# DESIGN & TECHNOLOGY

## Progression of Skills and Knowledge Year1-2 Cycle A

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| **Design** | Talk about who will use a house, castle, sailboat or vehicle and what it needs to do. Explore pictures and examples of buildings and transport from different times. Share ideas through talk, drawings and simple models. Choose materials for a stated reason and identify simple success criteria, such as standing securely, keeping its shape or floating/moving as intended. |
| **Make** | Explore reclaimed and everyday materials and describe simple properties such as stiff, flexible, rough, smooth, waterproof and absorbent. With guidance, select and use suitable tools to cut, fold, shape and join materials using tabs, slots, tape and glue. Measure with non-standard units and begin to use a ruler. Make simple models in a planned sequence and work safely. |
| **Evaluate** | Look at houses, castles and vehicles from the past and present. Talk about their purpose, users, materials and features. Test models against simple criteria: does the house/castle stand, does the sailboat float or move when tested, and do the vehicle's wheels turn? Say what worked well and suggest one improvement. |
| **Technical knowledge** | Build simple freestanding structures and explore how bases, shapes and joins affect stability. Explore ways to make structures stronger and more stable by folding, layering or adding supports. For the transport project, explore wheels and axles and how a sail can catch moving air. Compare material properties and consider suitability for a particular use. |
| **Cooking and nutrition** | Recognise that food comes from plants or animals and that a varied diet includes different types of food. This year's listed projects do not include a practical cooking activity; ensure pupils receive a practical food-preparation opportunity elsewhere in the KS1 cycle, with handwashing, clean surfaces and safe handling. |
| **Termly Key Activities** | **Autumn term:** Linked to the theme of The Local Area: Children will design a house and use recycled materials to construct it. This topic will involve experimenting with different materials and ways of joining materials together. There will be a focus on our responsibility for the world and what items we can recycle. *DT skills focus: identify who the house is for and what it needs to do; compare and test recycled materials; plan and try different ways of joining; check that the finished house is stable.*<br>**Spring Term**: Linked to our history topic 'Kings and Queens.' The children will also explore the different palaces and castles that kings and queens live in and create their own castles.<br>*DT skills focus: use features of real castles to develop ideas; choose materials and construction methods; build a stable model and review its strength and appearance.*<br>**Summer Term:** Linked to topic of transport: , use ideas from the past and the present day to help us design and create a sailboat and a vehicle with wheels using recycled materials. We will use the knowledge we have previously gained from our Science unit during the Autumn term, Everyday Materials to look at the properties of different materials to help us decide what materials would be suitable for our final model.<br>*DT skills focus: use material knowledge to select suitable components; plan and make a sailboat and wheeled vehicle; test floating, movement and wheel-and-axle function, then make improvements.* |

# DESIGN & TECHNOLOGY

## Progression of Skills and Knowledge Year 1-2 Cycle B

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| **Design** | For the class map, discuss its purpose and how the continents and oceans will be represented clearly. For the collage, explore natural and man-made materials and plan an image or panel for an agreed purpose. Use talk, simple drawings or a layout plan to decide where materials will go and identify simple success criteria. |
| **Make** | Select and prepare recycled materials for the class map, considering colour, texture, size and how they can be attached. Use simple cutting, tearing, arranging, layering and joining techniques with increasing independence. For bread making, follow a recipe in sequence, measure or count ingredients with support, mix and knead, and use equipment safely with adult supervision. |
| **Evaluate** | Compare maps and examples of collage, considering clarity, layout, materials and appearance. Check whether the class map communicates the intended information and whether collage materials are securely attached. During bread making, observe the stages and discuss the finished product in relation to the recipe and intended outcome. Identify one improvement. |
| **Technical knowledge** | Explore how different materials can be joined and layered to create a stable, clear and durable map or collage. Recognise that material properties affect how well materials can be cut, folded, layered and attached. Understand that mixing and kneading change the texture of dough and that heat changes dough into bread. |
| **Cooking and nutrition** | Follow a simple bread recipe and sequence the stages of making. Identify some ingredients and their plant or animal sources. Practise measuring, mixing and kneading, and learn why handwashing, clean equipment and safe use of the oven/heat are important. Link food choices to the idea of a healthy and varied diet. |
| **Termly Key Activities** | Autumn term linked to theme of Explorers: As we are exploring the world and maps in geography, we will be creating a whole class map of the seven continents and five oceans. We learnt last half term that it is 'our responsibility' to keep the world clean and green; we will be using recycled materials to create each continent and *DT skills focus: agree what the class map must show; plan the layout and choose recycled materials for colour, texture and suitability; attach and arrange pieces so the continents and oceans are clear.*<br>ocean.<br>Spring Term: Linked to the topic of the Great Fire of London, Children will follow a recipe to make bread just like Thomas Farrier, the baker.<br>*DT skills focus: follow and use a recipe in the correct sequence; measure, mix and knead ingredients; use equipment safely and review the bread's texture and finished result.*<br>Summer Term: Linked to their work in art lessons, the children will develop their collage skills by learning about the artist Andy Goldworthy. They will use items found in nature as well as fabric to design and make collages.<br>*DT skills focus: plan a collage design; select natural and fabric materials for their properties; practise cutting, arranging, layering and joining, then assess whether the pieces are secure and communicate the intended image.* |

