Design and Technology
WHOLE SCHOOL OVERVIEW

Early Years Foundation Stage (EYFS)

	Autumn	Spring	Summer
Nursery	Begin to explore a range of materials when creating. Construct using large construction materials to build and balance. Able to manipulate dough using hands. **Unit Overview:** • Can you begin to explore a range of materials when creating? • Can you construct using large construction materials to build and balance? • Are you able to manipulate dough using hands?	Develop own ideas when creating using a range of materials. Construct using construction materials to join as well as balance. Able to use a range of tools to change the shape and appearance of the dough. **Unit Overview:** • Can you develop your own ideas when creating using a range of materials? • Can you construct using construction materials to join as well balance? • Are you able to use a range of tools to change the shape and appearance of the dough?	Begin to join different materials and explore different textures. Construct using a range of construction materials and with a clear purpose in mind. Create 2D and 3D models using dough with a clear purpose in mind. **Unit Overview:** • Can you begin to join different materials and explore different textures? • Can you construct using a range of construction materials and with a clear purpose in mind? • Can you create 2D and 3D models using dough with a clear purpose in mind?
Reception	Explore a range of materials to create using own ideas to make simple representations of people and faces. Explore a range of tools. Know that tools have a purpose. **Unit Overview:** • Can you explore a range of materials to create using own ideas to make simple representations of people and faces? • Can you explore a range of tools? • Do you know that tools have a purpose?	Create by planning their own ideas and building or creating with a purpose in mind. Explore joining using a range of materials e.g. glue, tape. To use a range of tools with increasing control. **Unit Overview:** • Can you create by planning your own ideas and building or creating with a purpose in mind? • Can you explore joining using a range of materials e.g. glue, tape? • Can you use a range of tools with increasing control?	Be able to talk about the processes that have led to their design. To use a range of tools effectively. Be able to talk about their designs and what they would do differently if they were to do it again. **Unit Overview:** • Are you able to talk about the processes that have led to your design? • Can you use a range of tools effectively? • Are you able to talk about your designs and what you would do differently if you were to do it again?

The Early Learning Goals (ELG) for expressive arts and design aims to ensure that all pupils:

- Safely **use and explore** a variety of **materials, tools and techniques,** experimenting with **colour, design, texture, form and function.**
- Share their creations, **explaining** the **process** they have used
- Make use of props and materials when role playing characters in narratives and stories.

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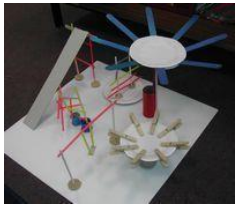
Key Stage 1 (KS1)

	Autumn	Spring	Summer
Year 1	**Retrieval Opportunity** Name fruits and vegetables	**Retrieval Opportunity** Cutting skills Joining skills Folding skills Naming materials – Science link	**Retrieval Opportunity** Cutting skills Joining skills
	FOCUS: Cooking and Nutrition (Preparing fruits and vegetables) Understand where food comes from. Understand and apply the principles of nutrition.   **Product:** Sweet – Fruit kebabs, Savoury – vegetable salad **Food study** – Fruits and vegetables **Influences** – Variety of recipes and fruits / vegetables to taste. **Skill:** - Assemble ingredients to prepare food, using simple tools to **cut safely and hygienically.** Know and understand fruit and vegetables element of healthy eating plate. **Unit Overview** Week 1: Can you identify fruit and vegetables? Week 2: What fruit and vegetables do you like? What would you put on your kebab? Week 3: How do you prepare food safely? Week 4: How do you cut safely? Week 5: Can you make a fruit and vegetable kebab (product)? PS- support cutting the fruit. Week 6: Can you evaluate your product?	**FOCUS:** Structures – Free Standing Build **structures**, exploring how they can be made stronger, stiffer and more stable Critique, evaluate and test their ideas and products and the work of others.  **Product:** Re-design and build the local park. (Haden Hill) **Influences** – playground equipment providers (use catalogues and websites) **Skill: Strengthen structures** by folding materials to make them stronger **Unit Overview** Week 1: What is a free-standing structure Week 2: Can we make our structure strong and stable? Week 3: Can you design a free-standing structure? Week 4: Can you make a free-standing structure? PS- provide cardboard boxes for structures. Week 5: Can you strengthen your free-standing structure? Week 6: Can you evaluate your product?	**FOCUS:** Mechanisms Wheel and Axis Design purposeful, functional, appealing products for themselves and other users based on design criteria Explore and use mechanisms (**wheels and axles**), in their products  **Product:** Design, make and evaluate a push and pull toy **Influences – past and present toys** to explore movement and design **Skill:** Attach simple wheels and axles using **axle holders.** **Unit Overview** Week 1: Can you identify the moving parts of a vehicle? Week 2: How do wheels and axles fix together? Week 3: What toy will you make and who is it for? Week 4: Can you assemble your toy? Week 5: What finishing techniques will you use to improve your toy? Week 6: Can you evaluate your product? Do the wheels move freely? • Possible Cross curricular link – history – vehicles in the past
	Retrieval Opportunity Cutting skills Joining skills	**Retrieval Opportunity** Naming fruits and vegetables Healthy eating Cutting skills (bridge method)	**Retrieval Opportunity** Cutting skills Joining skills

