

Eaves Primary School

'Excellence in Everything'



Design Technology Policy

January 2024

Status	Statutory
Responsible <i>Governors' Committee</i>	Standards and Pupil Outcomes
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"We're changing the world with technology." Bill Gates.

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1. Curriculum statement – DT

Intent

At Eaves, we believe that DT provides the opportunity to develop independent thinkers, problem solvers and risk takers in order for them to participate successfully in an increasingly technical and rapidly changing world. Through our inspiring curriculum, we aim to create opportunities for children to solve real and relevant problems whilst developing their ability to respond creatively, rigorously, reflectively and able to evaluate accordingly. We also aim for children to gain positive attitudes and knowledge towards Food Technology in every year group and be able to build on and secure these skills for lifelong learning beyond Eaves.

Implementation

At Eaves, our children will be given opportunities to develop their knowledge through the concept of the three S's– To design and make **Something**, for **Somebody** for **Some Purpose**. They will do this through the consistent process of Research, Design, Make and Evaluate whilst gaining Technical Knowledge and relevant skills and key vocabulary needed in order to succeed. Children will be encouraged to think creatively and solve problems either independently or as part of a group. Children will also be encouraged to research and learn about successful designers in this field and learn how DT and significant individuals have changed and evolved the way we live over time and also how they have shaped how we live today. In every year group and for every topic, children will complete an ongoing journal through use of sketchbooks and will develop skills in designing, making and evaluating. In each key stage (KS1, Lower KS2 and Upper Key 2) children will be taught skills in 5 areas of – Structures, Textiles, Mechanisms, Electrical Components and Computer Programming. Food Technology will be taught in FS2, Year 1, Year 4 and Year 5 Year Groups.

Impact

At Eaves we believe it is important for our children to develop creative, technical and practical expertise to perform everyday tasks with confidence. We want to equip and inspire future generation of this field to be curious and inspired to create and invent. We also want to inspire our children to apply the key principles of nutrition and learn how to cook and develop knowledge essential to make healthy food choices for life.

2. Teaching and learning

Organisation

Within the academic year, children will study units as outlined in the Design Technology curriculum overview. This is a progressive curriculum which allows the children to enhance their knowledge of Design Technology and develop their technical skills through focused weekly learning. This model also promotes the opportunity for children to achieve a greater depth of understanding of each unit. The units all consist of Design, Make, Evaluate and Technical Knowledge which is documented within a Design Technology Sketchbook. The units from KS1 to KS2 have been mapped and designed for children to build upon previous knowledge.

Curriculum content

Early Years

Physical Development

Moving and handling: children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.

Health and self-care: children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.

Expressive Arts

Expressive arts and design involves enabling children to explore and play with a wide range of media and materials, as well as providing opportunities and encouragement for sharing their thoughts, ideas and feelings through a variety of activities in art, music, movement, dance, role-play, and design and technology.

Exploring and using media and materials: children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Being imaginative: children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role-play and stories.

Key Stage One

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. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
- Make
- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria Technical knowledge
- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key Stage Two

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. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
 - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
 - Evaluate
 - investigate and analyse a range of existing products
 - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 - understand how key events and individuals in design and technology have helped shape the world
- Technical knowledge
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
 - understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
 - understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
 - apply their understanding of computing to program, monitor and control their products.

Design and technology – key stages 1 and 2 Cooking and Nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
 - understand where food comes from.
- Key stage 2
- understand and apply the principles of a healthy and varied diet
 - prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
 - understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Supporting all learners

At Eaves, teaching staff use a variety of teaching and learning styles in design technology lessons. Our principal aim is to develop the children's knowledge, skills and understanding in design technology. As a school, we recognise the fact that we have children of differing ability in all our classes, and so we provide suitable learning opportunities for all children by supporting the challenge of the task through a range of strategies.

Through our lessons we look for ways to differentiate for our children including the following:

- Clear modelling and small steps
- adapting tools and materials
- offering opportunities of support from peers and adults
- providing opportunities for pupils to further develop their skills e.g. through extra-curricular clubs and STEM activities

Progression

In order to plan our design technology lessons effectively staff can consult our design technology progression document. The progression document shows how the knowledge, skills and understanding are progressively built upon through each of the areas of experience of Structures, Textiles, Mechanisms, Electrical Components and Computer Programming. Food Technology will be taught in each phase- EYFS, KS1, Lower KS2 and Upper KS2.

