Progression of Knowledge for Design and Technology

National Curriculum

Early years
Exploring and using media and materials Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function Being imaginative Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories
Key Stage 1
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. Cooking and Nutrition • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from.
Key Stage 2
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 computeraided design Make

Progression of Knowledge for Design and Technology

• 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

• 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.

Progression of Knowledge for Design and Technology

By the end of reception

Me and my community

To use construction kits to create vehicles with axles and wheels.

Once upon a time

To create structures using various materials, including construction kits and upcycled materials.

Starry night

To be able to create cuddly pets using textiles.

Dangerous Dinosaurs

To create dinosaurs using various resources and construction kits.

Sunshine and sunflowers

To be able to explore existing products to inspire their designs for sun hats and crop protectors.

Big wide world

To create vehicles using a range of resources and construction kits.

By the end of year 2

Chop, slice and Mash

To be able to design purposeful, functional, appealing products for themselves and other users based on design criteria.
To be able generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
To be able select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).
To explore and evaluate a range of existing products.
To be able evaluate their ideas and products against design criteria.
To be able to use the basic principles of a healthy and varied diet to prepare dishes.
To understand where food comes from.
To be able to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

Key Vocabulary

Design, design criteria, diagram, label, chop, grate, knife, mash, evaluate, improve, hygiene, rule, safety, dairy products

Progression of Knowledge for Design and Technology

Beach Hut

To be able to design purposeful, functional, appealing products for themselves and other users based on design criteria.
To be able to generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
To select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).
To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
To evaluate their ideas and products against design criteria.
To build structures, exploring how they can be made stronger, stiffer and more stable.

Key Vocabulary

Change, improve, strength, success, weakness, describe, design, label, cut, finish, model, support, tool, material, property

Cut, stitch and join

To be able to design purposeful, functional, appealing products for themselves and other users based on design criteria.
To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
To be able to select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).
To be able to select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
To explore and evaluate a range of existing products.
To evaluate their ideas and products against design criteria.

Key Vocabulary

Compare, design, different, fabric, fasten, glue, join, needle, running stitch, thread, textile, attractive, hard wearing, distinctive, fashion, vintage

Push and pull

To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
To explore and evaluate a range of existing products.
To evaluate their ideas and products against design criteria.

Progression of Knowledge for Design and Technology

To explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products.

Key Vocabulary
Design criteria, evaluation, finish, improvement, product, successful, improve, component, fixed pivot, slider, test

Shade and shelter

To design purposeful, functional, appealing products for themselves and other users based on design criteria.
To be able to generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
To explore and evaluate a range of existing products.
To evaluate their ideas and products against design criteria.
To build structures, exploring how they can be made stronger, stiffer and more stable.
To be able to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

Key Vocabulary
Compare, different, similar, change, criteria, difficulty, evaluate, improve, strengthen, temporary, purpose, idea, label, shape, size, construction

Taxi

To design purposeful, functional, appealing products for themselves and other users based on design criteria.
To be able to generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.
To explore and evaluate a range of existing products.
To evaluate their ideas and products against design criteria.
To explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products.

Key Vocabulary
Compare, difference, similarity, change, improve, weakness, axle, chassis, vehicle, wheel, criteria, design, evaluate, attach, strong, weak

Progression of Knowledge for Design and Technology

Remarkable recipes

To design purposeful, functional, appealing products for themselves and other users based on design criteria.

To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

To select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).

To explore and evaluate a range of existing products.

To evaluate their ideas and products against design criteria.

To be able to use the basic principles of a healthy and varied diet to prepare dishes.

To be able to understand where food comes from.

To be able to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

Key Vocabulary

Change, dislike, evaluate, design criteria, grate, measure, purpose, tongs, spread, ingredient, preparation, source, stem, vegetarian

By the end of year 4

Cook well, Eatwell

To be able 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.

To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

To be able evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

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

To understand and apply the principles of a healthy and varied diet.

To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.

To understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

Key Vocabulary

Evaluation, improve, success, bake, chop, cook, ingredient, method, microwave, slow cooker, health and safety, carbohydrate, nutrient, healthy

Progression of Knowledge for Design and Technology

Making it move

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.
To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
To 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.
To be able to investigate and analyse a range of existing products.
To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).

Key Vocabulary

Demonstrate, discussion, improvement, strength, structure, component, design criteria, mechanism, lever, movement, rotational, follower

Greenhouse

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.
To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
To 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.
To investigate and analyse a range of existing products.
To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand how key events and individuals in design and technology have helped shape the world.
To be able to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Key Vocabulary

Biome, compare, conservatory, designer, difference, purpose, similarity, design criteria, effective, observation, suitability, dimension, strengthening, triangular corner, transparent, property, purpose

Progression of Knowledge for Design and Technology

Fresh food, good food

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.
To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To be able to 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.
To investigate and analyse a range of existing products.
To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand how key events and individuals in design and technology have helped shape the world.
To be able to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
To understand and apply the principles of a healthy and varied diet.
To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
To be able to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.

Key vocabulary
Evaluation, success, recyclable, compostable, deconstruct, pasteurisation, pickling, packaging, triangular prism, cuboid, cube, prototype

Functional, Fancy Fabrics

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.
To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
To 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.
To investigate and analyse a range of existing products.
To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Progression of Knowledge for Design and Technology

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

Key Vocabulary
Appearance, colour, compare, embellishment, property, purpose, block printing, pattern structure, design criteria, home product, furnishing, synthetic, stretchy, textile, texture, weaving, loom

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Tomb builders

To 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.
To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).

Key vocabulary
Change, evaluate, improve, compound machine, device, machine, prototype, characteristics, annotated sketch, labelled diagram

By the end of year 6

Architecture

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.
To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To 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.
To investigate and analyse a range of existing products.
To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand how key events and individuals in design and technology have helped shape the world.

Progression of Knowledge for Design and Technology

To be able to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Key vocabulary

Discuss, evaluate, improve, architecture, sustainable, temple, functional, stability, stiffness, framework, structure, support

Engineer

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.
To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
To 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.
To investigate and analyse a range of existing products.
To be able to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand how key events and individuals in design and technology have helped shape the world.
To apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Key vocabulary

Arch bridge, beam bridge, compare, material, suspension bridge, support, analysis, evaluation, improve, feedback, modelling, protype, investigation,

Food for life

To investigate and analyse a range of existing products.
To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To understand and apply the principles of a healthy and varied diet.
To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Key vocabulary

Compare, comparison, disadvantage, advantage, nutritional value, taste, texture, evaluation, feedback, convenience food, processed, unprocessed,

Bake, blend, boil, simmer, kneed, health and safety, balanced, carbohydrate, dairy, diet, protein, organic

Progression of Knowledge for Design and Technology

Make Do and Mend

To be able to select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
To 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.
To investigate and analyse a range of existing products.

Key vocabulary
Stitch, decorative, embroidery, investigate, fastening, seam, thread, repurpose, adapt, change, clothing, garment, repair, observation

Eat the seasons

To understand and apply the principles of a healthy and varied diet.
To be able to prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
To understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

Key vocabulary
Food preparation, blend, boil, simmer, food hygiene, calories, nutritional value, saturated fat, seasonal food, produce, sauté, peel, dice

Moving Mechanisms

To select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.
To be able to 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.
To investigate and analyse a range of existing products.
To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
To apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
To understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).

Progression of Knowledge for Design and Technology

To be able to critique, evaluate and test their ideas and products and the work of others.

Key vocabulary
Equipment, investigate, problem-solve, technique, test, version, air pressure, compress, compressor, pneumatics, syringe, reservoir, valve, lever