Lane End Primary
Design and Technology Curriculum

Year 1 DESIGN AND TECHNOLOGY

Mechanisms:

Sliders and Levers

Project idea: Moving pictures

Key Knowledge:
Know and ***understand*** lever and linkage mechanisms
Know and ***recognise*** fixed and loose pivots
Know and ***describe*** how something works
Use technical vocabulary accurately

KO: To find out, be inspired and explore ideas
Explore and ***investigate*** books and other products with lever and linkage mechanisms

KO: To develop and design plans
Think of a realistic idea with a simple plan to make it
Explain and ***carry out*** the steps needed to make the product
Think about and ***design*** a product for a particular reason/user

KO: To share and present ideas
Explain what their ideas are
Communicate ideas in a range of ways, including words and pictures
Explain how something works

KO: To thoughtfully choose equipment and materials
Know and ***use*** tools to cut, shape and join paper and card
Create a product that moves

KO: To use and make accurately
Join materials and components in different ways
Use scissors carefully and safely

KO: To evaluate processes and products
Evaluate and ***explain*** what went well and what could be improved

Textiles:

Templates and joining techniques

Project idea: Puppets

Key Knowledge:
Know and ***understand*** how material is joined together by sewing techniques
Know and ***recognise***
Know and ***describe*** how different textiles feel

KO: To find out, be inspired and explore ideas
Explore and ***investigate*** existing puppet products and textiles

KO: To develop and design plans
Decide collaboratively what the product design criteria should be
Think about and ***design*** a product for a particular reason/user

KO: To share and present ideas
Explain what their ideas are
Communicate ideas in a range of ways, including words and pictures

KO: To thoughtfully choose equipment and materials
Choose materials and components, including materials and textiles, according to their properties
Know and ***use*** tools to cut, shape and join

KO: To use and make accurately
Thread and ***use*** a sewing needle
Join materials and components in different ways
Use scissors and a sewing needle carefully and safely

KO: To evaluate processes and products
Evaluate and ***explain*** what went well and what could be improved

Cooking and Nutrition:

Preparing fruit and vegetables

(including cooking and nutrition requirements for KS1)

Project idea: Fantastic Fruits

Key Knowledge:
Know and ***understand*** what healthy food is and why it is important
Know and ***recognise*** healthy and unhealthy foods
Know and ***describe*** where food comes from
Describe the texture of different fruits

KO: To find out, be inspired and explore ideas
Explore and ***investigate*** different fruits taste and textures

KO: To develop and design plans
Explain and ***carry out*** the steps needed to make the product
Think about and ***design*** a healthy, tasty fruit salad

KO: To share and present ideas
Explain what their ideas are
Communicate ideas in a range of ways, including words and pictures
Explain how something works

KO: To thoughtfully choose equipment and materials
Know and ***use*** different tools and ingredients

KO: To use and make accurately
Use cooking peelers and knives carefully and safely
Work cleanly and hygienically

KO: To evaluate processes and products
Evaluate and ***explain*** what went well and what could be improved

Skills to be a daring designer

think	look	evaluate	improve	describe
plan	choose	ask	explore	explain

Year 2 DESIGN AND TECHNOLOGY

Structures:

Free standing structure:

Project idea: Circus

Key Knowledge:
Know and ***understand*** how to make different types of structures stronger and more stable
Know and ***describe*** how something works

KO: To find out, be inspired and explore ideas
Use ideas from own experiences working with materials and components
Explore and different materials to explore qualities and properties
Explore and ***evaluate*** a range of existing products

KO: To develop and design plans
Think of an idea and ***plan*** what to do next
Create and work collaboratively towards a design criteria
Develop ideas that meet the needs of the design – making it purposeful, functional and appealing

KO: To share and present ideas
Communicate ideas in a range of ways, including talking, drawing, templates, mock ups and using simple ICT
Explain why certain materials and tools were chosen and used
Explain what worked well