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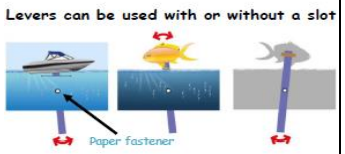
Year 2	**FOCUS**: Mechanisms Sliders and Levers Design purposeful, functional, appealing products for themselves and other users based on design criteria Explore and use mechanisms (**levers, sliders**), in their products **Product**: Great Fire of London story picture lever. **Influences** – Books with sliders and levers **Skill** – Make simple flaps, hinges and sliders using a **guide or bridge**.  **Unit Overview** Week 1: What is a lever mechanism and which fixing is the best? Week 2: Can you make a simple slider mechanism with teacher guidance? Week 3: Can you design a product with a lever and slider mechanism? Week 4: Can you make a product including a slider and lever mechanism? Week 5: What finishing touches will you add to improve your product? Is your mechanism secure? Week 6: Can you evaluate your product? Do your mechanisms move freely? • Cross curricular link – history – Great Fire of London	**FOCUS**: Cooking and Nutrition Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.  **Product**: – Sweet – fruit smoothie, Savoury - vegetable soup, **Food study – Seasonal** fruits and vegetables **Influences** – Range of recipes. **Skills**: - **Cut, peel and grate** ingredients. Prepare food safely and hygienically, Know and understand fruit and vegetables element of healthy eating plate. **Unit Overview** Week 1: Where do fruit and vegetables come from and are they in season? Week 2: What fruit smoothie and which vegetable soup do you like? What ingredients will you use in your smoothie and soup? Week 3: How do you cut safely, peel safely and grate safely? PS Week 4: Can you make a fruit smoothie (product)? Week 5: Can you make a vegetable soup (product)? Week 6: Can you evaluate your product?	**FOCUS**: **Textiles** Select from and use a wide range of materials and components, including construction materials, **textiles** and ingredients, according to their characteristics **Product**: Simple sewn puppet **Influences** - Range of puppets to explore materials and fixings.  **Skills**: **Basic running stitch.**, cut using a **paper template** **Unit Overview** Week 1: How are puppets made and who is the intended user? Week 2: How can you join your fabric together? Week 3: Can you design a puppet and who is the intended user? PS– possible parent workshop Week 4: Can you join the fabric together using a sewing technique? Week 5: Can you add the finishing techniques to your product? Week 6: Can you evaluate your product?

