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Fruit and Vegetables

Boats

Junk Modelling

R

Key Stage 1 - DT Skills

Structures

Year R

Making verbal plans and material choices.

Developing a junk model.

Designing a junk model.

Using knowledge from exploration to inform design.

Improving fine motor/scissor skills with a variety of materials.

Joining materials in a variety of ways (temporary and permanent).

Joining different materials together.

Describing their junk model, and how they intend to put it together.

Making a structure that floats and is waterproof, considering material choices.

Giving a verbal evaluation of their own and others' junk models with adult support.

Checking to see if their model matches their plan.

Considering what they would do differently if they were to do it again.

Describing their favourite and least favourite part of their model.

Making predictions about, and evaluating different materials to see if they are waterproof.

Making predictions about, and evaluating existing boats to see which floats best.

Testing their design and reflecting on what could have been done differently.

Investigating the how the shapes and structure of a boat affect the way it moves.

Year 1

Learning the importance of a clear design criteria.

Including individual preferences and requirements in a design.

Making stable structures from card, tape and glue .

Learning how to turn 2D nets into 3D structures.

Following instructions to cut and assemble a supporting structure

Making functioning wheels and axles which are assembled into a main supporting structure.

Evaluating a structure according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.

Suggest points for improvements.

Year 2

Generating and communicating ideas using sketching and modelling.

Learning about different types of structures, found in the natural world and in everyday objects.

Making a structure according to design criteria.

Creating joints and structures from paper/card and tape.

Building a strong and stiff structure by folding paper.

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.

Digital World

N/A

Textiles

Year R

Discussing what a good design needs.

Designing a simple pattern with paper.

Designing a product.

Choosing from available materials.

Developing fine motor/cutting skills with scissors.

Exploring fine motor/threading and weaving (under, over technique) with a variety of materials.

Using a prepared needle and wool to practise threading.

Reflecting on a finished product and comparing to their design.

Year 1

Using a template to create a design.

Cutting fabric neatly with scissors.

Using joining methods

Sequencing steps for construction.

Reflecting on a finished product, explaining likes and dislikes.

Electrical Systems

N/A

Cooking and Nutrition

Year 1

Designing packaging by-hand or on ICT software.

Chopping fruit and vegetables safely .

Tasting and evaluating different food combinations.

Describing appearance, smell and taste.

Suggesting information to be included on packaging.

Mechanisms

Year 2

Selecting a suitable linkage system to produce the desired motion.

Designing a wheel.

Creating a class design criteria for a product.

Designing a product for a specific audience in accordance with a design criteria.

Selecting materials according to their characteristics.

Following a design brief.

Making linkages using card for levers and split pins for pivots.

Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.

Cutting and assembling components neatly.

Evaluating different designs.

Testing and adapting a design.

Evaluating own designs against design criteria.

Using peer feedback to modify a final design.

Lower Key Stage 2 - DT Skills

Structures

Year 3

Designing a product with key features to appeal to a specific person/purpose.

Drawing and labelling a product design using 2D shapes, labelling: -the 3D shapes that will create the features, materials needed and colours.

Designing and/or decorating a product on CAD software.

Constructing a range of 3D geometric shapes using nets.

Creating special features for individual designs.

Making facades from a range of recycled materials.

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.

Year 4

Designing a stable structure that is aesthetically pleasing and selecting materials to create a desired effect.

Building frame structures designed to support weight.

Creating a range of different shaped frame structures.

Making a variety of free standing frame structures of different shapes and sizes.

Selecting appropriate materials to build a strong structure and cladding.

Reinforcing corners to strengthen a structure.

Creating a design in accordance with a plan.

Learning to create different textural effects with materials.

Evaluating structures made by the class.

Describing what characteristics of a design and construction made it the most effective.

Considering effective and ineffective designs.

Textiles

N/A

Cooking and Nutrition

Year 3

Creating a healthy and nutritious recipe using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.

Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.

Following the instructions within a recipe.

Establishing and using design criteria to help test and review dishes.

