Design & Technology programmes of study:KS 1 and 2

What do we aim to achieve? (Our intent)

Through our DT curriculum pupils will become confident in the skills of ***designing, making and evaluating****.*
They will:-

- *use research and design products for a range of purposes, which look appealing and work.*
- *make choices about which tools and materials to use.*
- *learn how to strengthen and use different systems in their product.*
- *confidently talk about what they have made and how they might improve it.*
- *develop resilience by experimenting and challenging themselves to take risks*

How do we do it? (Our implementation)

The children will develop these skills over our 2 year rolling programme. They will be learning about

- *wheels and axles, and winding mechanisms*
- *creating different structures and strengthening them (e.g. playgrounds, photo frames and Roman chariots)*
- *how levers,sliders and pivots can be used to make a product with moving parts*
- *joining materials in different ways, including sewing different fabrics*
- *incorporating electrical systems in their products*
- *healthy eating and food preparation*

What happens as a result of this learning? (Our impact)

The impact *of our programme of study is that pupils learn how to take risks, and use their creativity and imagination to design and make products that solve real and relevant problems.*

Look what we have created

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YEAR A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	All About Me	Winter wonderland	Superheroes	Minibeasts	Around the World in 30 Days	On the Farm
EYFS	Research how houses are constructed - what materials and why? Paint & construct **houses** using a range of materials - (**cardboard boxes, felt, straws, paint**). Evaluate and discuss each other's houses. Healthy eating cafe: making a **fruit kebab - cutting, chopping, peeling, squeezing.** Developing fine-motor skills & ability to use one-handed tools such as **pencils** to write. Use **Duplo bricks** to construct/build models (Continuous Provision).	Research how a diva lamp is made and what resources you will need. Make **Diva lamps** using **clay**. Evaluate and discuss each other's diva lamps. Plant **vegetables** in an outdoor planter (**carrots, peas, onions**). Use **junk modelling** materials to construct/build models, using **sellotape dispenser, scissors, glue sticks** (Continuous Provision).	Construct **trap** for "Evil Pea" with **junk modelling** materials. Evaluate and discuss each other's traps. Making **pancakes** for Shrove Tuesday - **measure, whisk, mix, pour**. Explore how the thickness of the batter results in a different texture of pancake.	Research a range of minibeasts, identifying shape, colour and pattern. Use **clay** to make different minibeasts, **using cutters, knives and rolling pins** (Continuous Provision). Making **butterfly cakes** - **measure, mix, spoon, cut, pipe.**	Research the types of food and breads eaten in different countries. Cooking & tasting **different breads** ('The great bread bake off') - **measure, mix, knead, roll, shape**. Evaluate breads against design criteria. Use **wooden blocks** to construct/build models (Continuous Provision).	Research what vegetables grow on the land and how they are harvested. Make **vegetable soup** using school grown vegetables - **cutting/ chopping**. Evaluate the soup with regards to look, taste, consistency, nutritional value. Research how **birds** construct their **nests** - what materials? In groups, find and use **naturally found materials & objects** to build a nest suitable for a bird. Use **foam dough** to make models of farm animals - chicks, pigs etc (Continuous Provision).

What does each lesson cover and how does it link together over time?

INTENT: NC aims for Key Stages 1 (Years 1 and 2) and 2 (Years 3-4):

DT1: Develop the creative, technical & practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
DT2: 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.
DT3: Critique, evaluate and test their ideas and products and the work of others.
DT4: Understand and apply the principles of nutrition and learn how to cook.

Theme	TOYS	HOUSES AND HOMES	TRAVEL THE WORLD
KS1 (Yr 1 & 2)	**Fruit Salad** Research and investigate different fruits: textures, appearance and taste and juices. Experiment with different liquids and syrups to find one that keeps fruit freshest. Preparation of a range of different fruits,chopping, peeling, deseeding. Food hygiene and preparation Safe use of tools Evaluate	**Playgrounds: Creating stable structures** Research playground equipment, shapes and structures - own knowledge, photos Investigate ways to fix parts together and build strength and support. Choose appropriate materials: card, straws, pipe cleaners, foil, glue Construct stable structures. Evaluate.	**Moving pictures: Levers and pivots** Research by looking at a range of books with levers and pop-ups how levers, pivots and sliders work and the mechanism of each. Prototype examples Use these to design own books with moving parts with a young target audience in mid as the end users. Construction and finishing Evaluate by showing to younger children.
Theme	**ROTTEN ROMANS**	**AMAZING ANGLO-SAXONS**	**INCREDIBLE INDIA**
LKS2 (Yr 3 & 4)	**Mechanism/Structure: Roman Chariots** Use research to design a Roman Chariot, looking at design of body shape, connections to horses, additions to wheels etc. Annotate sketches and prototype ideas Construct and decorate using materials the children have investigated to be durable and fit for purpose through prototypes and experimentation. e.g. doweling, cardboard triangles etc. Evaluate	**Fabric: Design a purse to hang from a belt** Evaluate and note the features of a range of different purses. Research ideas for a purse which can hang from a belt. Annotate sketches Measure, cut and construct by sewing using fabric and sharp needles. Add decoration to the purse. Evaluate.	**Food: Savoury dish** Investigate taste, texture and appearance of possible ingredient choices. Design a wrap type sandwich or a savoury rice dish/curry. Explore different textures, colours and flavourings. Food hygiene and preparation Safe use of tools (knifes, cooking equipment)to prepare all the ingredients Evaluate

How does all this build on their learning from the Early Years?

Foundation Stage Profile	Physical Development	Fine Motor Skills	Use a range of small tools, including scissors, paintbrushes and cutlery. Begin to show accuracy and care when drawing.
	Expressive Arts and Design	Creating with Materials	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.

