

Rakegate Primary School



Design and Technology Policy

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Intent, Implementation and Impact of Design and Technology at Rakegate

Intent

At Rakegate Primary School children receive a design and technology curriculum which allows them to exercise their creativity through design and making and to support the children to succeed in the world we live in today. Using the stimuli set out in 'Kapow' schemes of work and projects linked to individual year group topics the children are taught to combine their design and making skills with their knowledge and understanding in order to design and make a product. The skills are taught progressively to ensure that all children are able to learn and practice in order to develop as they move through school. The design and technology curriculum at Rakegate enables children to develop products that solve real life and relevant problems considering their own needs and the needs of others. Children will build on a range of skills including science, computing, food technology art and mathematics. Evaluation is an integral part of the design process and allows children to adapt and improve their product. We believe our curriculum prepares children for the world that we live in and provides them with ambition to succeed.

Implementation

In accordance with Rakegate's creative curriculum D&T will be taught as part of termly topics using 'Kapow' schemes of work. It will be often taught as 'standalone' projects and occasionally will be tailored to compliment current topics being taught. This is taught through a variety of creative and practical activities. The teaching of DT should follow the design, make and evaluate cycle. The design process should be rooted in real life, relevant contexts to give meaning to the learning. While completing the making process children should be given a range of tools to choose freely from. Children should evaluate their own products against a design criteria. Cross curricula links will arise especially within maths, science and computing. Children review their successes at the end of every topic and consider how they could improve their skills in the next topic.

Impact

By the time children leave Rakegate Primary School they will:

- Have an excellent attitude to learning and working independently.
- Use their time effectively and work productively independently and as a team.
- Be able to carry out research, ask questions to develop a good understanding of user's needs.
- Work safely, carefully and begin to think and work ethically.

Throughout the design and making process children will gain an appreciation of products made through a manufacturing process. The children of Rakegate will learn to be creative, innovative and resourceful, preparing them for a future beyond Rakegate.

Design and Technology in the Foundation Stage

In the foundation stage we provide opportunities for the children to :

- Develop a curiosity and interest in the made world through investigating, talking and asking questions about familiar products;
- Develop confidence and enthusiasm through frequent exploration of construction kits to build and construct objects, and activities for exploring joining, assembling and shaping materials to make products;
- Extend their vocabulary through talking and explaining about their designing and making activities;

Design and Technology in Key Stage 1

The National Curriculum prescribes that at **Key Stage 1** pupils should be taught:

The knowledge, understanding and skills needed to engage in an iterative process of designing and making, and work in a range of relevant contexts.

Design

- Design purposeful, functional and appealing products for themselves and other users based on design criteria.
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make

- Select from and use a range of tools and equipment to perform practical tasks accurately.
- Select from and use a range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.

Evaluate

- Explore and evaluate a range of existing products.

- Evaluate their ideas and products against design criteria.

Technical knowledge

- Build structures, exploring how they can be made stronger, stiffer and more stable.
- Explore and use mechanisms, such as levers, sliders, wheels and axles, in their products.

Cooking and nutrition

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

1. Design and Technology in Key Stage 2

The National Curriculum prescribes that at **Key Stage 2** pupils should be taught:

The knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts.

Design

- To use research and identify criteria to inform the design of innovative, functional and appealing products that are fit for purpose, aimed at particular individuals or groups.
- To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design (CAD).

Make

- Select from and use a wider range of tools and equipment to perform practical tasks accurately.
- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.

Evaluate

- Investigate and analyse a range of existing products.

- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Understand how key events and individuals in design and technology have helped to shape the world.

Technical knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Understand and use mechanical systems, such as gears, pulleys, cams, levers and linkages, in their products.
- Understand and use electrical systems, such as series circuits incorporating switches, bulbs, buzzers and motors, in their products.

Cooking and nutrition

- Understand and apply the principles of a healthy and varied diet.
- Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
- Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
- Take part in a yearly curriculum cooking project provided by 'Shire Services'.

2. Subject planning

- The school uses a three level planning system: short, medium and long-term planning following 'Kapow' projects.
- Class teachers will be responsible for the teaching of Design and Technology within their own classroom and the DT kitchen.
- Design Technology planning should follow the projects set out in 'Kapow' or any other relevant project, focussing on ensuring that there is a progression and children's skills are developed and secured throughout the year groups and key stages.
- D&T will be taught in a block over the course of a week, termly.
- In the foundation stage designing and making activities are planned; some initiated by children, some by staff.
- Children in their design and making will apply knowledge and skills of: textiles, cooking and nutrition, mechanisms and structures. Electrical systems and CAD (digital world) are included in Key Stage 2 units of work.

- All design and making assignments will provide learning opportunities for developing creativity through designing skills i.e. generating, exploring, modifying ideas through drawing and modelling with materials.

