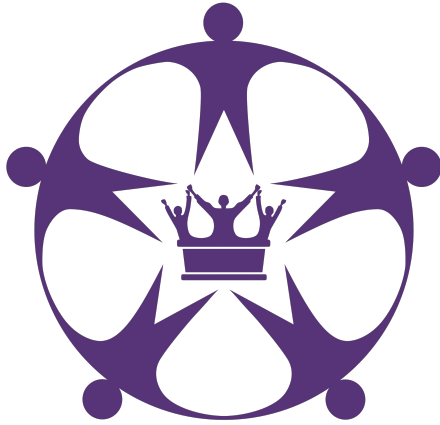




Design Technology at Tyndale Community School

Subject Intent



We strive to cultivate innovative, creative, and critical thinking skills in our pupils.

Our goal is for students to achieve a high level of proficiency in Design and Technology, enabling them to pursue careers in this field and apply their knowledge in everyday life. By harnessing creativity and imagination, and drawing inspiration from existing products and designs, pupils create items relates to the real world across various contexts, taking into account the needs, wants, and values of themselves and others. We aim for students to understand and appreciate the innovative design cycle of designing, making, and evaluating through their projects.

The Design and Technology curriculum is structured to provide clear progression of skills and sequential learning, allowing pupils to build on their previous knowledge. Cross-curricular links with subjects such as Science, Maths, and Art are identified and utilised to enhance the Design and Technology curriculum. Students will develop an awareness of the impact of Design and Technology on our lives and be encouraged to become resourceful, enterprising, and innovative citizens. This curriculum equips them with the skills necessary to excel in the subject and contribute meaningfully to the wider world. The DT curriculum is designed to meet the national curriculum's key stage attainment targets, fostering investigative and problem-solving skills.

Subject Implementation



Students at Tyndale are exposed to all areas of the DT curriculum, including mechanisms/mechanical systems, structures, textiles, cooking and nutrition (Food), electrical systems, and programming. Each area taught follows the process of designing, making, and evaluating and is aligned with a carefully chosen topic as part of our Enquiry Led Curriculum.

Children are given opportunities to work both independently and collaboratively to research, design, make, and evaluate. Each aspect of DT is evenly distributed throughout the primary years, ensuring pupils access a broad and balanced curriculum. From Year 1 to Year 6, at least three DT units are allocated on the timetable each year.

Parents and carers are involved in celebrating students' Design and Technology achievements through exhibitions and showcases. Building connections with the community is highly encouraged and we strive to make valuable contributions to those around the local area as well as making use of the services of others.

Subject Overview				Community	Culture and Identity	Innovation
	Autumn 1	Autumn 2	Spring 3	Spring 4	Summer 5	Summer 6
Y1	What is the best material to make a toy from?	What makes a good King or Queen?	How do artists make a stand?	What is it like to live in the UK?	What would it be like to live on water?	What makes me, me?
DT	Mechanisms: Wheels and axels	Sliders				Cooking and Nutrition
Y2	What do we need to live a rewarding life?	Will it always be this way?	What makes Oxford University one of the best in the world?	Would my life look the same if I lived somewhere else?	What belongs in an Oxford garden?	How is music made?
DT	Cooking and Nutrition: A health lunchbox	Textiles	Free Standing Structures			
Y3	How do you recover from a natural disaster?	How did our story begin & how can we continue to tell it?	What does sustainable living look like?	How can we build a life on firm foundations?	How can we be of service?	What does it take to become an olympian?
DT	Stable Structures		Architectural Design	Levers and linkages (moving books)	Cooking and nutrition - community cafe	



