Lumley Junior School

Design and Technology – Knowledge and Key Skills

Whole School Progression

Design and Technology Knowledge and Skills			
Year 3	**Year 4**	**Year 5**	**Year 6**
Design • I can prove that my design meets some set criteria. • I can follow a step-by-step plan, choosing the right equipment and materials. • I can design a product through discussion and make sure that it looks attractive. • I can design a castle with key features to appeal to a specific person/ purpose. • I can Draw and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials need and colours • I can develop a design criteria from a design brief. • I can generate ideas using thumbnail sketches and exploded diagrams. • I know that different types of drawings are used in design to explain ideas clearly. • I can Identify a design criteria and a target audience. • I can create a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. • I can design and make a template from an existing cushion and apply individual design criteria.	**Design** • I can research inventors and designers and use their ideas when I am designing. • I can produce a plan and explain it. • I can develop a design through annotated sketches. • I can design a product in an interesting way. • I can design a stable pavilion structure that is aesthetically pleasing and select materials to create a desired effect • I can build frame structures designed to support weight • I can draw a net to create a structure from • I can personalise a design • I can design a biscuit within a given budget, drawing upon previous taste testing • I can write a design criteria for a product, articulating decisions made • I can design a personalised Book sleeve	**Design** • I can come up with a range of ideas after collecting research and information from different sources. • I can produce a detailed, step-by-step plan. • I can suggest alternative plans; outlining the positive features and draw backs. • I can explain how a product will appeal to a specific audience. • I can design a popup book which uses a mixture of structures and mechanisms • I can name each mechanism, input and output accurately • I can storyboard ideas for a book • I can adapt a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • I can write an amended method for a recipe to incorporate the relevant changes to ingredients • I can design appealing packaging to reflect a recipe • I can design a stuffed toy considering the main component shapes required and creating an appropriate template •	**Design** • I can use market research to inform my plans and ideas. • I can follow and refine my plans. • I can justify my plans in a convincing way. • I can show that I consider culture and society in my plans and designs. • I can work within a budget. • I can design a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs • I can draw a design from three different perspectives • I can generate ideas through sketching and discussion • I can model ideas through prototypes • I can write a recipe, explaining the key steps, method and ingredients • I can include facts and drawings from research undertaken • I can design a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • I can annotate designs
Make • I can select the most appropriate tools and techniques for a given task. • I can work to measure, make cuts and make holes. • I can construct a range of 3D geometric shapes using nets • I can make facades from a range of recycled materials	**Make** • I can select a wider range of tools and techniques for making my product safely. • I know how to measure, mark out, cut and shape a range of materials accurately. • I can start to join and combine materials and components accurately in temporary and permanent ways.	**Make** • I can use a range of tools and equipment competently. • I can select and use a wider range of materials according to their functional properties. • I can measure, cut and join with accuracy to ensure a good-quality finish to the product. • I can adapt my work when my original ideas do not work.	**Make** • I can use a range of tools and equipment with precision. • I can confidently select materials for a range of different purposes. • I can make a prototype before make a final version. • I can join and combine materials to create a working model.

Lumley Junior School

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• I can select materials due to their functional and aesthetic characteristics • I can manipulate materials to create different effects by cutting, creasing, folding, weaving • I can make an electrostatic game, referring to the design criteria • I can use a wider range of materials and equipment safely • I can follow a design criteria to create a cushion • I can select and cut fabrics with ease using fabric scissors • I can sew cross stitch to join fabric • I can decorate fabric using appliqué • I can complete design ideas with stuffing and sewing the edges	• I can persevere when my original ideas do not work. • I can create a range of different shaped frame structures • I can make a variety of free-standing frame structures of different shapes and sizes • I can select appropriate materials to build a strong structure and for the cladding • I can reinforce corners to strengthen a structure • I can create a design in accordance with a plan • I know how to create different textural effects with materials • I can measure, mark, cut and assemble with increasing accuracy • I can make a model based on a chosen design • I can use appropriate equipment to cut and attach materials • I can make and test a paper template with accuracy and in keeping with the design criteria • I can measure, mark and cut fabric using a paper template • I can select a stitch style to join fabric, working neatly sewing small neat stitches • I can incorporate a fastening to a design	• I can select appropriate tools and equipment for particular tasks • I can follow a design brief to make a pop-up book, neatly and with focus on accuracy • I can make mechanisms and/ or structures using sliders, pivots and folds to produce movement • I can use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result I can map out where different components of the circuit will go • I can create a 3D stuffed toy from a 2D design • I can measure, mark and cut fabric accurately and independently • I can create strong and secure blanket stitches when joining fabric • I can use applique to attach pieces of fabric decoration	• I can make modifications as I go along. • I can build a range of play apparatus structures drawing upon new and prior knowledge of structures • I can measure, mark and cut wood to create a range of structures • I can use a range of materials to reinforce and add decoration to structures • I can measure, mark and check the accuracy of the jelutong and dowel pieces required • I can measure, mark and cut components accurately using a ruler and scissors • I can assemble components accurately to make a stable frame • I understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles • I can select appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set • I can use a template to pin panels onto fabric • I can mark and cut fabric accurately, in accordance with a design • I can sew a strong running stitch, making small, neat stitches and following the edge • I can tie strong knots • I can decorate a waistcoat - attaching objects using thread and adding a secure fastening
Technical Knowledge • I can choose the correct material for both its suitability and its appearance. • I know that climate affects food growth • I can work with cooking equipment safely and hygienically • I know that imported foods travel from far away and this can negatively impact the environment • I know that vegetables and fruit grow in certain seasons	**Technical Knowledge** • I understand the impact of the cost and importance of budgeting while planning ingredients for biscuits • I understand the environmental impact on future product and cost of production • I understand that products change and evolve over time • I understand what pavilions are and their purpose	**Technical Knowledge** • I understand where food comes from - learning that beef is from cattle and how beef is reared and processed • I understand what constitutes a balanced diet • I know how to adapt a recipe to make it healthier	**Technical Knowledge** • I am learning how to research a recipe by ingredient • I can record the relevant ingredients and equipment needed for a recipe • I understand the combinations of food that will complement one another • I understand where food comes from, describing the process of 'Farm to Fork' for a given ingredient

