DT at
Worth Valley Primary School

Why we teach Design & Technology at Worth Valley Primary School

At Worth Valley Primary School we inspire creativity and foster innovation among our children. We embrace the KAPOW scheme to cultivate practical skills and encourage problem-solving abilities through hands-on learning experiences. DT at our school integrates seamlessly with other subjects, reinforcing mathematical concepts through measurements and scientific principles in investigations.

At Worth Valley Primary School, DT is not just a subject but a pathway to equipping our children with the skills and mindset to thrive in a dynamic and technological world.

Through our curriculum children will:

- Develop creativity and innovative thinking skills through hands-on design and construction projects.
- Gain practical experience in using a variety of materials and tools.
- Foster critical thinking by analyzing problems, evaluating solutions, and making informed decisions to refine designs.
- Encourage collaboration and communication among peers, promoting teamwork and effective sharing of ideas and processes.

Our values

One team	Respect	Trust	High expectations	Community
In DT we work on collaborative projects which require effective communication. Children learn to support each other, sharing ideas and responsibilities towards shared goals. They celebrate achievements together, learning from each other's strengths and building a supportive environment that enhances teamwork and prepares them for future challenges.	Respect in DT is fostered by acknowledging and appreciating each other's contributions, actively listening to diverse perspectives, valuing individual differences, and providing constructive feedback. Creating a supportive and inclusive environment ensures that everyone feels respected and encouraged to contribute their best efforts.	Trust in DT is developed as children rely on each other to fulfill their roles and responsibilities. It involves believing in the capabilities and intentions of team members and maintaining integrity in collaborative efforts. Establishing trust creates a cohesive environment where children feel confident in sharing ideas and working together towards common goals.	High expectations in DT drive students to strive for excellence in their designs and problem-solving skills. It challenges them to set ambitious goals, persevere through challenges, and consistently deliver their best work. Setting high standards encourages students to push their boundaries and achieve impressive outcomes in their DT projects.	DT connects students with their local community and prepares them for future careers by emphasizing collaboration and practical skills. It encourages students to engage with local businesses and experts, gaining insights into real-world applications of design and technology. Building strong community ties enriches the learning experience.

Key Concepts

The key concepts in DT are covered in every topic, children will use and understand the key concept being taught which will help them to develop a love for DT. The key concepts identified in DT are:

Design	**Make**	**Evaluate**	**Innovation**	**Measure**
The process of creating a plan or drawing of something before it is made. It involves thinking about how something will look, work, and be put together even before it exists.	The exciting process of creating something by hand. When we 'make' something, we use our imaginations, skills, and tools to turn ideas into real objects!	To carefully look at something you have made and decide if it is good or if it can be improved.	Coming up with new ideas or ways of doing things that can be useful or make things better.	How big or small something is or how much there is of something. We use measurements to compare, order, and describe things accurately.

Second order concepts

In DT our second order concepts encourage children to think critically and creatively about their designs and the world around them.

Responsibility	**Cause and Effect**	**Similarities and differences**	**Significance**	**Written and oral expression**
Working safely, how design can solve problems, choosing the right materials, responsibilities to customers to ensure quality / reliable products, healthy eating, quality ingredients	Identifying how things work, how an action can cause change/movement	Making comparisons, noting differences and drawing conclusions	Significant designers and designs, real world examples of effective and successful products	Using terminology, evaluating, creating accurate designs, labelling and annotating, explaining processes, presenting

Curriculum Delivery

At Worth Valley Primary School, Design and Technology (DT) is delivered through the KAPOW scheme, which structures termly lessons designed to progressively develop students' skills and understanding. Weekly lessons build on previous knowledge, allowing pupils to explore a range of topics and techniques, from product design to textiles and electronics. Each year group is actively involved in food and nutrition sessions planned throughout the year, culminating in hands-on cook-and-eat events where students collaborate with their parents and carers. These sessions not only teach essential cooking skills and promote healthy eating but also strengthen community bonds, making DT a vibrant and engaging part of the school curriculum.

