

Design & Technology

Intent, Implementataion and Impact



Intent

Our School Vision

Our vision is that all children at East Markham Primary School will be happy, successful learners who believe in themselves and achieve their full potential. With this always in mind, our school motto is 'Believe, Achieve, Succeed'.




The intent of D.T. at East Markham Primary School

At East Markham Primary School, we believe that Design and Technology allows children to think imaginatively and creatively and to become effective problem solvers, both as individuals and as part of a team. Design and Technology involves investigating, planning, evaluating and using a wide range of materials in different situations. 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. Children acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, PSHE, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens.

At the heart of our learning at East Markham Primary School is our school motto, 'Believe, Achieve, Succeed', and our school values, Respect, Empathy, Resilience, Courage and Passion. This underpins all areas of school life. It is our aim that, by focussing on each key part, **all** learners at East Markham Primary will achieve their full potential and many will achieve beyond what is expected.

East Markham School Values in Design and Technology

	Design Technology activities often involves the opportunity for pupils to work collaboratively with a partner or small group. During this time, pupils are respectful when considering another person's ideas or opinions, when taking turns during discussions, resolving difficulties or making decisions. Pupils are respectful of the needs of others when working cooperatively.
	Pupils will be self-aware of their own abilities and have a good understanding of how to meet their goals, be able to persevere with challenges, be confident to share and discuss ideas with others, be motivated to achieve their best and be able to adapt ideas. Through Resilience, the pupils develop the ability to keep trying new ways or try new skills to achieve.

	<p>Courage is having the confidence to do something challenging, not just being afraid to make mistakes, but seeing mistakes as a way of learning. Design Technology involves the process of creative thinking and problem solving and sees pupils develop their courage in their own self confidence and belief in their own abilities to complete a task.</p>
	<p>Empathy is the ability to see the world through other people's eyes, to see what others see, feel and experience or have developed. Empathy is shown throughout Design and Technology projects especially when considering and evaluating other pupil's work. Pupils offer supportive comments in evaluations that will improve learning outcomes in a way that is objective but sensitive to the listener.</p>
	<p>Through high quality teaching and learning opportunities in Design and Technology across the school, we aim for our pupils to develop a sense of passion and commitment to the subject. The pupils will have the opportunity to understand links to other curriculum areas, to the wider world and to possible future careers.</p>

At East Markham Primary School, our aim is to provide children with a rich and enjoyable experience of Design and Technology. Children have to think, decide, plan and create while acquire and are developing their own designing and making skills to create quality products.

We aim to ensure 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

(National Curriculum Aims – September 2014)

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

We encourage the development of skills, knowledge and understanding that help Foundation children make sense of their world. This development is related to the objectives set out in the “Early Years Foundation Stage” (Practice Guidance), which underpins the curriculum planning for children aged from birth to five.

ELG: Creating with Materials

‘Children at the expected level of development will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;
- Share their creations, explaining the process they have used;

(Statutory Framework for Early Years Foundation Stage – September 2021)

1. Implementation

At East Markham School, we aim to consistently deliver high quality Design and Technology lessons which are exciting, challenging and enjoyable and provide many varied learning opportunities.

1.1 Key Stage 1

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

1.2 Key Stage 2

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

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.

1.3 The Foundation Stage

Expressive Arts and Design is one of the 4 key specific areas of the EYFS framework. It involves supporting 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.

This wide range of Design and Technology experiences the children encounter in the Foundation Stage provides a good basis for future learning in Design and Technology in Key Stages 1 and 2.

2. Teaching and learning in Design and Technology

A variety of teaching and learning styles are used in design and technology lessons so that children's knowledge, skills and understanding in the subject are developed. Teachers ensure that children apply their knowledge and understanding when developing ideas, during planning and making products and when evaluating them. This is done through a mixture of whole-class teaching and individual or group

activities. Within lessons, children are given the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. Children have the opportunity to use a wide range of materials and resources, including ICT.