Children will develop their knowledge through the concept of the three S's– To design and make **Something**, for **Somebody** for **Some Purpose**. They will do this through the consistent process of Research, Design, Make and Evaluate whilst gaining Technical Knowledge and relevant skills and key vocabulary needed in order to succeed. Children will be encouraged to think creatively and solve problems either independently or as part of a group. Children in KS1 and KS2 will research and learn about successful influential people in the field in which their topic is based and learn how DT and significant individuals/ companies/ events which have changed and evolved the way we live over time and also how they have shaped how we live today.

Making Design Technology relevant

The National Curriculum Purpose of study states 'Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.'

The national curriculum for design and technology aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- Critique, evaluate and test their ideas and products and the work of others
- Understand and apply the principles of nutrition and learn how to cook.

Cross-curricular links

Design Technology has links to many areas of the curriculum allowing for cross curricular teaching. Some examples of this include:

English – Design technology contributes to the teaching of English by encouraging children to ask and answer questions about their research, design and product. They have the opportunity to compare ideas, methods and approaches in their own work and that of other children, and to say what they think and feel about them.

Mathematics - Design technology contributes to children's mathematical understanding by giving opportunities to develop the children's understanding of shape and space of products as well as measurement through length, height, volume and capacity. Children will use basic facts as well as applying knowledge of area and perimeter.

Geography - Design technology contributes to children's understanding of the United Kingdom and the wider world. Children are given the opportunity to observe and explore structures, location of places and where product designers live.

History - Design technology contributes to children's understanding of the history of design technology. Children will explore different periods of products and how this has influenced our culture today. Children will learn the history of craftspeople and how different products have changed over time.

Personal, social and health education (PSHE) and citizenship - Design technology contributes to the teaching of some elements of personal, social and health education and citizenship. The children discuss how they feel about their own work, and the methods and approaches used by others. They have the opportunity to meet and talk with product designers, craftspeople and industries during their work.

Computing enhances our teaching of design technology in all key stages. Children use software to explore mechanisms, electrical components and computer programming in their work.

Physical Education – children will develop their fine and gross motor skills through the use of different tools and materials. Children will develop spatial awareness, good posture and core strength through different topics.

Enhancements

Children will gain knowledge of cross curricular links of DT and different STEM subjects. KS2 children will have the opportunity to develop their talents further in an after school DT club.

Health and safety

The safety of our children at Eaves is paramount and there are many different actions we undertake to ensure this:

- First aid equipment is available at all times, including an on-site defibrillator, and many member of staff are trained in what action to take should an issue occur
- Pupils are taught about health and safety related to the use of materials, tools and machines (e.g. saw, vice, glue gun, knives, electrical equipment)
- Pupils are encouraged to consider their own safety, as well as the safety of others during the lesson
- Pupils are taught how to use materials, tools and machines safely
- Care is taken when sawing, filing, carving, spraying and also handling hot food and equipment. Also the use and carrying of tools such as knives and scissors is taught.
- Protective clothing such as overalls, aprons and gloves are used as appropriate
- Teachers will carry out informal risk assessment during both planning and during the lesson
- Formal risk assessment are carried out for any out of school visits, using the agreed school form
- The Design Technology co-ordinator and teaching staff will check the quality of the equipment (excluding PAC/PAT testing) throughout the year, replenishing where necessary
- Staff report to the Design Technology co-ordinator if items show wear and tear, and said items are then taken out of use
- Design technology equipment is stored safely either within the school locked storage unit or within the school grounds in an allocated cupboard
- Pupil access will only granted under adult supervision
- Children must remove jewellery and long hair should be tied back

Food hygiene and safety is very important:

- Children and adults will wash their hands thoroughly before handling food.
- Food will be bought when it is needed to ensure the freshest ingredients are used.
- Cupboards, table tops, cookers will be kept clean, tidy and in working order.

Learning environment

Design technology lessons are delivered within the classroom and where necessary in the school hall/ grounds or through the use of facilities at The Sutton Academy. It is the responsibility of all staff to ensure that equipment is stored correctly to minimise any potential hazards. Staff should report any damage to equipment to the Design Technology co-ordinator. It is the responsibility of all staff to ensure that the equipment is replaced tidily in order to minimise the potential for safe accessibility for staff to pick up, transport and site the equipment they are using.

