

DT Curriculum – 2 Year Cycle

Years 3 & 4



Intent

Learning is a change to long term memory. Our aims are to ensure that our students experience a wide breadth of study based on the national curriculum and have, by the end of each key stage, long-term memory of curriculum knowledge.

We aim to inspire in pupils a curiosity and fascination about D&T in order to encourage them to be creative and innovative in order to make products and solve real and relevant problems within a variety of contexts.

Implementation

D&T is taught through the 'Threshold Concepts' of Master Practical Techniques, Take Inspiration from Design and Design, Make, Evaluate and Improve. Each threshold concept is split into knowledge categories that teachers will explore with the children. Deliberate practise of these, whereby knowledge will be revisited, will enable a gradual deepening of their understanding. We believe that learning is most effective with this spaced repetition and the interleaving between topics and frequently revisiting them, aids long term retention.

Teachers will utilise real life examples, a variety of mediums and a range of teaching styles in order to develop their understanding of D&T so that children are increasingly able to design, make, evaluate and improve their own ideas.

Impact

Because learning is a change to long term memory it is impossible to see impact in the short term. However, we do use probabilistic assessment based on deliberate practise. This means that we look at the practices taking place to determine whether they are appropriate, related to our end of key stage goals. We use comparative judgements against Milestone statements, in the tasks we set (POP tasks) and in tracking students' work over time. We use lesson observations to see if the pedagogical style matches our depth expectations.

Impact is also measured through key questioning skills built into lessons, child-led assessment against the objective (WAGBA), and summative assessments aimed at targeting next steps in learning.

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Year Group	Cycle	Autumn <i>Threshold Concepts</i> <i>Knowledge Categories</i>	Spring <i>Threshold Concepts</i> <i>Knowledge Categories</i>	Summer <i>Threshold Concepts</i> <i>Knowledge Categories</i>
3/4	A	<p>Structures: shell structure and CAD Cooking</p> <p><i>Master practical skills</i> <i>Design, make, evaluate and improve</i> <i>Take inspiration from design throughout history</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>	<p>Food: Healthy balanced diet</p> <p><i>Master practical skills</i> <i>Design, make, evaluate, and improve</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>	<p>Mechanical Systems: pneumatics Cooking</p> <p><i>Master practical skills</i> <i>Design, make, evaluate and improve</i> <i>Take inspiration from design throughout history</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>
	B	<p>Textiles: 2d and 3D product</p> <p>Electrical Systems: simple circuits and switches (inc programming and control)</p> <p><i>Master practical skills</i> <i>Design, make, evaluate and improve</i> <i>Take inspiration from design throughout history</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>	<p>Mechanical Systems: Levers and Linkages Cooking</p> <p><i>Master practical skills</i> <i>Design, make, evaluate, and improve</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>	<p>Cooking Programming</p> <p><i>Master practical skills</i> <i>Design, make, evaluate, and improve</i> <i>Technical Knowledge / Practical Knowledge / Design inspiration / Design Process</i></p>

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Years 3/4 Teaching Sequence for DT (Milestone 2) CYCLE A

Weeks	Autumn Term	Spring Term	Summer Term
Topic Title:	Construction: Shell structure	Food: Healthy balanced diet Cooking	Mechanics: Pneumatics Cooking
1	Construction/Technical knowledge/ Practical knowledge: What are shell structures. Introduce different features of shell structures and explore their purpose. Look at famous constructions from history. Look at different ways (finger fluency) Practise shaping: <i>score and bend, score and bend and curve, bend and curve</i> P249 - 261	Food/Technical knowledge/ Practical knowledge: Discussion – what makes a healthy diet? Finger fluency: Introduce claw grip, bridge grip, juicing, crushing and blending and where you would choose to use each method. Practise each method. List the foods that would be best to use bridge or claw grip. P279 - 2841	Mechanics Technical knowledge: Introduce pneumatics – what are they and give examples. P225 Vocabulary: pneumatic / compressed / pressure / hydraulic Pistons and hollow cylinders
2	Retrieval	Retrieval	Retrieval
3	Construction/ Practical knowledge: Practise joining: Flange, slots, tab, single foot hold, Double foot hold. P261	Food/Practical knowledge/Design inspiration: experiment with different making fruit smoothies to compare. Draw/annotate diagrams of ingredients + smoothies, explaining which ones were preferred and why. Design own smoothie with a partner based on preferences P281	Mechanics/ Practical knowledge: Apply knowledge of levers and frame structures to practise making a pneumatic hydraulic system eg butterfly on P228
4	Retrieval	Retrieval	Retrieval
5	Design/Design inspiration: a cardboard chair, consider different ways to shape and join for desired effect. Use computer program to aid design. P265 - 268	Food/ Design process: Make own smoothie and taste test. Consider opinions of others.	Mechanics/ Design inspiration: Look at existing products from now and in the past. Look at labelled image (P230) Design own hydraulic or pneumatic lifting device. P232 - 235
6	Retrieval	Retrieval	Retrieval

