Coombe Bissett Curriculum Progression for Design and Technology

YEAR R

Key Knowledge Taken from the EYFS Curriculum

Expressive Arts and Design

Early Learning Goal for 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.

Early Learning Goal for 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.

Physical Development

Early Learning Goal for Physical Development moving and handling: Children show good control and coordination in large and small movements. they move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.

Personal, Social and Emotional Development

Self – confidence and Self Awareness: Children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don't need help.

Key Vocabulary

The key vocabulary will be mainly 'doing' words: painting, drawing, printing, modelling, scratching, scraping, pressing, moulding, rolling, wrapping, cutting, sticking, texture

Naming tools and materials that are used.

Response words linked to what they are creating or what they are being shown – linking in emotions to how art work can make you feel.

Scale words: big, small, tall, short, long, wide, deep, shallow

Colour words: naming the three primary colours. Naming the colours you can make using the primary colours.

Appropriate Art and DT Process Skills for Year R

Cooking and Nutrition:

I know where some foods come from.
I can talk about simple food processes and cooking.
I can use cooking equipment safely and hygienically.
I can make a fruit kebab, healthy, lunchbox and gingerbread biscuits.

Design:

I can experiment with tools and techniques.
I can follow a simple plan to make a final product.
I can talk about my plans and my 'makes.'
I can begin to construct with 3D pieces – junk modelling – to create a planned piece.
I can model with play-doh and clay to form a sculpture that I can tell you about.
I can make with a purpose in mind.

Making:

I can begin to choose what tools and resources I need to make things.
I can design and make simple models.
I can follow through my ideas and get designs on paper or make them.
I can handle equipment and tools with growing dexterity.

Key Skills

Design (1)	Making (2)

Work purposely responding to colours, shapes, materials and the resources on offer for a given Art and Design opportunity. Experimentation with form and texture to create an end product/piece.	**Make:** Work spontaneously and enjoy the act of making and creating for both experimentation purposes and for the planned end product. Manipulates materials to achieve a planned effect. Looking at materials available and choosing what to use for what task. Sustain concentration and control when experimenting with tools and materials. Being able to talk about features of their own and others work, recognising the differences between them and the strengths of others.
	Cooking and Nutrition: To use the basic principles of a healthy diet by making, sharing and eating healthy food. To have a basic understanding of where food comes from.
Evaluating (3)	**Knowledge and Understanding (4)**
To be able to recognise and describe key features of their own and other's work. To look at the plan, either their own or the specification given to them, and evaluate whether they have follow the design criteria.	To know that art, designs and craft can be created by anyone who has an interest and passion in being creative. To know that art, design and craft is made by artists exhibiting care and skill and is valued by others for its qualities. To be able to explain what they are doing and what their desired outcome is. To know how to stay safe when using equipment. To know that they need to follow hygiene processes when handling and preparing food.
Potential barriers to learning	**Potential for going deeper**
Fine motor skills. Visual impairments. Resilience and perseverance.	In order to deepen their understanding children should work alongside adults to explore the work of famous and/or local artists. Have opportunities to discuss the works of others, local and international artists.
Prior Knowledge requirements	**Assessment Opportunities**
Fine and gross motor development.	Observations of the learning process. Photos of the learning process. Presentation of final pieces. Sharing their creations with friends and family in gallery style afternoons. Having an Art sketch book which will continue with them through the school.

<table>
<tr><th colspan="2">YEAR 1 AND 2</th></tr>
<tr><th colspan="2">KS1 National Curriculum Year 1 and 2 Key Knowledge and Skills</th></tr>
<tr><td>Design
Generation of ideas - Ideas can be communicated in a variety of ways, including written work, drawings and diagrams, modelling, speaking and using information and communication technology.
Structures - Structures can be made stronger, stiffer and more stable by using cardboard rather than paper and triangular shapes rather than squares. A broader base will also make a structure more stable.
Mechanisms and movement - A mechanism is a device that takes one type of motion or force and produces a different one. A mechanism makes a job easier to do. Mechanisms include sliders, levers, wheels and axels.

<u>Skills</u>
• Generation of ideas - Generate and communicate their ideas through a range of different methods.
• Structures - Explore how a structure can be made stronger, stiffer and more stable.
• Investigation – Select the appropriate tool for a task and explain their choice.
• Mechanisms and movement - Use a range of mechanisms (levers, sliders, wheels and axles) in models or products.</td><td>Make
Materials for purpose – Properties of components and materials determine how they can and cannot be used. For example, plastic is shiny and strong but it can be difficult to paint.
Investigation – Different tools have characteristics that make them suitable for specific purposes. For example, scissors are used for cutting paper because they have sharp, metal blades that can cut through thin materials.

Skills
• Materials for purpose - Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.
• Staying safe - Work safely and hygienically in construction and cooking activities.</td></tr>
<tr><td><u>Evaluate</u>
• Evaluation - Explain how closely their finished products meet their design criteria and say what they could do better in the future.
• Evaluation - Finished products can be compared with design criteria to see how closely they match. Improvements can then be planned.

