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| **EYFS** | | | | | | | |
| **Three and Four year olds**   * Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. * Use large-muscle movements to wave flags and streamers, paint and make marks. * Choose the right resources to carry out their own plan. * Use one-handed tools and equipment, for example, making snips in paper with scissors. * Use large-muscle movements to wave flags and streamers, paint and make marks. * Choose the right resources to carry out their own plan. * Use one-handed tools and equipment, for example, making snips in paper with scissors. * Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. * Explore different materials freely, in order to develop their ideas about how to use them and what to make. * Develop their own ideas and then decide which materials to use to express them. * Create closed shapes with continuous lines, and begin to use these shapes to represent objects. | | | | | | | |
| **Reception**   * Progress towards a more fluent style of moving, with developing control and grace. * Develop their small motor skills so that they can use a range of tools competently, safely and confidently. * Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. * Explore, use and refine a variety of artistic effects to express their ideas and feelings. * Return to and build on their previous learning, refining ideas and developing their ability to represent them. * Create collaboratively, sharing ideas, resources and skills. | | | | | | | |
| **ELG**   * Use a range of small tools, including scissors, paintbrushes and cutlery. * Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used. | | | | | | | |
|  | **KS1** | | **LKS2** | | **UKS2** | |
| **DESIGN** | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR 6** |
| *Structures*  *Mechanisms/ Mechanical systems*  *Electrical systems (KS2 only)*  *Cooking and nutrition*  *Textiles*  *Digital world (KS2 only)* | Learning the importance of a clear design criteria  Including individual preferences and requirements in a design  Designing smoothie carton packaging by-hand or on ICT software  Using a template to create a design for a puppet | Generating and communicating ideas using sketching and modelling  Learning about different types of structures, found in the natural world and in everyday objects  Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move  Creating clearly labelled drawings which illustrate movement  Designing a wheel Selecting appropriate materials based on their properties  Designing a healthy wrap based on a food combination which work well together | Designing a castle with key features to appeal to a specific person/purpose  Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials need and colours  Designing and/or decorating a castle tower on CAD software  Designing a toy which uses a pneumatic system  Developing design criteria from a design brief  Generating ideas using thumbnail sketches and exploded diagrams  Learning that different types of drawings are used in design to explain ideas clearly  Problem solving by suggesting potential features on a Micro: bit and justifying my ideas  Developing design ideas for a technology pouch  Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge | Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas  Designing a biscuit within a given budget, drawing upon previous taste testing  Writing design criteria for a product, articulating decisions made  Designing a personalised Book sleeve | Designing a stable structure that is able to support weight  Creating frame structure with focus on triangulation  Designing a pop-up book which uses a mixture of structures and mechanisms  Naming each mechanism, input and output accurately  Storyboarding ideas for a book  Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients  Writing an amended method for a recipe to incorporate the relevant changes to ingredients  Designing appealing packaging to reflect a recipe | Designing a steady hand game - identifying and naming the components required  Drawing a design from three different perspectives  Generating ideas through sketching and discussion  Modelling ideas through prototypes  Understanding the purpose of products (toys), including what is meant by ‘fit for purpose’ and ‘form over function’  Writing a recipe, explaining the key steps, method and ingredients  Including facts and drawings from research undertaken  Designing a stuffed toy considering the main component shapes required and creating an appropriate template  Considering the proportions of individual components |
| **MAKE** | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR 6** |
