

Intent

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.

Our children have access to a progressive curriculum that is supported by Kapow Primary. Kapow Primary Design and Technology Units of Work aim to inspire pupils to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation and evaluation.

The intent of our Design and Technology curriculum is 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.

Design and Technology comes into different areas in EYFS:

C&L – Listening, Attention and Understanding – ELG – children listen attentively and respond to what they hear with relevant questions, comments and actions during whole class discussions and small group interactions.

C&L – Listening, Attention and Understanding – ELG – they make comments about what they have heard and ask questions to clarify their understanding.

C&L – Listening, Attention and Understanding – ELG – they hold conversations when engaged in back-and-forth exchanges with their teacher and peers.

C&L – Speaking – ELG – Children participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

PSED – Self-Regulation – ELG – Children show an ability to follow instructions involving several ideas or actions.

PSED – Managing Self – ELG – They are confident to try new activities and show independence, resilience and perseverance in the face of challenge.

PD – Fine Motor Skills – ELG – They use a range of small tools, including scissors, paint brushes and cutlery.

PD – Fine Motor Skills – ELG – Children begin to show accuracy and care when drawing.

EAD – Creating with Materials – ELG – Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

EAD – Creating with Materials – ELG – They share their creations, explaining the process they have used.

By the end of 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.

In KS2, 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.

Implementation

Design and Technology is mainly found in the expressive arts and design section of the EYFS Statutory Framework but it is also found in the communication and language and shape, space and measure sections. Children in EYFS participate in Design and Technology across the curriculum through outdoor activities and exploring a range of recycled materials. Resources to stimulate Design and Technology development are also provided for children to use in continuous provision for more independent exploration.

The 'Kapow' Design and Technology scheme of work, which is used throughout KS1 and KS2, supports all the requirements of the National Curriculum. It is an integrated, practical, exploratory and child-led approach to Design and Technology learning. It has a clear progression of skills and knowledge within the five strands of the National Curriculum (design, make, evaluate, technical knowledge, cooking and nutrition). Through 'Kapow's' Design and Technology scheme, pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in six key areas: Mechanisms, Structures, Textiles, Cooking and Nutrition (Food), Electrical systems (KS2) and Digital World (KS2).

Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on, computer-based and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Differentiated guidance is available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary.

We also draw on other resources to enhance the children's design and technology development. Y6 children take part in an annual KNEX challenge. We display the children's design and technology within the school whenever and wherever we can. Larger pieces or special pieces are made into more permanent displays. The children love to see their design and technology work on display and often comment on their own and other's work.

At times, in Owl Groups, we will study specific designers – finding out more about them and their style of design. Children are able to showcase their talents by producing props for our plays and performances. Each unit of Design and Technology is assessed by class teachers continuously during lessons. A main focus area of the National Curriculum is selected for each unit (from design, make, evaluate, technical knowledge or cooking and nutrition). Supporting documents from the 'Kapow' scheme are used along with the progression of skills and knowledge documents. Reviewing and reflecting regularly helps to inform future lessons and provide the evidence for end of year judgements.

Impact

The impact of our Design & Technology curriculum will be constantly monitored through both formative and summative assessment opportunities. Teachers will assess pupils against the learning objectives. The aim is

for children to leave school equipped with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society. Children will:

- understand the functional and aesthetic properties of a range of materials and resources.
- Understand how to use and combine tools to carry out different processes for shaping, decorating and manufacturing products.
- Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD and products to fulfil the needs of users, clients and scenarios.
- Understand and apply the principles of healthy eating, diets, and recipes, including key processes, food groups and cooking equipment.
- Have an appreciation for key individuals, inventions and events in history and to today that impact the world.
- Recognize where our decisions can impact the wider world in terms of community, social and environmental issues.
- Self-evaluate and reflect on learning at different stages and identify areas to improve.
- Meet the end of key stage expectations outlined in the National Curriculum for Design and Technology.

