



Essendon C of E Primary School

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Design and Technology Curriculum

Long Term Plan, using Kapow.

Mixed-Age updated: Feb 2026

Review date: Feb 2027

Long-term plan: Design and technology

Overview (All year groups)

Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	Mechanisms: Matching slider game	Structures: Stable structures	Textiles: Simple stitches	Mechanisms: Wheels and axles	Cooking and nutrition: Smoothies	Use this time to: ★ Extend projects ★ Attend trips ★ Celebrate (gallery) ★ Set challenges
Year 3/4	Mechanical systems: Pneumatic toys	Digital world: Wearable technology	Electrical systems: Electric poster	Structures: Product packaging	Cooking and nutrition: Eating seasonally	Textiles: Egyptian collars
Year 5/6	Textiles: Stuffed toys	Electrical systems: Wobble bots	Structure: Bridges	Digital world: Monitoring devices	Cooking and nutrition: Developing a recipe	Mechanical systems: Gears and pulleys

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	Cooking and nutrition: Balanced diet	Mechanisms: Levers	Structures: A chair for a bear	Textiles: Pouches	Mechanisms: Fairground wheel	Use this time to: ★ Extend projects ★ Attend trips ★ Celebrate (gallery) ★ Set challenges
Year 3/4	Mechanical systems: Mechanical cars	Digital world: Mindful moments timer	Cooking and nutrition: Adapting a recipe	Structures: Helmets	Textiles: Fastenings	Electrical systems: Torches

Textiles: Bags

Electrical systems: Steady
hand game

Structures: Playground
pioneers

Digital world: Navigating
the world

Cooking and nutrition: Come
dine with me

Mechanical systems: Automata toys

Long-term plan: Design and technology

Overview - Key stage 1

Year 1/2

Unit 1	<u>Mechanisms: Matching slider game</u> 6 lessons Exploring and making slider mechanisms, the children will create a matching game using simple sliders.	Unit 2	<u>Structures: Stable structures</u> 6 lessons Exploring how structures can be made more stable with a wide base and extra weight added to the base, the children will apply these skills in designing and making a stable pencil pot for a Year 1 pupil.
Unit 3	<u>Textiles: Simple stitches</u> 6 lessons Learning how to make simple stitches using a needle and thread, creating a piece of celebratory bunting.	Unit 4	<u>Mechanisms: Wheels and axles</u> 6 lessons Exploring how a wheel's shape, smoothness and attachment affect movement, the children learn how to use a wheel, axle and axle holder to create the mechanism for a pull-along toy.
Unit 5	<u>Cooking and nutrition: Smoothies</u> 7 lessons Cutting and juicing fruits and vegetables to create a smoothie that meets a design brief, this unit gives the children opportunities to develop food preparation skills with an increased focus on taste testing and ingredient choices.	Unit 6	Use this time to: ★ Extend projects ★ Attend trips ★ Celebrate (gallery) ★ Set challenges

Long-term plan: Design and technology

Overview - Lower key stage 2

Year 3/4

Unit 1	<p><u>Mechanical systems: Pneumatic toys</u></p> <p>6 lessons</p> <p>Exploring pneumatic systems, the children will apply their understanding to design and create a pneumatic toy using different types of diagrams.</p>	Unit 2	<p><u>Digital world: Wearable technology</u></p> <p>7 lessons</p> <p>Designing digital wearable technology and developing a program and housing for a Micro:bit, this unit includes new teacher and pupil videos, with an increased focus on evaluation and the use of a virtual Micro:bit.</p>
Unit 3	<p><u>Electrical systems: Electric poster</u></p> <p>5 lessons</p> <p>Introducing information design and developing an electric museum display based on the Romans, this unit strengthens the progression of knowledge and skills across the Electrical systems strand.</p>	Unit 4	<p><u>Structures: Product packaging</u></p> <p>6 lessons</p> <p>Exploring how 3D shell structures are created from nets, investigating their use in packaging and applying this understanding to create original designs.</p>
Unit 5	<p><u>Cooking and nutrition: Eating seasonally</u></p> <p>7 lessons</p> <p>Learning about seasonal foods and creating a seasonal food tart, this unit provides new lessons with teacher and pupil videos to develop the children's food preparation skills.</p>	Unit 6	<p><u>Textiles: Egyptian collars</u></p> <p>5 lessons</p> <p>Having learnt the basics of sewing and decorating fabric in key stage one, this unit builds on the children's repertoire by introducing two new skills: cross-stitch and appliqué. After learning these techniques, the children apply their knowledge to the design, decoration and assembly of their</p>

very own Egyptian Usekh /Wesekh collars to represent their unique personalities.

Long-term plan: Design and technology

Overview - Upper key stage 2

Year 5/6

Unit 1	<p><u>Textiles: Stuffed toys</u></p> <p>5 lessons</p> <p>Designing a stuffed toy and making decisions on materials, decorations and attachments (appendages) after learning how to sew a blanket stitch. Alternative theme: Stuffed Easter eggs.</p>	Unit 2	<p><u>Electrical systems: Wobble bots</u></p> <p>6 lessons</p> <p>Build on existing knowledge of circuits by introducing motors and exploring their common applications. Investigate how motors can create movement, such as making products wobble by attaching an off-centre weight to the axle. Use insights gained from experimenting with different components of wobble bots to design and develop a new product tailored to a specific user's needs.</p>
Unit 3	<p><u>Structure: Bridges</u></p> <p>5 lessons</p> <p>Testing and analysing different bridges to determine their strength and stability. Exploring material properties and sources, before marking, sawing and assembling a wooden truss bridge.</p>	Unit 4	<p><u>Digital world: Monitoring devices</u></p> <p>5 lessons</p> <p>Applying computing skills to program a Micro:bit animal monitor and using 3D CAD tools in Tinkercad to design a case, housing or stand.</p>
Unit 5	<p><u>Cooking and nutrition: Developing a recipe</u></p>	Unit 6	<p><u>Mechanical systems: Gears and pulleys</u></p>