Y4	Is true democracy possible?	How much is too much?	How can we be a source of light in the darkness?	Could robots replace us?	Do the ends always justify the means?	Who & what should be celebrated through art?
DT		Textiles and sewing - repurposed materials to create a pencil case/coin pure or similar. History & use of Sashiko to decorate.	Cooking & Nutrition - Bread	Computer Programmed Electrical Models		
Y5	Is water ever truly pure?	Could humans ever live in space?	What is the lasting impact of an empire?	Why is our world worth saving?	Has Oxford always been a place of innovation?	Is Mythology still important today?
DT		Mechanical Systems - Gears & Pulleys - An invention to support human life on another planet	Cooking & nutrition - dishes regularly eaten in the UK which come from countries that were part of the British Empire		Mechanical Systems - Cams	
Y6	How did we all get here?	Is there only one way to worship?	How will we power our world now & in the future?	How do artefacts help to form identities today?	How can we live a life rich in colour?	How can we be a positive force for change?
			Electrical Circuits & Switches - Design a more complex switch and circuit system to solve a	Sewing - stitching, joining fabrics & finish techniques. Patches for a class		

Subject Assessment Framework



Concept Strands		Y1:	Y2:	Y3	Y4	Y5	Y6
DESIGN		I can use my own ideas to make something	I can describe how an existing product works	I can use ideas from other people when I am designing	I can design a product and make sure that it looks appealing	I can come up with a range of ideas after collecting information from different sources	I can use market research to inform my plans and ideas
		I can make a simple plan before making	I can think of an idea and plan what to do next	I can create an annotated sketch of my design	I can produce a plan and explain it I can design using a cross sectional and exploded diagram	I can make a prototype before I make a final version and use this to edit my plan	I can follow, refine and justify my plans in a meaningful way I can show my design using computer aided design
		I can ask questions about an existing product	I can improve a product by adding decoration	I can deconstruct a product, investigating and identifying the key components for it to work successfully.	I can deconstruct two of the type of product and compare the components that are used, identifying what is the same and what is different between them.	I can deconstruct multiple example products to analyse why it works well, evaluating them against a set of success criteria for that product	I can deconstruct multiple example products to analyse why it works well, creating success criteria for my own version of the product.
		I can choose appropriate resources and tools.	I can explain why I have chosen specific materials	I can explore and make selections from different tools and techniques	I can explore a range of materials, tools and techniques and select that which is most fit for purpose	I can use a range of tools and materials competently	I can use a range of tools and materials, justifying my choice of technique with them

Subject Assessment Framework



MAKE / TECHNICAL KNOWLEDGE

<u>Textiles</u>	I can colour and decorate a product (adding sequins, dying, printing). I can understand what textiles are.	I understand how to join textiles together. I can join using a running stitch.		I can choose a textile for both its suitability and its appearance. I can add different fastenings or embellishments (buttons/velcro/sequins)	I can understand and use a seam allowance. I can join using blanket stitch	I can join textiles with a variety of stitches, embellishment and finishing techniques and select the appropriate material for the purpose
<u>Structures and Mechanisms</u>	- I can join materials and components in different ways. - I can use wheels and axles in a product	I can measure materials to use in a model or structure I can make my model stronger. - I can use a mechanism in a product (levers or sliders)	I can use cams and gears to create movement in a product. Display my product at different stages of development so to receive constructive feedback.	I can apply the use of pulleys and levers systems to create a working machine	Explore different techniques of attaching materials to create a structure I can apply the use of gears to allow a smaller force have a greater effect	
<u>Electrical Systems</u>				I can create a series circuit to operate a buzzer or bulb		I can apply my understanding of electrical and mechanical components to create a working product
<u>Food</u>	- I can discuss what healthy foods are - I can cut food safely	- I can explain the need for variety of food in a diet - I can describe ingredients I am using	I can propose a balanced meal for a restaurant based on my understanding of protein, carbohydrates, fats, vitamins and minerals.	I understand the consequences of an unbalanced or unhealthy diet		I can select ingredients that will come together to create a balanced meal
	- I can say where some food comes from and give examples of where food is grown	- I can explain that all food has to be farmed, grown or caught	I can prepare a variety of vegetables using peeling, chopping and slicing techniques	I can follow a recipe to accurately weigh out ingredients for and cook a savoury dish		I can prepare a balanced recipe of my own making by selecting all necessary equipment and techniques
			I can explain how farming began, the basic principals and its necessity for humans	I can explain the process of farming cacao beans from start to finish	I can locate ingredients on a package and understand that some of these are located outside of the UK	
			I can select appropriate ingredients for a particular recipe			

