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**Stockham Primary School**

**Curriculum Planning – DT - Knowledge and Skills Progression**

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| DT |
| EYFS - Foundation |
| EYFS Framework and development matters | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Safely use and explore a range of materials, tools and techniques, experimenting with colour, design, form and function Use what they have learnt about media and materials in original ways, thinking about uses and purposes Represent their own ideas, thoughts and feelings through design and technology | Explore how things workKnow what ‘safe’ means and looks like when asking them to use tools ‘safely’Know how to draw closed shapes with continuous lines Know how to use scissors, tape, glue, and other fastenersKnow how to concertina fold paperKnow how to plan a design for a junk model Know how to test and evaluate a junk model  | Make imaginative and complex ‘small worlds’ with blocks and construction kitsDevelop small motor skills so they can use a range of tools competently, safely and confidently Return to and build on their previous learning, refining ideas and developing their ability to represent themCreate collaboratively, sharing ideas, resources and skills | Scissors, glue, tape, masking tape, junk modelling, joining, sticking, fastening, folding, materials, plastic, cardboard, metal, fabric, design, build, model, evaluate, improve, lines - wavy, straight, zigzag, shape names, create, workshop, invention, inventor | Free access to a variety of tools, materials, construction toys and materials to use in their own designs. |
| Key facts for memory: | ● Know that materials can be combined and modified to make models ● How to hold scissors safely and use them to cut paper and cardboard. ● Understand that materials can be joined together used tape, glue and other fasteners.  |

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| Year 1 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Portable snacks - sandwiches  | Know how to safely prepare ourselves and the environment for food preparationKnow what safety measures needed when using utensils (such as a knife, grater and peeler)Plan how to make a sandwich (including how to, what filling and intended user) | * Label and annotation diagrams and images of sandwiches
* Describe safety surrounding preparing food and surrounding areas
* Describe how you could transport snacks to an end destination
* Understand that sandwiches can have different fillings to suit the user
 | Purpose, user, filling, sandwich, wrap, portable  |  |
| Key facts for memory: | To know how to safely prepare food and surfacesTo know that sandwiches are portable snacks and can be transported  |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Fabric introductionWhat is design and technology?Structure's introduction | Know that different materials are used for different purposesKnow that design and technology is where we learn about designing and making thingsLearn where to find ideas, how to make things with a purpose and specific use in mindKnow that a structure is something that is made by nature or peopleKnow that there are four types of structures (shell, frame, solid and combined)Know why structures are made and what use they haveUnderstand the key features and properties of an effective structure | * Experiment with different materials
* Explore what materials are used for different purposes (for example waterproof material etc.)
* Describe how the design of objects have changed overtime
* Describe how object shave been improved with different designs
* Understand what is meant by a design process
* Understand how D&T is different to art
* Explain the 2 types of structures (made by nature or by people)
* Describe the features of the four types of structures
* Identify the reason a structure has been made (to protect, to span, to contain or to connect)
* Design a stable/effective structure using known effective features
 | Textures, purpose, use, material, fabricProduct, purpose, intended users, inspiration, materials, features, techniquesStructure, nature, combined, manufactured, protect, span, connected, balance, stable  |  |
| Key Knowledge for memory: | To know that different fabric has different purposes depending on their propertiesTo know that design and technology is different from art because it focuses on the design and planning elementTo understand what features, make a structure effective and stableTo know that there are 2 types of structures, natural and man-madeTo know that there are 4 types of structures and describe the key features of each |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Solid structuresFrame structures | Know that a solid structure can be one solid object or lots of solid objects joined together.Know what features a solid structure must haveKnow that the way objects are arranged can affect the strength of the structure Know that a wider base makes a structure more stableKnow that a frame structure is made up of three key features: beams, columns and slabsKnow that there are 2 types of frame structures: natural and manufacturedKnow that frames can take a range of different formsKnow the safety consideration for the user when using frame structures such as a swing or climbing frame | * Describe the features of a solid structure in detail
* Give examples of solid structures (both natural and manufactured)
* Draw and label a manufactured solid structure
* Describe the arrangement of objects and know which arrangement is stronger
* Experiment ‘building’ walls to investigate which arrangement is best (review)
* Experiment with 3 towers, varying the width of the base
* Follow the design process to build a bridge from sugar cubes
* Name the 3 key features of a frame structure
* Describe the 2 types of frame structures
* List natural and manufactured frame structures
* Draw and label and diagram
* Experiment making different frames using straws
* Describe safety features of a range of frame structures such as a swing and climbing frame
* Follow the design process to make a chair from card
 | Solid, mortar, hollow, dam, balance, stable, strengthBeam, column, slab |  |
| Key facts for memory: | To be able to describe solid and frame structures in detailTo compare frame and solid structuresTo know the key features of frame and solid structuresTo understand that frame and solid structures are built for a purpose |
| Year 2 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Running stitch and weaving**textiles** | Know how to weave.Use weaving to create a pattern.Know how to use a running stitch. | Develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space.Sew a running stitch.Finalised intention: Create a woven picture and decoration. | Running stitch weavingProduct horizontal textiles |  |
| Key facts for memory: | Weaving is a way of joining materials. |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| What is design technology?Wheel and axle mechanisms***Mechanisms***Slider mechanisms**Mechanisms**Lever mechanisms**Mechanisms** | Know design technology is where you make products that are useful.Understand the design process – think, make, test, improve.Wheel and axle is a mechanism for moving things.Different materials are suited to different purposes.Mechanism is a device used to create movement in a product. Lever is a rigid bar which moves around a pivot. Levers are used in many everyday products. Sliders are rigid bars which move backwards and forwards along a straight line. Understand that different mechanisms produce different types of movement. | Draw annotated diagrams.Explore ways to attach axles to chassis (tubes, pegs, triangles).Develop finger fluency by making wheel and axle mechanisms in different ways.Apply knowledge of wheels and axles to make a product.Identify suitable materials.Apply knowledge of techniques which are suitable for the task.Modify designs and explain decisions.Finalised intention: Wind powered cars.Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.Generate ideas based on simple design criteria and their own experiences, explaining what they could make.Develop, model and communicate their ideas through drawings and mock-ups with card and paper. Plan by suggesting what to do next.Select and use tools, explaining their choices, to cut, shape and join paper and card.Use simple finishing techniques suitable for the product they are creating.Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.Explore and use sliders and levers.Finalised intention: Easter cards | Mechanism rotating force attach chassis automatically inspiration purpose user prototypeslider, lever, pivot, slot, bridge/guidecard, masking tape, paper fastener, joinpull, push, up, down, straight, curve, forwards, backwardsdesign, make, evaluate, user, purpose, ideas, design criteria, product, functionMechanism, Lever, Slider Slot, Guide or bridge |  |
| Key Knowledge for memory: | Understand that different mechanisms produce different types of movement.Know and use technical vocabulary relevant to the project. |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Fruit salad dish***Food and nutrition******Practical knowledge,*** | Describe the safety features when preparing snacks. Understand where food has come from and how it was grown.Use seasonal ingredients (link back to food and farming from term 4) | List the ingredients a snack is made from.Develop finger fluency by creating a fruit salad dish – fork secure, bridge hold, peeling and stirring.Draw and annotate diagrams.Taste fruit salads to identify any weaknesses.Modify recipe explaining reasons for decisions. | Seasonal appeal |  |
| Key facts for memory: | Seasonal food is food that is ready to eat during that specific time of year. |

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| Year 3 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Frame Structures **Structures**Running Stitch **Textiles** | A structure is strong if it is rigidThe strength and weaknesses of different shapes and what the shapes are used for to strengthen structuresTriangle shapes are used in most structures to increase strength, this is known as the trusses – This is known as triangulationThe importance of practising drawing and making structures over and over again to become fluent in itDesigning for a purpose. What is the purpose, who is the user?How to cut the back and front material to be of the same sizeFrames can be made stronger by adding strut or a joining plate to form a triangle shapeThe theory of triangulationTo know that a running stitch is a stitch that is stitched evenly in a straight line which runs back and forth through the cloth without over lapping.How to make a seam in clothingTo know stitching having a seem keeps your work/clothing tidyUnderstand the importance of tying off your stitchHow to cut the back and front material to be of the same size | Choose suitable techniques to construct products or to repair items. Strengthen materials using suitable techniques.Design with purpose by identifying opportunities to designMake products by working efficiently (such as by carefully selecting materials).Refine work and techniques as work progresses, continually evaluating the product designDrawing annotated diagramsExplain how the frame are made and joined, using annotated diagramsExperiment with different 3D shapesShape textiles copying a design Shape textiles accuratelyJoin textiles using running stitch. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).Understand the need for a seam allowance. Select the most appropriate techniques to decorate textiles. | Purpose – the reason for which something is madeInspiration – where you got your ideas fromFluency – if you are fluent in something you do it effortlesslyRigid – an object that is stiff and does not bend or change shapeStrut – something that strengthens a structureJoining plate - something attached to a joint to strengthen itTruss – a structure made of trianglesDistribute – to share outAutomatically – an automatic action is one that you do without thinking about itThread - a long, thin strand of cotton, nylon, or other fibres used in sewing or weavingRunning stitch - a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping.Needle - a very fine slender piece of polished metal with a point at one end and a hole or eye for thread at the other, used in sewing | Using saws to cut woodMaking a small pair of trousers  |
| Key facts for memory: | To know stitching having a seem keeps your work/clothing tidy. To know that a running stitch is a stitch that is stitched evenly in a straight line which runs back and forth through the cloth without over lapping. Cut the front and back of material the same sizeTriangle shapes are used in most structures to increase strength, this is known as the trusses – This is known as triangulationHow to use tools safelyThe strength and weaknesses of different shapes and what the shapes are used for to strengthen structures |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Linked levers **Mechanisms** | Understand the linked lever system and how they are joined together by fixed or morning pivots.Understanding of the inputs and outputs that change the direction of force and movement in the mechanisms.Understand the purpose for linked lever systemsKnowledge of materials and the best material for the jobTake inspiration from existing productsUnderstand how the product will move and the purpose of itList the materials that the product is made from | Describe the purpose of linked levers.Describe the different movements that can be made in the linked lever system – linear, rotary, reciprocating, oscillating. Explain how the linked levers are made and attached.Experiment with a variety of fixed and moving pivots. Practise making things until their hands and fingers do things automatically without much thinkingAdapt the design throughout as you learn what works bestOrganise your diagram so that it is clear and gives enough detail for someone else to understand | Pivot – the point around which a lever turnsFulcrum – the point at which a lever balances or turnsLinear – in a straight lineRotary – turning around a fixed pointReciprocating – moving back and forth in a straight lineOscillating – moving back and forth in an arcAutomatically – an automatic actionFluency – if you are fluent in something you do it effortlesslyInspiration – where you got your idea fromPurpose – the reason for which something is madeUser – the person for whom the product is designed | To make a stair gate using large lollypop sticks |
| Key Knowledge for memory: | How a linked lever system is joined together by a fixed or moving pivots.Understand how the inputs and outputs change the direction of force and movement To understand what materials can best be used forUnderstand the purpose for linked lever systems |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Vegetable Soup (guided make soup) | Designers take inspiration from existing products. They think about a product’s purpose, its users and how it is designed. Designers must always keep safe in when they are making their products and when thinking about the user. Know that different foods can cause allergies and to know how to check the ingredients for food allergies.The claw grip is the best method to use when food needs to be sliced or diced. This method ensures fingers are tucked in out of the way. Explain why it is important to continually improve your work as you goBegin to understand which ingredients work well with each other What ingredients are needed to make a vegetable soup | Describe the safety features to be considered when preparing one of these dishes. List the ingredients that soups are made from.Practise the claw grip whilst chopping different types of food. (Remember: always be careful when using a sharp knife.)Use a juicer to juice citrus fruits.Use a garlic press to crush garlic.Use a blender to make smoothies and soups. Explain the methods you have used to produce the best consistency for each type of food. Experiment with recipes that include chopped and diced foods. Adapt your work as you go, making improvements. Compare and contrast your first and most recent attempts at chopping. Weighing ingredientsApply your knowledge of cooking techniques and nutrition to: 1. draw sketches of how the vegetable soup will be constructed 2. list possible ingredients for your vegetable soup 3. make the first prototype of your vegetable soup 4. use seasonal ingredients | inspiration: where you got your ideas from purpose: the reason for which something is made user: the person for whom the product is designedautomatically: an automatic action is one that you do without thinking about it fluency: if you are fluent in something you do it effortlessly accurate: if you do something accurately you do so without making mistakesCrushing, juicing, blending, vegetables, cutting, safe, chopping | Make vegetable soupPlant cressVegetable tasting  |
| Key facts for memory: | How to stay safe when cookingHow to stay safe when chopping ingredientsKnow that different foods can cause allergies and to know how to check the ingredients for food allergiesWhat ingredients are needed to make a vegetable soupHow to read and use scales to measure ingredients |

