Design & Technology - Progression of Knowledge and Skills Map

Purpose of study

The ELGs below all go towards giving FS pupils the basic skills, knowledge and vocabulary that they will need to engage fully with the Design & Technology Curriculum as they transition to Key Stage One.

Design & 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.

Aims

The national curriculum for Design & 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.

EYFS

Communication and Language
Personal, Social and Emotional Development
Physical Development
Expressive Arts and Design

Continuous Provision
The following activities are regularly available as part of the Continuous Provision that the pupils can access at any point when they are not directly involved in an adult Guided Session.
Use of the Creative area – mark making with a variety of materials, cutting and sticking/ joining activities, playdough, junk modelling etc.
Construction kits – Lego, Duplo, Cogs, building bricks, Large Play Bricks, Waffle blocks etc. Toy vehicles, Jigsaw puzzles, Pegs and pegboards Beads and Tweezers.
Choice of healthy snacks at the Snack Table.

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.

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.

Design

Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Talk about and draw their ideas for things they would like to make.	Design simple products that work and look appealing. Discuss and draw ideas to communicate.	Design products for others and themselves that are purposeful, functional and appealing. Generate, develop, model and communicate ideas through talking, drawing, and templates.	Communicate ideas using different strategies eg discussion, sketch, diagrams. Use research to inform design.	Communicate, generate and develop ideas using a range of strategies eg prototypes, pattern pieces. Use research to inform design and develop design criteria.	Communicate, generate, develop and model ideas using a range of strategies eg cross-sectional and exploded diagrams. Use research to inform design and generate own design criteria.	Communicate, generate and develop ideas, drawing on other disciplines eg science, maths, computing. Use research to inform innovative design and generate own design criteria. Confidently take calculated risks to become innovative, resourceful and enterprising.

Make

Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use resources safely to make their ideas. Cut, stick and join materials. Talk about their products.	Use a range of materials and components. Use a range of tools and equipment to perform practical tasks eg cut, shape, join and finish.	Select from and use a wide range of materials and components (according to their characteristics). Select from and use a wide range of tools and equipment to perform practical tasks eg cut, shape, join and finish.	Select from and use a wide range of tools, equipment, materials and components accurately.	Select from and use a wider range of tools, equipment, materials and components accurately to make prototypes.	According to their functional properties and aesthetic qualities, select from and use a wide range of tools, equipment, materials and components accurately to make high quality prototypes.	According to their functional properties and aesthetic qualities, select from and use a wide range of tools, equipment, materials and components accurately to make high quality prototypes.

Evaluate

Foundation Stage	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Talk about the things they have made and what they like about them.	Explore existing products eg home, school Discuss own ideas and designs	Explore and evaluate a range of existing products eg home, school Evaluate own ideas and designs against given design criteria.	Evaluate own ideas and designs against given design criteria and consider the views of others to improve their work. Investigate a range of existing products that address real / relevant problems, in a range of relevant contexts.	Evaluate own and others' work suggesting improvements and consider the views of others to improve their work. Investigate a range of existing products in a range of relevant contexts eg culture, industry	Generate own design criteria and evaluate ideas and products against these. Investigate and analyse a range of existing products that address real / relevant problems, in a range of relevant contexts.	Generate own design criteria and critique ideas and products against these. Explain and understand how key events and individuals in D&T helped to shape the world

Technical Knowledge						
Foundation Stage	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Make choices about the materials they choose, related to the need of their plan.	Start to build structures, exploring ways to stiffen, stable and strengthen Explore simple mechanisms.	Build structures, exploring ways to stiffen, stabilise and strengthen Explore and use mechanisms eg levers, wheels and axles.	Apply understanding of how to strengthen, stiffen and reinforce structures. Identify range of mechanical systems and how they work (gears, pulleys, cams, levers and linkages).	Apply understanding of how to strengthen, stiffen to reinforce more complex structures. Identify a wider range of mechanical systems and how they work (gears, pulleys, cams, levers and linkages). Use understanding of electrical systems (series circuits, switches, bulbs and motors).	Construct more complex structures by applying range of strategies to solve real / relevant problems. Drawing on disciplines & making connections to wider subject areas, apply understanding of computing to program, monitor and control products. Making connections to real & relevant problems, apply understanding of wider range of mechanical systems (gears, pulleys, cams, levers and linkages).	Construct more complex structures by applying range of strategies to solve real / relevant problems. Making connections to real & relevant problems, apply understanding of wider range of mechanical systems (gears, pulleys, cams, levers and linkages). Making connections to real & relevant problems, apply understanding of electrical systems (series circuits, switches, bulbs and motors)
Cooking and nutrition						
Foundation Stage	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Hygiene routines – washing hands before preparing / eating food. Introduction to cooking and nutrition through joint preparation of food.	Begin to understand where food comes from. Prepare simple dishes using knowledge of healthy food.	Use basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.	Apply principles of a healthy, varied diet when preparing variety of dishes.	Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Know where and how a variety of ingredients are grown, reared, caught and processed.	Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Apply understanding of seasonality and its link to ingredients.	Know where and how a variety of ingredients are grown, reared, caught and processed and its impact on meal design. Develop crucial life skill of feeding themselves and others affordably and well.