<u>Skills</u>
• Everyday products - Explain how an everyday product could be improved.
• Everyday products – Products can be improved in different ways, such as making them easier to use, more hardwearing or more attractive.</td><td><u>Cooking and Nutrition</u>
Food preparation and cooking - Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples.

Nutrition - A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.

Origins of food – Cows provide beef, sheep provide lamb and pigs provide pork, ham and bacon. Examples of poultry include chickens, geese and turkeys. Examples of fish include cod, salmon and shellfish. Milk comes mainly from cows but also from goats and sheep. Most eggs come from chickens. Honey is made by bees. Fruit and vegetables come from plants. Oils are made from parts of plants. Sugar is made from plants called sugar cane and sugar beet. Plants also give us nuts, such as almonds, walnuts and hazelnuts.

<u>Skills</u></td></tr>
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	• Food preparation and cooking - Prepare ingredients by peeling, grating, chopping and slicing. • Nutrition - Describe the types of food needed for a healthy and varied diet and apply the principles to make a simple, healthy meal. Healthy Lunchbox Year A and Soup Year B. • Origins of food – Identify the origin of some common foods (milk, eggs, some meats, common fruit and vegetables).

Key Vocabulary

Modelling and Construction:
Diagram, drawing, plan, evaluate, modelling, stronger, stiffer, more stable, broader, compare, improve,

Healthy Eating and Food Preparation:
ingredients, prepare, grating, chopping, peeling, food groups, starchy foods, fats, beef, lamb, mutton, pork, poultry, diet, healthy, varied, produce, harvest, growing, fresh fruit and vegetables components, home-grown, health and hygiene

Moving models and designs:
mechanism, motion, force, sliders, levers, linkages, gears, pulleys, cams, hardwearing, wheels, axels

YEAR 3 AND 4	
KS2 National Curriculum Year 3 and 4 Key Knowledge and Skills:	
Design • Generation of ideas - Use annotated sketches and exploded diagrams to test and communicate their ideas. • Use of ICT - Write a program to control a physical device, such as a light, speaker or buzzer. • Structures - Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. • Investigation – Useful tools for cutting include scissors, craft knives, junior hacksaws with pistol grip and bench hooks. Useful tools for joining include glue guns. Tools should only be used with adult supervision and safety rules must be followed. • Generation of ideas - Use annotated sketches and exploded diagrams to test and communicate their ideas. • Use of ICT - Write a program to control a physical device, such as a light, speaker or buzzer. • Structures - Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them. • Mechanisms and movement – Mechanisms can be used to add functionality to a model. For example, sliders or levers can be used in moving pictures, storybooks or simple puppets; linkages in moving vehicles or puppets; gears in motorised vehicles or spinning toys; pulleys in cable cars or transport systems and cams in 3-D moving toys or pictures. • Compare and contrast - A comparison table can be used to compare products by listing specific criteria on which each product can be judged or scored. • Evaluation - Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements. • Everyday products – Investigate and identify the design features of a familiar product. • Everyday products – Design features are the aspects of a product's design that the designer would like to emphasise, such as the use of a particular material or feature that makes the product easier to use or more durable. **Skills**	**Make** • Materials for purpose – Different materials and components have a range of properties, making them suitable for different tasks. It is important to select the correct material or component for the specific purpose, depending on the design criteria. Recipe ingredients have different tastes and appearances. They look and taste better and are cheaper when in season. • Electricity - Components can be added to circuits to achieve a particular goal. These include bulbs for lighthouses and torches, buzzers for burglar alarms • Staying safe – Chemicals are used in the home every day. They include cleaning products, such as bleach and disinfectant, but also paints, glues, oils, pesticides and medicines. Most chemical products carry a hazard symbol showing in what way the chemical could be harmful. Chemicals should only be used under adult supervision. Appropriate safety precautions, such as wearing goggles and gloves, working in a well-ventilated room, wiping up spills and tying back long hair, should be taken. • Materials for purpose – Choose from a range of materials, showing an understanding of their different characteristics. • Electricity - Incorporate circuits that use a variety of components into models or products. • Mechanisms and movement - Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products. **Skills** • Investigation – Select, name and use tools with adult supervision. • Electricity - Incorporate circuits that use a variety of components into models or products. • Mechanisms and movement - Explore and use a range of mechanisms (levers, axles, cams, gears and pulleys) in models or products. • Everyday products – Investigate and identify the design features of a familiar product.

- Generation of ideas - Use annotated sketches and exploded diagrams to test and communicate their ideas.
- Use of ICT - Write a program to control a physical device, such as a light, speaker or buzzer.
- Structures - Prototype shell and frame structures, showing awareness of how to strengthen, stiffen and reinforce them.
- Materials for purpose – Choose from a range of materials, showing an understanding of their different characteristics.

Evaluate

- Evaluation - Evaluation can be done by considering whether the product does what it was designed to do, whether it has an attractive appearance, what changes were made during the making process and why the changes were made. Evaluation also includes suggesting improvements and explaining why they should be made.
- Significant people - Explain how and why a significant designer or inventor shaped the world. and electronic games, motors for fairground rides and motorised vehicles and switches for burglar alarms and games.
- **Significant people - Significant designers and inventors** include Leonardo da Vinci (1452–1519), who designed a helicopter and tank; Thomas Edison (1847–1931), who invented the phonograph and electric lightbulb and Tim Berners-Lee (1955–), who invented the World Wide Web.