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task and ***explain*** why
Know and ***select*** construction materials which are the most sensible – to make it stronger, stiffer and more stable
Use techniques that allow for movement

KO: To use and make accurately
Join materials and components in different ways and to make it stronger
Measure materials carefully to use in a model or structure
Use tools carefully and safely

KO: To evaluate processes and products
Explore and ***evaluate*** a range of existing products
Evaluate and ***explain*** what went well and what could be improved

Mechanisms:

Wheels and axles (explore and use mechanisms for example levers, sliders, wheels and axels in their products)

Project idea: Toy Fire-engine

Key Knowledge:
Know and ***understand*** the differences between fixed and freely moving axles
Know and ***use*** the technical vocabulary of mechanisms

KO: To find out, be inspired and explore ideas
Explore and ***use*** wheels, axels and axel holders
Explore and ***use*** mechanisms
Explore and ***evaluate*** a range of products with wheels and axles

KO: To develop and design plans
Think of a simple design, using experiences to devise a design criteria
Add a finishing design to the final product

KO: To share and present ideas
Communicate ideas in a range of ways, including talking, drawing and models
Explain why certain materials and tools were chosen and used
Explain what worked well

KO: To thoughtfully choose equipment and materials
Know which tools and materials to use for a particular task and ***explain*** why
Know and ***select*** construction materials which are the most sensible, for strength and stability
Use techniques that allow for movement

KO: To use and make accurately
Join materials and components in different ways and to allow movement
Measure materials carefully to use in a model
Use tools carefully and safely

KO: To evaluate processes and products
Explore and ***evaluate*** a range of existing products
Evaluate and ***explain*** what went well and what could be improved

Cooking and Nutrition:

Preparing fruit and vegetables

(including cooking and nutrition requirements for KS1)

Project idea: Sensational Salads

Key Knowledge:
Know and ***understand*** how food is grown and where it comes form
Know and ***explain*** the importance of eating healthily
Know and ***explain*** the importance of being hygienic in a kitchen

KO: To find out, be inspired and explore ideas
Explore and ***describe*** the texture of foods
Investigate and ***describe*** the properties of ingredients used

KO: To develop and design plans
Think of a final salad recipe meal design, including interesting ways to present it

KO: To thoughtfully choose equipment and materials
Know which equipment to use for a particular task and ***explain*** why

KO: To use and make accurately
Combine ingredients in appropriate proportions and quantities
Use cutting tools and equipment carefully and safely

KO: To evaluate processes and products
Explore and ***evaluate*** a range of existing salad products
Explain what went well and what was challenging

Skills to be a daring designer

think	look	evaluate	improve	describe
plan	choose	question	explore	explain

Year 3 DESIGN AND TECHNOLOGY

Structures:
Free standing structure:
(including computer-aided design) Project 1 idea: Photo frame of nature

Structures: Shell Structures
Project idea 2: disposable/recyclable lunchboxes/packaging for the healthy snack.

Key Knowledge:
Know and ***understand*** how to use computer aided design packages
Know how to ***use*** and ***apply*** skills and understanding from maths, science and ICT in design work

KO: To find out, be inspired and explore ideas
Use ideas from other design and designers, looking specifically at different design techniques
Persevere and ***adapt*** work when original ideas don't work

KO: To develop and design plans
Create and ***develop*** ideas that meet the needs of the design – making it purposeful, functional and appealing
Create a realistic plan and ***explain*** the steps needed to complete it

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion, annotated sketches and models
Explain why an original design was created and how it has been improved

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task
Know which material is likely to give the best outcome – to strengthen and stiffen the structure

KO: To use and make accurately
Work systematically and in an order that makes sense
Cut, ***shape*** and ***join*** materials accurately
Measure accurately
Use tools accurately and safely

KO: To evaluate processes and products
Identify what went well and what could have been done better
Evaluate the finished product against the original design criteria

Textiles:
2-D shape to 3-D product
Project idea: Bendy bags for an early settler

Key Knowledge:
Know and ***understand*** the purpose of the product
Recognise and ***understand*** the qualities of different textiles

