By the end of each year our learners will be able to:

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| EYFS | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| **From across the** **Strands –**• Explore different materials freely, 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. • Join different materials and explore different textures• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Explore how things work• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons | **Designing** • 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. **Making** • 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. **Evaluating** • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. **Technical knowledge and understanding** • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.• Know how to make freestanding structures stronger, stiffer and more stable.• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.• Understand anduse basic principles of a healthy and varied diet to prepare dishes. | **Designing**• Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups.**Making**• Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.• Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.**Evaluating**• Explore and evaluate a range of products with wheels and axles.• Evaluate their ideas throughout and their products against original criteria.**Technical knowledge and understanding**• Explore and use wheels, axles and axle holders.• Distinguish between fixed and freely moving axles.• Know and use technical vocabulary relevant to the project.• Understand how simple 3-D textile products are made, using a template to create two identical shapes.• Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.• Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.• Understand anduse basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*.• Know and use technical and sensory vocabulary relevant to the project. | **Designing**• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.• Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.**Making**• Order the main stages of making.• Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.• Explain their choice of materials according to functional properties and aesthetic qualities.• Use finishing techniques suitable for the product they are creating.**Evaluating**• Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.• Test and evaluate their own products against design criteria and the intended user and purpose.**Technical knowledge and understanding**• Develop and use knowledge of how to construct strong, stiff shell structures.• Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.• Know and use technical vocabulary relevant to the project. • Understand and use lever and linkage mechanisms.• Distinguish between fixed and loose pivots.• Know how to use appropriate equipment and utensils to prepare and combine food.• Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. | **Designing**• Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user.• Use annotated sketches and prototypes to develop, model and communicate ideas.**Making**• Order the main stages of making.• Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.• Select from and use finishing techniques suitable for the product they are creating.**Evaluating**• Investigate and analyse books, videos and products with pneumatic mechanisms.• Evaluate their own products and ideas against criteria and user needs, as they design and make.**Technical knowledge and understanding**• Understand and use pneumatic mechanisms.• Know and use technical vocabulary relevant to the project.Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.• Apply their understanding of computing to program and control their products.• Know how to strengthen, stiffen and reinforce existing fabrics.• Understand how to securely join two pieces of fabric together.• Understand the need for patterns and seam allowances. | **Designing**• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.• Develop a simple design specification to guide their thinking.• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.**Making**• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.• Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.**Evaluating**• Compare the final product to the original design specification.• Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work.• Investigate famous manufacturing and engineering companies relevant to the project.**Technical knowledge and understanding**• Understand that mechanical systems have an input, process and an output.• Understand how cams can be used to produce different types of movement and change the direction of movement.Know and use technical vocabulary relevant to the project.• Know how to use utensils and equipment including heat sources to prepare and cook food.• Understand about seasonality in relation to food products and the source of different food products. | **Designing**• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.• Develop a simple design specification to guide their thinking.• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.**Making**• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.• Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.**Evaluating**• Compare the final product to the original design specification.• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work.• Investigate famous manufacturing and engineering companies relevant to the project.**Technical knowledge and understanding**• Understand that mechanical and electrical systems have an input, process and an output.• Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.* Know and use technical vocabulary relevant to the project.

• A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.• Fabrics can be strengthened, stiffened and reinforced where appropriate.• Understand and use electrical systems in their products.• Understand the use of computer control systems in products.• Apply their understanding of computing to program, monitor and control their products.• Know and use technical vocabulary relevant to the project. |