3. Teaching

Principles for effective teaching include:

- Setting tasks in the context of pupils' prior knowledge.
- Promoting active learning.
- Inspiring, exciting and motivating pupils to know more.

Strategies for effective teaching include:

- The use of a variety of teaching methods including, whole class work, small group study, investigative work, practical work and individual study.
- Ensuring the method used suits the purpose and needs of the children.
- Providing a meaningful context and clear purpose when assigning tasks.
- Including investigative, disassembly and evaluative activities.
- Using focused practical tasks to help the children make and evaluate products.
- Ensuring tasks are built on skills and understanding.

4. Learning environment

- Design and technology activities may be carried out individually, as a small or large group, or as a whole class activity.
- We aim to provide a learning environment where children feel secure about having a go at something new or taking risks. Children's ideas, designs and finished product will be encouraged and valued.
- Teachers will make provision for varying learning styles to be utilised.

5. Assessment and recording

- Teacher assessment in design and technology can measure many different aspects within the design process.

- Teachers should use the assessment criteria at the end of each project taught and consider if children are working towards, working at and working above the expected standard.

Teachers will assess pupils':

- Knowledge of tools, materials and equipment.
 - Ability to record and communicate their design ideas in a clear manner
 - Personal qualities and attitudes towards their work.
 - Ability to explain what they have created and how.
 - Ability to use tools and materials safely and effectively.
 - Ability to evaluate both their work and the work of others.
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- The majority of assessments conducted will be through observation and discussion.
 - A selection of work may be retained as evidence or photographed for this purpose.

6. The subject leader/coordinator

- The school's appointed subject leader will oversee the continuity of the subject and the progression of teaching and learning through a cycle of monitoring including classroom observations, planning and work trawls.
- They will monitor the quality of teaching and the standard of work produced.
- Where appropriate, evidence will be kept to show the quality of teaching and learning taking place throughout the year groups.
- The subject leader will offer support to colleagues and share their expertise and experience. They will encourage staff and pupils to be creative and advise teachers on teaching methods they may wish to explore.

7. Resources

- Each classroom has basic design and technology resources maintained by the individual teachers.

- Learning resources such as specific tools and materials and food technology resources, to aid teaching are held in the design technology room.
- The design and technology subject leader will order resources at the end of each term for specific planned units of work. Any extra resources identified by teachers can also be ordered at this time.

8. Health and safety

- Certain health and safety concerns are inherent with design and technology, including the storage of materials and tools and the use of equipment within lessons.
- Children should be instructed in the correct use of equipment and tools and the specific dangers of using heated or sharp resources.
- Sharp tools are stored in the DT room and should be collected/returned by the teacher/TA and not by children.
- Children are to be supervised at all times during activities.
- A risk assessment covering the use of saws and other sharp tools, along with heated tools, such as glue guns, has been conducted and is updated as needed.
- Upper KS2 Children are only allowed to use a lower temperature glue gun under 1:1 supervision. An adult must use a glue gun at all other times. The use of glue guns will be considered alongside all viable alternatives such as adhesive tapes, blue tack, string and other fasteners, to ensure the most suitable materials are used for each project.
- A fire safety blanket and extinguisher must be kept with the cooker at all times.
- When cooking is taking place in the classroom, utensils used must be returned in a suitably clean and tidy condition after use.
- Whilst cooking, teachers will ensure that food hygiene rules are adhered to e.g. washing hands. Wearing of aprons.

9. Equal opportunities

Equal opportunities are addressed in the whole school Equality Policy and care is taken in design and technology lessons to ensure all pupils are provided opportunities to experience the range of activities on offer.

Pupils with special educational needs or disabilities are assisted by an adult during design and technology lessons.

For all children to produce their best we plan to differentiate resources and tasks through:

- Adapted planning and evaluation sheets
- Changing the demands of the tasks
- Limited choices
- Greater teacher intervention/small group work/TA support
- Ensuring manipulative skills are manageable
- Selecting appropriate tools and equipment
- Talented or more able children are challenged through more demanding tasks such as more open ended design briefs.

10. Contribution of design and technology in the wider curriculum

English

- Design and technology encourages children to ask questions about the starting points for their work. They learn to compare ideas and approaches and to express their feelings.

Maths

- Design and technology allows children opportunities to develop their understanding of shape, pattern, space and dimensions.

Computing

- IT is used to provide children with additional equipment, extending the possibilities for developing, recording and sharing their work.

Science

- Design and technology allows children opportunities to learn skills in use of electronics to support their design and make ideas.

PSHE

- In design and technology lessons children are taught to discuss how they feel about their own work and the work of others.

11. **Policy review**

This policy will be reviewed at the end of a two year period in consultation with the Head teacher curriculum lead and teaching staff.

L Bowdley

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