YEAR B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Theme	All About Me	Fabulous Festivals	Dinosaurs	Traditional Tales	Transport	Pirates/Under the Sea
EYFS	Research how houses are constructed - what materials and why? Paint & construct **houses** using a range of materials - (**cardboard boxes, felt, straws, paint**). Evaluate and discuss each other's houses. Healthy eating cafe: making a **fruit kebab - cutting, chopping, peeling, squeezing.** Developing fine-motor skills & ability to use one-handed tools such as **pencils** to write. Use **Duplo bricks** to construct/build models (Continuous Provision).	Research how a diva lamp is made and what resources you will need. Make **Diva lamps** using **clay**. Evaluate and discuss each other's diva lamps. Plant **vegetables** in an outdoor planter (**carrots, peas, onions**). Use **junk modelling** materials to construct/build models, using **sellotape dispenser, scissors, glue sticks** (Continuous Provision).	Making **pancakes** for Shrove Tuesday - **measure, whisk, mix, pour.** Explore how the thickness of the batter results in a different texture of pancake.	Research boat designs - what materials do they use and why? (photos/videos). Construct a **boat** for "the Gingerbread Man" using **junk modelling** materials. Test and evaluate each other's boats. Making **gingerbread** men biscuits - **measure, mix, knead, roll, cut.**,	Research a range of vehicles and their key features and purposes. Construct a **vehicle** using **junk modelling** and **collage materials,** using a range of tools - **sellotape dispenser, scissors, glue stick.** Evaluate and discuss each other's vehicles. **Rice Krispie** traffic light cakes - **measure, mix, spoon.** Use **Mobilo** to construct/build different types of **transport** (Continuous Provision).	Research pirates and what their hats look like. Design and make a **pirate hat** using **black sugar paper**, decorate using **chalk**. Evaluate each other's pirate hats. Making and cooking **fish cakes - peeling, cutting, chopping, mashing, moulding.** Make a split pin **pirate-cutting** and **joining** using **split pins**.

What does each lesson cover and how does it link together over time?

INTENT: NC aims for Key Stages 1 (Years 1 and 2) and 2 (Years 3-4):

DT1: Develop the creative, technical & practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world (ie: know how something works).

DT2: 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. (ie: make something which works)

DT3: Critique, evaluate and test their ideas and products and the work of others.

DT4: Understand and apply the principles of nutrition and learn how to cook.

Theme	FAMOUS PEOPLE WHO CHANGED OUR LIVES	LONDON	EXPLORE THE WORLD
KS1 (Yr 1 & 2)	**Axles and Wheels: Wooden Vehicles** Research different vehicles and their uses. Design own vehicle & annotate drawing. Select appropriate materials Safe use of tools (junior hacksaw, hammer, awl.) Construct and paint Use CAD for features and signs Evaluate	**Textiles: Felt Puppets: London Zoo animal** Research and investigate how different puppet animals look and work.. Design and annotate drawing of own zoo animal Explore pattern / template use Practise stitches to refine skill. Cut pattern from felt Sew and fix features using needle and thread Evaluate	**Winding mechanisms: Well/crane** Research different types of well/crane. Investigate crane toy and mechanism- learn vocab of pully, winding handle and understand how axles work in this context.. Design a well or crane and annotate drawing Construct a stable structure including a winding handle Evaluate
Theme	TOMB RAIDERS!	DISAPPEARING RAINFORESTS!	WE'LL MEET AGAIN (World War 2)
LKS2 (Yr 3 & 4)	Mechanism/Pneumatic Systems: Moving sarcophagus Use research to develop product. Design and annotate sketches. Prototype ideas Construct using materials such as cardboard boxes, wooden box frames and a variety of pneumatic systems which have been tested by the children. Use of tools such as junior hack saws and glue guns for stronger joining. Evaluate	Structure: Photoframe Use research to develop product, exploring types of joints, stands and photo retention. Design and annotate sketches. Prototype ideas Construct using materials such as; plastics, wood, cardboards and paper - children to investigate materials best fit for purpose Safe use of tools such as; junior hacksaws,scissors, measuring devices e.g. rulers templates. hole punches, paper clips etc. Evaluate	Electrical/control : lighting for a bomb shelter Use research of bomb shelters and electrical circuits to develop a product. Design a torch/lighting controlled by a light sensor. Annotate sketches and prototype ideas Construct using; plastics, cardboards and paper - children to investigate materials best fit for purpose Safe use of tools such as; scissors, measuring devices e.g. rulers templates. hole punches, paper clips etc Evaluate

What do they go on to learn about in Year 5 and 6?

Year 5

Resistant Materials - Key ring project - building on their skills of using different tools

Systems and control - Mechanisms with a message - building on their skills to strengthen, stiffen and reinforce; and introducing a mechanical system (e.g. cams)

Year 6

Resistant Materials - Pencil holder project - using a wider range of tools and equipment to perform practical tasks

Systems and control - controllable vehicles - building on their skills of strengthening and reinforcing; using mechanical system (broadening their understanding of pulleys) and soldering.

How does it all link with the National Curriculum?

Key Stage 1: Subject content

Design

-design purposeful, functional, appealing products for themselves and other users based on design criteria

-generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

-select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]

-select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

-explore and evaluate a range of existing products

-evaluate their ideas and products against design criteria

Technical knowledge

-build structures, exploring how they can be made stronger, stiffer and more stable

-explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and nutrition

- use the basic principles of a healthy and varied diet to prepare dishes

- understand where food comes from.

Key Stage 2: Subject content

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

- 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

Evaluate

- investigate and analyse a range of existing products

- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

-understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures

- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

Cooking and nutrition

- apply their understanding of computing to program, monitor and control their products.

- 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

- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed