

Design & Technology

Purpose of Study

- 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.

Aim

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

- I can develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- I can 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.
- I can critique, evaluate and test their ideas and products and the work of others.
- I can understand and apply the principles of nutrition and learn how to cook.

Attainment target

- 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.
- Schools are not required by law to teach the example content in [square brackets].

Useful Links

- Teaching Design and Technology Creatively
- Food A Fact of Life
- BBC Bitesize Design and Technology
- BBC Teach
- How Stuff Works
- STEM
- STEM Engineering

Scheme of work

	Kapow Primary
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- Design & Technology will be taught in blocks half-termly alongside Art & Design.

Intent

- The Design and technology scheme of work aims to inspire pupils to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation, and evaluation. We want pupils to develop the confidence to take risks, through drafting design concepts, modelling, and testing and to be reflective learners who evaluate their work and the work of others. Through our scheme of work, we aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future design advancements.
- Our Design and technology scheme of work enables pupils to meet the end of key stage attainment targets in the National curriculum and the aims also align with those in the National curriculum. EYFS (Reception) units provide opportunities for pupils' to work towards the Development matters statements and the Early Learning Goals.

Implementation

The implementation of the curriculum relates to how the learning is going to be delivered across your school, taking the intent of the learning, and translating it into a progressive and effective curriculum.

- The Design and technology National curriculum outlines the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition* has a separate section, with a focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality.
- The National curriculum organises the Design and technology attainment targets under four subheadings: Design, Make, Evaluate, and Technical knowledge. We have taken these subheadings to be our Kapow Primary strands:
 - **Design**
 - **Make**
 - **Evaluate**
 - **Technical knowledge**
- Cooking and nutrition is given a particular focus in the National curriculum and we have made this one of our six key areas that pupils revisit throughout their time in primary school:
 - ***Cooking and nutrition***
 - ***Mechanisms/ Mechanical systems***
 - ***Structures***
 - ***Textiles***
 - ***Electrical systems (KS2 only)***
 - ***Digital world (KS2 only)***
- The Design and technology scheme has a clear progression of skills and knowledge within these strands and key areas across each year group.
- [National curriculum overview](#) shows which of units cover each of the National curriculum attainment targets as well as each of the four strands.
- [Progression of skills](#) shows the skills and knowledge that are taught within each year group and how these skills develop to ensure that attainment targets are securely met by the end of each key stage.
- Through the Design and technology scheme, pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in the six key areas.
- Each key area follows the design process (design, make and evaluate) and has a particular theme and focus from the technical knowledge or cooking and nutrition section of the curriculum. The

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scheme is a spiral curriculum, with key areas revisited again and again with increasing complexity, allowing pupils to revisit and build on their previous learning.

- 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.
- Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design and technology curriculum. Each unit of lessons includes multiple teacher videos to develop subject knowledge and support ongoing CPD. The scheme has been created with the understanding that many teachers do not feel confident delivering the full Design and technology curriculum and every effort has been made to ensure that they feel supported to deliver lessons of a high standard that ensure pupil progression.

Impact

This relates to how staff identify that the curriculum is having a positive impact on pupils' learning, how to identify gaps in their learning and how to fill these.

- The impact of the scheme can be constantly monitored through both formative and summative assessment opportunities. Each lesson includes guidance to support teachers in assessing pupils against the learning objectives. Furthermore, each unit has a unit quiz and knowledge catcher which can be used at the start and/ or end of the unit.
- After the implementation of the Design and technology scheme, pupils should 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.
- The expected impact of following the Design and technology scheme of work is that 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 of today that impact our world.
 - Recognise 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.
 - Meet the end of key stage expectations outlined in the National curriculum for Computing.

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Long Term Plan

CYCLE A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Art & Design	Design & Technology	Art & Design	Design & Technology	Art & Design	Design & Technology
Reception		Structures: Junk modelling (6 lessons)		Textiles: Bookmarks (6 lessons)		Structures: Boats (6 lessons)
	Christmas biscuits / Christingle		Hot cross buns / Welsh Cakes		Fabulous Fruit salad	
Years 1 / 2		Structures: Constructing a windmill (4 lessons)		Textiles: Puppets (4 lessons)		Cooking and nutrition: Fruit and vegetables (4 lessons)
	Edible windmills		Hot cross buns		Fabulous Fruit salad	
Years 3 / 4		Cooking and nutrition: Eating seasonally (4 lessons)		Digital world: Electronic charm (4 lessons)		Structures: Constructing a castle (4 lessons)
	Making and Evaluating Bread		Welsh cakes		Muffins	
Years 5 / 6		Electrical systems: Doodlers (4 lessons)		Mechanical systems: Making a pop-up book (4 lessons)		Cooking and nutrition: What could be healthier? (4 lessons)
	Bread sticks		Scones		Pizza	

CYCLE B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Art & Design	Design & Technology	Art & Design	Design & Technology	Art & Design	Design & Technology
Reception		Structures: Junk modelling (6 lessons)		Textiles: Bookmarks (6 lessons)		Structures: Boats (6 lessons)
	Christmas biscuits / Christingle		Hot cross buns / Welsh Cakes		Fabulous Fruit salad	
Years 1 / 2		Structures: Baby bear's chair (4 lessons)		Mechanisms: Fairground wheel (4 lessons)		Mechanisms: Making a moving monster (4 lessons)
	Christmas biscuits		Muffins – Blueberry (Joe Wicks)		Cous cous salad	
Years 3 / 4		Structure: Pavilions (4 lessons)		Mechanical systems: Making a slingshot car (4 lessons)		Electrical systems: Torches (4 lessons)
	Greek salad, hummus and tzatziki		Naan bread		Cheese and mushroom tarts	
Years 5 / 6		Textiles: Waistcoats (4 lessons)		Structure: Playgrounds (4 lessons)		Digital world: Navigating the world (4 lessons)
	Muffins		Mexican Food		International food	

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Stand alone lessons

	CYCLE A	CYCLE B
Reception	Design and technology Unit: Seasonal projects - as and when relevant throughout the year.	Design and technology Unit: Seasonal projects - as and when relevant throughout the year.
Years 1 / 2	Design and technology Unit: Cooking and nutrition: A balanced diet (Lesson 1)	Design and technology Unit: Mechanisms: Making a moving story book (Lesson 1)
Years 3 / 4	Unit: Cooking and nutrition: adapting a recipe (Lesson 1) Unit: Textiles: Fastenings (Lesson 1)	Design and technology Unit: Textiles: Cross- stitch and appliqué (Lesson 1) Unit: Mechanical systems: Pneumatic toys (Lesson 1 and/or 2)
Years 5 / 6	Design and technology crafts	Design and technology crafts

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