Curriculum Coverage

Our curriculum coverage in Design and Technology (DT) using the combined long-term plan from KAPOW for Art and DT ensures that skills are progressively built upon from EYFS through Year 6. This approach provides children with a strong foundation and the necessary tools to equip them for future challenges. While food and nutrition are integrated into the EYFS curriculum, students from Years 1 to 6 participate in dedicated whole-day sessions every half term, focusing on food and nutrition. During these sessions, parents are invited to join their children, fostering a community spirit and allowing students to share their creations. Each half term, a different year group engages in these sessions, ensuring comprehensive coverage and a continuous development of culinary skills. This structured plan is meticulously integrated into the school diary annually, emphasizing our commitment to holistic education and practical life skills.

Long Term Plan

	Autumn	Spring	Summer
Pre-school	Christmas crafts	Outdoor collage	Photo frame
Nursery	Pumpkin Soup (Cook and Eat)	Flower Threading	Structures: Junk Modelling
Reception	Food & Nutrition: Rainbow Salad (Cook and Eat)	Textiles: Bookmarks	Structures: Boats
Year 1	Structures: Constructing a windmill	Textiles: Puppets	Mechanisms :Making a moving story book
Year 2	Structures: Baby Bear's Chair	Mechanisms: Fairground Wheel	Mechanisms: Making a moving monster
Year 3	Structures: Constructing a castle	Digital World: Wearable technology	Mechanical Systems: Pneumatic Toys
Year 4	Structure: Pavillions	Electrical Systems: Torches	Mechanisms: Making a slingshot car
Year 5	Electrical Systems: Doodlers	Mechanical Systems: Pop-up book	Structure: Bridges
Year 6	Textiles : Waistcoats	Structure: Playgrounds	Digital World: Navigating the world

Food and nutrition

We have identified that some children do not have the opportunity to cook at home or to eat alongside their families. As a result, we teach food and nutrition separate to our DT long term plan. After a day of food technology our parents and carers are invited into school to sample the products made alongside their children. Our food and nutrition sessions are as follows:

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1: Smoothies	Year 2: A balanced diet	Year 3: Eating Seasonally	Year 4: Adapting a recipe	Year 5: Developing a recipe	Year 6: Come dine with me

EYFS end points

Topic	End Points
Structures	- Build simple structures using a variety of materials. - Understand basic principles of stability and balance in their constructions. - Explain the purpose of their structures and how they are designed to function.
Textiles	- Use basic sewing techniques to join fabrics. - Understand how different textiles can be used for different purposes. - Create simple textile products, such as a small bag or decoration.
Food and Nutrition	- Identify a variety of fruits and vegetables. - Understand the basic principles of healthy eating. - Prepare simple snacks, such as fruit salads, with minimal assistance.

Year 1 end points

Topic	End Points
Structures	- Build more complex structures using a variety of materials. - Understand and apply concepts of stability, strength, and balance. - Evaluate and improve their structures based on specific criteria.
Textiles	- Use simple joining techniques such as gluing, stapling, and basic stitching. - Understand the properties and uses of different textiles. - Create simple textile products, demonstrating accuracy and care.
Mechanisms	- Create moving mechanisms such as wheels and axles. - Understand how different mechanisms can produce movement. - Explain how their mechanisms work and how they can be improved.
Food and Nutrition	- Identify different fruits and their nutritional benefits. - Prepare simple smoothies using a variety of fruits. - Understand basic food hygiene and safety practices.

Year 2 end points

Topic	End Points
Structures	- Construct stable structures using a range of materials and techniques. - Understand the importance of joining methods and materials for stability. - Design and evaluate structures for specific purposes.
Mechanisms (Wheels and Axles)	- Create simple vehicles using wheels and axles. - Understand how wheels and axles work to create movement. - Evaluate and refine their designs to improve functionality.
Mechanisms (Levers and Sliders)	- Create simple products that use levers and sliders to create movement. - Understand the principles behind levers and sliders. - Explain how their products work and how they can be improved.
Food and Nutrition	- Identify and use a variety of ingredients to make balanced snacks. - Prepare simple, healthy snacks with supervision. - Understand basic food hygiene and safety practices.