Planning and resources

Our curriculum overview and progression document gives details of each unit of work for each term. These documents define what we will teach, and ensure an appropriate balance of skills and knowledge across each term. Teaching staff plan activities so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their technical skills and knowledge and understanding. Planned progression in our topics ensures that the children are increasingly challenged as they move through the school. Children regularly and safely use a wide range of appropriate tools, materials, digital resources and electrical equipment. Resources are audited in line with development planning for design technology and are well-organised and accessible. Teaching staff make links with outside agencies to borrow or source additional equipment where necessary. CPD is available through online access to our subscription to DATA.Org, we have purchased Projects on a Page resources from them also which enhances our topics by providing key areas of learning, appropriate vocabulary and small steps to aid teachers understanding of their units. Teachers have also had access to CPD in the moment through the use collaboration with The Sutton Academy, classed have regular opportunities to visit and be taught units of work by specialist DT staff there. All of our classrooms have a range of basic resources. More specialised materials are kept in specific areas of the school. Certain resources are only accessible to children under adult supervision.

Sketchbooks

Children will be encouraged to develop using their sketchbooks for:

- Thinking creatively and problem solving
- To research and learn about successful designers
- To complete an ongoing journal to develop skills in designing, making and evaluating
- To record, explore and store visual and other information e.g. notes and selected materials which can readily be retrieved and used as reference
- Working out ideas, plans and designs
- Looking back at and reflecting on their work, reviewing and identifying their progress
- Record of achievement, which they can use to further develop their ideas, skills and understanding

Sketchbooks will move through the school as the children progress from one year to another, and across key stages.

3. Assessment and monitoring

Our Curriculum overview, progression document, OTrack assessments and knowledge organisers provide detail of the key learning, vocabulary, skills and knowledge of designers and significant people that children need to acquire. There is regular evaluation of practice and processes for formative and summative assessment which ensure they reflect the shared understanding of the purposes of assessment in design technology.

We assess the children's work in design technology while observing them working during lessons. Design Technology is assessed in accordance with the school's assessment policy. This enables the teacher to make an annual assessment of progress for each child, as part of the child's annual report to parents. We pass this information on to the next teacher at the end of each year.

The sketchbook provides insight into the skill processes as taught by the curriculum and should be considered alongside end products in making any judgements. Children are encouraged to assess and evaluate both their own work and that of other pupils. This helps them to appreciate how they can improve their performance, and what their targets should be for the future.

The design technology subject leader keeps evidence of the children's work. This demonstrates the expected level of achievement in design technology in each year of the school.

4. Equal Opportunities

At Eaves Primary School we are committed to providing a teaching environment which ensures all children are provided with the same learning opportunities regardless of gender, social class, culture, race, special educational need or disability. Teachers use a range of strategies to ensure inclusion and also to maintain a positive ethos where children demonstrate positive attitudes towards each other.

Support for specific individuals is well considered and planned for, with consideration given to how greater depth and further challenge can be provided for.

5. Inclusion

All pupils are entitled to access the art and design curriculum at a level appropriate to their needs.

To ensure inclusion, teachers use a range of strategies in line with the school's Special Educational Needs and Disability Policy. Independent tasks, as well as teaching, are well-adapted to ensure full accessibility, as well as to provide appropriate challenge to different groups of learners. The school makes full use of additional adults who are deployed effectively to ensure that identified children are able to make progress in each curriculum area.

Through a carefully planned curriculum, one that includes opportunities for enrichment, we ensure a fully inclusive and engaging art and design curriculum for all pupils.

6. Role of the subject leader

The subject leader responsibilities are;

To ensure a high profile of the subject

To ensure a full range of relevant and effective resources are available to enhance and support learning.

To model the teaching of design technology.

To ensure progression of the key knowledge and skills identified within each unit of work and that these are integral to the programme of study.

To monitor books and ensure that key knowledge is evidenced in outcomes, alongside and as supported by SLT.

To monitor planning and oversee the teaching of design technology.

To lead further improvement in and development of the subject as informed by effective subject oversight.

To ensure the design technology curriculum takes account of the school's context, promotes children's pride in the local area and provides access to positive role models from the local area to enhance the design technology curriculum.

To ensure the design technology curriculum has a positive effect on all pupils, including those who are disadvantaged or have low attainment.

To ensure that approaches are informed by and in line with current identified good practice and pedagogy.