Subject Assessment Framework



EVALUATE

- I can explain what went well with my work

I can explain how I would improve my work if I were to repeat the product

I can identify positives and areas for improvement in a product I have created

I can take on feedback from others and explain how it will influence the development of a product

I can generate my own design criteria and critique my own product and the products of others against it

I can give feedback on a product my peers have made

I can identify areas of weakness within a structure I have made

I can evaluate how different chefs design menus

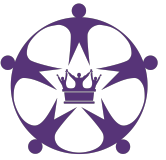
I can evaluate how the work of Joseph F. Engelberger influenced the world of robotics today

I can evaluate development of the modern observatory from the first optical telescope constructed by Galileo Galilei

How we measure progress



- At the start of each unit, we ask pupils to recall previous learning related to the strand and discuss upcoming topics with them.
- After each design project, we give children time to self and peer evaluate their progress against the learning objectives and reflect on ways to improve.
- Teachers employ specific, targeted questioning to assess students' understanding of both skills and content.
- Collaborative work and discussion are integral to the DT projects during the design, make, and evaluate stages, providing opportunities for children to share their views and make decisions together.
- We are in the process of developing our Makerspace, an area within the school which will provide students with further designing and creating opportunities. This will enable students to explore work across other year groups and provide valuable feedback.



Examples of Learning

In KS1

Term 4 Week 4

DT Walt: safely measure, mark out, cut and shape materials and components using a range of tools

Science Walt: identify and compare the suitability of a variety of everyday materials and then evaluate.

In a small group, we began by learning about different ways to cut out and shape materials to create our own mini houses using a range of materials and tools. After this, we identified and compared the suitability of everyday materials by investigating whether they were waterproof and sturdy for going outside. We used water and the wind to test this. We observed the investigation and then evaluated how it went.



Challenge:

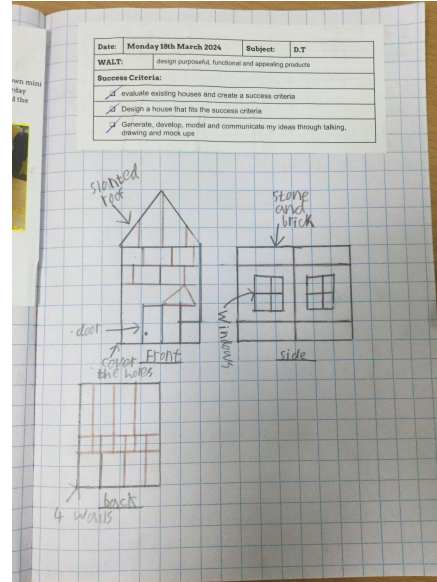
- 4) What is your hypothesis?
- 5) What happened in the science experiment?
- 6) What did you find out?

1) Some houses will get demolished because they are not suitable and waterproof.

2) some houses were destroyed.

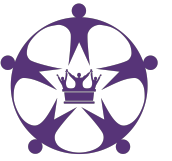
3)

- Waterproof materials on your house.
- No holes in your house.
- 4 walls to make it strong
- A sloped roof.



Year 2 - investigating and evaluating the suitability of materials to use for creating mini houses.

Examples of Learning



In KS2



Year 4 - Textiles - use of sewing and embellishments to make decor



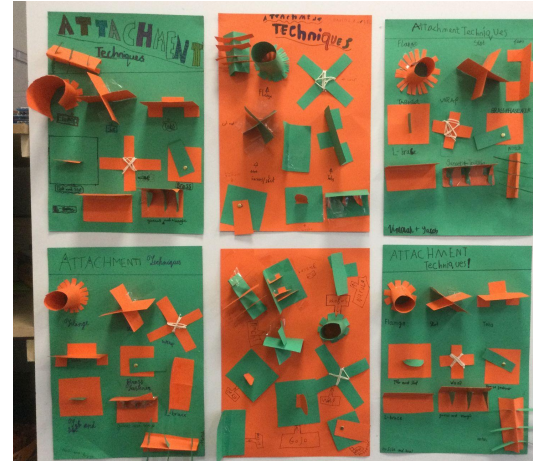
Year 6 - Periscopes



Year 3 - Cam mechanisms to show a natural disaster occurring.