KO: To find out, be inspired and explore ideas
Use ideas from other design and designers, looking specifically at different design techniques
Persevere and ***adapt*** work when original ideas don't work

KO: To develop and design plans
Create ideas that meet the needs of the design – making it purposeful, functional and appealing
Create a realistic step by step plan and ***explain*** the order and equipment needed to complete it

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion, annotated sketches and models
Describe the design using accurately labelled sketches and words

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task
Know which textile is likely to give the best outcome – for appearance and function

KO: To use and make accurately
Work systematically and in an order that makes sense
Cut, ***shape*** and ***join*** textiles of different types in different ways
Measure accurately
Use tools accurately and safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance

Cooking and Nutrition:
Healthy and varied diet
(including cooking and nutrition requirements for KS2)
Project idea: Healthy sandwiches and snacks.

Key Knowledge:
Know and ***understand*** the principles of healthy and varied diet
Understand and ***explain*** where food comes from and how it is grown
Know and ***understand*** why working hygienically and safely is important
Know how to ***grow*** plants from seed

KO: To develop and design plans
Create and ***describe*** how the combined ingredients combine

KO: To thoughtfully choose equipment and materials
Know and ***select*** which tools, equipment and ingredients are needed
Use food that have been ***grown*** from seed
Choose ingredients and cooking techniques that are fit for purpose

KO: To use and make accurately
Work systematically , following a recipe where needed
Use equipment safely and hygienically
Use a range of cooking techniques
Make a product, paying attention to presenting it in an interesting way

KO: To evaluate processes and products
Evaluate and ***discuss*** what went well, what was challenging and what to do differently next time

Skills to be a daring designer

think	select	question	improve	evaluate
plan	describe	explain	observe	investigate

Year 4 DESIGN AND TECHNOLOGY

Structures:
Frame structures
(including computer-aided design)
Project idea: Bridges

Mechanical Systems:
Levers and linkages
Project idea: Bridges

Key Knowledge:
Know and ***understand*** how to strengthen, stiffen and reinforce more complex structures
Recognise and ***understand*** how different kinds of bridges work

KO: To find out, be inspired and explore ideas
Use ideas from other design and designers, looking specifically at different design techniques
Persevere and ***adapt*** work when original ideas don't work

KO: To develop and design plans
Create ideas that meet the needs of the design
Create a realistic plan and ***explain*** the steps needed to complete it

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion, annotated sketches and models
Explain why an original design was created and how it has been improved

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task
Know which material is likely to give the best outcome – to strengthen and stiffen the structure

KO: To use and make accurately
Work systematically and in an order that makes sense
Cut, ***shape*** and ***join*** materials accurately
Measure accurately
Use tools accurately and safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance

Electrical System:
Simple circuits and switches (including programming and control)
Project idea: Torches

Key Knowledge:
Know and ***understand*** electrical systems

KO: To find out, be inspired and explore ideas
Use and ***research*** ideas from other designs

KO: To develop and design plans
Create ideas that meet the needs of the design criteria
Create step by step plans for a product that is fit for purpose

KO: To share and present ideas
Communicate ideas in a range of ways, including cross sectional and exploded diagrams, and prototypes
Explain why an original design was created and how it has been altered after checking it

KO: To thoughtfully choose equipment and materials
Know and ***select*** which tools and equipment to use for a particular task

KO: To use and make accurately
Work systematically and in an order that makes sense
Use tools accurately and safely
Make a product, paying attention to finish and function

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Summarise what would be improved upon if made again

Cooking and Nutrition:
Healthy and varied diet
(including cooking and nutrition requirements for KS2)
Project idea: Edible garden

Key Knowledge:
Know and ***understand*** the principles of a healthy and varied diet
Understand where and how a variety of ingredients are grown, reared, caught and processed
Know and ***understand*** why working hygienically and safely is important

