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Design Technology Subject Vision and Rationale:

At our school children are taught to select and use appropriate tools safely and effectively to make a product. In all areas of Design and Technology the children are encouraged to consider the effectiveness of their designs and requirements of the product. Every child will have the opportunity to learn and extend their understanding, experience and application in the use of technology, including I.C.T, in a wide variety of contexts.

Curriculum Drivers:

1. **Reading, Language and Vocabulary** development at heart off the curriculum

Children will communicate their ideas through talking, drawing, templates, mock -ups and where relevant information technology. They will work in a range of relevant contexts, working alongside others to design, make and evaluate ideas and products using technical vocabulary (Tier 3). They will consider the views of others through positive discussions and present their findings using a range of communication media to the relevant audience.

2. **Experiential learning opportunities**, to excite, enthuse and engage and raise aspirations.

Using a range of relevant opportunities, tools, equipment and materials, we deliver lessons that engage and inspire children's love of DT. Children will work with purpose towards achieving an 'end product' each half-term/term. Where possible, children will work alongside adults within and beyond school, draw on their expertise and visit locations where they can link their knowledge to real-life.

3. **Creativity and Innovation.** Developing independence, thinking and questioning.

Through the sequenced process of designing, making and evaluating children will develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. Children will 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. Children will be given opportunities to critique, evaluate and test their ideas and products and the work of others. Children will experience culinary arts; experiencing, experimenting and tasting foods from around the world. Children will learn how to cook recipes from around the world and understand and apply the principle of nutrition.

4. **Children as teachers,** sharing knowledge. Knowing more and remembering more.

We recognise that when children explain or teach a skill they have learnt, they are more likely to retain it. In design technology, regular opportunities are provided for children to develop their own knowledge by sharing what they have learnt with teachers, parents and peers. This encourages children to question and be questioned, supporting a depth of knowledge and the ability to make connections within the subject and beyond.

5. **Valuing each other.** Promoting respect, responsibility, tolerance and understanding

Design and Technology is an inspiring, rigorous and practical subject. Using creativity and imagination, children will work cooperatively to design, make and evaluate products that solve real and relevant problems, within a variety of contexts, considering their own and others' needs, wants and values. Children learn how to work within a team, take risks and become more resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world, now and in the future.

All lessons will:

- Have clear objectives
- Pose a question to investigate
- Have vocabulary at the heart
- Include modelling (where appropriate)
- Encourage active learning and gamification
- Provide opportunities for children to independently apply skills
- Provide rich and useful resources

Design Technology Knowledge and Skills - Foundation Stage

Expressive Art and Design (Art and Design , DT , Music , Drama and Role Play)					
	Area of Learning		Skills and Knowledge we want the children to have at end of EYFS	ELG	FS vocabulary
FS	<p>Expressive Art and Design:</p> <p>The development of children’s artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.</p>	<p>FS1 Painting, drawing, collage and sculpture: Able to mix primary colours to an appropriate consistency, able to name colours, can hold a paintbrush in the palm of their hand. Draw faces with features and draws enclosed spaces, giving meaning. Able to use glue sticks, spatulas and add other materials to develop models (eg tissue paper, glitter). Music - Enjoys listening to and responds to music, talks about how music makes them feel. Explores instruments and is beginning to names them (drum, tambourine, maracas, triangle). Singing and dancing: Copies basic actions and moves to music. Learns short routines, beginning to match pace. Sings in a small group and knows some words when singing. Small world: Plays with familiar resources. Simple small world (farms, cars, trains, dolls).Starting to develop own storylines using own experiences, rhymes and stories.</p> <p>FS2 Autumn Term Painting (incl printing) : able to mix primary colours to make secondary colours Use a thick paintbrush using tripod grip Drawing: Draws people from their family and self portraits Collage: joins items with glue and tape Sculpture (form): Builds simple models incl walls, roof and towers Manipulates clay or playdough (rolls, cuts, squashes, pinches, twists) Photography: know how to use the ipad to take a photo and load onto an appropriate programme Focus Artists: Yayoi Kusama (focus orange, pumpkins and dots), Yves Klein (focus on paint and blue) Matisse (The Snail - collage). Books:Books about artists and colour mixing. Woodwork Holding nails, Using hammer, taps Music: Responds to music through movement and can identify if music is “happy, scary or sad”. Uses claves to tap out pulse Singing:Joins in songs as a group Dancing: Moves in response to the music Role play: Accesses small world, home corner etc and takes part in role play activities</p>	<ol style="list-style-type: none"> To know how to mix colours To know some songs, rhymes and poems To be able to plan do and review their work 	<p>Expressive Arts and Design ELG: Creating with Materials Children at the expected level of development will: - 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. ELG: Being Imaginative and Expressive Children at the expected level of development will: - Invent, adapt and recount narratives and stories with peers and their teacher; - Sing a range of well-known nursery rhymes and songs; Perform songs, rhymes, poems and stories with others, and – when appropriate – try to move in time with music.</p>	colour shape(s) line(s) draw paint make design material describing texture and material naming different media scrunch, twist, fold, bend, roll, smooth, bending, rough, hard, weave, flexible, rigid rolls, cuts, squashes, pinches, twist

with peers or adult

Spring Term

Painting: Add white or black paint to alter tint or shade

Experiment with different brush sizes and tools to add detail

Print with different resources

Drawing: Draws people with detail (sausage limbs, body). Draws self-portrait with some appropriate features

Collage: joins items in a variety of way: masking tape, string, ribbon

Sculpture (form): Builds models that replicate real life. Use a variety of resources including natural.

