|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Three and Four Year Olds | Personal, Social and Emotional | Development Physical Development | Understanding the World | Expressive Arts and Design |
| |  | | --- | | * Know the names of key tools and resources, e.g. glue and scissors, and what they are used for. * Know who to ask for help when it is needed. * Know the names of some fruits and vegetables and how they help to keep our bodies healthy. | | |  | | --- | | * Know the movements that correlate to making certain shapes, e.g. circle, when using mark making tools. * Know the names of key tools and resources, e.g. glue and scissors, and what they are used for. * Know the correct grip to use when holding scissors, pencils and other one-handed tools. | | |  | | --- | | * Know how some things work in the world around them, e.g. different toys, tools and other items of interest. * Know the names of some ‘curious’ items and techniques we can use to explore them. | | |  | | --- | | * Have a knowledge of natural, made and imaginative environments and use this knowledge to inspire their own ideas, in small world play, such as a city with different buildings and a park. * Know how to connect pieces together such as Lego or bricks. * Know the names of some different materials, including food, and their basic properties, i.e. what they would be good for. * Know what they want to and could make, and which materials would work well. * Know what some different shapes look like and how to create them, in order to create drawings to record their design ideas. | |

**Knowledge Progression in Design Technology**

|  |  |  |
| --- | --- | --- |
| Reception | **Physical Development** | **Expressive Arts and Design** |
| * Know the names of some different movement types, e.g. hopping, skipping, jumping, etc. * Know techniques to help them move carefully and with control. * Know the names of a range of tools. * Know how to hold and use a range of tools for a desired outcome, e.g. tape and glue used to build a structure. * Know the safety rules when using certain tools, resources and equipment. * Know how to sit properly at a table or on the floor. | * Know the names of different feelings. * Know that art and design can inspire feelings and emotions, and vice versa. * Know the names of a range of artistic effects, e.g. colouring, collage, etc. and what these look like. Know that these effects can be used to improve the appearance of something. * Know that they can return to and build on their previous learning, and know who to ask for help when needed. * Know that it is okay to make mistakes, and have some techniques for using these situations as opportunities to build their own resilience. * Know techniques for working collaboratively with adults and other children, sharing ideas, resources and skills. |
| Early learning Goals | **Physical Development** | **Expressive Arts and Design** |
| **Fine Motor Skills**   * Know how to use a range of small tools, including scissors, paintbrushes and cutlery. | **Creating with Materials**   * Know how to safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. * Know that they can share their creations, explaining the process they have used. |

