

A Guide to Design Technology at Raynville Academy



*Design it
your way!*

This document outlines the expectations of how we teach and monitor the Design Technology Curriculum at Raynville including progression across year groups and consistency across the school.

Teaching Design Technology at Raynville Academy

Design Technology Curriculum Statement

The Design Technology Curriculum at Raynville Academy has been designed in accordance with the National Curriculum. It is created in collaboration with the Design and Technology Association; the organisation which provides DT Advice for all primary and high schools throughout Britain. Raynville Academy is a member of this association.

What the Curriculum Does

Design Technology is an inclusive subject allowing all children to succeed. It is an integral part of Raynville's rich curriculum offer and is unique in that it utilises skills from many other disciplines. Design Technology goes a long way towards meeting the social needs of our children to be independent, resilient and self-sufficient. It contributes to them making healthy food choices and understanding how their food is made. It reflects the needs of our families in times of economic hardship, teaching them how to be perceptive consumers and to be resourceful in the way they look after and repair their own possessions.

Thirty percent of all employment opportunities relate directly to D.T. from hairdressing, manufacturing, and design to plumbing. The children can often see a direct correlation between their own families and the work they do in Design Technology, helping to forge links between home and school, engendering the confidence that their home lives are respected by school. For this reason it is an important element of the Foundation Subjects within the National Curriculum.

D.T. requires perseverance, problem solving and collaboration. In addition to developing independence, it gives the children a sense of satisfaction and teaches them to evaluate their work.

Design Technology is likely to become even more essential in years to come as the world works towards using sustainable raw materials and reusing and repurposing unwanted items.

DT embraces all of these skills and disciplines:

Creative, technical, practical, Maths, lesson for life, resilience, English, problem-solving, multi-disciplinary, Science, Art, discussion, skilled-speaking, initiative, active listening, collaboration, cutting, evaluation, independence, sense of pride, skilled sticking, estimation, ownership, measuring, planning

As pupils progress through our curriculum they will refine their product analysis, design, making and evaluation skills. Their products will link more directly to products their families use at home and they will begin to understand the history of design as well as having opportunities to forge links with industry.

The special feature of Design Technology is that within the parameters of the task each child's product will be unique. They will decide the consumer and to some extent will determine what materials they want to use. The finished product reflects their skills, care, and creativity.

All children can achieve success through thoughtful evaluation and learning from experience.

Progression of Design Technology Skills throughout the School

The lesson format remains the same across both key stages.

Every topic adopts these stages:

Product Analysis—the chance to look at real examples of the product, decide their purpose and establish why they have been designed in that way.

Design- with an end user in mind. In Key Stage 1 the consumer is usually someone known to them, but by Key Stage 2 the consumer will be a certain type of person.

Make- This becomes more diverse as the children move into Key Stage 2 and more precise as their skills improve.

Evaluation- At every Key Stage the children are encouraged to evaluate their end product against a set of criteria. This develops in complexity as the children move into KS2.

EYFS As part of the continuous provision the children have the opportunity to make products using a wide variety of materials. They cut, stick draw and paint. The chance to practise their cutting skills is permanently on offer.

The Development of Skills and Knowledge is shown as follows:

Year 1 Criteria

Explore products- what are they, how they work, how they are used?
Describe who the product is for, how it will work and how they will make it.

Cut and shape materials - assemble, join and combine materials.

Talk about their design ideas and what they are making - say how it is made and how well it works.

Extension

Measure, mark out, cut and shape materials - assemble, join and combine
Use finishing techniques from art & design skill set.



Year 2 Criteria

Explore products- what they are, who for, what for, how they work, how used,
what materials are made from & likes/ dislikes.

Making a suitable product for a purpose.

Describe how they will make products suitable for specific users.

Model ideas by exploring materials, by making templates and mock-ups.

Measure, mark out, cut, and shape materials - assemble, join and combine materials.
Plan and select from a range of materials and components according to their characteristics.

Use finishing techniques from art & design skill set.

Talk about their design & making (say who it was for and how they have made it suitable for that user), suggest improvements.



Year 3 Criteria

Making a product which you know (through research) is suitable for a purpose.

Investigate and analyse products - how well designed & made, how well they work and meet user needs.

Describe the purpose of their products. Gather information about needs and wants (individuals & groups.) Identify design features that will appeal to intended users. Discuss ideas to clarify and develop them - 'realistic'. Use prototypes and pattern pieces to model ideas. Draw the materials to be used.

Measure, mark out, cut, shape materials, assemble, join, and combine materials - with some accuracy.

Use finishing techniques from art & design skill set - with some accuracy

Identify strengths and improvement areas in their designs - use design criteria and evaluate against it. Children should refer to their design.



Year 4 Criteria

Investigate and analyse products. Why those materials have been used

Describe the purpose of their products. Gather information about needs and wants (individuals & groups.) Identify design features that will appeal to intended users.

Develop & refine their own design criteria Explain how particular parts of their product work. Discuss ideas to clarify and develop them - 'realistic'. Use prototypes and pattern pieces to model ideas, matched to resource availability.

Select & explain suitable materials and components for tasks - link to functional properties. Make a list of materials.

Follow H & S/ hygiene. Measure, mark out, cut, shape materials, assemble, join, and combine materials with accuracy.

Use finishing techniques from art & design skill set - with increasing accuracy. Identify their strengths / improvement areas in designs - use design criteria and evaluate against it. Consider views of the users to improve the product.



