Buckminster Primary School – **DT Knowledge and Skills Progression**

****

At Buckminster School design and technology is taught through a variety of creative and practical activities. Children will gain knowledge and understand the skills needed to engage in an iterative process of designing and making. Our children will work with a range of relevant contexts linked to topics, current affairs and global issues

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Reception** | **Year 1 and 2** | **Year 3 and 4** | **Year 5 and 6** | | |
| **Designing – Understanding contexts, users and purposes** | **Foundation Stage ELG’s**  *Pupils should be taught to:* | ***National Curriculum***  *Pupils should be taught:*   * *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, IT.* | ***National Curriculum***  *Pupils should be taught:*   * *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* | | | |
|  | * Work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment * State what products they are making * Say whether their products are for themselves or other users * Describe what their products are for * Say how their products will work * Say how they will make their products suitable for their intended users * Use simple design criteria to help develop their ideas   **Key Vocabulary:**  **Useful, usefulness, purpose, resources, construct, attach, attachment, detach, remake, improvement, decoration** | * Work confidently within a range of contexts, such as the home, school, * Gardens, enterprise and community. * Describe the purpose of their products * Indicate the design features of their products that will appeal to intended users * Explain how particular parts of their products work * Gather information about needs and wants of particular individuals and groups * Develop their own design criteria and use these to inform their ideas   **Key Vocabulary:**  **‘fit for purpose’, market research, user experience, end user, market research, focus group, aesthetics, ergonomics, functionality, requirements, design brief, bevel/bevelled, embedded, laminated, flexibility, rigidity, toughness, permeability** | * Work confidently within a range of contexts, such as the home, school, gardens, enterprise and community. * Describe the purpose of their products * Indicate the design features of their products that will appeal to intended users * Explain how particular parts of their products work * Gather information about needs and wants of particular individuals and Groups * Develop their own design criteria and use these to inform their ideas * Develop a simple design specification to guide their thinking   **Key Vocabulary:**  **‘fit for purpose’, market research, user experience, end user, market research, focus group, aesthetics, ergonomics, functionality, requirements, design brief, bevel/bevelled, embedded, laminated, flexibility, rigidity, toughness, permeability** | | |
| **Designing - Generating, developing, modelling and communicating ideas** | **Foundation Stage ELG’s**  *Pupils should be taught to:*   * *Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.* * *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.* | ***National Curriculum***  *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, IT.* | ***National Curriculum***  *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.* | | | |
| * Handling, feeling, enjoying and manipulating materials (Sensory experience) * Constructing * Building and destroying * Shape and model * Handle, feel and manipulate materials, such as clay, papier mache and salt dough. * Impress and apply simple decoration. * Build and construct with a variety of objects and materials. | * generate ideas by drawing on their own experiences * use knowledge of existing products to help come up with ideas * develop and communicate ideas by talking and drawing * model ideas by exploring materials, components and construction kits and by making templates and mock-ups * use ICT, where appropriate, to develop and communicate their ideas   **Key Vocabulary:**  **Improvement** | * Share and clarify ideas through discussion * Model their ideas using prototypes and pattern pieces * Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas * Use computer-aided design to develop and communicate their ideas * Generate realistic ideas, focusing on the needs of the user * Make design decisions that take account of the availability of resources | * Share and clarify ideas through discussion * Model their ideas using prototypes and pattern pieces * Use annotated sketches, cross-sectional drawings and exploded * diagrams to develop and communicate their ideas * Use computer-aided design to develop and communicate their ideas * Generate realistic ideas, focusing on the needs of the user * Make design decisions that take account of the availability of resources | | |