Year 3 end points

Topic	End Points
Structures	- Design and construct more complex structures using a variety of materials. - Apply concepts of strength, stability, and rigidity to their constructions. - Evaluate their structures against specific criteria and suggest improvements.
Digital World	- Understand the basics of digital design and modeling. - Use simple software to create digital designs. - Explain how digital tools can aid in the design and production process.
Mechanical systems	- Create products that use pneumatic systems to create movement or perform tasks. - Understand how pneumatic systems work, including the use of air pressure. - Evaluate and refine their pneumatic products for improved functionality.
Food and Nutrition	- Identify seasonal foods and their availability. - Prepare simple dishes using seasonal ingredients. - Understand the importance of food seasonality and sustainability in their choices.

Year 4 end points

Topic	End Points
Structures (Pavilion)	- Design and construct a pavilion using a variety of materials and techniques. - Apply principles of stability, strength, and architectural design to their construction. - Evaluate their pavilion against specific criteria such as functionality, aesthetics, and durability. - Propose improvements to enhance the pavilion's design and performance.
Electrical Systems	- Create products that incorporate basic electrical circuits. - Understand the principles of electricity and how circuits work. - Safely wire and test simple electrical systems.
Mechanisms (Slingshot Car)	- Design and build a slingshot car using mechanical principles such as elastic potential energy. - Understand how the slingshot mechanism works to propel the car. - Test, evaluate, and refine the slingshot car for distance and accuracy.
Food and Nutrition	- Identify seasonal ingredients and their nutritional benefits. - Plan and prepare healthy dishes using seasonal foods. - Explore cultural and sustainability aspects of food choices.

Year 5 end points

Topic	End Points
Structures	- Design and construct bridges using appropriate materials and techniques. - Apply principles of structural engineering to ensure strength, stability, and load-bearing capacity. - Evaluate their bridges against specific criteria such as span, load capacity, and aesthetics. - Propose improvements to enhance the functionality and resilience of their bridges.
Electrical Systems	- Create doodling machines using basic electrical circuits. - Understand the principles of electricity and circuit design to power their doodlers. - Safely wire and test the doodling mechanisms for functionality and safety. - Explore creativity and innovation in designing and decorating their doodling machines.
Mechanical Systems	- Design and create a pop-up book using mechanical systems such as levers and sliders. - Understand the principles of mechanical movements and mechanisms to create interactive pop-ups. - Test and refine their pop-up book designs for smooth operation and visual impact. - Explore storytelling and creativity in the design and layout of their pop-up books.
Food and Nutrition	- Develop and adapt a recipe based on nutritional guidelines and dietary preferences. - Experiment with ingredients and cooking techniques to create a balanced and flavorful dish. - Present their developed recipe with consideration for taste, presentation, and nutritional value. - Reflect on the cultural and health implications of their recipe choices.

Year 6 end points

Topic	End Points
Structures	- Design and construct playground structures considering safety, accessibility, and play value. - Apply principles of structural engineering to ensure stability, durability, and aesthetics. - Evaluate their playground designs against specific criteria such as functionality, user needs, and environmental impact. - Propose improvements to enhance the safety and enjoyment of their playground structures.
Textiles	- Design and create waistcoats using appropriate textiles and sewing techniques. - Understand garment construction including pattern cutting, sewing seams, and finishing. - Evaluate their waistcoat designs for fit, comfort, and style. - Explore creativity and personal expression through textile design and decoration.
Digital World	- Use digital tools and maps to plan and navigate routes within local and global contexts. - Understand the principles of digital mapping, including GPS and online mapping software. - Apply geographic knowledge to solve navigation challenges and plan efficient routes. - Reflect on the impact of digital technologies on navigation and exploration.
Food and Nutrition	- Plan, prepare, and present a three-course meal considering nutritional balance and culinary skills. - Develop recipes and cooking techniques for each course, focusing on taste, presentation, and timing. - Demonstrate knowledge of cultural influences and seasonal ingredients in their menu. - Reflect on the sustainability and ethical implications of food choices in their meal planning.