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- Build and apply a repertoire of **knowledge, understanding and skills** in order to **design and make high-quality prototypes** and products for a wide range of users
- **Critique, evaluate and test** their ideas and products and the work of others
- Understand and apply the **principles of nutrition** and learn how to cook

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Lower Key Stage 2 (LKS2)

	Autumn	Spring	Summer
Year 3	**Retrieval Opportunity** Fruit and vegetables Cutting skills (bridge method) Healthy eating plate	**Retrieval Opportunity** Cutting skills Joining skills Measuring skills – Maths link	**Retrieval Opportunity** Lever and slider mechanisms (yr 2 unit) Cutting skills Joining skills
	FOCUS: Healthy Varied Diet Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques **Product** – Savoury bread. Use bread to plan and prepare a healthy pizza **Food study** – Production of wheat and bread around the world. **Influences** – Explore a variety of breads. **Skills:** - **Mix and knead.** Follow a recipe, using appropriate utensils and measuring skills. Know and understand carbohydrates element of healthy eating plate **Unit Overview** Week 1: How many different breads can you name and taste? Week 2: What are carbohydrates and why do we need them in our diet? What is an eat well plate? Week 3: Can you make bread (product)? Week 4: Can you evaluate your bread product and plan a healthy pizza? Week 5: Can you make a healthy pizza (product)? Week 6: Can you evaluate your final healthy product?	FOCUS: Textiles 2d – 3d product Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Product** – Kite with Chinese design **Influences** – a range of kite designs / patterns **Skills** –**Use CAD (computer Aided Design)** to investigate using art packages on the computer to design prints that can be applied to textiles using iron transfer paper or transferred using textile media Week 1: What are the parts of a kite and why are they important? Week 2: Can you design a kite that is appealing to your audience? Week 3: How can you make a frame for your kite? Week 4: Can you recreate your design on the computer for iron transfer? Week 5: Can you accurately measure, cut, transfer and join your fabric to your frame? Week 6: Can you evaluate your final product? • Cross curricular link – computing (CAD)	FOCUS: Mechanisms, Levers and Linkages Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages **Product**: Make a card with a lever and linkage mechanism. **Influences / Inventors**– Leonardo Di Vinci **Past and present design link** **Skills** – Make linkage or lever with a **fixed or loose pivot**. Create a **prototype** to test produce. **Unit Overview** Week 1: Who is Leonardo Di Vinci and why is he linked to lever mechanisms? Week 2: Can you remember how to make a simple lever? What is a linkage? Week 3: Can you make a lever and linkage prototype with a fixed or loose pivot? Week 4: Can you design and begin constructing your product? Week 5: Can you complete and add finishing techniques to your product? Week 6: Can you evaluate your product? Does your mechanism move freely? • Cross curricular link – history – Leonardo Di Vinci
	Retrieval Opportunity Cutting skills (bridge method) Healthy eating plate	**Retrieval Opportunity** Measuring skills – Maths link Strengthening (yr 1 unit)	**Retrieval Opportunity** Cutting skills Joining skills
Year 4	FOCUS: Healthy Varied Diet Understand and apply the principles of a healthy and varied diet	FOCUS: Shell Structures **using CAD**	FOCUS: Electrical Systems **Computer controlled programme** Understand and use electrical systems in their products

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	Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.  **Product** – Sweet - date flapjacks, savoury - baba ghanoush. **Food study** – Foods linked to healthy eating plate. **Influences** – Recipes and ingredient options. **Skills:** Follow a recipe, using appropriate utensils and **measuring ingredients** to the nearest gram. Understand healthy eating plate. **Unit Overview** Week 1: What foods were eaten during Ancient Egyptian banquets? Week 2: Which foods do you like and how do they link to the eatwell plate? Week 3: How do you prepare food safely? Week 4: Can you make a baba ghanoush? Week 5: Can you make a sweet date flapjack? Week 6: Which Ancient Egyptian food product did you prefer? Why? • Possible cross curricular link -history and geography	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures  **Product –** Make a Viking treasure box shell structure. **Influences** – range of nets and boxes to explore shape and structure. **Skills**: - Explore a range of **net structures** and **use** CAD to produce a net or design that can form a prototype for the final product, stiffening materials. **Unit Overview** Week 1: What are Viking treasure chests and why are they used? Week 2: Can you explore drawing and manipulating shapes using simple drawing software on the computer? Week 3: Can you experiment with assembling pre-drawn nets in different ways? Week 4: Can you design your product? Week 5: Can you make your product using computer aided design? Week 6: Can you decorate and evaluate your final product? • Cross curricular link – computing (CAD) • Cross curricular link – history – Vikings unit of work	Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, **Product** – Torch-  **Influences / Inventor-** Thomas Edison- variety of electrical devices / torches. **Past and present design link** **Skills: Make input and output** devices. **Unit Overview** Week 1: Who is Thomas Edison and why is he linked to electrical devices? Week 2: Can you make a simple circuit using a metal item of your choosing? Week 3: Can you design a torch? Week 4: Can you use a range of construction materials to make a body for your torch? Week 5: Can you incorporate a switch on your torch? Week 6: Can you evaluate your final product? • Cross curricular link – scientist study • Cross Curricular link – Science unit of work – electricity (circuits) • Possible cross curricular link – history