Describing the benefits of seasonal fruits and vegetables and the impact on the environment.

Suggesting points for improvement.

Digital World

Year 3

Problem solving by suggesting potential features on a Micro:bit and justifying my ideas.

Developing design ideas.

Drawing and manipulating 2D shapes, using computer-aided design.

Using a template when cutting and assembling.

Following a list of design requirements.

Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating.

Applying functional features, such as using foam to create soft buttons.

Writing a program to control (e.g. button press) and/or monitor (e.g. sense light).

Analysing and evaluating an existing product.

Identifying the key features of a product.

Electrical Systems

Year 4

Designing a product, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.

Making a product with a working electrical circuit and switch.

Using appropriate equipment to cut and attach materials.

Assembling a product according to the design and success criteria.

Evaluating electrical products.

Testing and evaluating the success of a final product.

Mechanisms

Year 4

Designing a shape that reduces air resistance.

Drawing a net to create a structure from.

Choosing shapes that increase or decrease speed as a result of air resistance.

Personalising a design.

Measuring, marking, cutting and assembling with increasing accuracy.

Making a model based on a chosen design.

Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.

Upper Key Stage 2 - DT Skills

Structures

Year 6

Designing a space featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.

Building a range of structures drawing upon new and prior knowledge of structures.

Measuring, marking and cutting wood to create a range of structures.

Using a range of materials to reinforce and add decoration to structures.

Improving a design plan based on peer evaluation.

Testing and adapting a design to improve it as it is developed.

Identifying what makes a successful structure.

Textiles

Year 6

Designing a product in accordance to a specification linked to set of design criteria.

Annotating designs, to explain their decisions.

Using a template when cutting fabric to ensure they achieve the correct shape.

Using pins effectively to secure a template to fabric without creases or bulges.

Marking and cutting fabric accurately, in accordance with their design.

Sewing a strong running stitch, making small, neat stitches and following the edge.

Tying strong knots.

Decorating a product, attaching features (such as appliqué) using thread.

Finishing the waistcoat with a secure fastening (such as buttons).

Learning different decorative stitches.

Sewing accurately with evenly spaced, neat stitches.

Reflecting on their work continually throughout the design, make and evaluate process.

Cooking and Nutrition

Year 5

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.

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.

Identifying the nutritional differences between different products and recipes.

Identifying and describing healthy benefits of food groups.

Digital World

Year 6

Writing a design brief from information submitted by a client.

Developing design criteria to fulfil the client's request.

Considering and suggesting additional functions for my navigation tool.

Developing a product idea through annotated sketches.

lacing and manoeuvring 3D objects, using CAD.

Changing the properties of, or combining one or more 3D objects, using CAD.

Considering materials and their functional properties, especially those that are sustainable and recyclable.

Explaining material choices and why they were chosen as part of a product concept.

Programming an N,E, S, W cardinal compass.

Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.

Developing an awareness of sustainable design.

Identifying key industries that utilise 3D CAD modelling and explaining why.

Describing how the product concept fits the client's request and how it will benefit the customers.

Explaining the key functions in my program, including any additions.

Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool.

Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch.

Demonstrating a functional program as part of a product concept pitch.

Electrical Systems

Year 5

Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.

Developing design criteria based on findings from investigating existing products.

Developing design criteria that clarifies the target user.

Altering a product's form and function by tinkering with its configuration.

Making a functional series circuit, incorporating a motor.

Constructing a product with consideration for the design criteria.

Breaking down the construction process into steps so that others can make the product.

Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.

Determining which parts of a product affect its function and which parts affect its form.

Analysing whether changes in configuration positively or negatively affect an existing product.

Peer evaluating a set of instructions to build a product.

Mechanisms

Year 5

Designing a product which uses a mixture of structures and mechanisms.

Naming each mechanism, input and output accurately.

Storyboarding ideas for a product.

Following a design brief to make a product, 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.

Evaluating the work of others and receiving feedback on own work.

Suggesting points for improvement.