Cadmore End Design and Technology Progression Map

Level Expected at the End of EYFS

Expressive Arts and Design (Exploring and Using Media and Materials)
Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Expressive Arts and Design (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.

Physical Development (Moving and Handling)
Children handle equipment and tools effectively, including pencils for writing.

Key Stage 1 National Curriculum Expectations

Design
Pupils should be taught to:

- 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
Pupils should be taught to:

- 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
Pupils should be taught to:

- explore and evaluate a range of existing products;
- evaluate their ideas and products against design criteria.

Technical Knowledge
Pupils should be taught to:

- 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
Pupils should be taught to:

- use the basic principles of a healthy and varied diet to prepare dishes;
- understand where food comes from.

Key Stage 2 National Curriculum Expectations

Design

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

Make

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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.

By the end of each key stage, we expect our children to achieve the following:

	KS1	LKS2	UKS2
Design	**KS1 Design and Technology National Curriculum** 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. 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]. Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Children can: a use their knowledge of existing products and their own experience to help generate their ideas; b design products that have a purpose and are aimed at an intended user; c explain how their products will look and work through talking and simple annotated drawings; d design models using simple computing software; e plan and test ideas using templates and mock-ups; f understand and follow simple design criteria; g work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment.	**KS2 Design and Technology National Curriculum** 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. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Children can: a identify the design features of their products that will appeal to intended customers; b use their knowledge of a broad range of existing products to help generate their ideas; c design innovative and appealing products that have a clear purpose and are aimed at a specific user; d explain how particular parts of their products work; e use annotated sketches and cross-sectional drawings to develop and communicate their ideas; f when designing, explore different initial ideas before coming up with a final design; g when planning, start to explain their choice of materials and components including function and aesthetics; h test ideas out through using prototypes; i use computer-aided design to develop and communicate their ideas (see note on p. 1); j develop and follow simple design criteria; k work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.	**KS2 Design and Technology National Curriculum** 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. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Children can: a use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; b use their knowledge of a broad range of existing products to help generate their ideas; c design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user; d explain how particular parts of their products work; e use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas; f generate a range of design ideas and clearly communicate final designs; g consider the availability and costings of resources when planning out designs; h work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.

Make	**KS1 Design and Technology National Curriculum** 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 making. Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Children can: Planning a with support, follow a simple plan or recipe; b begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer; c select from a range of materials, textiles and components according to their characteristics; Practical skills and techniques d learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures; e use a range of materials and components, including textiles and food ingredients; f with help, measure and mark out; g cut, shape and score materials with some accuracy; h assemble, join and combine materials, components or ingredients; i demonstrate how to cut, shape and join fabric to make a simple product; j manipulate fabrics in simple ways to create the desired effect; k use a basic running stitch; l cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups; m begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations.	**KS2 Design and Technology National Curriculum** 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 making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. They 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. Children can: Plan a with growing confidence, carefully select from a range of tools and equipment, explaining their choices; b select from a range of materials and components according to their functional properties and aesthetic qualities; c place the main stages of making in a systematic order; Practical skills and techniques d learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; e use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; f with growing independence, measure and mark out to the nearest cm and millimetre; g cut, shape and score materials with some degree of accuracy; h assemble, join and combine material and components with some degree of accuracy; i demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; j join textiles with an appropriate sewing technique; k begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics.	**KS2 Design and Technology National Curriculum** 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 making. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. They 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. Children can: Planning a independently plan by suggesting what to do next; b with growing confidence, select from a wide range of tools and equipment, explaining their choices; c select from a range of materials and components according to their functional properties and aesthetic qualities; d create step-by-step plans as a guide to making; Practical skills and techniques e learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; f independently take exact measurements and mark out, to within 1 millimetre; g use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; h cut a range of materials with precision and accuracy; i shape and score materials with precision and accuracy; j assemble, join and combine materials and components with accuracy; k demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; l join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch; m refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape.

Evaluate	**KS1 Design and Technology National Curriculum** 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. Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria. Children can: a explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations; b explain positives and things to improve for existing products; c explore what materials products are made from; d talk about their design ideas and what they are making; e as they work, start to identify strengths and possible changes they might make to refine their existing design; f evaluate their products and ideas against their simple design criteria; g start to understand that the iterative process sometimes involves repeating different stages of the process.	**KS2 Design and Technology National Curriculum** 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. Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. Children can: a explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose; b explore what materials/ingredients products are made from and suggest reasons for this; c consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product; d evaluate their product against their original design criteria; e evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.	**KS2 Design and Technology National Curriculum** 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. Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world. Children can: a complete detailed competitor analysis of other products on the market; b critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make; c evaluate their ideas and products against the original design criteria, making changes as needed.