

Design and Technology progression at Lees Primary School

EYFS:

During the Early Years Foundation Stage, the essential building blocks of children's design and technology capability are established. There are many opportunities for carrying out D&T related activities in areas of continuous provision and specific focus tasks. The characteristics of effective learning are constantly developing in the EYFS setting. Playing and exploring, active learning and thinking critically are essential foundation blocks for DT throughout the school.

Nursery

	<u>Food</u>	<u>Textiles</u>	<u>Construction</u>	<u>Modelling</u>
Nursery	<ul style="list-style-type: none"> *Begins to express likes and dislikes in relation to food *Begins to take part in mixing and combining ingredients with an adult led group 	<ul style="list-style-type: none"> *Beginning to describe the texture of things *Threads beads and reels onto laces 	<ul style="list-style-type: none"> *Starting to construct vertically and horizontally, make enclosures and make/create spaces *Joins construction pieces together to build and balance *Realises that tools can be used for a purpose *Uses various construction materials *Shows an interest in technological toys with knobs or pulleys or real objects such as cameras or mobile phones *Shows skill in making toys work e.g. pressing knobs and buttons 	<ul style="list-style-type: none"> *Can select own resources and talk about what *Can use resources to create props to support roleplay *Can snip using scissors *Can use glue independently

Reception

	<u>Food</u>	<u>Textiles</u>	<u>Construction</u>	<u>Modelling</u>
Reception	<ul style="list-style-type: none"> *Eats a range of food and understands the need for variety *Children use everyday language to talk about capacity and weight 	<ul style="list-style-type: none"> *Experiments to create different textures *Begins to thread through punched holes in card/ plastic templates 	<ul style="list-style-type: none"> *Constructs with a purpose in mind using a variety of resources *Manipulates materials to achieve a planned effect *Understands that new media can be combined to create different effects *Selects tools and techniques needed to assemble shape and join materials they are using *Explore characteristics of everyday shapes and objects and use mathematical language to describe them 	<ul style="list-style-type: none"> *To use a single hole punch to make holes in paper and card *Uses simple tools and techniques appropriately (uses glue and tape) *Selects appropriate resources and adapts work where necessary *To use scissors to cut on a line

ELG

Technology

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

Expressive Arts and Design / Being imaginative

Exploring and using media and materials They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

Year 1

Year 1

Design (developing planning and communicating ideas):

- Think of own ideas for design, drawing on own experience.
- Suggest ideas and explain what they are going to do.
- Use pictures and words to plan.
- Design a product for myself, following design criteria.
- Work in a range of contexts (imaginary, school, story based, wider community).

Make:

- Explain what is being made and why.
- Select appropriate tools and equipment for purpose.
- Make their design using appropriate techniques.

Evaluate:

- Say what they like and don't like about items they have made and attempt to say why.
- Talk about their designs as they develop and identify good and bad points.
- Talk about changes that may have been made in the process.

<u>Food</u>	<u>Textiles</u>	<u>Construction</u>	<u>Modelling</u>
*Develop a food vocabulary using smell texture and feel *Group familiar food products e.g. fruit and vegetables *To cut and chop a range of ingredients safely and hygienically *Assemble and cook ingredients with support * show an understanding of where basic ingredient come from *developing an awareness of the nutritional value of different foods	*Colour fabrics using a range of techniques e.g. fabric paints, printing *Cut out shapes which have been created by drawing around a template onto the fabric *To begin to sew a running stitch with support if needed (card holes, binka, large needles)	*Use a range of materials to make models *Constructs using a lever and slider device *Join appropriately for different materials and situations e.g. tape, glue *Investigate how structures can be made stronger	*Fold tear and cut paper and card *Roll and curl paper to create tubes *Cut along lines straight and curved *Insert paper fasteners for card linkages and use a hole punch

Year 2

Year 2

Design (developing planning and communicating ideas):

- Think of own ideas for design, drawing on own experience and those of other people.
- Develop design ideas through discussion, observation, drawing and modelling.
- Identify a simple design criteria.
- Make simple drawings and label parts.
- Add notes to drawings to help explanations.
- To make mock ups of simple designs.
- Discuss their work as it progresses.

Make:

- Select from and use a range of tools and equipment.
- Use vocabulary to name and describe tools and materials.
- Measure and cut with some accuracy.
- Use hand tools safely and appropriately.
- Assemble, join and combine to make models.
- Explain what is being made and why the audience like it.
- Choose appropriate tools and equipment describing and explaining why they are being used.