# DESIGN & TECHNOLOGY

Progression of Skills and Knowledge Year 3

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| **Design** | For the chocolate packaging, identify the product, intended user and what the packaging must do, such as protect the contents and communicate information. Research packaging examples and develop simple design criteria. For the roundhouse and tower challenges, explore examples, sketch ideas and plan materials and construction. Decide how the marble-run tower will slow the marble and how this will be tested. |
| **Make** | Measure, mark out and cut card and other materials with increasing accuracy. Construct 3D packaging and a roundhouse using appropriate folds, joins and supports. Select materials with sustainability and function in mind. For the team tower, work to a resource limit, assemble a stable structure and create a route for a marble, making adjustments after testing. Construct the edible Stonehenge model carefully and hygienically. |
| **Evaluate** | Investigate packaging and buildings, considering purpose, protection, materials, structure and appearance. Test packaging for its ability to contain or protect a product and evaluate the roundhouse for stability and suitability. Test the tower with a marble and record or compare how long the marble takes to travel. Use results and peer feedback to identify improvements. |
| **Technical knowledge** | Understand how 2D nets, folds and tabs can form 3D packaging. Explore how shape, bases, braces and joins strengthen structures such as roundhouses and towers. Investigate how the slope, surface and route of a marble run affect its speed. Consider the properties and sustainability of materials when choosing packaging and construction materials. |
| **Cooking and nutrition** | When making the edible Stonehenge model, handle ingredients hygienically and use safe food-preparation practices. Identify the ingredients used and discuss food as a material for modelling. This activity alone may not provide sufficient coverage of planning and cooking a dish or applying healthy-eating knowledge; ensure these are taught through another practical food unit within KS2. |
| **Termly Key Activities** | Autumn Term Linked to topic of Mexico: Children will design and create packaging for chocolate-based food products. We will link this to Maths and 3D shapes. We will focus on our responsibility to use sustainable materials for packaging too.<br>*DT skills focus: identify the packaging user and purpose; develop simple criteria for protection and appearance; measure, cut and assemble a net using folds and tabs; test whether it holds and protects the product.*<br>Spring Term: Linked to the topic of Stone, Bronze & Iron Ages - The children will be designing and making a roundhouse as well as an edible model of Stonehenge to build upon their skills explored during their homework topic with a paper diorama model.<br>*DT skills focus: plan and construct a stable roundhouse using suitable materials and joins; explore layering and shaping in the edible Stonehenge model; compare the models with their design intentions.*<br>Summer Term: Linked to work with St Paul's secondary school, Children work in teams to learn how to use DT skills to create a tower with limited resources to enable a marble to run down as slow as possible<br>*DT skills focus: work within a material/resource limit; plan and build a stable tower and marble route; test the time taken, compare results and adapt the structure to improve performance.* |