2.1 EYFS

In F1 and F2, the children are given the opportunity to find out about the world they live in and the role Design and Technology plays within it through a number of ways, such as

- asking questions about how things work
- learning about a variety of customs and cultures
- investigating and using a number of construction kits, materials, tools and products.
- developing making skills.

Throughout the Foundation Stage, activities and opportunities are planned where children can learn through talk, play and their own life experiences. Children in the Foundation Stage will experience a variety of activities including:

- Choosing and exploring a variety of materials such as fabric, card, paper, wood, boxes etc.
- Learning how to use scissors safely and correctly,
- Exploring a variety of joining techniques such as PVA glue, Pritt stick, masking tape, elastic tape, elastic bands, tape, treasury tags, split pins, paper clips and string to join materials together,
- Taking part in both cooking and non-cook food activities, learning about the importance of food hygiene
- Having opportunities to talk about and explain how they will/have made their model and to discuss what they like/dislike about it,

This learning forms the foundations for later work in design and technology. These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction materials safely and with increasing control.

A range of experiences are provided that encourage exploration, observation, problem solving, critical thinking, discussion and decision making. These activities take place both indoors and outdoors, and are designed to arouse the children's interest and curiosity.

2.2. Key Stage 1 and 2

At East Markham School, we provide a provide a program of learning opportunities for all pupils to gain the basic knowledge and understanding, which underpin design and technology. In addition, we endeavour to provide continuity and progression for all pupils throughout the curriculum as they move through the school. We aim to ensure health and safety of all pupils during design and technology activities.

When designing and making, pupils in key stage 1 should be taught to:

- 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
- 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
- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria
- 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
- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

When designing and making, pupils in key stage 2 should be taught to:

- 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
 - 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
 - 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
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- understand how key events and individuals in design and technology have helped shape the world
 - 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
 - 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.

Currently, at the end of every term, 2 DT days are planned in across the whole school that are linked to a specific topic such as History, Geography or the Science topic.

3. Cross Curricular Links

Literacy - Design and Technology contributes to the teaching of Literacy by providing valuable opportunities to reinforce prior learning. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion, children learn to justify their own views and clarify their design ideas.

Numeracy – In design and technology, children learn to measure and use equipment correctly, they may generate nets of shapes in order to create packaging and weigh and measure accurately. They will also

learn about size and shape and make “real” use of their mathematical knowledge in order to be creative and practical in their designs and modelling.

Science – Science helps in design and technology, looking at and drawing electrical circuits. It also helps children to think about using materials to create structures that which can withstand a force or their suitability for a certain task.

ICT - Information and Communication Technology (ICT) enhances the teaching of design and technology, wherever appropriate, in all key stages. Children may use software to enhance their skills in designing and making things. Younger children are able to use simple software to enhance their learning. Older children use an ICT control program to control mechanisms and to get them to move in different ways, either in a virtual world or via an infrared connection to working models. The children also use ICT to collect information and to present their designs through a range of design and presentation software.

Personal, Social and Emotional Education (PSHE) – Design and technology contributes to the teaching of PSHE, encouraging children to develop a sense of responsibility in following safe procedures when making things.

They also learn about health and healthy diets. Their work encourages them to set targets and meet deadlines. They will also learn how to prevent disease from spreading and about personal hygiene when working with food.

4. Inclusion and Equal Opportunities

All pupils will have access to the full range of activities irrespective of gender, disability, ability, social background, language or ethnicity. All pupils, whatever their individual needs, have access to the whole curriculum and all staff must take all reasonable steps to ensure that no member of the school community is treated less favourably because of disability.

We comply with the Equality Act 2010 and are proactive in ensuring that all pupils, including those with special needs or disabilities are provided with a comprehensive programme of Design and Technology tasks. For pupils with disabilities or health conditions, we will adapt activities to suit their individual needs. Where appropriate, this may mean providing specialised equipment, differentiating activities, offering a parallel or separate activity or setting a challenge appropriate to their skill level.