	<p>7 lessons</p> <p>Learning a simple bolognese recipe and adapting it to improve nutritional content, this unit provides new lessons with teacher and pupil videos to develop the children's food preparation skills.</p>		<p>6 lessons</p> <p>Exploring the history, mechanics and uses of gears and pulleys, children apply their understanding to make a gear and a pulley system and design an eco-bike that harnesses the energy from an exercise bike to do work.</p>
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Long-term plan: Design and technology

Overview - Key stage 1

Year 1/2

<p>Unit 1</p>	<p><u>Cooking and nutrition: Balanced diet</u></p> <p>7 lessons</p> <p>Learning about the importance of a balanced diet and using that knowledge to create a tasty wrap, this unit includes new lessons with both teacher and pupil videos.</p>	<p>Unit 2</p>	<p><u>Mechanisms: Levers</u></p> <p>6 lessons</p> <p>Investigating different types of levers and how they work.</p>
<p>Unit 3</p>	<p><u>Structures: A chair for a bear</u></p> <p>6 lessons</p> <p>Exploring how to strengthen materials, the children will make a strong chair for a bear.</p>	<p>Unit 4</p>	<p><u>Textiles: Pouches</u></p> <p>5 lessons</p> <p>Learn how to sew a running stitch ready to design, make and decorate a pouch using a template.</p>
<p>Unit 5</p>	<p><u>Mechanisms: Fairground wheel</u></p> <p>6 lessons</p>	<p>Unit 6</p>	<p>Use this time to: ★ Extend projects ★ Attend trips ★ Celebrate (gallery) ★ Set challenges</p>

Building a rotating fairground wheel with a freestanding structure, this unit offers a simplified wheel design made from repurposed materials and an additional lesson where children design and conduct a survey to gather opinions.

Long-term plan: Design and technology

Overview - Lower key stage 2

Year 3/4

<p>Unit 1</p>	<p><u>Mechanical systems: Mechanical cars</u></p> <p>6 lessons</p> <p>Making and designing mechanical cars that use different methods of movement, this new unit includes new lessons, car designs and teacher and pupil videos.</p>	<p>Unit 2</p>	<p><u>Digital world: Mindful moments timer</u></p> <p>7 lessons</p> <p>Exploring the concept of mindfulness and writing design criteria to develop a programmed product for timing a mindful moment, this unit includes new teacher and pupil videos, with an increased focus on evaluation and the use of a virtual Micro:bit.</p>
<p>Unit 3</p>	<p><u>Cooking and nutrition: Adapting a recipe</u></p> <p>7 lessons</p> <p>Adapting an existing biscuit recipe while considering the cost of ingredients and other expenses against a set budget, this unit includes new lessons with teacher and pupil videos to develop the children's food preparation skills and adapt a recipe to suit a target audience.</p>	<p>Unit 4</p>	<p><u>Structures: Helmets</u></p> <p>6 lessons</p> <p>Exploring shell structures, the children investigate how they are strengthened to protect or contain, then apply this knowledge to design and construct their own helmets.</p>
<p>Unit 5</p>	<p><u>Textiles: Fastenings</u></p>	<p>Unit 6</p>	<p><u>Electrical systems: Torches</u></p>

	<p>5 lessons</p> <p>Analyse and evaluate a range of existing fastenings, then devise a list of design criteria to design, generate templates and make a fabric book sleeve.</p>		<p>5 lessons</p> <p>Identify the difference between electrical and electronic products. Evaluate a range of existing torches and their features, then develop a new functional torch design.</p>
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Long-term plan: Design and technology

Overview - Upper key stage 2

Year 5/6

<p>Unit 1</p>	<p><u>Textiles: Bags</u></p> <p>6 lessons</p> <p>Exploring pattern pieces in textiles, the children investigate how fabric shapes are used to create products while designing and making their own bags.</p>	<p>Unit 2</p>	<p><u>Electrical systems: Steady hand game</u></p> <p>5 lessons</p> <p>Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.</p>
<p>Unit 3</p>	<p><u>Structures: Playground pioneers</u></p> <p>6 lessons</p> <p>Designing and building a strong and stable prototype of an innovative playground structure within constraints.</p>	<p>Unit 4</p>	<p><u>Digital world: Navigating the world</u></p> <p>6 lessons</p> <p>Design and program a navigation tool to produce a multifunctional device for trekkers using CAD 3D modelling software. Pitch and explain the product to a guest panel.</p>
<p>Unit 5</p>	<p><u>Cooking and nutrition: Come dine with me</u></p>	<p>Unit 6</p>	<p><u>Mechanical systems: Automata toys</u></p>

7 lessons

Selecting three recipes to create a three-course meal, this unit includes new lessons that explore basic tastes and complementary flavours.

5 lessons

Developing a functional automata window display, this unit offers clearer video instruction, opportunities to interpret exploded diagrams and additional time to explore different cam shapes and make design choices that impact the final product.