Year 5 Criteria

Investigate and analyse products - how well designed & made, how well they work and meet user needs. Cost of products.

Describe the purpose of their products. Research the needs. Match features to individuals and groups. Design a simple specification to guide the designing. Explain how particular parts of their product work.

Discuss ideas to clarify and develop, to encourage 'innovation.' - the ability to learn from a process of trial and error to inform next steps. Use prototypes and pattern pieces to model ideas, match to resource availability, time & cost. Use annotated sketches and cross-sectional drawings to develop and communicate ideas.

Ideas.

Select & explain suitable materials and components for tasks - link to functional properties. Produce appropriate lists of tools, equipment & materials. Follow H & S/ hygiene. Measure, mark out, cut, shape materials, assemble, join and combine materials - with accuracy. Accurately Use finishing techniques from art & design skill set.

Critically evaluate the quality of the design & manufacture alongside fitness for purpose. (Design, build, fit for purpose).



Year 6 Criteria

Investigate and analyse products - how well designed & made, how well they work and meet user needs. Cost of products, sustainability & innovation, potential, future uses.

Describe the purpose of their products. Research needs. Attempt to solve a problem in an innovative way.

Match features to individuals and groups. Design a simple specification to guide designing.

Explain how particular parts of their product work.

Discuss ideas to clarify and develop to encourage 'innovation.' - the ability to learn from a process of trial and error to inform next steps. Use prototypes and pattern pieces to model ideas, match to resource availability, Use annotated sketches and cross-sectional drawings to develop and communicate ideas.

Develop techniques with a number of steps (i.e. colouring before cutting out) & demonstrate resourcefulness.

Select & explain suitable tools, equipment, materials, and components for tasks - link to functional properties.

Formulate step-by-step plans as a guide to making. G&T draw a basic exploded view drawings. Follow H & S/ hygiene. Measure, mark out, cut, shape materials, assemble, join, and combine materials - with accuracy.

Critically evaluate the quality of the design & making, fitness for purpose against original design spec.

Examine the overall effectiveness of entire project from design to finished product.



What is expected to be seen from our DesignTechnology Curriculum?

Each Year Group is expected to teach three DT Units of work per year. These split into Food Technology, Textiles and Mechanics. Because of this you may not see DT Lessons going on in the classroom all the time. Instead a unit of work will be taught in a discreet period of time, which we call a *block*. These are interspersed with units of Art.

The Teaching process for DT needs to have an element of flexibility. The Product Analysis, Design and Evaluation processes typically take a single lesson. However if children need to learn new skills to be able to complete a task, this input may take several sessions (for example learning how to make different types of pop-up mechanisms or learning how to wire a light bulb). It is possible that an entire afternoon might be needed at the making phase as this saves time in the long run and means equipment and resources only need to be got out once. It also alleviates difficulties with storing half made products.

The making phase is the most exciting part of the process and can appear a little chaotic as children choose resources and work at different processes and stages.



Finally the evaluation phase is an opportunity for children to reflect on the outcomes of their work. It is possible for a child to achieve success in this area, even if their product has not been all they wished it would be. It also provides an opportunity for children to think about how they will approach similar activities in the future.

Resources

- Design Technology resources are stored in the Years 5 and 6 downstairs cupboard for KS2 and in the Nursery and Community Room for KS1.
- If you cannot find a resource, please ask the coordinator.
- If you are going to need resources ordering, please ask in good time.
- Please could you return any resources to the central store as soon as you have finished using them.

Year Group/ Term	A1	A2	Sp1	Sp2	S1	S2
1		Sliders		Wheels and Axles	Food Tech-Healthy Pizzas	
2	Tudor Houses		Textiles Joining Bunting			Free Standing Structures (Possibly do in Summer 2)
3	Pneumatics (Possibly do in Summer 2 in 2021)		Shell Structures Desk Tidies		2D Shapes to 3D Products	
4		Diaramas (Levers and Linkages)			Lighting It Up	Healthy Diet
5		Viking Purse	Cranes Pulleys and Gears			Cams Victorian Toys
6		Frame Structures WWII Shelters	Savoury Bread			Buggies

Long Term Plan

Monitoring

- Design Technology books will be taken for scrutiny to look for coverage and progression in each class.
- Examples of work will be taken to form a Design Technology portfolio.
- Pupil interviews will be conducted and analysed to inform future teaching/experiences.

Differentiation

- The main differentiation is by outcome.
- If a child finds any aspect of the process difficult, they will receive adult help. However this needs to be born in mind when assessing finished products.
- Adults should avoid *doing it for the child*. We need to accept that the finished product reflects a child's DT ability, no matter how good or poor that might be.
- Expect that each child's work will be unique.



Marking and Feedback:

- All written work should be marked as per the school marking policy.
- Please ensure that all lessons have an objective at the top of the children's work and the children have an opportunity to be able to self-assess this.
- Keep the Design Technology L.O. in mind when marking work.
- Have pupils demonstrated that they have achieved the Design Technology objective?

Examples of marking could include:

- . Highlighted LO
- Asking what materials the child intends to use.
- Asking how they propose to make their product. It is essential that the child's end product reflects their original design. It is acceptable for them to alter the product because they came across a snag during the making process. However it is not acceptable that at the design phase they drew a replica of a manufactured product, with no thought as to how they would be able to make it. This needs picking up at the design stage and the marking might therefore ask the child to rethink the design.