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| Year 4 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| **Paper circuits** – Christmas CardsTechnical design, practical knowledge, design inspiration, design process. |  Know which materials and components will be the most suitable.Explain how the paper circuits are made, using annotated diagrams.Understand how an LED should be connected to a cell. | Draw exploded diagrams that show how switches can be made with copper tape and how to connect an LED to a cell.Explain how the paper circuits are made, using annotated diagrams.Experiment with a variety of different paper circuits. List the components that the product is made from. Apply knowledge of paper circuits to make a product based on the picture above.Apply your knowledge of techniques to decide which will be most appropriate for this task. | LED, cell, circuit, switches, diagram.  |  |
| Key facts for memory: | What features dose a circuit need to work. A cell provides the energy  |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| **Food and Nutrition** - Pizza MakingTechnical design, practical knowledge, design inspiration, design process. | To know about food hygiene and safety. To understand the importance of market research. Designing for a purpose. What is the purpose, who is the user? | Compare and analyse existing products. Follow a design brief and identify how to fulfil the requirements. Create a design including a diagram, list of materials and process plan. Select the correct tools to execute the design plan. Experiment with kneading dough. Execute the design using learnt skills of food preparation. Evaluate and adapt the product design.  | Food hygiene, food safety, design brief, yeast, prove.  |  |
| Key Knowledge for memory: | Food is to be kept refrigerated while waiting to be prepared. Most bread has an active ingredient called yeast that needs time to ‘prove’. |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| **Textiles** - Money bags - Technical design, practical knowledge, design inspiration, design process. | Understand how to create a realistic design that meets all requirements.Know how to accurately thread a needle. Know the difference between natural and man-made materials.  | Explore how to join textiles of different types in different ways.Use a variety of stitches including a split stitch and running stitch. Evaluate a design and make improvements based on a brief. Choose textiles both for their appearance and their qualities.Identify the most effective fastening. Use equipment and tools accurately.Create a plan which shows the sequence and what equipment and tools needed.  | Split stitch, running stitch, textile, material, fastening.  |  |
| Key facts for memory: |  |