KO: To develop and design plans
Create and ***explain*** ideas that meet the needs of the design criteria

KO: To thoughtfully choose equipment and materials
Know and ***select*** which tools, equipment and ingredients are needed
Use herbs that have been ***grown*** on site
Choose ingredients and cooking techniques that are fit for purpose

KO: To use and make accurately
Work systematically , following a recipe where needed
Use equipment safely and hygienically
Use a range of cooking techniques
Make a product, paying attention to presenting it in an interesting way

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Summarise what would be improved upon if made again

Skills to be a daring designer

think	select	question	improve	observe
plan	describe	communicate	research	research

Year 5 DESIGN AND TECHNOLOGY

Mechanical systems Project 1: Cam mechanism- Project idea: Toy Cam
Mechanical Systems Project 2: Gears and Pulleys- Project idea: Vehicles

Key Knowledge:
Know and ***understand*** mechanical systems, drawing on wider scientific knowledge to support this
Recognise and ***understand*** how IT programs can support the design process

KO: To find out, be inspired and explore ideas
Research from various sources of evidence
Find out about key events and individuals in design technology have shaped the world

KO: To develop and design plans
Create a selection of ideas that meet the needs of the design criteria, including pulleys or gears
Create and follow a detailed step by step plan , ***modifying*** where needed, and making a prototype where possible
Use IT programs in the design process

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion, annotated sketches, exploded or cross sectional diagrams and prototypes
Explain why an original design was created, referring to the original design criteria, and how it has been improved
Explain how the product will appeal to the user

KO: To thoughtfully choose equipment and materials
Know and ***choose*** which tools to use for a particular task, from a wider selection
Know which material is likely to give the best outcome – ***selecting*** from a wider range of choices

KO: To use and make accurately
Work systematically and in an order that makes sense
Measure and ***work*** accurately, with precision, and paying attention to final finish and function
Use tools safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Consider the views of others when ***evaluating*** the final product

Electrical Systems: More complex switches and circuits (including programming, monitoring and control) Project idea: vehicle alarm

Key Knowledge:
Know and ***understand*** electrical systems, drawing on wider scientific knowledge to support this
Recognise and ***understand*** how IT/CAD programs can support the design process
Know and ***apply*** computing understanding to programme, monitor and control the product

KO: To find out, be inspired and explore ideas
Research from various sources of evidence
Explore and be ***inspired*** by designers, developers and engineers throughout history

KO: To develop and design plans
Create a selection of ideas that meet the needs of the design criteria, including hydraulics and pneumatics, and incorporating a switch
Create and follow a detailed step by step plan, ***modifying*** where needed
Refine the product as it is tested
Use CAD programs to generate, develop and model ideas

KO: To share and present ideas
Explain why an original design was created, referring to the original design criteria, and how it has been improved, and ***knowing*** the resource restraints

KO: To use and make accurately
Work systematically and in an order that makes sense
Use tools safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Consider the views of others when ***evaluating*** the final product

Cooking and Nutrition: Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Project idea: Super Seasonal Food

Key Knowledge:
Know **and** ***apply*** the principles of a balanced, healthy diet, ***explaining*** the importance of protein as a proportion of a healthy diet
Know and ***understand*** which season various foods are available for harvesting in the UK
Recognise and ***understand*** that to prepare a meal ingredients need sourcing and collecting
Know and ***explain*** where, when and how a variety of ingredients are reared, caught and processed

KO: To find out, be inspired and explore ideas
Evaluate and ***taste*** seasonal foods

KO: To develop and design plans
Plan collaboratively to ***generate, evaluate*** and ***refine*** recipe ideas
Consider presentation and ***make*** the product appealing

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion and annotated sketches

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task

KO: To use and make accurately
Work systematically and in an order that makes sense
Use tools and equipment confidently and safely

KO: To evaluate processes and products
Evaluate the finished product for taste, healthy balance and appearance

Skills to be a daring designer

generate	select	question	improve
plan	describe	communicate	solve
observe	evaluate	research	