# DESIGN & TECHNOLOGY

## Progression of Skills and Knowledge Year 4

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| **Design** | For the rainforest dwelling, investigate examples of shelters and identify who might use the model and the conditions it represents. Develop criteria for stability, suitability of materials and appearance. For the Roman road and catapult, study how the original structures or devices worked, sketch ideas and plan a sequence of construction. |
| **Make** | Select materials and tools suited to the dwelling and measure, mark out, cut, shape and join with increasing accuracy. Build an edible Roman road in layers, selecting ingredients for their role in the model and handling them hygienically. Construct a functioning model catapult, assembling components carefully and adjusting it so that the throwing arm moves reliably. |
| **Evaluate** | Compare different dwellings and explain how their design responds to environment and available materials. Test the dwelling for stability. Examine Roman road construction and evaluate the edible model for its representation of layers and structure. Test the catapult consistently, observe its movement and discuss how design changes affect performance and safety. |
| **Technical knowledge** | Explore how structure, shape, materials and joining methods affect the strength and stability of a dwelling. Understand the catapult as a lever mechanism: identify the pivot, effort and load, and investigate how changing the position or force affects movement. Explore how the layered construction of a road provides a stable surface. Use tools and materials safely. |
| **Cooking and nutrition** | Prepare flatbread and hummus, learning about ingredients used in different food cultures. Practise measuring, mixing, kneading and shaping dough and preparing ingredients for hummus. Discuss ingredient origins and how dishes can contribute to a varied diet. Follow hygiene, safe food handling and supervised cooking procedures. For the edible Roman road, apply the same hygienic handling principles. |
| **Termly Key Activities** | Autumn term – linked to topic of Rainforests: We will design and create a tribal dwelling using measuring, selecting the correct cutting tools, and honing our practical skills.<br>*DT skills focus: investigate shelter needs and material properties; measure, mark, cut and join materials accurately; test the dwelling for stability and suitability, then improve weak points.*<br>Spring Term: Linked to the topic of Ancient Egypt, Children will be comparing the cultural difference in foods then will make their own flat bread and hummus.<br>*DT skills focus: select ingredients and follow a sequence of preparation; measure, mix, knead and shape flatbread and prepare hummus; use hygienic and safe food-preparation methods and evaluate the finished dishes.*<br>Summer Term: Linked to topic of the Romans, Children will be learning about how Roman roads were designed, structured, and built. The children will then be able to build their own Roman road using edible ingredients. Children will also be learning engineering skills to construct a model functioning Roman catapult.<br>*DT skills focus: explore how layers create a stable road surface; plan and construct the edible model; build a catapult by assembling a lever around a pivot, then test its movement and adjust it safely.* |

# DESIGN & TECHNOLOGY

## Progression of Skills and Knowledge Year 5

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| **Design** | For the cloth pouch, investigate examples and consider its purpose, user, size, fastening and appearance. Explore how stitching was used in the historical context and develop simple design criteria. For Greek dishes, use recipes and consider the intended diners, ingredients and presentation. For the fairground ride, identify the intended users and purpose, agree success criteria (for example, safe, reliable movement and effective lighting), research ride mechanisms and plan how the lights and motor will be incorporated. For the Viking sword handle, investigate historical examples and design a safe, non-functional model handle that is comfortable to hold and securely attached. |
| **Make** | Practise and select appropriate stitches to join fabric and make a cloth pouch, including planning, cutting, pinning and finishing. Measure and mark fabric accurately and use needles and scissors safely. Prepare and cook traditional Greek dishes by following recipes, measuring ingredients and using a range of preparation techniques under appropriate supervision. In groups, make a fairground ride by selecting and assembling materials and components, connecting a motor and lights within an appropriate circuit, and building a structure that allows the ride to move. Work safely with tools and electrical components. Shape and join materials to create a model sword handle, refining its fit, grip and finish. |
| **Evaluate** | Evaluate the pouch against criteria for size, strength of seams, usability and finish. Taste and review Greek dishes, considering flavour, texture, appearance and suitability for the intended diners. Test the fairground ride against the agreed criteria: check that the motor operates, the ride moves as intended and the lights work. Identify faults, work collaboratively to solve problems, gather feedback and refine the design. Compare Viking handle designs and test the model handle for comfort, grip and secure construction; suggest improvements. |
| **Technical knowledge** | Understand how fabric pieces can be joined using different stitches and how stitch choice affects seam strength and appearance. For the fairground ride, understand the purpose of an electrical circuit and how a power source, connecting wires, motor, lights and (where used) switches work together. Recognise that a motor converts electrical energy into movement and that secure connections and suitable construction are needed for a reliable product. Explore how the shape, thickness and surface of a handle affect grip and comfort, and how components can be securely joined. Recognise that material and construction choices should suit the product's purpose. Keep the sword project as a safe, non-functional historical artefact model. |
| **Cooking and nutrition** | Plan, prepare and cook a range of traditional Greek dishes using recipes. Practise safe preparation and cooking techniques and apply food hygiene routines. Identify ingredients and their origins, compare flavours and consider how dishes contribute to a varied and balanced diet. Where possible, discuss how recipes can be adapted for dietary needs or ingredient availability. |
| **Termly Key Activities** | Autumn Term: Linked to topic of Conflict & Resolution, the children will learn about sewing during WW1, learn basic stitching styles and stitch a cloth pouch.<br>DT skills focus: design a pouch for a particular use; measure, mark and cut fabric; select and practise stitches, join the pieces and check seam strength and finish.<br>Spring Term: Linked to the topics of Ancient Greece and ICT. Children will design, prepare and cook traditional Greek dishes and work in groups to plan, design and create a fairground ride incorporating lights and a motor.<br>DT skills focus: for the food project, choose a dish and ingredients for the intended diners; follow and adapt a recipe; practise measuring and preparation techniques, cook safely and evaluate flavour, texture and presentation. For the fairground ride, develop a group design and success criteria; select materials and electrical components; construct the ride and connect the motor and lights; test the circuit and movement, solve problems collaboratively, evaluate and refine the design so it works.<br>Summer Term: Linked to topic of The Vikings, the children will be designing and making a Viking sword handle.<br>DT skills focus: use historical examples to inform a safe, non-functional model; consider grip, comfort and fit; shape and join materials securely, then test the handle and refine its finish. |

