Design Technology

Government Guidelines - Design and technology programmes of study: key stages 1 and 2 National curriculum in England

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world

- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users

- critique, evaluate and test their ideas and products and the work of others

- understand and apply the principles of nutrition and learn how to cook.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Intent

It is our intention at RAPS to develop in all young people a lifelong **curiosity** and interest in the Design and technology. Design and Technology offers a coherently planned sequence of lessons to help teachers ensure they have progressively covered the knowledge, understanding and skills required in the National Curriculum. It aims to inspire children through a broad range of practical experiences to create innovative designs which solve real and relevant problems within a variety of different contexts including links to **community** and the **global citizens.** The iterative design process is fundamental and runs throughout. This iterative process encourages children to identify real and relevant problems, critically evaluate existing products and then design and create solutions to the problems. As part of the process, time is built in to reflect, evaluate and improve on prototypes using design criteria throughout to support this process. Working on independence allows children to be able to articulate their findings through written and verbal **communication.** We provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life.

Implement

Design and Technology skills and understanding are built into lessons, following an iterative process. It should allow for the revision of ideas to become part of good practice and ultimately helps to build a depth to children's understanding. Through revisiting and consolidating skills, our lessons and help children build on prior knowledge alongside introducing new skills, knowledge and challenge. Through these lessons, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in. The promotion of a language rich Design Technology curriculum is essential to the successful acquisition of knowledge and understanding in Design Technology. This is progressively built on throughout school. Any Design technology working walls throughout school focus on key aspects of Design Technology and exemplify the terminology used throughout the teaching of Design Technology, BV and SMSC, which enables pupils to make links across the wider curriculum. Basic skills -English, Maths and ICT skills are taught during discrete lessons but are revisited in Design Technology so children can apply and embed the skills they have learnt in a purposeful context. We recognise that to have impact planned cultural capital must be clearly linked to the statutory design technology skills and knowledge to be acquired and provide the opportunity for children to better understand the knowledge or apply what they already know.

Impact

The learning environment across the school will be more consistent with design and technology technical vocabulary displayed, spoken and used by all learners. Whole-school and parental engagement will be improved through the use of design and technology aspect of the termly curriculum information sheets and any DT curriculum events we have in school. We want to ensure that Design and Technology is loved by teachers and pupils across school, therefore encouraging them to want to continue building on this wealth of skills and understanding, now and in the future. Vocabulary supports children to **communicate** their knowledge and skills effectively to their peers within the school **community**. Impact can also be measured through key questioning skills built into lessons, child-led assessment such as success criteria grids and summative assessments aimed at targeting next steps in learning. Children will know more, remember more and understand more about Design Technology. The large majority of children will achieve age related expectations in Design Technology. As designers' children will develop skills and attributes they can use beyond school and into adulthood. Developing children as curious learners who want purpose for learning including their own **community** and globally links to our drivers of **global citizen** and **community** as it shows children how DT fits into their world that they are connected to at a local level and globally.

Richard Avenue Primary School

Long Term Plan – Design and Technology

	AUTUMN	SPRING	SUMMER	
Rec.				
Year 1	Designing/making structures of homes in UK – Three Little Pigs Can you build a house for the 3 little pigs that the big bad wolf cannot blow over.	Moving pictures/cards - Can we design and make a moving picture book to share with Nursery?	Healthy eating - designing/making healthy – use produce grown in outdoor area FRUIT/VEG Can we design and make healthy fruit salad?	
Year 2	Vehicles ~ Emergency How could the Great fire of London be stopped earlier?	Winding Up How can story telling be made more interesting?	Puppets — Textiles How could you teach children animal facts?	
Year 3	Moving Toys(Pneumatics) Can you make a toy with a moving part?	Healthy Snacks Can you design and make a healthy snack using seasonal produce?	Crazy Catapults What could the romans use to advance their battle tactics?	
Year 4	Light it up– 'Can you light Rudolph's way?	No DT this term due to double DT in Summer. See art folder for alternative.	Pop-up book Can a poster teach through movement?	Money Containers- Endangered animal link How can I transport my new phone
Year 5	Models of a Shaduf make a modern day version of a shaduf	Cookery Create some bread for a fussy friend	Viking boats Create a model of an ancient racing boat	
Year 6	Controllable Vehicles Make a moving toy that would sell at Christmas	No DT this term due to double DT in Summer. See art folder for alternative	Strengthening structures Have you lost a marble?	Make and Do To design and make a leavers t-shirt with a make and so concept

DT Progression of Skills

The document below has been designed to show how we will cover all of the relevant DT knowledge and skills across our school.