|  |  |  |  |
| --- | --- | --- | --- |
| **National Curriculum** | **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. | | |
| **Year 1** | **Structures – free standing**   * Know how to design for a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community * Know how to use similar products to help me come up with my own ideas * Know how to model ideas using materials, components and construction kits * Know how to assemble, join and combine materials and components with support * Know how freestanding structures can be made stronger, stiffer and more stable * Know there are alternative ways of doing things if it isn’t going well  |  | | --- | |  | | **Mechanisms –levers and sliders**   * Know about simple mechanisms such as sliders and levers and how they can be used to create movement * Know how to measure, mark out, cut and shape materials and components with support * Know how to select from a limited range of provided tools and equipment with support * Know that scissors are used to cut and that a split pin can be used * Know how to use finishing techniques, including those from art and design with support * Know how their products could be improved and talk about this with a friend | **Cooking and Nutrition**   * Know that all food comes from plants or animals (link to Farm to Form unit) * Know that everyone should eat at least five portions of fruit and vegetables every day * Know what different fruit and vegetables taste like and be able to express what they liked/disliked * Know how to follow simple single steps * Know how to use techniques such as cutting, peeling and grating * Know how to prepare simple dishes safely and hygienically, without using a heat source * Know how to make simple judgements about my products and ideas against a simple design criteria |
|  | Know some of the correct technical words linked to the project they are carrying out | | |
| **Year 2** | **Mechanisms – wheels and axles/structures**   * Know about the movement of simple mechanisms such as levers, sliders, wheels and axles * Know how to follow a simple design criterion provided to them to help develop their ideas * Know how to measure, mark out, cut and shape materials and components with some support * Know how to use a bench hook and a saw to safely cut axle lengths * Know how to use a cuboid net and axle holder to create a chassis * Know how to identify problems in the practical and explain alternative ways of doing things  |  | | --- | |  | | **Textiles – templates and joining**   * Know what materials products are made from and say what they like and dislike about the products * Know how to design/make within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment * Know how to communicate their ideas through drawing, talking and where appropriate information technology * Know that a 3-D textiles product can be assembled from two identical fabric shapes * Know techniques for joining fabrics including stitching, stapling, pinning and gluing * Know how to use finishing techniques, including those from art and design with some guidance | **Cooking and Nutrition**  **Where does food come from around the world?**   * Know that food has to be farmed, grown or caught * Know how to name and sort foods into five groups in the eatwell plate * Know how to follow single steps * Know how to use techniques such as cutting, peeling and grating with increased skill * Know how to prepare dishes safely and hygienically, without using a heat source * Know food ingredients can be combined according to their sensory characteristics * Know what is good about my product based on design criteria and suggest how it could be improved |
|  | Know some of the correct technical vocabulary for the projects they are undertaking and use them with support when discussing their work | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **National Curriculum KS2** | **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**   * 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 and processed. | | |
| **Year 3** | **Cooking and Nutrition**   * Know that a healthy diet is made up from a variety and balance of different food and drinks as depicted on the eatwell plate * Know that there are a variety of products available that I can take my ideas from * Know how to use a range of techniques such as mixing, spreading, kneading and baking * Know and use processes that involve a few steps * Know how to make my finished product look attractive/appetising * Know how to use the design criteria to say what is good about their product and what needs improving | **Structures**   * Know how existing products have been made and why materials and methods of construction were chosen * Know how they will make their products suitable for the needs and wants of the user they are designing for * Know which tools and materials to choose for a given task and explain their thinking * Know how to make strong, stiff structures * Know how to use measure to make increasingly accurate cuts and holes * Know which finishing techniques to use to improve the appearance of a product | **2-D shape to 3-D product-**   * Know how to model their design ideas using samples, pattern pieces and where appropriate information technology * Know that textiles can be chosen for their appearance and qualities * Know that a single piece of fabric can be cut into shapes and joined to make a 3D textiles product * Know about a range of different stitching techniques to join textiles and fastenings * Know how to apply a range of finishing techniques, including those from art and design. * Know how to evaluate their product using the design criteria saying how they creatively overcame any practical problems |
| * Know the correct technical vocabulary for the projects they are undertaking and use some of them when discussing their work * Know some relevant and diverse inventors, designers, chefs and manufacturers who have developed ground-breaking products | | |
| **Year 4** | **Crumble**   * Know what existing products are available and talk about how well they meet the users wants * Know how to develop my own design criteria identifying which of my design features will appeal to others * Know that mechanical and electrical systems have an input, process and output * Know how to use learning from Science to make simple electrical circuits and components that can be used to create functional products * Know how to program a computer to control their products * Know the strengths and areas for development in their ideas and finished product | **Cooking & Nutrition**   * Know that to be active and healthy, food and drink are needed to provide energy for the body * Know how to explain my ideas to others using talking, sketches and labelled drawings * Know how to use a range of techniques such as peeling, slicing, grating, mixing, spreading, kneading and baking with growing skill * Know that food ingredients can be fresh, pre-cooked and processed * Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically * Know how to use the views of others to make improvements to their designing and making | **Mechanisms-Sliders & Levers**   * Know that there are existing products and use them for ideas * Know how to develop their own design criteria and use these to inform their ideas * Know how mechanical systems such as levers and linkages create movement * Know how to begin to use sketches, labelled drawings, exploded diagrams and/or computer aided design to communicate their ideas * Know how to measure, cut and fold with some accurately * Assemble, join and combine materials and components with some accuracy |
| * Know and use the correct technical vocabulary for the projects they are undertaking when discussing their work. * Know relevant and diverse inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products | | |
| **Year 5** | **Cooking and Nutrition**   * Know that food is grown, reared and caught in the UK, Europe and the World * Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically * Know how to use a range of techniques such as peeling, slicing, grating, mixing, spreading, kneading and baking with increased skill * Know that recipes can be adapted by adding or substituting one or more ingredients * Know how to use techniques that involve a number of steps/processes * Know how to evaluate their ideas and products against their original design specification. | **Textiles**   * Know how a 3D textiles product can be made from a combination of fabric shapes * Know that materials have both functional properties and aesthetic qualities * Know that materials can be combined and mixed to create more useful characteristics * Know how to model and develop their ideas using prototypes and pattern pieces * Know how to use the skills of cutting, measuring, pining, stitching and template making * Know how to apply a range of finishing techniques, including those from art and design, with a good level of accuracy | **Mechanisms**   * Know that there are a range of existing products and use them for ideas * Know how cams can be used to produce different types of movement and change the direction of movement * Know how to identify the needs, wants, preferences of particular individuals and groups through discussion and research when designing * Know how to measure precisely * Know how to evaluate the quality of the design, making and fitness for purpose of their products as they design and make |
| * Know, understand and use the correct technical vocabulary for the projects they are undertaking when discussing their work * Know about a range of relevant and diverse inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products | | |
| **Year 6** | **Crumble-**   * Know how to work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment * Know how to generate a range of realistic and innovative ideas that focus on the needs of the intended user and drawing on research and existing products * Know how more complex electrical circuits and components can be used to create functional products * Know how to apply their understanding of computing to program, monitor and control their products * Know how to demonstrate creative thinking and resourcefulness when tackling practical problems * Know how to evaluate their ideas and products against their original design specification and identify improvements | **Cooking & Nutrition**   * Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically, where appropriate, the use of a heat source with a given budget * Know how to use a range of techniques such as peeling, slicing, grating, mixing, spreading, kneading and baking with precision * Know that seasons may affect food availability * Know how to formulate step-by-step plans as a guide to making * Know that recipes can be adapted to change the appearance, taste, texture and aroma * Know how food is processed into ingredients that can be eaten or used in cooking | **Structures-Frames**   * Know how more complex mechanical systems/cams or pulleys or gears create movement * Know how to reinforce and strengthen a 3D framework * Know how to use learning from Mathematics to help design and make products that work * Know how to use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate my ideas * Know how to select and explain their choice of suitable materials and components according to functional properties and aesthetic qualities * Know how to hide joints to improve the look of my product. |
| * Know, understand and use the correct technical vocabulary to confidently talk about the projects they are undertaking * Know about a range of relevant and diverse inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products and links with their own designing | | | |