



Chester-le-Street CE Primary School

Design and Technology

INTENT

At Chester-le-Street C of E Primary School, our Design and Technology curriculum aims to inspire and nurture creativity and innovation and allows the children to develop practical skills. It is our aim to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts. We encourage pupils to think creatively and innovate, developing a love for design and problem solving. We aim to develop practical and technical skills through hands-on projects, ensuring that pupils can confidently use tools and technology. We aim to instill a sense of responsibility, ensuring pupils consider the environmental impact of their designs. We aim to promote resilience and perseverance by encouraging the children to overcome challenges and develop their problem-solving skills.

OUR AIMS

The National Curriculum (2014) 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

IMPLEMENTATION

CURRICULUM

Our curriculum is designed to be a high quality, well thought out element of our curriculum which is planned to demonstrate progression of Design and Technology knowledge as the children build on their skills as they move through the school.

Design and Technology at our school is linked to topics to ensure a well-structured approach to this creative subject. The activities aim to challenge the pupils to research, design, make and evaluate. Design and Technology is closely linked with other subjects such as Science, Maths and Art and this helps to develop skills across the curriculum.

The children are taught Design and Technology half-termly, alternating with Art.

When designing and making, the children are 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 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, as well as chopping and slicing) accurately.
- select from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

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.
- understand and use electrical systems in their products.
- apply their understanding of computing to program, monitor and control their products
- understand how to cook and the principals of nutrition.

CURRICULUM COVERAGE

	Our Community		Our World		Our Impact	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	It's my life	This is our school	Royal Patrons – Story of Elizabeth and Victoria	We are united	King of the Castle	Beside the Seaside
		Design a piece of equipment for the playground	Plan a healthy meal for the community		Design and make a shelter for a mini-beast	
Year 2	Made in Durham	There's no place like home	Medicine Women	Adventures around the world	Fire! Fire!	Going Wild
		Make a Christmas card with moving parts		Make a healthy snack for a traveller		Design and make a vehicle to transport sick animals around the jungle
Year 3	May the force be with you	The Lambton worm	Captain Caveman	Pack your bags	Who Let the Gods out	Where Land Meets Sea
	Design and make a kite.		Make clothes for a stone age person			Prepare dishes using seasonal produce
Year 4	You're Not Invited	The Uk uncovered	Revolting Rebels	The Rhythm of the Rain	Walk like an Egyptian	Spiritual rivers
	Design and make a portable lamp for the future.		Make a Roman catapult			Make an Indian food dish - bread
Year 5	Saxon Raiders	Awesome Alps	Viking Warriors	Guardians of the Gorge	Mysteries of the Maya	Rainforest Rescue
	Design and make an Anglo-Saxon bag			Building bridges		Develop a recipe
Year 6	Mining's Footprint	Extreme Earth	Battle of Britain	The Place inbetween	Achievements of the ancients	Planet Earth
		Design and make a moving toy with a cam		Design a navigational tool		Prepare a 3-course meal - Come Dine With Me

SKILLS PROGRESSION

At Key Stage 1

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 e.g. 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 e.g. levers, sliders, wheels and axles, in their products.

Cooking and Nutrition:

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

At Key Stage 2

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 e.g. 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 e.g. gears, pulleys, cams, levers and linkages.
- Understand and use electrical systems in their products e.g. series circuits incorporating switches, bulbs, buzzers and motors.
- Apply their understanding of computing to program, monitor and control their products.

Cooking and Nutrition:

- 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.