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- **Critique, evaluate and test** their ideas and products and the work of others
- Understand and apply the **principles of nutrition** and learn how to cook

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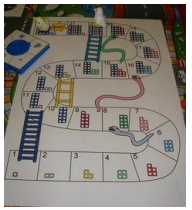
Upper Key Stage 2 (UKS2)

	Autumn	Spring	Summer
Year 5	**Retrieval Opportunity** Leonardo Di Vinci Lever, slider and linkages mechanisms – (covered in year 2 and Year 3)	**Retrieval Opportunity** Eat well plate Measuring ingredients – maths link	**Retrieval Opportunity** Thomas Edison Electrical circuits- science link
	FOCUS: Mechanisms, pulleys and gears Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages.   Product - Catapult, Influences / Inventors – Dionysius the Elder and Leonardo Di Vinci **Past and present design links** Skill – Revisit levers. Use **pulleys and gears** to make a moving mechanism. Unit Overview Week 1: Who is Dionysius the Elder and why is he linked to catapults? Week 2: Can you research and explore a range of different catapults? Week 3: Can you make a catapult prototype? LOTC Week 4: Can you design and begin constructing your product? Week 5: Can you complete your product? Week 6: Can you evaluate your final product? • Cross curricular link - science • Cross curricular link - history	FOCUS: Food Celebrating Culture Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand where and how a variety of ingredients are grown and processed.  Product: Sweet – Honey cake, Savoury – Olive and feta muffins Food study – Produce grown in Greece and UK Influences – Recipes and ingredient options. Skill – As designers, **scale up or down** a recipe, having accurately calculated ratios of carefully measured ingredients. Unit Overview Week 1: Where do different foods come from? What foods are eaten in Greece? Week 2: Which foods do you like and how do they link to the eat well plate? Week 3: Can you scale up or down a 'sweet dish' recipe and a 'savoury dish' recipe? Week 4: Can you make a savoury dish (olive and fetta muffin)? PS Week 5: Can you make a sweet dish (honey cake)? PS Week 6: Which food product did you prefer? Why? • Cross curricular link - geography	FOCUS: Electrical Systems **(computer-controlled programme)** Understand and use electrical systems in their products Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose,  Product: Interactive game with electric devices Influences / Inventors – Revisit Thomas Edison introduce Alexander Bell for electricity links -**Past and present design links** Skill – Design, make and evaluate a purposeful, appealing deign using **conductors or insulators** within the circuit. Unit Overview Week 1: Who is Alexander Bell and how is he linked to electricity links? Week 2: Can you make different electrical circuits? Week 3: Can you plan and design a 'wire loop' electrical game? Week 4: Can you begin constructing your product? Week 5: Can you complete and add finishing techniques to your product? Week 6: Can you evaluate your product? • Cross curricular link – history
	Retrieval Opportunity Cutting skills (bridge and claw method – Year 5) Healthy eating an the Eatwell plate Weighing ingredients – maths link	**Retrieval Opportunity** Measuring – maths link Sewing skills	**Retrieval Opportunity** Strengthening skills Measuring – maths link