Evaluate:

- Talk about their own and pre-existing products and how they work, evaluating what went well and what could be different.
- Suggest what went well and could be done different with their own product.
- Discuss how closely their finished design meets their design criteria.

Food

- *To peel grate and chop a range of ingredients safely and hygienically
- *To understand the need for a variety of foods in a diet
- *Measure and weigh food items, non-statutory measures e.g. spoon and cups
- *Assemble and cook ingredients
- *Select ingredients according to their characteristics
- *Understand where food comes from

Textiles

- *Decorate fabrics e.g. adding sequins and decorating with buttons
- *Join textiles using running stitch and fabric glue.
- *Sew a running stitch with increased independence and metal needles.

Construction

- *Use a range of materials to create models with wheels and axels. e.g. tubes, dowel, cotton reels
- *Attach wheels to a chassis using an axle
- *Mark out materials to be cut using a template if needed. To the nearest cm
- *Cut strip wood/dowel using a hacksaw and bench hook

Modelling

- *Investigate how structures can be made stiffer and more stable
- *Investigate strengthening sheet materials
- *Cut along straight and curved lines with accuracy
- *Cut out regular and irregular shapes with accuracy

Year 3

Year 3

Design (developing planning and communicating ideas):

- Generate ideas for an item, considering purpose and the user.
- Identify a purpose and establish a criteria for a successful product.
- Explore, develop and communicate proposals by modelling.
- Communicate the plan by making drawings with detailed labels/notes when designing or writing.
- Plan the order of work before starting.

Make:

- Select tools and techniques for making their products.
- Measure, mark out, cut and assemble components with more accuracy.
- Work safely with a range of simple tools.
- Use finishing techniques to strengthen and improve the appearance of their product.
- Think about their ideas as they work and be willing to change things if this helps them improve their work.

Evaluate:

- Evaluate their product against original design criteria.
- Disassemble and evaluate familiar products.
- Identify strengths and weaknesses of design ideas.
- Consider and explain how a finished product could be improved.
- Investigate and analyse a range of existing products.
- Understand how key event and individuals in DT have helped shape the world

Food

- *Making healthy eating choices and form an understanding of a balanced diet
- *Prepare ingredients hygienically, selecting appropriate utensils
- *Develop a sensory vocabulary, using smell, taste texture and feel
- *Measure ingredients with support – grams/cups/ follow a recipe/follow instruction
- *Assemble and cook ingredients – know how to mix, mould and begin to cook foods. (using toasters and microwaves with supervision)

Textiles

- *Join fabrics using running stitch, back stitch
- *Explore fastenings and re-create some e.g. Sew on buttons and make loops

Construction

- *Make structures more stable by giving them a wide base
- *Choose materials based on their properties
- *See a glue gun used by an adult

Modelling

- *To create nets to make 3D shapes
- *Cut internal shapes
- *Cut materials accurately and safely by selecting appropriate tools
- *To use lolly sticks/card to make levers and linkages
- *Create and investigate joinings - temporary, fixed and moving
- *To measure to the nearest cm

Year 4

Year 4

Design (developing planning and communicating ideas):

- Generate more than one idea for how to create a product.
- Generate ideas considering the purpose for which they are designing.
- Gather information to help design a successful product. (i.e. by asking others views)
- Produce a detailed plan with labelled diagrams, a written explanation and sequence of actions.
- Propose realistic suggestions of how they can achieve their designs.
- Make prototypes.
- Design appealing innovative products that are fit for purpose and aimed particular individuals or groups.

Make:

- Use a range of tools and equipment with accuracy.
- Measure, mark out, join and assemble materials and components with accuracy.
- Select appropriate tools and techniques for making their product.