| *Structures*  *Mechanisms/ Mechanical systems*  *Electrical systems (KS2 only)*  *Cooking and nutrition*  *Textiles*  *Digital world (KS2 only)* | Making stable structures from card, tape and glue  Following instructions to cut and assemble the supporting structure of a windmill  Making functioning turbines and axles which are assembled into a main supporting structure  Chopping fruit and vegetables safely to make a smoothie  Identifying if a food is a fruit or a vegetable  Learning where and how fruits and vegetables grow  Cutting fabric neatly with scissors  Using joining methods to decorate a puppet  Sequencing steps for construction | Making a structure according to design criteria  Creating joints and structures from paper/card and tape  Selecting materials according to their characteristics  Following a design brief  Cutting and assembling components neatly  Adapting mechanisms  Slicing food safely using the bridge or claw grip  Constructing a wrap that meets a design brief | Constructing a range of 3D geometric shapes using nets  Creating special features for individual designs  Making facades from a range of recycled materials  Creating a pneumatic system to create a desired motion  Building secure housing for a pneumatic system  Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy  Selecting materials due to their functional and aesthetic characteristics  Manipulating materials to create different effects by cutting, creasing, folding, weaving  Using a template when cutting and assembling the pouch  Following a list of design requirements  Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch  Applying functional features such as using foam to create soft buttons | Making a torch with a working electrical circuit and switch  Using appropriate equipment to cut and attach materials  Assembling a torch according to the design and success criteria  Following a baking recipe  Cooking safely, following basic hygiene rules  Adapting a recipe  Making and testing a paper template with accuracy and in keeping with the design criteria  Measuring, marking and cutting fabric using a paper template  Selecting a stitch style to join fabric, working neatly sewing small neat stitches  Incorporating fastening to a design | Making a range of different shaped beam bridges  Using triangles to create truss bridges that span a given distance and supports a load  Building a wooden bridge structure Independently measuring and marking wood accurately  Selecting appropriate tools and equipment for particular tasks  Using the correct techniques to saws safely  Identifying where a structure needs reinforcement and using card corners for support  Explaining why selecting appropriating materials is an important part of the design process  Understanding basic wood functional properties  Following a design brief to make a pop up book, neatly and with focus on accuracy  Making mechanisms and/or structures using sliders, pivots and folds to produce movement  Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result  Cutting and preparing vegetables safely  Using equipment safely, including knives, hot pans and hobs  Knowing how to avoid cross-contamination  Following a step by step method carefully to make a recipe | Constructing a stable base for a game  Accurately cutting, folding and assembling a net  Decorating the base of the game to a high quality finish  Making and testing a circuit Incorporating a circuit into a base  Following a recipe, including using the correct quantities of each ingredient  Adapting a recipe based on research  Working to a given timescale  Working safely and hygienically with independence  Creating a 3D stuffed toy from a 2D design  Measuring, marking and cutting fabric accurately and independently  Creating strong and secure blanket stitches when joining fabric  Using applique to attach pieces of fabric decoration |
| **EVALUATE** | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR 6** |
| *Structures*  *Mechanisms/ Mechanical systems*  *Electrical systems (KS2 only)*  *Cooking and nutrition*  *Textiles*  *Digital world (KS2 only)* | Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn’t  Suggest points for improvements  Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed  Reviewing the success of a product by testing it with its intended audience  Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move  Tasting and evaluating different food combinations  Describing appearance, smell and taste  Suggesting information to be included on packaging  Reflecting on a finished product, explaining likes and dislikes | Exploring the features of structures  Comparing the stability of different shapes  Testing the strength of own structures  Identifying the weakest part of a structure  Evaluating the strength, stiffness and stability of own structure  Evaluating own designs against design criteria  Using peer feedback to modify a final design  Evaluating different designs  Testing and adapting a design  Describing the taste, texture and smell of fruit and vegetables  Taste testing food combinations and final products  Describing the information that should be included on a label  Evaluating which grip was most effective | Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design  Suggesting points for modification of the individual designs  Using the views of others to improve designs  Testing and modifying the outcome, suggesting improvements  Understanding the purpose of exploded-diagrams through the eyes of a designer and their client  Analysing and evaluating an existing product  Identifying the key features of a pouch | Evaluating electrical products  Testing and evaluating the success of a final product and taking inspiration from the work of peers  Evaluating a recipe, considering: taste, smell, texture and appearance  Describing the impact of the budget on the selection of ingredients  Evaluating and comparing a range of products  Suggesting modifications  Testing and evaluating an end product against the original design criteria  Deciding how many of the criteria should be met for the product to be considered successful  Suggesting modifications for improvement | Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary  Suggesting points for improvements for own bridges and those designed by others  Evaluating the work of others and receiving feedback on own work  Suggesting points for improvement  Identifying the nutritional differences between different products and recipes  Identifying and describing healthy benefits of food groups | Testing own and others finished games, identifying what went well and making suggestions for improvement  Gathering images and information about existing children’s toys  Analysing a selection of existing children’s toys  Evaluating a recipe, considering: taste, smell, texture and origin of the food group  Taste testing and scoring final products  Suggesting and writing up points of improvements in productions  Evaluating health and safety in production to minimise cross  Testing and evaluating an end product and giving point for further improvements |
| **Technical Knowledge** | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** | **YEAR 6** |
| *Structures*  *Mechanisms/ Mechanical systems*  *Electrical systems (KS2 only)*  *Cooking and nutrition*  *Textiles*  *Digital world (KS2 only)* | Describing the purpose of structures, including windmills  Learning how to turn 2D nets into 3D structures  Learning that the shape of materials can be changed to improve the strength and stiffness of structures  Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses  Understanding that windmill turbines use wind to turn and make the machines inside work  Understanding that axles are used in structures and mechanisms to make parts turn in a circle  Developing awareness of different structures for different purposes  Understanding the difference between fruits and vegetables  Describing and grouping fruits by texture and taste  Reflecting on a finished product, explaining likes and dislikes | Identifying natural and man-made structures  Identifying when a structure is more or less stable than another  Knowing that shapes and structures with wide, flat bases or legs are the most stable  Understanding that the shape of a structure affects its strength  Using the vocabulary: strength, stiffness and stability  Knowing that materials can be manipulated to improve strength and stiffness  Building a strong and stiff structure by folding paper  Identifying what mechanism makes a toy or vehicle roll forwards Learning that for a wheel to move it must be attached to an axle  Exploring wheel mechanisms  Learning how axels help wheels to move a vehicle  Understanding what makes a balanced diet  Knowing where to find the nutritional information on packaging  Knowing the five food groups | Identifying features of a castle  Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension  Extending the knowledge of wide and flat based objects are more stable  Understanding the terminology of strut, tie, span, beam  Understanding the difference between frame and shell structure  Understanding how pneumatic systems work  Learning that mechanisms are a system of parts that work together to create motion  Understanding that pneumatic systems can be used as part of a mechanism  Learning that pneumatic systems force air over a distance to create movement  Analysing and evaluating an existing product  Identifying the key features of a pouch | Learning how electrical items work  Identifying electrical products  Learning what electrical conductors and insulators are  Understanding that a battery contains stored electricity and can be used to power products  Identifying the features of a torch  Understanding how a torch works  Articulating the positives and negatives about different torches  Understanding the impact of the cost and importance of budgeting while planning ingredients for biscuits  Understanding the environmental impact on future product and cost of production  Testing and evaluating an end product against the original design criteria  Deciding how many of the criteria should be met for the product to be considered successful  Suggesting modifications for improvement | Exploring how to create a strong beam Identifying arch and beam bridges and understanding the terms: compression and tension  Identifying stronger and weaker structures  Finding different ways to reinforce structures  Understanding how triangles can be used to reinforce bridges  Articulating the difference between beam, arch, truss and suspension bridges  Knowing that an input is the motion used to start a mechanism  Knowing that output is the motion that happens as a result of starting the input  Knowing that mechanisms control movement  Describing mechanisms that can be used to change one kind of motion into another  Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed  Understanding what constitutes a balanced diet  Learning to adapt a recipe to make it healthier  Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option | Learning that batteries contain acid, which can be dangerous if they leak  Identifying and naming the circuit components in a steady hand game  Learning how to research a recipe by ingredient  Recording the relevant ingredients and equipment needed for a recipe  Understanding the combinations of food that will complement one another  Understanding where food comes from, describing the process of ‘Farm to Fork’ for a given ingredient  Testing and evaluating an end product and giving point for further improvements |