# DESIGN & TECHNOLOGY

## Progression of Skills and Knowledge Year 6

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| **Design** | For the card game, identify the intended players, purpose and rules; develop criteria for clarity, playability, durability and visual appeal. Investigate Victorian optical devices and design a pinhole camera or zoetrope, explaining what it should do. For fossils, investigate fossil formation and examples, then plan a model or replica with a clear purpose and suitable materials. |
| **Make** | Prepare and taste a range of African foods hygienically, comparing ingredients and flavours. Design and make a set of playing cards and packaging or a storage solution, using accurate measuring, cutting, layout and finishing. Construct and test a pinhole camera and/or zoetrope, assembling components accurately and adjusting them to achieve the intended visual effect. Make fossil models using an appropriate moulding, imprinting or casting process and finish them carefully. |
| **Evaluate** | Gather feedback from users and test whether the card game is clear, fair and enjoyable. Investigate how pinhole cameras and zoetropes work; test the image or animation and refine the design. Evaluate fossil models for accuracy, detail and suitability of materials. Reflect on the food-tasting activity by comparing flavour, texture and ingredients and considering presentation. |
| **Technical knowledge** | Understand how a pinhole camera forms an image and how a zoetrope creates the illusion of movement through a sequence of images viewed as the device rotates. Explore rotation and simple mechanical movement in the zoetrope, including how the device is spun safely and consistently. Understand how impressions, moulds or casts can reproduce the shape and surface detail of a fossil. Apply accurate construction, material selection and finishing. |
| **Cooking and nutrition** | Prepare and taste a range of traditional African foods and identify ingredients and their origins. Discuss similarities and differences in ingredients, flavours and food traditions without treating a continent as having one single cuisine. Make a Victorian dessert during the Wow Day, following a recipe and practising safe measuring, mixing and food hygiene. Link food choices to variety and balance. |
| **Termly Key Activities** | Autumn Term: Linked to theme of Africa, the children will prepare and taste a variety of traditional African foods and design a Flags of Africa card game.<br>*DT skills focus: identify the card game's players, purpose and rules; design clear, durable cards and packaging; make and play-test the game, using feedback to improve it. Food tasting also develops ingredient awareness and safe, hygienic handling.*<br>Spring Term: Linked to the topic of the Victorians, We will learn about the development of new designs and technology during the Victorian era and experiment with pinhole cameras and zoetropes. We will create a Victorian dessert during our Wow Day.<br>*DT skills focus: investigate how a pinhole camera forms an image and how a zoetrope creates movement; assemble components accurately, test the visual effect and adjust the design. Follow a recipe and use safe, hygienic methods when making the dessert.*<br>Summer Term: Linked to our science curriculum and learning in history, we will design and create fossils.<br>*DT skills focus: plan a fossil model and choose a suitable modelling, moulding or casting method; make and finish the replica; compare its shape and detail with examples and identify improvements.* |