| **Making - Planning** | **Foundation Stage ELG’s**  *Pupils should be taught to:* | ***National Curriculum***  *Pupils should be taught to:*   * *Select from and use a range of tools and equipment to perform practical tasks such as 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.* | ***National Curriculum***  *Pupils should be taught to:*   * *Select from and use a range of tools and equipment to perform practical tasks such as cutting, shaping, joining and finishing accurately.* * *Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics and aesthetic qualities.* | | | |
|  | * Plan by suggesting what to do next * Select from a range of tools and equipment, explaining their choices * Select from a range of materials and components according to their characteristics * Work with a partner to problem solve issues with their designs, using co-operation and discussion | * Select tools and equipment suitable for the task * Explain their choice of tools and equipment in relation to the skills and techniques they   will be using   * Select materials and components suitable for the task * Explain their choice of materials and components according to functional properties   and aesthetic qualities   * Order the main stages of making   **Key Vocabulary:**  **Value, usefulness, wastage, packaging, plastics, consumer, practical, practicality, realism, expectations, adhesive, permanent, quality, roughen, sandpaper, tack, stitch, seam (allowance), fabric, suitability, stiffen, calico, dye** | * Select tools and equipment suitable for the task * Explain their choice of tools and equipment in relation to the skills and techniques they   will be using   * Select materials and components suitable for the task * Explain their choice of materials and components according to functional properties   and aesthetic qualities   * Produce appropriate lists of tools, equipment and materials that they need * Formulate step-by-step plans as a guide to making   **Key Vocabulary:**  **fit for purpose’, market research, user experience, end user, market research, focus group, aesthetics, ergonomics, functionality, requirements, design brief, bevel/bevelled, embedded, laminated, flexibility, rigidity, toughness, permeability** | | |
| **Making – Practical skills and techniques** | **Foundation Stage ELG’s**  *Pupils should be taught to:*   * *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.* | ***National Curriculum***  *Pupils should be taught to:*   * *Build structures, exploring how they can be made stronger, stiffer and more stable* * *Explore and use mechanisms such as levers, sliders, wheels and axles, in their products* | ***National Curriculum***  *Pupils should be taught to:*   * *Apply their understanding of how to strengthen, stiffen and reinforce more complex structures* * *Understand and use mechanical systems in their products such as gears, pulleys, cams, levers and linkages* * *Understand and use electrical systems in their products* * *Apply their understanding of computing to programme, monitor and control their products* | | | |
|  | * Follow procedures for safety and hygiene * Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components * Measure, mark out, cut and shape materials and components * Assemble, join and combine materials and components * Use finishing techniques, including those from art and design * About the simple working characteristics of materials and components * About the movement of simple mechanisms such as levers, sliders, wheels and axles * How freestanding structures can be made stronger, stiffer and more stable * That a 3-D textiles product can be assembled from two identical fabric shape * That food ingredients should be combined according to their sensory characteristics * The correct technical vocabulary for the projects they are undertaking   Key Vocabulary:  **Safety, hygiene, assemble, join, combine, levers, slides, wheels, axels,**  . | * Follow procedures for safety and hygiene * Use a wider range of materials and components than KS1, including construction   materials and kits, textiles, food ingredients, mechanical components and electrical components   * Measure, mark out, cut and shape materials and components with some accuracy * Assemble, join and combine materials and components with some accuracy * Apply a range of finishing techniques, including those from art and design, with some accuracy * How to use learning from science and maths to help design and make products that work * That materials have both functional properties and aesthetic qualities * That materials can be combined and mixed to create more useful characteristics * That mechanical and electrical systems have an input, process and output * Use the correct technical vocabulary for the projects they are undertaking * How mechanical systems such as levers and linkages or pneumatic systems create movement * How simple electrical circuits and components can be used to create functional products * How to program a computer to control their products * How to make strong, stiff shell structures * That a single fabric shape can be used to make a 3D textiles product * How well products work to achieve their purposes   **Key Vocabulary:**  **Value, usefulness, wastage, packaging, plastics, consumer, practical, practicality, realism, expectations, adhesive, permanent, quality, roughen, sandpaper, tack, stitch, seam (allowance), fabric, suitability, stiffen, calico, dye** | | * Follow procedures for safety and hygiene * Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components * Measure, mark out, cut and shape materials and components with some accuracy * Assemble, join and combine materials and components with some accuracy * Apply a range of finishing techniques, including those from art and design, with some accuracy * Use techniques that involve a number of steps * Demonstrate resourcefulness when tackling practical problems * How to use learning from science and maths to help design and make products that work * That materials have both functional properties and aesthetic qualities * That materials can be combined and mixed to create more useful characteristics * That mechanical and electrical systems have an input, process and output * Use the correct technical vocabulary for the projects they are undertaking * How mechanical systems such as cams or pulleys or gears create movement * How more complex electrical circuits and components can be used to create functional products * How to program a computer to monitor changes in the environment and control * their products * How to reinforce and strengthen a 3D framework   **Key Vocabulary:**  **‘fit for purpose’, market research, user experience, end user, market research, focus group, aesthetics, ergonomics, functionality, requirements, design brief, bevel/bevelled, embedded, laminated, flexibility, rigidity, toughness, permeability** | |
| **Evaluating – Own ideas and products** | **Foundation Stage ELG’s**  *Pupils should be taught to:*   * *use what they have learnt about media and materials in original ways, thinking about uses and purposes.* | ***National Curriculum***  *Pupils should be taught to:*   * *Evaluate their ideas and products against design criteria* | ***National Curriculum***  *Pupils should be taught to:*   * *Evaluate their ideas and products against design criteria and consider the views of others to improve their work* | | | |
| * Work spontaneously and enjoy the act of making/creating * Sustain concentration and control when experimenting with tools and materials * Understand that art, (design and craft) is made by artists exhibiting care and skill and is valued for its qualities * Explain what they are doing * Recognise and describe key features of their own and others’ work * Look and talk about what they have produced, describing simple techniques and the media used.   Say what they like and dislike about different artworks. | * Talk about their design ideas and what they are making * Make simple judgements about their products and ideas against design criteria * Suggest how their products could be improved | * Identify the strengths and areas for development in their ideas and products about inventors, designers, engineers, chefs and manufacturers * Consider the views of others, including intended users, to improve their work * Refer to their design criteria as they design and make * Use their design criteria to evaluate their completed products | | | * Identify the strengths and areas for development in their ideas and   products   * Consider the views of others, including intended users, to improve their work * Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make * Evaluate their ideas and products against their original design specification |
| **Evaluating – Existing products** | **Foundation Stage ELG’s**  *Pupils should be taught to:*   * *Use what they have learnt about media and materials in original ways, thinking about uses and purposes.* | ***National Curriculum***  *Pupils should be taught to:*   * *Explore and evaluate a range of existing products* | ***National Curriculum***  *Pupils should be taught to:*   * Investigate and analyse a range of existing products * Understand how key events and individuals in design and technology have helped shape the world | | | |
| * Work spontaneously and enjoy the act of making/creating * Sustain concentration and control when experimenting with tools and materials * Understand that art, (design and craft) is made by artists exhibiting care and skill and is valued for its qualities * Explain what they are doing * Recognise and describe key features of their own and others’ work * Look and talk about what they have produced, describing simple techniques and the media used. * Say what they like and dislike about different artworks. | * Explore what products are and who or what they are for. * Explore how products work and how or where they might be used. * Explore what materials products are made from * Explore what they like and dislike about products   **Key Vocabulary:**  **Purpose, materials, usefulness,**  **like, dislike, improvement** | Pupils will be taught to investigate and analyse:   * How well products have been designed and made * Why materials have been chosen * What methods of construction have been used * Developed ground-breaking products * How well products work to achieve their purposes * How well products meet user needs and wants * Who designed and made the products * Where and