Skills

- Evaluation - Identify what has worked well and what aspects of their products could be improved, acting on their own suggestions and those of others when making improvements.
- Compare and contrast - Create and complete a comparison table to compare two or more products.
- Significant people - Explain how and why a significant designer or inventor shaped the world.

Cooking and Nutrition

- Identify and use simple cooking techniques, including baking, boiling, frying, grilling and roasting.
- Nutrition - Healthy snacks include fresh or dried fruit and vegetables, nuts and seeds, rice cakes with low-fat cream cheese, homemade popcorn or chopped vegetables with hummus. A healthy packed lunch might include a brown or wholemeal bread sandwich containing eggs, meat, fish or cheese, a piece of fresh fruit, a low-sugar yoghurt, rice cake or popcorn and a drink, such as water or semi-skimmed milk.
- Origins of food – Particular areas of the world have conditions suited to growing certain crops. Identify and name some foods produced in Uk and beyond.
- Nutrition - Design a healthy snack or packed lunch and explain why it is healthy.
- Origins of food – Identify and name foods that are produced in different places in the UK and beyond.
- Food preparation and cooking - Identify and use a range of cooking techniques to prepare a simple meal.

Skills

- Food preparation and cooking - Identify and use a range of cooking techniques to prepare a simple meal. Bake, boil, fry, roast and grill.
- Nutrition - Design a healthy snack or packed lunch and explain why it is healthy.
- Origins of food – Identify and name foods that are produced in different places in the UK and beyond.
- Staying safe - Work safely with everyday chemical products under supervision, such as disinfectant hand wash and surface cleaning spray.

Key Vocabulary

Design and Make:
Generate, annotated sketch, exploded diagram, diagrams, plans, evaluations,

remote control, buzzer, speaker, motor, prototype, jinks corners,
linkages, comparison table, chemicals, hazard, ventilated

Cooking and Nutrition:
baking, boiling, frying, grilling, roasting,

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<tr><th colspan="2">KS2 National Curriculum Year 5 and Year 6 Key Knowledge and Skills:</th></tr>
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Design

- Generation of ideas - Design criteria should cover the intended use of the product, age range targeted and final appearance.
- Use of ICT – development of ideas including mood boards, research and evaluation
- Structures - Strength can be added to a framework by using multiple layers.
- Investigation – Precision is important in producing a polished, finished product.

Skills

Generation of ideas

- discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design

Use of ICT

- spreadsheets for data handling, safe and precise internet searches

Structures

- alternating layers of corrugated card, triangular shapes and adding an outer cover for strength/ rigidity

Mechanisms and movement

- trial and error; accuracy

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Make

- Materials for purpose – understand the characteristics of different materials to select the most appropriate for a purpose: flexibility, waterproofing, texture, colour, cost and availability
- Electricity – Computer programs can control electrical circuits that include a variety of components, such as switches, lamps, buzzers and motors
- Mechanisms and movement - Explain and use mechanical systems in their products to meet a design brief: levers, cams, linkages
- Staying safe – How we protect ourselves and others in our DT work

Skills

Investigation

- select appropriate tools for a task and use them safely and precisely

Materials for purpose

- choose the best materials for a task, showing an understanding of their working characteristics

Electricity

- understand and use electrical circuits that incorporate a variety of components (switches, lamps, buzzers and motors) and use programming to control their products

Staying safe

- food hygiene (including hand washing and washing up); carrying and using tools safely

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Evaluate

- Evaluation – Design is an iterative process, meaning alterations and improvements are made continually throughout the manufacturing process.
- Compare and contrast - products and inventions can be compared using a range of criteria
- Everyday products – Analyse how an invention or product has significantly changed or improved people's lives.

Skills

Evaluation

- demonstrate modifications made to a product, as a result of ongoing evaluation by themselves and others; brief-matching

Compare and contrast

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Cooking and Nutrition

- Food preparation and cooking – Farm to Fork
- Nutrition – Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.

Skills

Origins of food

- explain how produce is grown (i.e. vegetables)

Food preparation and cooking

- follow a recipe that requires a variety of techniques and source the necessary ingredients independently

Nutrition

- plan a healthy meal, justifying how it contributes towards a balanced diet.

Staying safe

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• create a detailed comparative report about two or more products or inventions Everyday products • research; analysis; presenting results	• food hygiene (including hand washing and washing up); carrying and using tools safely

Key Vocabulary

Design and Make:

pattern piece, computer aided design, cross braces, framework, redesign, manufacture, nutrients, proportions, seasonality, harvest, precision, culture, society, target audience,
cross sectional diagrams, sensors, table, graph, iterative process, refine,
characteristics, invention, impact, analysis, mechanisms, cams, axles

Cooking and Nutrition:

green grocers, butchers, fishmongers, delicatessen, positive lifestyle choice, sustained, organic produce, fertilisers, pesticides, growth regulators, additives, crop rotation, biological pest control,