Photography: Knows how to use ipad to capture a specific image or element of art (eg. line, colour, space etc.)

Artists: Barbara Hepworth and Anthony Gormley (Natural Sculpture), Matisse - The Sheaf

Ansel Adams and others (Outdoor photography)

Woodwork: Screwing and joining

Music: Names and knows how to play a variety of instruments.

Singing: sings in a group, matching pitch and following melody

Dancing: Responds to and interprets music through movement

Role play: Participates in play related to rhymes and stories and may extend and develop stories

Summer Term

Painting: colour match to a specific colour and shade

Create patterns or meaningful painting or when printing

Drawing: Draw self-portraits, landscapes and cityscapes.

Collage: knows how to secure boxes, decorate bottles etc. Knows how to improve models Use appropriate language: scrunch, twist, fold, bend, roll, smooth, bending, rough, hard, weave, flexible, rigid

Sculpture (form): Makes something with clear intentions

Makes something they give clear meaning to

Photography: use the ipad with a specific purpose in mind

Use photography as part of their artwork and explain their intention(s)

Artists: Banksy (portraits/graphics), Jackson Pollock (painting on a large scale) and Eric Carle (collage).

Woodwork Draw and plan what going to make

Measuring

Music: Beginning to write own compositions using symbols, patterns or pictures.

Singing: Sings by themselves, matching pitch and following melody

Dancing: replicates dances and creates own in response to music/stimulus

Role play: Use imagination to develop own storylines with peers. Involves props and resources.

DT Knowledge Progression: KS1 - KS2

Strands	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
	Toys	Clothes for Teddy	Vehicles	Entrepreneurship	Bridges and Buildings	Electrical application
Understand the design process	Learning about audience & purpose	Learning about fabric designs - accessories	Learning about mechanisms and robotics	Learn to be a designer yourself – Entrepreneurs Who is my audience? What is their need? How can I solve this?	How do we reinforce and stiffen structures? Can we make a lifting bridge?	Learning to ‘tinker’ Taking an existing design (soothing or fun) and adapting / tinkering with it for a particular purpose
Designers & their influences	Ole Kirk Christiansen – Lego	Gok Wan and Vivienne Westwood	Kevin Warwick and Alan Turing		Iseambard Kingdom Brunel - bridges	(possibly Ikea inspired designs for soothing lamps, simple electronic toys)
Materials & their uses (and properties)	Why is Lego plastic? How does Lego ‘stick’?	Taking care with fabrics; stretchy / colouring / pattern / decoration	Cogs, pulleys, levers, cams, mechanisms, programming machines	Learning about properties of a wider range of materials – pertinent to each pupil’s design	Metals, plastics, concrete, etc. – what are the best materials to make strong bridges?	Using electrical circuits in a design – what makes a circuit work?
Understanding how to combine materials	Using simple maths to learn how to join differing blocks together to an end form	Cutting /joining / stitching / glueing effectively – what did GW / VW use?	Joining different materials, using axles and pulleys to create an effect	Learning about how to connect a wider range of materials	Joining securely – how do we make sure that the bridge is safe?	Fixing circuitry securely in to a shell or form – how do others do it?
‘Wider’ design knowledge (X-curricular) – This learning won’t always result in a made, final ‘product’ – this is about learning the design process	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know)	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know)	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know) Compare this to previous ‘designers’	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know) Compare this to MY design process	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know) Regular review – how have I used the design process today / this week / this term?	For each VIP, whose problem did they solve? What was their ‘design process’? (audience, design, make, evaluate, know) Compare this to OUR design, make, evaluate, know process