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7	Make design/Design process: a cardboard chair	Food/ Design process: Make soup: Purpose is to prepare a quick and inexpensive hot vegetable soup.	Make design/ Design process: Pneumatic lifting mechanism. Evaluate and amend throughout.
8	Retrieval	Retrieval	Retrieval
9	Make design/Design process : a cardboard chair. Amend and improve.	Balanced diet + Safe Food Storage Technical knowledge: What is a balanced diet and what does it do for the body? Vocabulary to include: vitamins / nutrients / pulses / wholegrain / carbohydrates / protein / fibre / fat P305/307	Evaluate/ Design process: lifting mechanism. Photograph and written evaluation. What worked / could be improved?
10	Retrieval	Retrieval	Retrieval
11	Evaluate/Design process: what works well, what could be improved. What weight can it sustain? Put photo into books.	POP TASK – List the 5 main food groups. Explain why we should limit fat intake. Describe a balanced meal. Describe your favourite meal and how does it compare? How could you change it?	POP TASK – What is a pneumatic mechanism? Define compressed What is a hydraulic mechanism? List examples from everyday life
12	POP TASK – Write instructions to explain how to shape and join cardboard. Include vocabulary from the topic.		

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Years 3/4 Teaching Sequence for DT (Milestone 2) CYCLE B

Weeks	Autumn Term	Spring Term	Summer Term
Topic Title:	<p>Textiles/Materials: 2D and 3D product</p> <p>Electricals and Electronics: simple circuits and switches (inc programming and control)</p>	<p>Mechanics: Linked levers and Linkages</p> <p>Seasonal Food</p>	<p>Cooking</p> <p>Programming</p>
1	<p>Textiles/Technical knowledge/ Practical knowledge: Explore a range of different soft purses, socks, slippers etc. Discuss how the materials are joined? 3D products can be made by joining two identical 2D shapes. Practise by cutting 2 squares of material accurately and safely, using appropriate tools. Join them using appropriate stitching (cross/back stitch). Understand need for seam allowance. (Nat Curric)</p>	<p>Mechanics/Technical knowledge: Introduce Linked levers and pivots. Describe, define, draw. Vocabulary: pivot, fulcrum, linear, rotary, reciprocating, oscillating. P209</p>	<p>Food: Evaluate dips/Design inspiration: Look at a variety of dips that can be bought. Evaluate them and consider best elements of each. Write up evaluations. P293</p>
2	Retrieval	Retrieval	Retrieval
3	<p>Design/Design inspiration: a purse or wallet. Look at products available now and from the past to compare. Decide on shape, decoration on material. Draw label stitching/colours/how it will close.</p>	<p>Mechanics /Technical knowledge/ Practical knowledge: Use knowledge of linked levers to design a hand held linked lever. Annotate design and how it will work. Possibly use computer-aided design on iPad program P211 - 213</p>	<p>Dips/Design inspiration: complete own produce outline for own dip. P294-297</p>
4	Retrieval	Retrieval	Retrieval
5	<p>Make Design process purse/wallet. Ensure cutting materials accurately, measure/mark out to the nearest mm, apply appropriate</p>	<p>Mechanics/Design process: Make planned design, evaluate and amending as necessary.</p>	<p>Make/ Design process: Make own dip. P298 Evaluate: including opinions of others.</p>

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	cutting/ shaping/stitching . Select appropriate joining techniques. Select appropriate techniques to decorate textiles. Evaluate/: Does it hold coins? Does it close appropriately? Are you happy with the design? What do others think of your design (peer assessment). What would you do differently next time?		
6	Retrieval	Retrieval	Retrieval
7	Electricals/Technical knowledge/ Practical knowledge : Introduce paper circuits using LEDs, switches, batteries. Consider both types of switches – push / close page. Look at series / parallel circuits. P191-192	Evaluate/Design process: Stick design into book if appropriate (or photo) evaluate mechanism and state what worked/didn't work.	Cooking/Practical knowledge: Make Broccoli Slaw. Ensure accurate weighing of ingredients and note different methods for each part of the cooking process. https://www.tasteofhome.com/recipes/broccoli-slaw/
8	Retrieval	Retrieval	Retrieval
9	Electricals/ Practical knowledge/ Design inspiration: Practise (finger fluency) Using LEDs and artwork in different ways, add interesting effects and enhance look. Look at other designs. P194	POP TASK – Describe the purpose of linked levers. What does pivot mean? Define 'fulcrum'. Describe these movements: linear, rotary, reciprocating. Oscillating. P210	Use programming/ Practical knowledge: Apply understanding of computing to program, monitor and control their products. (Nat Curric) P173-189
10	Retrieval	Retrieval	Retrieval
11	Design/ Design inspiration a paper circuit birthday card. Include labelled diagram as to how circuit will work, be placed and work. P198 Make/ Design process	Cooking/Nutrition/Practical knowledge/ Design process: Seasonal food. Explore foods appropriate for different seasons and how preparation may change. Design a main meal and dessert for 2 contrasting seasons. P 309-310	Use programming/ Practical knowledge: Apply understanding of computing to program, monitor and control their products. (Nat Curric) P173-189
12	Make/ Design process: birthday card that uses a paper circuit to light an LED. Amend and improve design whilst working through design.		Retrieval
13	POP TASK – What tools would you use to appropriately cut material? What safety elements do you need to be aware of and act accordingly for? What joining techniques work well with different textiles? Why do you need a seam allowance? What does conductive		POP TASK – based on programming.

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It's time to shine!

	<p>mean? What is an LED? Describe how an LED should be connected to a cell. Draw annotated diagram to show the correct way to connect an LED to a cell.</p>		
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