5. Hygiene and Safety

It is important that children are taught essential life skills to enable them to participate confidently and safely in designing and making in society. Teachers have a duty to introduce children to a wide variety of production processes and the correct tools for the task. Children must design considering health and safety issues and consequences and operate in a safe and hygienic manner when designing.

6. Impact

Pupils’ at East Markham School will be linking with the school values at all times while engaging in the various D.T activities.

6.1 Assessment

Design Technology feedback is given verbally by teachers, teaching assistants and sometimes by peers. Some pieces of Design Technology evidence will have written feedback in the form of next steps to challenge and progress learning where appropriate. Pupils may be asked to self-assess or peer assess their own or other’s

work if an appropriate occasion requires it. It is important the same standards of English are expected of the pupils in their work.

Assessment judgements are based on whether a child has met the relevant learning objectives. Assessments will be made by class teachers after each project and these will be used to support an end of year assessment judgement for effort and attainment which will then be recorded on FFT Aspire. Staff take photographs to evidence the different termly tasks.

Progression is a key aspect of D.T. as much of the syllabus is tailed to show the children's knowledge and application of D.T. to progress from key stage to key stage and year group to year group. Therefore, assessing D.T. is an important part of teaching and learning and central to good practice in D.T.

Teachers will use assessments to form a judgement as to whether each child has reached the targets for each key theme in their year group. Evidence of work will be highlighted in children's D.T. booklets, on photographs, videos or notes on discussions with children etc. The marking scheme (tick of the learning objective) will demonstrate achievement of objectives.

Misconceptions and incorrect spellings of D.T. vocabulary or terminology must be addressed. This may be teacher feedback given orally or written, and in some cases may take the form of pupils correcting their work with an appropriate instrument, for example blue editing pens. The highest standards of presentation and commitment to their work are expected of the pupils and will be modelled and demonstrated by the teacher.

7. Role of the Subject Coordinator & Monitoring

At East Markham Primary School, the D.T. coordinator will be responsible for supporting teachers deliver the D.T. curriculum, and for maintaining high standards and aspirations regarding the subject. They will ensure continuity and progression of D.T. throughout the curriculum, as well as promoting the aims and objectives of the D.T. policy, making sure they align with the school's vision and values.

The D.T. coordinator will be responsible for keeping up to date with any changes and developments in the D.T. curriculum, attending training where necessary to maintain high standards. They will then communicate these developments back to the larger part of the staff through training or other appropriate means of communication. The subject leader will be responsible for making sure adequate equipment and resources are available to deliver the subject.

The D.T. coordinator should strive to ensure all content knowledge gaps in understanding are addressed and the staff feel comfortable and prepared enough to deliver the D.T. curriculum, equipped with relevant and appropriate pedagogical strategies. Staff have frequent opportunities to work with the subject coordinator and complete reviews and audits of their subject knowledge and pedagogical practice.

The subject coordinator may review books or resources to make sure they have a strong overview of the state and successes of the subject across the school and allow them to review accurately. Pupils' voice is also taken into account with questionnaires, surveys and interviews with pupils informing how planning is adapted to ensure the best outcomes.

Monitoring may take the form of:

- Learning walks
- Lessons observations
- Teacher questionnaires, interviews and feedback
- Pupil voice, including discussion, questionnaires, interviews and evaluation

- Resource and subject audits
- D.T. booklet looks

8. Meeting the needs of SEND children

At East Markham, we see it as vital to meet the needs of all children within the school, including those with Special Educational Needs and Disabilities (SEND). As far as it is appropriate, pupils with SEND will follow the same D.T. programme as all other students and we will aim to ensure learning opportunities will match the individual needs of children with learning difficulties. Teachers will take into consideration any levels of differentiation needed and in some cases, teaching and content may have to be adapted. When required, teachers and teaching assistants can be made available to support SEND children during lessons.