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| **A picture containing icon  Description automatically generated****The Raleigh Hub****Design Technology Curriculum Plan** Our Curriculum statements are designed to be used as a supportive tool to plan teaching and learning across our school. The key skills are derived from the National Curriculum and spilt into year groups to support a progressive approach and mixed age classes.  |
| The concept of future and innovation underpins our design and technology curriculum - we want pupils to view themselves as designers: risk taking, trialling, and evaluating sitting centrally to their experience. Pupils are encouraged to exercise their creativity through our designing, making and evaluating cycle. Combining designing and making skills, with knowledge and understanding ensures pupils have a rounded, progressive experience and provides skills that can be drawn upon for life. Evaluation is an integral part of the design process, allowing children to improve and adapt their product and providing a platform to build and practice resilience. Capturing pupil interests and providing cross-curricular opportunities to embed D&T develops motivation and embeds understanding in a meaningful way. |

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| **Vocabulary**Children’s command of vocabulary is fundamental to learning and progress across the curriculum. Vocabulary is developed actively, building systematically on pupil’s current knowledge and deepening their understanding of etymology and morphology (word origins and structures) to increase their store of words. Simultaneously, pupils make links between known and new vocabulary, and discuss and apply shades of meaning. In this way, children expand the vocabulary choices that are available to them. It is essential to introduce technical vocabulary which define each curriculum subject. Vocabulary development is underpinned by an oracy culture and a tiered approach. High value is placed on the conscious, purposeful selection of well-chosen vocabulary and appropriate sentence structure to enrich access to learning and feed into written work across the curriculum. Each unit will identify the key vocabulary for that unit. |
| Design and Technology taught in the Raleigh Hub ensures pupils learn through a variety of creative and practical activities. Across school DT is taught in blocks throughout the year. We believe knowledge, understanding and skills are needed to engage children in an iterative process of designing and making. We encourage children through linking project to our topic work where appropriate in order to learn new skills, apply and build on knowledge learnt throughout their time in school. The teaching of DT follows the design, make and evaluate cycle. Each stage is rooted in technical knowledge and vocabulary. The design process should be rooted in real life, relevant contexts to give meaning to learning. While making, children will be given choice and a range of tools to choose from. Children should be able to evaluate their own products against a design brief. |
| **The National Curriculum** |
| 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.Cooking and nutrition As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to: Key stage 1 - use the basic principles of a healthy and varied diet to prepare dishes - understand where food comes from. Key stage 2 - 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 Key Skills** |
| **Key skills** |
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| **Strand** | **Year 1** **Year 2**  | **Year 3** **Year 4**  | **Year 5** **Year 6**  |
| **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.** | **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.** |
| Can I use my senses to explore a wide range of familiar products?Can I take products apart and talk about the parts and how they work? Can I use knowledge of existing products to support my plan for a similar product?Can I talk about and/or use words and pictures to plan my design? Can I talk about and describe the tools and materials I need and order the key tasks within my plan?Can I talk about what I am doing/making? | Can I generate, develop and explain ideas for products to meet a design brief? Can I use my knowledge of a range of products to inform my plans and designs?Can I choose appropriate tools and techniques based on those shown? Can I dissemble and investigate everyday products to see how they are fit for purpose? Can I communicate design ideas in different ways (eg verbally, written, in a labelled diagram) Can I use prototypes, labelled sketches and instructions in my plans and designs?Can I include a range of suitable materials and options in my plans and designs and suggest alternative ways to make their product? Can I plan what I am going to do next based on how my product is developing?  | Can I generate plans and designs based on ideas and information that takes account of the design brief and the intended purpose? Can I produce detailed designs and plans using prototypes, commentary and diagrams that include measurements and are drawn from different viewpoints?Can I generate ideas by collecting and using information, from a number of sources, including ICT based sources? Can I investigate, disassemble and evaluate a range of products and describe in detail their parts and their function?Can I look at mechanical products to see how they function and meet the user’s needs? Can I consider safety and reliability when planning my product?Can I use simple prototypes to test ideas?Can I plan what to do next, suggesting a detailed sequence of actions and alternatives if needed?  |
| **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.** | **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.** |