Year 6 DESIGN AND TECHNOLOGY

Textiles:

Combining different fabric shapes (including computer-aided design)
Project idea: designer bags

Key Knowledge:
Know and ***understand*** that a product needs to be appealing and well-made to be sold
Recognise and ***understand*** how IT/CAD programs can support the design process

KO: To find out, be inspired and explore ideas
Research from various sources of information, and ***use*** ideas and inspiration in designs
Find out about key individuals and their work in textile design throughout history

KO: To develop and design plans
Use market research to inform plans
Consider culture and society in the design
Create a selection of ideas that meet the needs of the design criteria
Create and follow a detailed step by step plan , ***modifying*** where needed
Use IT/CAD programs in the design process

KO: To share and present ideas
Communicate ideas in a range of ways, including discussion, annotated sketches and diagrams
Explain why an original design was created, referring to the original design criteria, and how it has been improved
Consider how a product could be sold

KO: To thoughtfully choose equipment and materials
Choose textiles for a range of qualities, including appearance
Join textiles of different types in different ways
Know which material is likely to give the best outcome – ***selecting*** from a wider range of choices

KO: To use and make accurately
Measure and ***work*** accurately, with precision, and paying attention to final finish and function
Use tools safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Consider the views of others when ***evaluating*** the final product

Mechanical Systems: Pulleys or gears Project idea: Fairground
Electrical Systems:

More complex switches and circuits (including programming, monitoring and control)
Project: Fairground

Key Knowledge:
Know and ***understand*** mechanical and electrical systems, drawing on wider scientific knowledge to support this
Recognise and ***understand*** how IT/CAD programs can support the design process

KO: To find out, be inspired and explore ideas
Research from various sources of information
Find out about key events and individuals in design technology have shaped the world
Explore ways that adding a circuit would improve the product

KO: To develop and design plans
Create and follow a detailed step by step plan, ***modifying*** where needed
Use CAD programs and pattern pieces to generate, develop and model ideas
Create and follow a detailed step by step plan , ***modifying*** where needed, and making a prototype where possible
Use IT/CAD programs in the design process
Use different types of circuit in the product

KO: To share and present ideas
Communicate ideas to a particular audience in a range of ways
Explain why an original design was created, referring to the original design criteria, and how it has been improved

KO: To thoughtfully choose equipment and materials
Know which materials and components are likely to give the desired outcome – carefully ***selecting*** from a wider range of choices, considering function and aesthetics
Explain why a specific tool, material

KO: To use and make accurately
Work systematically and in an order that makes sense
Use and work accurately, with precision, and paying attention to final finish and function
Use tools safely

KO: To evaluate processes and products
Evaluate, ***discuss*** and ***suggest*** improvements for designs
Evaluate the finished product for purpose and appearance
Consider the views of others when ***evaluating*** the final product

Cooking and Nutrition:

Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Project idea: Global Food

Key Knowledge:
Know and apply the principles of a balanced, healthy diet
Know and ***explain*** how products should be stored
Know and ***explain*** where world ingredients come from
Know and ***explain*** that diets around the world are based on similar food groups
Know and ***explain*** why rice is a good staple food
Know and ***explain*** where, when and how a variety of ingredients, including seasonal items, are grown, reared, caught and processed

KO: To find out, be inspired and explore ideas
Evaluate and ***taste*** global foods
Understand the difference between a sweet and savoury dish

KO: To develop and design plans
Work within a budget to create a meal/recipe

KO: To thoughtfully choose equipment and materials
Know which tools to use for a particular task

KO: To use and make accurately
Demonstrate a range of food skills and techniques
Use tools and equipment confidently and safely
Follow a recipe independently

KO: To evaluate processes and products

Check work as recipe and cooking develops, and ***modify*** approach in light of progress
Evaluate the finished product, explaining any potential changes for future

Skills to be a daring designer

generate	select	question	improve
plan	describe	communicate	solve
observe	evaluate	research	