Year Group	Generating Ideas	Making Evaluation	Food and Nutrition	Construction	Textiles	Mechanisms
1	• Think of own ideas for design. • Use pictures and words to plan. • Design a product for myself, following design criteria. • Work in a range of context (imaginary, home, school, wider community, story based). • Model ideas in card and paper	• Explain what is being made an why. • Select appropriate tools and equipment for the purpose. • Talk about own and pre-existing products, saying what is good or bad about them. Say whether their product does what it is meant to (fits the design brief) and how it could be improved.	• Know how to peel, cut, grate, mix foods (with close supervision). • Use basic food handling, hygiene practices and personal hygiene.	• Use sheet materials and construction tools with appropriate supervision. • Assemble and join components together using temporary methods e.g. glue, masking tape.		• Know about movement of simple mechanisms such as levers, sliders and wheels.
2	• Think of own ideas and plan what to do next. • Describe designs using pictures, diagrams, models, mock-ups, and words • Design a product for • myself and others following design criteria. • Work confidently in a range of contexts (imaginary, home, school, wider community, story-based etc.).	• Explain what is being made and why the audience will like it. • Choose appropriate tools and equipment, describing and explaining why they are being used. • Describe how their own and pre-existing products work, evaluating what went well and what could be done differently. • Suggest what went well and what would be done differently when evaluating their own product.		• Use sheet materials and construction tools with appropriate supervision. • Assemble join and combine materials in order to make a product.	• Cut, then join textiles using a running stitch, over sewing or glue. • Decorate using a range of items (buttons, sequins, beads, ribbons etc.).	• Know about movement of simple mechanism such as winders, wheels and axels.

Year Group	Generating Ideas	Making Evaluation	Food and Nutrition	Construction	Textiles	Mechanisms
.3	• Create a design that meets a range of requirements. • Consider the equipment and tools needed when planning. • Describe a design using an accurately labelled diagram, and in words.	• Use a range of tools and equipment accurately. • Measure, mark out, assemble and join materials and components with some accuracy. • Evaluate own and pre-existing products. • Suggest what could be changed to improve a design, beginning to link this to the design brief.	• Know how to peel, cut, grate, mix, mould and begin to cook foods (using blenders and mixers with supervision). • Understand seasonality and know where and how ingredients a resourced • Demonstrate hygienic food and preparation and storage	• Use sheet materials and construction tools with appropriate supervision. • Join and combine materials and components with increasing accuracy in temporary and permanent ways		• Know about movement o simple mechanisms such as pneumatic and ...
.4	• Generate more than one idea for how to create a product. • Gather information to help design a successful product (i.e. by asking others' views). • Produce a detailed plan with labelled diagrams, a written explanation and step-by-step guide. • Suggest improvements to develop and refine a planned idea.	• Use a range of tools and equipment with accuracy. • Measure, mark out, join, assemble materials and components with accuracy. • Evaluate the appearance and usability of own and pre-existing products. • Explain how the original design could be improved, considering the appearance and usability and linking this to the design brief.		• Use sheet materials and construction tools with appropriate supervision. • Join and combine materials and components accurately in temporary and permanent ways.	• Cut, then join textiles using a running stitch, over sewing, back stitch or fastenings. • Understand seam allowances, create simple patterns and appropriate decoration techniques	• Know about movement of simple mechanisms such as linkage

Year Group	Generating Ideas	Making Evaluation	Food and Nutrition	Construction	Textiles	Mechanisms
•5	• Generate a range of ideas after collating relevant information (i.e. users' views). • Produce a detailed plan, with step-by-step instructions, cross sectional diagrams and prototypes. • Suggest alternative plans, considering the positive aspects and drawbacks of each. expertly.	• Use a range of tools and equipment • Evaluate the appearance and function of a product (own and pre-existing) against the original criteria, saying whether it s fit for purpose. • Suggest improvements that could be made, considering materials and methods that have been used. • Consider the aesthetic qualities and functionality of products	• Cut, mix, mould and begin to use hobs to heat food with appropriate supervision. • Weigh measure accurately (liquids and dry ingredients) • Apply the rules of basic food hygiene and other safe practices.	• Use sheet and construction materials appropriately. • Cut and join with accuracy to ensure a good quality finish product		• Understand how mechanical systems such as cams, pulleys or gears create movement.
•6	• Use a range of information to inform a design (i.e. market research using surveys, interviews, questionnaires or web based resources). • Produce a detailed plan, with cross-sectional diagrams and computer-generated designs). • Work within constraints, refining and justifying plans as necessary.	• Use a range of tools and equipment precisely. • Consider the aesthetic qualities and functionality of my product as making it, refining details as necessary. • Evaluate the appearance and test the function of a product (own and pre-existing) against the original criteria, saying whether it is fit for purpose. • Suggest improvements that could be made, considering materials, methods, sustainability of the product and how much a product costs to make.		• Use sheet and construction materials appropriately. • Construct to achieve a good product.	• Pin and tack fabrics, use patterns and seam allowances and join fabrics to make quality products.	• Understand how mechanical systems such as cams, pulleys or gears create movement.