Vocabulary across the curriculum

Throughout the KAPOW design and technology curriculum, vocabulary progression is thoughtfully integrated to align with students' growing knowledge and skills as they advance through the years. Initially, students are introduced to foundational terms that relate to basic concepts and processes in design and technology. As they progress through the curriculum, they encounter more specific and complex vocabulary, enabling them to describe materials, techniques, and design principles with greater precision. By upper Key Stage 2, students are equipped with advanced terminology that allows them to articulate their design ideas, evaluate products critically, and engage in discussions about technological innovations. This structured vocabulary development not only enhances their communication skills but also deepens their understanding of design and technology, preparing them for future learning and real-world applications.

You can find the vocabulary progression document below:

https://www.worthvalleyprimary.co.uk/wp-content/uploads/2024/10/DT-vocabulary.pdf

Cross-curricular

Design and Technology at Worth Valley Primary school serves as a cross-curricular subject that integrates various disciplines, enriching students' learning experiences. In DT, students apply scientific principles to understand materials and their properties, ensuring structures and mechanisms are stable and functional. This connection with science deepens their understanding of forces, motion, and energy transfer. Moreover, DT embodies STEM (Science, Technology, Engineering, and Mathematics) by engaging students in problem-solving activities that require mathematical reasoning, measurement skills, and logical thinking. In English, DT encourages effective communication through design briefs, evaluations, and presentations, enhancing literacy and communication skills. Additionally, DT overlaps with art as students explore creativity in designing and decorating products, integrating aesthetics with functionality. This interdisciplinary approach in DT not only equips students with practical skills but also cultivates their development across multiple subjects.

Curriculum for all

How do we cater for SEND?

At Worth Valley Primary School we believe in the potential of every child to succeed through our DT curriculum. Our DT topics emphasize collaboration and communication, fostering an environment where children can work cohesively as a team. During group tasks, students are encouraged to contribute their thoughts and ideas, actively participating in decision-making processes. When independent work is necessary, we adapt our approach to support each child's success, ensuring they have the resources and guidance needed to thrive. This approach not only develops technical skills but also cultivates teamwork, problem-solving abilities, and resilience in our students.

Personal Development in DT

At Worth Valley Primary School, personal development in Design and Technology is cultivated through engaging and hands-on learning experiences. Our DT curriculum encourages students to explore their creativity, problem-solving abilities, and resilience. Through designing, making, and evaluating their projects, students not only develop technical skills but also gain confidence in their abilities to innovate and overcome challenges. DT lessons promote critical thinking and decision-making as students learn to assess their designs, adapt to feedback, and refine their solutions. By nurturing a growth mindset and encouraging independence, DT at Worth Valley Primary School equips students with valuable life skills that extend beyond the classroom, preparing them for future academic and personal success.

Assessment

At Worth Valley Primary School, formative assessment in DT plays a crucial role in monitoring and enhancing student progress. By aligning with the end points of our DT curriculum, we systematically evaluate whether children have successfully achieved key skills and concepts. This involves identifying areas where students excel and demonstrating proficiency, as well as pinpointing skills that require further development. Through ongoing assessment, we provide targeted oral feedback that supports students in refining their designs, improving technical abilities, and enhancing problem-solving strategies. This approach not only guides instructional decisions but also empowers students to recognize their strengths and areas for growth.

Enrichment

At worth Valley primary school we believe that enrichment is the key to memorable, effective learning. Opportunities are sought to provide the children with access to places of design and technological significance and learning outside the classroom within our units of work. We also seek to provide access to people with specialist design and technology skills from the local and wider community to enrich the Design and Technology curriculum.

We have a variety of clubs within school that focus on the skills learnt through Design and Technology. Our sewing club is very popular; children enjoy designing products, learning new techniques and making a final product. Our after-school craft club uses a variety of media to design and create a variety of different products.

Pupil Voice

What do our children say about DT?

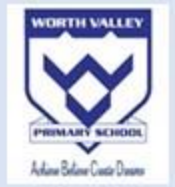
" I love learning about food and cooking in DT"

" We built bridges in DT, it was so fun! We learnt how to measure and use a saw correctly”

"DT is my favourite lesson"

" I like to be creative and design new things! "

" I learnt how to sew and embellish"



Kapow Primary

D&T the design and technology association

The STEM HUB