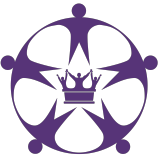


Year 3 - roller coaster structures to create a force

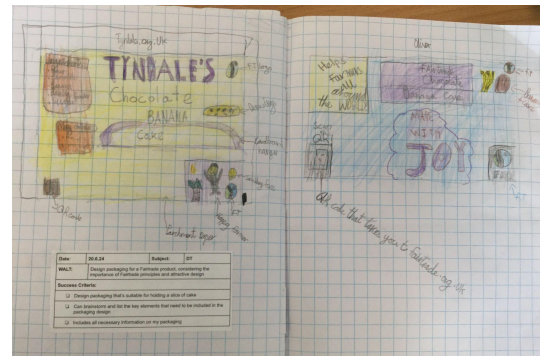


Year 5 - attachment techniques

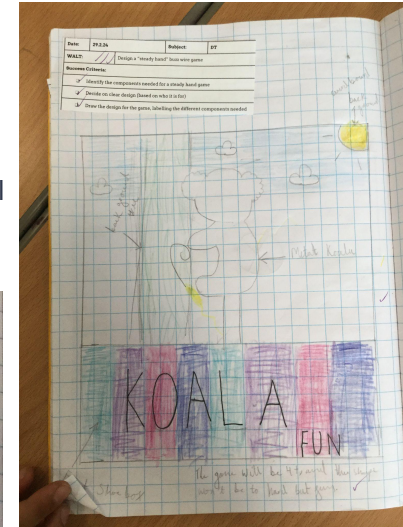
Examples of Learning



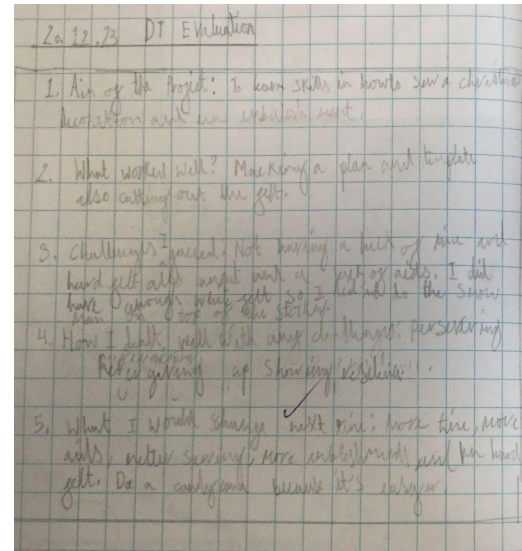
In KS2



Year 4 - Designs of an electrical game, and a fairtrade product.



Year 4 - an evaluation of the ornament sewing.





What our children say about DT:

"I think DT is exciting because we got to learn how to sew, we were able to learn important life skills" - Iyla, Y4

"It's exciting because we made a steady hand game. We started by designing our own box, then built it using metal and technology. It took us a long time and it was really hard but we kept going, and we got to show it to our parents in an exhibition" - Oliver, Y4

"I thought it was fun designing our castle, even though we didn't end up building it the same way! Things don't always look how we want them to! We learned about ways to attach the card together, and used those - then after we finished the castle, we discussed what went well and what we could have done differently" - Arjun, Y5

"We started by learning how they worked, we drafted what our own periscope would be like and used a protractor to measure the angle of the mirrors, so we had to do maths too. After creating them, we tested them. If they didn't work, we fixed them and then when they were evaluated" - Lily and Thor, Y6

“In Literacy we have been writing about the Wright flyer. Its’ wings were made of muslin and it’s held together by ash and spruce, and the engine of steel. We then discussed what we’re going to make our own planes out of” - Oscar, Leo and Peter, Y2

“When we made houses, we learned about them and thought about the materials we would need. I think DT is interesting because there are so many different things we need to do to make something” - Leo, Y2

“We made clay pots, made some of them into a ball, and left them to dry. It was really fun because I like making things” - Abi and Maya, Y1