their ideas and the outcomes of their work to their peers and adults alike

This knowledge and skills will be gained through participation in appropriate Focused Practical Tasks, Discussions and reading, researching articles and media regarding relevant design issues, Design and Make Assignments and Investigating, Disassembling and Evaluating Familiar Products and Applications. At all times, importance is placed upon producing good quality outcomes in a safe and efficient manner.

Impact

Pupils will develop key skills and knowledge that will give them the tools to be prepared for the next stage in their education or working life. Along with the opportunity to gain qualifications, they will have acquired knowledge, skills and understanding of:

- Environmental issues and social responsibility
- Technical and practical skills
- Economic and moral value judgements
- Communication
- Working with others
- Problem solving
- Numeracy
- Use of ICT (computer aided design and manufacture)
- Industrial practices
- An appreciation of Health and Safety
- Improving their own learning



Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
7	Introduction to RM assessment Health & Safety Machine safety Vacuum forming CAD/CAM	Introduction to laser cutter/inkscape software Fidget spinners Christmas artefacts Theoretical skills Extension work	Wooden car CAD/CAM Materials properties Smart materials Theoretical skills Basic bird house	Technical skills Measuring/cutting Wooden artefacts Theoretical skills DMA project Sublimation	Technical skills wooden toy Bird feeders CAD/CAM groundwork Theoretical skills	Technical skills assessment Acrylic artefact DMA project groundwork
8	Health & safety Wooden containers Machine safety New and emerging technologies/Smart materials Halloween artefacts	Lasercut Acrylic artefacts Christmas artefacts CAD/CAM Theoretical skills Advanced technology/robotics	Wooden racing cars Research skills Technical skills Bird box Theoretical skills New technology and design	Woodworking skills Environmental issues ICT skills skills/inkscape software Theoretical skills "how it's made"/mass production	Childs toy Design and make project extension work Theoretical skills groundwork	Lasercut designs Finishing skills DMA extension work Assessment Theoretical skills groundwork
9	Health & safety Machine safety CAD/CAM Environmental issues Theoretical skills	Materials and their properties Christmas artefacts Finishing skills Theoretical skills DMA project	Polymers/fossil fuels Lasercut Wooden racing car Research skills Theoretical skills 3d design	Inkscape software design Acrylic lasercut/artefacts Environmental issues evaluating products theoretical skills bat boxes	Acrylic artefacts Sublimation printing DMA extension work Theoretical skills CAD/CAM sticker design advanced 3D design	Design and make project Research skills technical skills groundwork assessment
10	Health and safety GCSE portfolio introduction Environmental issues New and emerging technologies	CAD/CAM GCSE RM / ICT skills Polymers and their uses Design for sustainability Robotics and the future of design	GCSE REVISION Smart materials Environmental issues Polymers and their impact on the planet Fossil fuels	GCSE Research Tools and equipment Business research Materials and their properties sustainability	GCSE Design skills Sustainability/envir onmental issues Smart materials Groundworks/real life skills	GCSE Portfolio Woodwork skills Machine skills Research skills Technical skills 3d design
11	GCSE Portfolio CAD/CAM Technical skills Design for sustainability recap Industrial practices	GCSE Portfolio Manufacturing product design research skills revision mock exams	GCSE Portfolio GCSE DMA Manufacturing product design revision mock exams	GCSE Portfolio GCSE DMA Manufacturing product design revision	GCSE Portfolio GCSE DMA product design revision	GCSE Portfolio Exam revision

Accreditation

Paper 1: NEA	Paper 2: WRITTEN PAPER
What's assessed	What's assessed

A non-exam contextual challenge assessment worth 50% of the total mark, which is a design and make assignment where pupils must show knowledge of design, investigation and research, along with an understanding of technical skills, using tools and machinery to safely produce an artefact.	A two hour written examination worth 50% of the total mark covering all of the aspects of the design and technology curriculum.
How it's assessed INTERNALLY/EXTERNALLY	How it's assessed EXTERNALLY
Questions	Questions

Enrichment

there are a number of educational visits which take place relevant to design technology, these include visits to:

- Motor vehicle manufacturers (Nissan)
- Household waste recycling centres.
- Timber yards
- Tools and parts warehouses
- Engineering companies
- Small manufacturing companies