DT Skills Progression: KS1 - KS2

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Design	<p>Make comments about what they are going to design or cook</p> <p>Come up with ideas for a product, and express why they like it (i.e. personal appeal)</p> <p>Trace around simple shapes to reproduce symbols</p> <p>Precision level: simple shapes freehand (e.g. square but possibly with curved-out corners); colouring-in is mostly within the lines</p> <p>With support, discuss design criteria during the construction process</p>	<p>Give a brief overview of their plans for design or cooking, using some DT vocabulary</p> <p>Make comments about the function and purpose of their product, and its personal appeal</p> <p>Devise a simple diagram</p> <p>Begin to annotate and highlight digital designs rectangles are accurate (e.g. corners don't curve outwards); colouring-in is within the lines</p> <p>Start to volunteer comments about the design criteria while the construction process is ongoing</p>	<p>Verbally explain their plans for design or cooking, linking to techniques and using DT vocabulary</p> <p>Refer to research while talking about their product</p> <p>Draw sketches at different points of the design process</p> <p>Draw and annotate digital designs</p> <p>Start to draw to scale</p> <p>Start to draw 3D projections, with shading for clarity</p> <p>accurate 2D shapes</p> <p>Politely discuss their peers' work</p> <p>Willingness to alter and/or restart designs</p>	<p>Explain their plans for design or cooking in some detail, and in writing, making reference to techniques and materials/ingredients</p> <p>Use research to justify the appeal of their product, and the innovativeness of their design</p> <p>Draw a plan or sketch from a description</p> <p>Draw simple diagrams without guidance</p> <p>Create a scale-bar</p> <p>Clear projections of common 3D shapes</p> <p>Start to suggest how their peers can improve their work</p> <p>Desire to alter and/or restart designs</p>	<p>Plan designs in detail with preliminary studies in sketchbooks, with reference to other designs and materials they have studied</p> <p>Make comments about how their product might be altered to appeal to other groups</p> <p>Make an accurate design sketch from someone else's measurements and notes</p> <p>consistency within oblique/perspective projections of 3D shapes</p> <p>Make reasonable suggestions for how their peers might improve their work</p>	<p>Plan in detail with preliminary studies in sketchbooks, linking to what they have studied and explaining their choices</p> <p>Make sophisticated comments about the limitations of the function and purpose of their product, with reference to different audiences</p> <p>Constructively critique their peers' work and help with the improvements if appropriate</p>
Make	<p>Constructions with materials that are supplied for them</p> <p>Using Children's scissors safely</p> <p>Use Ruler / metre rule</p> <p>To nearest 10cm (e.g. with stick painted in 5cm blocks)</p>	<p>Select from materials that are supplied for them</p> <p>Set square, soft tape-measure, knitting needles, crocheting sticks</p> <p>Measure to nearest cm and g, Use litres and °C for temperature</p>	<p>Work creatively with a range of materials, with some control</p> <p>Protractor, metallic tape-measure, spirit level, sandpaper</p> <p>Screwdrivers (supervised)</p>	<p>Request materials or ingredients that have not been supplied</p> <p>Compass use</p> <p>Scissors (to score); adult scissors (to cut)</p> <p>Sewing needle, Stanley knife & glue gun (all supervised)</p>	<p>Request other materials and give reasons</p> <p>Hammer/nails, chisel, mallet, vice, etc. (supervised)</p> <p>Angle to nearest °</p> <p>Calculate area; start to understand volume</p>	<p>Saw, power tools (supervised)</p> <p>Calculate area and volume</p> <p>Fluency with converting units, including between metric and imperial</p> <p>Accurate linear/area measuring tools on a computer design</p>

		Scales in ones, twos, fives, tens	Measure To nearest mm, nearest 10ml, and 45° for angle Use scales where numbers may be missing Make measurements on a computer design Start to estimate length and distance Start to understand area	Start to understand inches & miles, stone & pounds Measure non-rectilinear distances on a computer design Make reasonable estimations of length and distance; start to estimate mass, capacity and angle	Use approximate equivalences between metric and imperial Start using linear and area measuring tools on a computer design Estimate length, distance, mass, capacity, angle; start to estimate temperature and area	Estimate Make reasonable estimations of length, distance, mass, capacity, angle, area and temperature
Evaluate	Simple evaluation (e.g. spot similarities and differences between products) Follow simple advice from adults to improve their work Can refer to a photo or drawing while talking about their work Use tallies and simple tables	Relate products to their design criteria Listen courteously to views that differ from their own Follow advice from adults or peers Showcase work Use ICT to create a simple info-sheet about their work (e.g. text with photo) Use pictograms, tally charts, block diagrams	Link their own and others' designs and products to their function and purpose Start to verbalise others' opinions that differ from their own Make choices about following advice Make and discuss annotated sketches and diagrams Use bar charts	Verbalise others' opinions politely and consider following their advice Start suggesting improvements to others' designs Link products to their cultural contexts Showcase work Make and discuss cross-sectional and exploded diagrams	Use constructive and sensitive language to suggest improvements to their peers' designs Create a presentation with text/images to support them in showcasing work Use timetables; mode and range averages	Analyse their own and others' responses to their design, making improvements if appropriate Help improve peers' designs where that offer is welcomed Showcase work Use a range of supporting material to showcase their work, and take questions Use pie charts and line graphs; mean average
Use of DT vocabulary	Product Design Technology First/second (etc) Then When Last Next Before After Drawing Trace	Period At the same time as Fashion Monitor Sew Knit Critique Compare	Approximate Accurate Technique Mechanical Parallel Perpendicular Construct Mock-up Prototype	Uncertain Former Latter Trend Continuity Audience Impact Unique Characteristic Convention Aesthetic Series	Use specialist vocabulary and DT terms Appropriately (<i>TTPG</i>)	Start to apply DT vocabulary in more sophisticated ways (<i>TTPG</i>)

	Share Effect Improve Material					
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