Evaluate:

- Discuss how well the finish product meets the design criteria and how well it meets the needs of the user.
- Investigate and analyse a range of existing products.
- Evaluate their work both during and at the end of the assignment.
- Understand how key event and individuals in DT have helped shape the world

Food

- *Prepare ingredients hygienically using appropriate utensils
- *Follow a recipe
- *Assemble or cook ingredients – e.g. beating rubbing in
- *Measure and weigh ingredients
- *Make healthy eating choices from an understanding of a balanced diet

Textiles

- *Use appropriate decoration techniques e.g. applique (glued or simple stiches)
- *Join textiles with appropriate stitching (any stitch)
- *Create a simple pattern and understand the need for a pattern

Construction

- *Incorporate a circuit with a bulb or buzzer into a model
- *Choose materials based on their functional properties and aesthetic qualities
- *Use a glue gun with adult supervision 1:1

Modelling

- *To Measure and mark to the nearest mm
- *To use diagonal struts to strengthen

Year 5

Year 5

Design (developing planning and communicating ideas):

- Generate ideas through brainstorming and identifying a purpose for their product.
- Use models, kits and drawings to formulate design ideas.
- Begin to make simple prototypes.
- Develop a clear idea of what has to be done, planning how to use materials, equipment and processes and suggesting alternative methods if the first attempt fails.
- Use results of investigations, information sources including ICT when developing design ideas.

Make:

- Select appropriate materials tools and techniques.
- Measure, mark out, cut and shape a range of materials using appropriate tools, equipment and techniques.
- Measure and mark out with accuracy.
- Join and combine materials and components in temporary and permanent ways.
- Use tools safely under close supervision.

Evaluate:

- Justify their decisions about materials and methods of construction.
- Evaluate a product against a design criteria.
- Evaluate it personally and seek evaluation from others.
- Identify what does and what does not work in the product.
- Make suggestions as to how theirs or others designs could be improved.
- Investigate and analyse a range of existing products.
- Understand how key event and individuals in DT have helped shape the world

<u>Food</u>	<u>Textiles</u>	<u>Construction</u>	<u>Modelling</u>
*Taste a range of ingredients and food items to develop a sensory vocabulary for use when designing *Measure and weigh accurately using scales *Cut and shape ingredients using appropriate tools and equipment *Begin to use hobs to heat food with appropriate supervision *Cook a range of savoury dishes using a range of cooking techniques	*Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decorations) *Decorate textiles appropriately often before joining components *Pin and tack fabric pieces together *Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles e.g. soft for a cushion	*Assemble components to make a working model *To use a cam to make a rotating mechanism *Use different tools and equipment safely *Use a hand drill to make tight and loose fit holes	*Choose appropriate material for the purpose *Cut measured accurate slots *To introduce scoring and cutting using craft knives *Cut accurately and safely to a marked line *Join and combine materials with a temporary, fixed or moving joining's

Year 6

Design (developing planning and communicating ideas):

- Investigate products/images to collect ideas and create own design criteria.
- Plan the order of their work choosing appropriate materials tools and techniques.
- Plan the sequence of work using a story board.
- Record ideas using annotated diagrams/ detailed labelled drawings and cross-sectional diagrams.
- Use models, kits and drawings to help formulate ideas.
- Make prototypes.
- Use diagrams and CAD to represent designs.

Make:

- Select appropriate materials, tools components and techniques.
- Assemble components to make working models.
- Use tools safely and accurately with increasing independence.
- Make modifications as they go along.
- Achieve a quality product.

Evaluate:

- Evaluate their product, identifying strengths and areas for improvement and carrying out appropriate tests.
- Record their evaluations using drawings with labels.
- Evaluate against their original criteria and suggest ways that their product could be improved.
- Reflect on their work using design criteria and saying how well their product meets the needs of the user.
- Investigate and analyse a range of existing products.
- Understand how key event and individuals in DT have helped shape the world

Year 6

<u>Food</u>	<u>Textiles</u>	<u>Construction</u>	<u>Modelling</u>
<ul style="list-style-type: none"> *Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms) *Understand and apply the principles of a healthy and varied diet *To understand seasonality and where, and how ingredients are grown, reared, caught and processed. *Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques 	<ul style="list-style-type: none"> *Pin, sew and attach materials together. *Make a quality product that uses a variety of materials and skills. 	<ul style="list-style-type: none"> *Construct products using permanent joining techniques *Use different tools and equipment safely *Incorporate a motor and a switch into a model *Control a model using an ICT control programme *Build a framework using a range of materials e.g. wood card plastic to support a mechanism 	<ul style="list-style-type: none"> *Cut strip wood, dowel, square section wood accurately. *Join materials using appropriate methods E.g. nailing and screwing. *Use a craft knife, cutting mat and safety ruler under 1:1 supervision *Choose an appropriate sheet material for the purpose *Cut materials with precision and refine the finish with appropriate tools such as sanding wood after cutting and more refined cut after roughly cutting out a shape