DT Strands	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design 	Design a useful product that fits a purpose. Talk about and share my ideas through drawing.	Design a useful, appealing product based on a given criteria. Develop my ideas through talking, drawing, using mock-ups and ICT (where appropriate).	Research different design examples and describe how they are fit for purpose Develop successful designs using ideas from research including annotated sketches. Adapt and improve own design after sharing ideas with a group.	Research different design examples and describe how they are appealing. Develop successful designs using more detailed diagrams including cross-sectional drawings. Adapt and improve own design after communicating ideas with a group.	Research different design examples and describe how they are functional and appealing. Develop own design criteria to ensure the product is fit for purpose. Communicate design ideas through prototypes and pattern pieces.	Research different design examples and describe how they are innovative and functional. Develop own design criteria to ensure the product is fit for purpose and suitable for the target market. Communicate design ideas through computer aided design e.g. tinker cad.
Make 	Select and use a basic range of tools and materials to perform practical tasks.	Select and use a wider range of tools and materials to perform practical tasks.	Select the appropriate tools for the task. Use a range of tools safely and accurately. Use a variety of materials when completing a task.	Select the most appropriate tools for the task. Independently use a range of tools safely and accurately. Independently choose a variety of materials when completing a task.	Select the most appropriate tools from a wider range of resources. Select appropriate materials fit for purpose. Use a wider range of tools accurately.	Select the most appropriate tools from a wider range of resources to perform practical tasks effectively. Select the most appropriate materials to meet design specification.

						Use a wider range of tools with greater precision.
Evaluate 	Look at and compare a range of existing products. Evaluate my product, saying what I like and dislike and how I can make it better.	Look at, compare and evaluate a range of existing products against their own. Evaluate my product, suggesting ways in which it can be improved and make changes where necessary.	Explain how my product matches my original plan. Present my product to my group and listen and respond to the ideas of others. Make improvements to my product following discussion. Understand how key events and people have changed the world.	Present my product to a group and demonstrate how it matches my original plan. Listen and respond to the ideas of others and use these to make improvements to my product. Understand how key events and people have changed the world.	Evaluate my product against the design criteria. Suggest ways to improve my own work and that of others. Understand how key events and people have helped shape the world.	Evaluate own ideas and final product against the design criteria. Suggest ways to improve own work and compare to commercial products. Understand how key events and people have helped shape the world.
Technical Knowledge 	Join materials and components in different ways	Use the correct tools appropriately and explore and use mechanisms (e.g. levels, sliders, wheels and axles.)	Show understanding of how to strengthen and reinforce a structure.	Understand and explain how cogs, levers, pulleys etc work within a product and use these in my own project.	Understand how electrical systems work including circuits, switches, bulbs, buzzers and motors and use in own project.	Understand how computing can be used to program, monitor and control products and apply to own project.

Cooking and nutrition 	Choose and prepare foods that are good for me.	Choose and prepare foods that are good for me and know where my food comes from.	Prepare the ingredients from a recipe. Use available equipment to cook ingredients.	Prepare multiple ingredients from a recipe. Use more than one method to prepare and cook ingredients.	Understand the importance of a healthy, balanced diet. Prepare and cook a variety of dishes using a range of cooking techniques.	Understand how seasonality affects the availability of produce. Apply knowledge of a healthy diet to prepare and cook a variety of balanced dishes, selecting the appropriate cooking techniques.
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EARLY YEARS FOUNDATION STAGE (EFYS)

For our youngest pupils, Design and Technology is guided by the Early Learning Goals outlined within the Statutory framework for the Early Years Foundation Stage. Design and Technology is taught within the continuous provision providing varied opportunities to explore different materials freely, in order to develop their ideas about how to use them and what to make. They will develop their own ideas and then decide which materials to use to express them. They will join different materials and explore different textures. They will also safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. They will be encouraged to share their creations, explaining the process they have used and will make use of props and materials when role playing characters in narratives and stories.

SPECIAL EDUCATIONAL NEEDS AND DISABILITY (SEND)

The Design and Technology curriculum at CLS is inclusive: children with SEND can access the curriculum. Teachers will adapt teaching to meet the individual needs of children with SEND as outlined in their Support Plan or EHCP, in which learning needs and individualised targets are set in conjunction with the SENDCo and parents. Adaptations may include modified or scaffolded tasks, the effective use of resources or appropriate deployment of support staff / teacher time.