| Can I use simple tools and materials with support, eg. scissors to cut paper?Can I join with tape or glue?Can I cut paper/card using scissors?Can I roll paper and card to form a tube?Can I add paper and card shapes to products? | Can I use simple tools to cut and join a range of materials, eg. scissors, stapler, masking tape?Can I use a range of simple ways to improve the appearance of my product?Can I join by edge to edge using glue?Can I curl paper?Can I use a hole punch? | Can I select the appropriate tool to cut or join a range of materials?Can I use tools and equipment to measure, mark out and shape materials and components? Can I join and combine materials in permanent and temporary ways? for example gluing tabs, paper fasteners for card linkages Can I use a hack saw and bench hook? Can I use a G clamp? Can I make paper models, mock-ups and templates?Can I produce a well-finished product that fulfils the function it is designed for?Can I select an appropriate way to improve the appearance of my product? | Can I select a range of appropriate tools to cut or join materials with accuracy and precision?Can I use a range of tools and equipment to measure, mark out and shape materials and components accurately?Can I join and combine a range of materials in permanent and temporary ways?Can I use a drill to make an off-centre hole?Can I make complex mock-ups and templates?Can I identify and apply an appropriate finishing technique to ensure a high-quality product? For example. collage, paint, embroidery and embellishments |
| **Evaluate** | **Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.**  | **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.**  |
| Can I use my senses to explore a wide range of familiar products? Can I talk about and describe features of existing products? Can I talk about familiar products and what they do?Can I talk about what I am making and what I have done?Can I suggest ways in which I could improve my work? | Can I use my knowledge of common products, their characteristics and properties to support my work? Can I identify the parts of my project that are progressing well and parts that could be improved?Can I talk about how the changes I have made have improved by product?Can I identify the ways in which my product meets my design plan? | Can I test and evaluate products to identify which may affect the function of my product?Can I check my work as it develops and modify my plans if any changes are made? Can I consider the original criteria when evaluating my product?Can I improve my product and justify why the changes I have made have led to improvement? |
| **Electrical and Mechanical Components** | Can I use my senses to explore battery powered toys, eg, cars, trains, tills etc?Can I talk about electrical equipment in my home, eg, kettle, telephone, and microwave?Can I explore the use of bulbs, wires and batteries? (Y!)Can I create a simple circuit using a battery, bulb and wires? (Y2)Can I use remote controlled devices, for example a remote-controlled vehicle, Bee bot etc? | **Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]**  |
| Can I describe how a simple battery powered circuit can be controlled by different kinds of switches?Can I create simple circuits incorporating a battery, bulb, switch and wires?Can I talk about simple electrical safety?Can I explore and describe how an electric motor can be used in a circuit?Can I use a remote-controlled device to switch lights on and off?Can I explore and describe materials that can be used to conduct electricity?Can I explore and explain how the direction and speed of an electrical motor can be controlled?Can I explore and program a simple control device? | Can I explore and describe how electrical circuits with switches can be used?Can I use switches in a range of circuits to control components, eg, lights in a lighthouse, a movement sensor in a burglar alarm?Can I use my knowledge of conductors and insulators when constructing circuits? Can I talk about the hazard and safety issues associated with electricity?Can I apply appropriate safety measures when constructing circuits?Can I talk about how electricity can be used to control movement?Can I explore and use a complex control system, eg, a light sensor? |
| **Food Technology** | **Use the basic principles of a healthy and varied diet to prepare dishes? Understand where food comes from?** | **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?**  |
| Can I sort fruit and vegetables by taste, shape, size, colour and texture?Can I sort food into groups, eg, fruit, vegetable, meat etc?Can I use basic tools to cut, shape and mix, eg, cutters and whisks?Can I work safely and hygienically?Can I measure and weigh accurately using cups and spoons? Can I talk about what happens when I cook and bake?Can I understand what makes a healthy diet?Can I talk about where some of the food I am cooking comes from? | Can I talk about what needs to be done to work safely and hygienically and why?Can I use simple tools eg, hand whisk, rolling pins?Can I sort and classify food according to specific food groups, eg, proteins, carbohydrates, fats etc?Can I measure and weigh using standard units and scales?Can I talk about the way in which food processing can affect the taste, appearance, texture and colour of food?Can I understand what makes a varied and healthy diet?Can I talk about where the food I am cooking comes from? Can I understand seasonality?Can I understand how some of the ingredients are grown, reared, caught and processed?  | Can I apply the rules for basic food hygiene and other safe practices eg, hazards relating to the use of ovens? Can I talk in detail about the characteristics of a range of food and ingredients and where the food comes from? Can I choose the appropriate methods and equipment for measuring, eg, time, dry goods, liquids etc?Can I talk about the impact of changing proportions within a recipe?Can I use my knowledge of food and cooking to start developing my own recipes?Can I understand how a variety of the ingredients are grown, reared, caught and processed? Can I understand seasonality? |

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| **In order to assess impact - a guide** |
| **Children will develop:** * An excellent attitude to learning and independent working.
* The ability to use time efficiently and work constructively and productively with others.
* The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users’ needs.
* The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
* A thorough knowledge of which tools, equipment and materials to use to make their products.
* The ability to apply mathematical knowledge and skills accurately.
* The ability to manage risks exceptionally well to manufacture products safely and hygienically.
* A passion for the subject.

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children. |