7. **Appendices** (please include curriculum overview, assessment statements, vocabulary example, knowledge organiser example)

Please see separate Curriculum Overview document for curriculum content.

Overview of influential people

DT Key Events and Individuals Map

NC– Understand how key events and individuals in design and technology have helped shape the world.

When should children in KS2 to learn about important people in D&T who have helped shaped the world?

Across KS2, children should learn about a range of inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products, find out what they are famous for designing and/or making and what characteristics enabled them to become successful. The range of people and products that children consider should cover the range of aspects of D&T they will be working in i.e. mechanical systems, electrical systems, structures, textiles and food. Children may study the development of a product over time (e.g. electric torch); the product or products invented by a single person (e.g. Edison) or consider products that relate to a single aspect of D&T (e.g. textiles – Velcro).

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn	Mechanisms– Levers and Linkages Children will research a range of pop up books which included levers and linkages.	Textiles Puppets used in performance– Punch and Judy, Sesame Street, etc.	Electrical components and Computer programming Thomas Eddison Inventor Lewis Latimer – Worked alongside Eddison and creates a filament which helped the lightbulb shine brighter and for longer.	Mechanisms– Pneumatics Dr Lonnie Johnson – Inventor of the water gun	Food Technology Jamie Oliver–Chef	Mechanisms– Pulleys and gears Henry Ford and Ford Automobiles– Mechanical Engineer
Spring	Food Technology Tasting and sampling lots of different fruit and vegetables.	Freestanding Structures Isambard Kingdom Brunel– Mechanical and Civil Engineer	Textiles– 2d to 3d Stephanie Kwolek– Inventor of a specialist material	Food Technology Bread making Warburtons– Product Design	Structures Norman Foster– Architect	Electrical Components and Computer Programming Tim Berners-Lee– Learn about the invention of the WWW
Summer	Freestanding Structures Children will research different children’s chair styles in shops.	Wheels and Axels Toy Manufacturer– Mattel	Shell Structures M and S Brand	Computer Programming Ada Lovelace– Computer Programmer	Mechanisms– CAMS Leonardo Da Vinci– Inventor	Textiles using CAD Steve Jobs– Inventor of Apple Technology

Example of Knowledge Organisers



Subject Specific Vocabulary

1	Textiles	People use textiles to make clothing, towels, sheets, table linens, carpets, boat sails, flags, and many other things.
2	Patchwork	Made by sewing or joining together small pieces of material of different colours or patterns.
3	Thread	A long, thin strand of cotton, nylon, or other fibres used in sewing or weaving.
4	Joining	Something that joins two things together.
5	Running stitch	Stitches which do not overlap.
6	Template	To ensure the shape of your design is accurate.
7	Design	To generate ideas for a product that could be made.
8	Design Criteria	Features that the product must include to be good.
9	Evaluate	To judge how a product meets the chosen design criteria.

Diagrams



Facts to remember and recall

- A fabric is a woven or knitted material either made from thread or yarn.
- A cloth is woven or felted fabric made from wool, cotton, or a similar fibre.
- Yarn is made by spinning wool, flax, cotton, or other material to produce long strands.
- A fabric is a material made through weaving, knitting, crocheting, knotting or pressing strands together.
- We can join fabric by gluing, stitching, taping, stapling and safety pinning.
- We can attach different materials such as ribbon, wool, buttons and sequins using the same joining techniques.

What should I already know?

1	Explore	Experiments to create different textures.
2	Combine	Understands that different media can be combined to create new effects.
3	Basic tools	Uses simple tools and techniques competently and appropriately.
4	Construct	Constructs with a purpose in mind, using a variety of resources.
5	Basic Joining	Selects tools and techniques needed to shape, assemble and join materials they are using.

Examples of design planning

The collage illustrates various design planning techniques:

- Annotated Sketches:** Hand-drawn technical drawings with labels and dimensions.
- Prototypes:** 3D printed or physical models of a mechanical part.
- CAD - Computer Aided Design:** A digital 3D model of a mechanical assembly.
- Cross sectional designs:** Detailed diagrams of a ballpoint pen showing internal components like the barrel, back spring, ball, tip, plunger, and ink tube.
- Exploding diagrams:** A diagram showing the disassembly of a mechanical part into its individual components.
- Pattern pieces:** Flat, 2D templates for creating a 3D object, specifically a glove, showing different materials like 'Thin Card', 'Thick Card', and 'Paper'.