



DESIGN AND TECHNOLOGY AT DODFORD FIRST SCHOOL

Achieve, Believe, Create and Fly High

Intent

Our Vision

At Dodford First School, pupils use their creativity and imagination to design and make products that solve problems in a range of contexts. They draw on the disciplines of other subjects such as: mathematics, science, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. They evaluate notable designers and existing products inspire them to create their own ideas and designs.

Curriculum Drivers

Achieve - *Have high aspirations, striving for success and never giving up. You can learn anything you want to!*

Believe - *Believe in yourself and value your own self-worth. To keep trying even when it is hard; learn from others and your mistakes.*

Create - *Action your thoughts and bring something into existence. Allow your creativity to flow; investigate, experiment, and invent.*

Fly High - *Have the courage to embrace new experiences and take risks. Share your knowledge with others. Enable yourself to flourish.*

Characteristics of a Designer

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.

- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

Implementation

The teaching of Design and Technology through the school follows the National Curriculum and the Chris Quigley progression of skills. Our pupils should be able to organise their knowledge, skills and understanding around the following three key learning hooks:

- Master practical skills
- Design, make, evaluate and improve
- Take inspiration from design throughout history

These key concepts or as we like to explain them to children – learning hooks, underpin learning in each milestone. This enables pupils to reinforce and build upon prior learning, make connections and develop subject specific language across our spiral curriculum. Pupils will be taught three sequences of learning for design and technology each academic year. At the start of each Design and Technology learning sequence, pupils will be given the opportunity to research products and/or famous designers/architects. They will pull strands from this research to create their own products.

Planning stages for each DT product/learning sequence

Teachers will guide pupils through the following stages:

Research – Before making a product pupils will research existing products. Are there history links? Can you find a famous designer/architect/engineer?

Inspire – Pupils will examine and evaluate real life examples or pictures of the product. This helps promote ideas for their product.

Design – Pupils will generate designs and think about possible materials and techniques required to make the product.

Make – A final design will be selected and refined. Pupils will select their materials and equipment in order to create their product.

Break and Re-think – Throughout the whole process, pupils should be encouraged to study their design and decide if any necessary changes and adaptations required, that will improve their product.

Computing – Pupils will use technology where appropriate to aid the design process.

Early Years Foundation Stage

During the EYFS, pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunities to learn to:

- Use different media and materials to express ideas
- Use what they have learnt about media and materials in original ways, thinking about form, function and purpose
- Make plans and construct with a purpose in mind using a variety of resources
- Develop skills to use simple tools and techniques appropriately, effectively and safely
- Select appropriate resources for a product and adapt their work if necessary
- Cook and prepare food adhering to good health and hygiene routines

Key Stage One and Two

The vertical accumulation of knowledge and skills from Years 1 to 4 is mapped as follows:

| Threshold Concept Key Skills | Milestone 1 Years 1 and 2 | Milestone 2 Years 3 and 4 |
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| Master Practical Skills: Food | <ul style="list-style-type: none">• Cut, peel or grate ingredients safely and hygienically.• Measure or weigh using measuring cups or electronic scales. | <ul style="list-style-type: none">• Prepare ingredients hygienically using appropriate utensils.• Measure ingredients to the nearest gram accurately.• Follow a recipe. |

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| | <ul style="list-style-type: none"> • Assemble or cook ingredients. | <ul style="list-style-type: none"> • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking) |
| Master Practical Skills: Materials | <ul style="list-style-type: none"> • Cut materials safely using tools provided. • Measure and mark out to the nearest centimetre. • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen) | <ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools. • Measure and mark out to the nearest millimetre. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). • Select appropriate joining techniques. |
| Master Practical Skills: Textiles | <ul style="list-style-type: none"> • Shape textiles using templates. • Join textiles using running stitch. • Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing). | <ul style="list-style-type: none"> • Understand the need for a seam allowance. • Join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles. |
| Master Practical Skills: Electricals and electronics | | <ul style="list-style-type: none"> • Create series and parallel circuits |

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| <p>Master Practical Skills: Computing</p> | <ul style="list-style-type: none"> • Model designs using software. | <ul style="list-style-type: none"> • Control and monitor models using software designed for this purpose. |
| <p>Master Practical Skills: Construction</p> | <p>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</p> | <ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques. |
| <p>Master Practical Skills: Mechanics</p> | <ul style="list-style-type: none"> • Create products using levers, wheels and winding mechanisms. | <ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). |
| <p>Design, make, evaluate and improve</p> | <ul style="list-style-type: none"> • Design products that have a clear purpose and an intended user. • Make products, refining the design as work progresses. • Use software to design. | <ul style="list-style-type: none"> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design. • Use software to design and represent product designs. |

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| <p>Take inspiration from designs throughout history</p> | <ul style="list-style-type: none"> • Explore objects and designs to identify likes and dislikes of the designs. • Suggest improvements to existing designs. • Explore how products have been created. | <ul style="list-style-type: none"> • Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. • Improve upon existing designs, giving reasons for choices. • Disassemble products to understand how they work |
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Impact

Children will have a clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum. They will ultimately know more, remember more and understand more about Design and Technology, demonstrating this knowledge when using tool or skills in other areas of the curriculum. The large majority of pupils will achieve age related expectations in Design and Technology. As designers, children will develop skills and attributes they can use beyond school and into adulthood.

Assessment

Through the explicit teaching of the Design skills, both the teachers and the pupils assess their learning continuously throughout the lesson. Our assessment systems enable teachers to make informed judgements about the depth of their learning and the progress they have made over time.

Pupil Voice

"I like DT lessons. We've just made bridges out of wood. I learnt lots of skills like measuring and sawing. We had to evaluate and make our bridges better." Owl Class

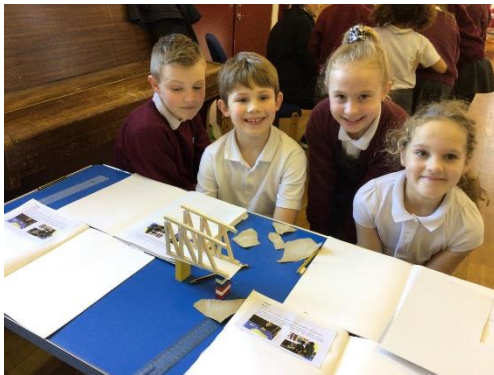
"The STEM project was interesting. We take part every year. This year I made a robot to collect packages in a warehouse." Owl Class

"It's really fun. You design and make stuff. Last time we made a chair for Queen Teddy." Robin Class

Snapshots

Here is what Design and Technology looks like at Dodford First School:

Some examples of finished projects:



Ac construction project in action in the Reception classroom:



Disclaimer: This has been developed with reflection upon the National Curriculum (2014) and [Chris Quigley's Essential Curriculum](#).