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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.
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* 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.
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| **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.
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| **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.
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|  | **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 criteriaIncluding individual preferences and requirements in a designDesigning smoothie carton packaging by-hand or on ICT softwareUsing a template to create a design for a puppet | Generating and communicating ideas using sketching and modellingLearning about different types of structures, found in the natural world and in everyday objectsDesigning a vehicle that includes wheels, axles and axle holders, which will allow the wheels to moveCreating clearly labelled drawings which illustrate movementDesigning a wheel Selecting appropriate materials based on their propertiesDesigning 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 softwareDesigning 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 clearlyProblem solving by suggesting potential features on a Micro: bit and justifying my ideas Developing design ideas for a technology pouchDrawing 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 ideasDesigning a biscuit within a given budget, drawing upon previous taste testingWriting 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 triangulationDesigning a pop-up book which uses a mixture of structures and mechanismsNaming each mechanism, input and output accurately Storyboarding ideas for a bookAdapting 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 undertakenDesigning 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 structureChopping 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 growCutting fabric neatly with scissors Using joining methods to decorate a puppet Sequencing steps for construction | Making a structure according to design criteriaCreating joints and structures from paper/card and tapeSelecting materials according to their characteristics Following a design briefCutting and assembling components neatlyAdapting mechanismsSlicing 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 materialsCreating 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, weavingUsing a template when cutting and assembling the pouchFollowing 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 switchUsing appropriate equipment to cut and attach materials Assembling a torch according to the design and success criteriaFollowing a baking recipe Cooking safely, following basic hygiene rules Adapting a recipeMaking 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 propertiesFollowing 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 resultCutting 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 netDecorating the base of the game to a high quality finish Making and testing a circuit Incorporating a circuit into a baseFollowing a recipe, including using the correct quantities of each ingredient Adapting a recipe based on researchWorking to a given timescale Working safely and hygienically with independenceCreating 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 improvementsTesting 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 moveTasting and evaluating different food combinations Describing appearance, smell and taste Suggesting information to be included on packagingReflecting 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 structureEvaluating own designs against design criteria Using peer feedback to modify a final design Evaluating different designs Testing and adapting a designDescribing 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 designsUsing 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 clientAnalysing 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 peersEvaluating a recipe, considering: taste, smell, texture and appearanceDescribing the impact of the budget on the selection of ingredients Evaluating and comparing a range of products Suggesting modificationsTesting 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 othersEvaluating the work of others and receiving feedback on own work Suggesting points for improvementIdentifying 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 toysEvaluating 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 crossTesting 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 windmillsLearning 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 purposesUnderstanding the difference between fruits and vegetables Describing and grouping fruits by texture and tasteReflecting 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 paperIdentifying what mechanism makes a toy or vehicle roll forwards Learning that for a wheel to move it must be attached to an axleExploring wheel mechanisms Learning how axels help wheels to move a vehicleUnderstanding 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 structureUnderstanding 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 movementAnalysing 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 torchUnderstanding how a torch works Articulating the positives and negatives about different torchesUnderstanding the impact of the cost and importance of budgeting while planning ingredients for biscuits Understanding the environmental impact on future product and cost of productionTesting 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 structuresFinding different ways to reinforce structures Understanding how triangles can be used to reinforce bridges Articulating the difference between beam, arch, truss and suspension bridgesKnowing 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 anotherUnderstanding 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 gameLearning 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 ingredientTesting and evaluating an end product and giving point for further improvements |