when products were designed and made * Whether products can be recycled or reused   **Key Vocabulary:**  **Value, usefulness, wastage, packaging, plastics, consumer, practical, practicality, realism, expectations** | | | Pupils will be taught to investigate and analyse:   * How well products have been designed and made * Why materials have been chosen * What methods of construction have been used * How well products work to achieve their purposes * How innovative products are * How well products meet user needs and wants * Who designed and made the products * Where and when products were designed and made * What impact products have beyond their intended purpose   **Evaluating – Key events and individuals**   * About inventors, designers, engineers, chefs and manufacturers who have developed ground breaking product |
| **Cooking and nutrition – Where food comes from** | **Foundation Stage ELG’s**  *Pupils should be taught to:* | ***National Curriculum***  *Pupils should be taught to:*   * *Understand where food comes from* | ***National Curriculum***  *Pupils should be taught to:*   * *Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed* | | | |
|  | * That all food comes from plants or animals * That food has to be farmed, grown elsewhere (e.g. home) or caught   **Key Vocabulary:**  **Diet, healthy, balanced diet, preparation, recipe, bake, harvested , fridge, freezer, freeze, taste, tasty** | * That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs,   chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world  **Key Vocabulary:**  **Boiled, simmer, grill/grilled, toast/toasted, barbecue/barbecued, oven, raw, garnish, dairy, allergy, balanced diet, refrigerate, calorific** | | | * That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world * That seasons may affect the food available   **Key Vocabulary:**  **Sustainability, reusability, genetic modification, sustainable crops, food miles, seasonality, ‘junk food’, ‘traffic lights’, nutritional value, additives, raising agents, allergens/allergic, pathogens, preservation, compostable** |
| **Cooking and nutrition – Food preparation, cooking and nutrition** | **Foundation Stage ELG’s**  *Pupils should be taught to:* | ***National Curriculum***  *Pupils should be taught to:*   * *Use the basic principles of a healthy and varied diet to prepare dishes* | ***National Curriculum***  *Pupils should be taught to:*   * *Understand and apply the principle of a healthy and varied diet* * *Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques* | | | |
| * How to name and sort foods into the five groups in The Eatwell Plate * That everyone should eat at least five portions of fruit and vegetables every day * How to prepare simple dishes safely and hygienically, without using a heat source * How to use techniques such as cutting, peeling and grating   **Key Vocabulary:**  **Diet, healthy, balanced diet, preparation, recipe, bake, harvested , fridge, freezer, freeze, taste, tasty, cut, peel, grate** | * How to prepare and cook a variety of predominantly savoury dishes safely and   hygienically including, where appropriate, the use of a heat source   * How to use a range of techniques such as peeling, chopping, slicing, grating, mixing,   spreading, kneading and baking   * That a healthy diet is made up from a variety and balance of different food and drink,   as depicted in The Eatwell Plate   * That to be active and healthy, food and drink are needed to provide energy for the body   **Key Vocabulary:**  **Farmed, boiled, simmer, grill/grilled, toast/toasted, barbecue/barbecued, oven, raw, garnish, dairy, allergy, balanced diet, refrigerate, calorific** | | | * How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source * How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking * That recipes can be adapted to change the appearance, taste, texture and aroma   That different food and drink contain different substances – nutrients, water and fibre – that are needed for health  **Key Vocabulary:**  **Sustainability, reusability, genetic modification, sustainable crops, food miles, seasonality, ‘junk food’, ‘traffic lights’, nutritional value, additives, raising agents, allergens/allergic, pathogens, preservation, compostable** |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **DT AREA OF STUDY** | | | | | | |
|  | Autumn Cycle A | Autumn Cycle B | Spring Cycle A | Spring Cycle B | Summer Cycle A | Summer Cycle B |
| Reception | Dinosaur  Printing using clay | Under the sea  Clay sea creatures  Transport  Design a modern car of the future | The world is our Oyster  Building homes with junk modelling  Homes out of construction kits | People who help us  Construct with a purpose in mind- jail, traps  -use hammer and nails to fix wood together- builders | All creatures great and small  Design and make a minibeast with clay  Build animal homes | How does your garden grow  Traditional Tales- role play- make and use props to retell stories  Build homes out of natural materials |
| Year 1 and 2 |  |  |  |  |  |  |
| Year 3 and 4 |  |  |  |  |  |  |
| Year 5 and 6 |  |  |  |  |  |  |