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| Year 5 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Food and NutritionBreadDesign inspirationPractical knowledgeDesign process | To know about a product’s purpose, its users and how it is designed. To know that designers must always keep safety in mind when they are making their products and when thinking about the user.To list the ingredients in bread.To become accustomed to the feel of properly kneaded dough.  | * Label and annotate pictures of different breads showing their design features.
* Describe the safety features to be considered when preparing bread.
* Experiment with kneading dough.
* Analyse how the dough changes as you knead it.
* Design your own bread roll and decide on which ingredients you will need to include.
* Draw an annotated diagram of the design.
* Evaluate your design.
 | Inspiration, purpose, user, knead, hygiene | Tasting different types of bread from around the world |
| Key facts for memory: | Most bread has an active ingredient called yeast that needs time to ‘prove’.Kneading dough is an important part of making bread. |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Frame Structures (kites)Technical knowledgePractical knowledgeDesign inspirationDesign Process | Explain how a frame structure might be constructed.Using tetrahedrons make the frame for a kite.Identify features of different kites and their purpose e.g., windbreak, tailIdentify the user and purpose for a design | Demonstrate ways in which straws can be joinedDraw annotated diagrams of different joinsDescribe how the joins give strength to the structureMake a basic tetrahedronAdd further elements such as windbreaksDiscuss ways in which you could change the basic designDraw an annotated diagram of a designAdapt designs as needed and explain reasons for doing so.  | Assemble, technique, construct, extend, purpose, user, inspiration, frame, structure, stability |  |
| Key Knowledge for memory: | Frame structures can be joined in different waysDifferent joins can give strength to a structure |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Arch StructuresTechnical knowledgePractical knowledgeDesign inspirationDesign process | To know that a true arch is made of wedge-shaped blocks called voussoirs, with a keystone in the centre holding them in place. Weight is transferred from one voussoir down to the next, from the top of the arch to ground level, Modern arch bridges are based on mathematical curves such as an ellipse or parabola. A keystone is always at the top of an arch. It is sometimes larger than the stones around it. The keystone helps to lock the other pieces of the arch in placeAn impost is the topmost part of a pier or column. It is usually a flat piece of stone. It can be carved or decorated.A pier is a vertical block of masonry supporting an arch.  | Make simple arches using paper and carboard.Label and annotate buildings with arch structures.Design a building with an arch roof structure.Create a design diagram of how the structure will be made.Test design and make a model of a building with an arch structure - and modify as necessary.Explain changes made to original design. | Arch, structure, voussoirs, keystone, impost, pier, ellipse, parabola, stability, modify, user, inspiration, purpose | Photos of different buildings around the world with arch structures. |
| Key facts for memory: | An arch is made of wedge-shaped blocks called voussoirs, with a keystone in the centre holding them in place. |

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| Year 6 |
| Autumn 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Cams- (guided make-automaton toy)  |  |  |  |  |
| Key facts for memory: |  |
| Spring 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Food technology – Prepare a meal |  |  |  |  |
| Key Knowledge for memory: |  |
| Summer 1 and 2 Themes and focus schema | Knowledge | Skills | Key Vocabulary | Cultural Capital opportunities |
| Sewing – making a ‘softie’ for a Foundation buddy (Design, plan, make and decorate) |  |  |  |  |
| Key facts for memory: |  |