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Year 6	**FOCUS**: Food Celebrating Culture Understand and apply the principles of a healthy and varied diet Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. **Product:**   Sweet – Jam tarts, Savoury – Vegetable turn over **Food Study** – Different varieties of pastry. Seasonal fruits and vegetables. **Influences** – Recipes and ingredient options. **Skill** – **Design, create and refine** recipes that demonstrate a range of techniques, applying previously learned skills. **Unit Overview** Week 1: What does 'rationing' mean and how did it affect the food people ate in WW2? Week 2: Which foods do you like and how do they link to the eatwell plate? Week 3: Can you design, create and refine a savoury and sweet recipe using 'rationed' ingredients? Week 4: Can you make a savoury dish (product) using seasonal produce? Week 5: Can you make a sweet dish (product) using seasonal produce? Week 6: Can you evaluate your 'rationed' food products? Which do you prefer? LOTC – Opportunity to sell the savoury and sweet dishes? • Cross curricular link – history	**FOCUS**: Textiles Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Product**: Tapestry to reflect an element of their historical study  **Influences** – Bayeux Tapestry and a range of other tapestries – **past and present links** **Skill** –Sew using a **variety of stiches (running stich, loop stitch), Use CAD (computer Aided Design)** to create patterns using software to generate, modify, scale, save and print pattern pieces. **Unit Overview** Week 1: What is the Bayeux Tapestry? Week 2: Can you explore a range of stitches to join materials or decorate a product? – PS Week 3: Can you use a computer programme to design a scene from the Bayeux Tapestry? Week 4: Can create a decorative border using a running stitch? Week 5: Can you create your main tapestry by joining fabric together? - PS Week 6: Can you complete your tapestry and evaluate your work? • Cross curricular link – computing (CAD) • Cross curricular link - history	**FOCUS**: Frame Structures Apply their understanding of how to strengthen, stiffen and reinforce more complex structures **Product –** Bike Shelter with a simple frame structure. **Influences / Designers**– William Paterson and Oscar Carl Kerrison and educational visits to Anderson shelters from WW2). **Past and present links**  Make comparisons to structures today. **Skill** –Use junior hacksaws, G-clamps, bench hooks, square section wood and card triangles to **construct wooden frames,** as appropriate, stiffening materials. **Unit Overview** Week 1: Who is William Paterson and Oscar Carl Kerrison and why are they linked to Anderson Shelters? Week 2: How do you use a hacksaw? How do you stiffen materials to form a shelter shape? Week 3: Can you design and make a prototype of your bike shelter product? Week 4: Can you create a wooden frame structure? Week 5: Can you add finish techniques and strengthen your product? Week 6: Can you evaluate your work? • Cross curricular link – history

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LOTC – Learning outside the classroom, PS – Parental support

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Designer and inventors used to support design development – this includes past and present design

	Year 3	Year 4	Year 5	Year 6
Mechanisms	Leonardo Di Vinci		Dionysius the Elder and Leonardo Di Vinci	
Textiles				Bayeux Tapestry
Structures				William Paterson and Oscar Carl Kerrison
Electrical systems		Thomas Edison	Thomas Edison and Alexander Bell	

Skill focus

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food Technology	**Cut** fruit and vegetables to make fruit kebabs and vegetable salad	**Cut, peel and grate** fruit and vegetables to make fruit smoothie and seasonal vegetable soup,	**Mix and knead** to make a bread base for a healthy pizza	**Follow a recipe, measuring ingredients** to make date flapjacks and baba ganoush.	**Up scale or down scale recipes** to make honey cake and olive and feta muffins	**Create and refine recipes** to make jam tarts and vegetable turn over
Mechanisms	Design, make and evaluate a moving toy with **wheels and axles using axle holders**	Make a picture with a moving **lever and sliders using a guide or bridge**.	Make a card with a **linkage and lever mechanism. With a fixed or loose pivot point.**		Research, design and make a catapult with a **pulley and gear mechanism.**,	
Textiles		Use **simple running stitch and a paper template** to make a hand puppet.	**Use Computer Aided Design** (CAD) **create a design print** and transfer to the fabric			Use **Computer Aided Design** (CAD) to **create patterns and sew a variety of stiches, weave materials** to create a tapestry.
Structures	Re-design and build the local park., **strengthening structures**			Use net **structures** and **Computer Aided Design** (CAD) to produce a Viking treasure box		Design and make a **wooden frame structure**
Electrical systems				Make an electrical torch with an **input and output device.**	Design and make an interactive game with electrical devices **to include conductors and insulators**	