Lumley Junior School

Design and Technology – Knowledge and Key Skills

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• I know that each fruit and vegetable give us nutritional benefits • I understand how to use, store and clean a knife safely • I can identify features of a castle • I can identify suitable materials to be selected and used for a castle, considering weight, compression, tension • I understand that wide and flat based objects are more stable • I understand the terminology of strut, tie, span, beam • I understand the difference between frame and shell structure • I can thread needles with greater independence • I can tie knots with greater independence • I can sew cross stitch and appliqué • I understand the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance • I understand that fabrics can be layered for affect	• I can build on prior knowledge of net structures and broadening knowledge of frame structures • I understand that architects consider light, shadow and patterns when designing • I can implement frame and shell structure knowledge • I can consider effective and ineffective designs • I understand that there are different types of fastenings and what they are • I can articulate the benefits and disadvantages of different fastening types	• I can compare two adapted recipes using a nutritional calculator and then identifying the healthier option • I know that an input is the motion used to start a mechanism • I know that output is the motion that happens as a result of starting the input • I know that mechanisms control movement • I can describe mechanisms that can be used to change one kind of motion into another • I am learning to sew blanket stitch to join fabric • I can apply blanket stitch so the space between the stitches are even and regular • I can thread needles independently	• I can use a bench hook to saw safely and effectively • I know that structures can be strengthened by manipulating materials and shapes • I understand man made and natural structures • I am learning different decorative stitches • I can sew accurately with even regularity of stiches
Evaluate • I can evaluate my product against my final design using clear criteria. • I can evaluate familiar products using clear criteria. • I can evaluate my own work and the work of others based on the aesthetic of the finished product and in comparison to the original design • I can suggest points for modification of the individual designs • I can use the views of others to improve designs • I can test and modifying the outcome, suggesting improvements • I can give constructive criticism on own work and the work of others • I can test the success of a product against the original design criteria and justifying opinions • I can evaluate an end product and thinking of other ways in which to create similar items	**Evaluate** • I can evaluate and suggest improvements for my designs. • I can evaluate products for both their purpose and appearance. • I can explain how I have improved my original design • I can evaluate familiar products. • I can evaluate structures made by the class • I can describe what characteristics of a design and construction made it the most effective • I can consider effective and ineffective designs • I can test and evaluate the success of a final product and take inspiration from the work of peers • I can test and evaluating an end product against the original design criteria • I can decide how many of the criteria should be met for the product to be considered successful	**Evaluate** • I can evaluate appearance and function against original criteria. • I can evaluate my product during and at the end of the assignment. • Begin to seek evaluation from others. • I can evaluate the key designs of individuals in design and technology. • I can evaluate the work of others and receive feedback on own work • I can suggest points for improvement • I can test and evaluate an end product and give points for further improvements	**Evaluate** • I can explain how products should be stored and give reasons. • I show that I can test my products. • I can evaluate my product during and at the end of the assignment and record my evaluations using drawings and labels. • I can evaluate the key designs of individuals in design and technology and how they have helped shape the world. • I can improve a design plan based on peer evaluation • I can test and adapt a design to improve it as it is developed • I can identify what makes a successful structure • I can evaluate the work of others and receive feedback on own work • I can apply points of improvements

Lumley Junior School

Design and Technology – Knowledge and Key Skills

Whole School Progression

	• I can suggest modifications for improvement		• I can describe changes I would make/ do if I were to do the project again • I evaluate work continually as it is created
Cooking and Nutrition • I can describe how food ingredients come together. • I can peel and chop a range of food. • I know how to prepare myself and a work space to cook safely in, learning the basic rules to avoid food contamination • I can follow the instructions within a recipe • I can establish and use design criteria to help test and review dishes • I can describe the benefits of seasonal fruits and vegetables and the impact on the environment • I can suggest points for improvement when making a seasonal tart	**Cooking and Nutrition** • I know how to be both hygienic and safe when using food. • I can peel, chop, slice and grate a range of food. • I can adapt a simple recipe. • I can follow a baking recipe • I can cook safely, following basic hygiene rules • I can adapt a recipe • I can evaluate a recipe, considering: taste, smell, texture and appearance • I can describe the impact of the budget on the selection of ingredients • I can evaluate and compare a range of products • I can suggest modifications	**Cooking and Nutrition** • I can show that I can be both hygienic and safe in the kitchen. • I can peel, chop, slice, grate, mix and knead a range of food. • I can adapt a recipe using seasonal ingredients. • I can weigh and measure some ingredients. • I can cut and preparing vegetables safely • I can use equipment safely, including knives, hot pans and hobs • I know how to avoid cross contamination • I can follow a step by step method carefully to make a recipe • I can identify the nutritional differences between different products and recipes • I can identify and describe healthy benefits of food groups	**Cooking and Nutrition** • I can peel, chop, slice, grate, mix, knead and bake a range of food. • I can create my own recipe using seasonal ingredients. • I can weigh and measure my own ingredients. • I can follow a recipe, including using the correct quantities of each ingredient • I can adapt a recipe based on research • I can work to a given timescale • I can work safely and hygienically with independence • I can evaluate a recipe, considering: taste, smell, texture and origin of the food group • I can taste test and score final products • I can suggest and write up points of improvements in productions • I can evaluate health and safety in production to minimise cross contamination