Design & Technology Policy

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Learning to live life in all its fullness

ROUNDHAY ST JOHN'S CE PRIMARY SCHOOL

Policy for Design and Technology

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

Teaching and Learning Strategies

At Roundhay St John's, children are learning to live life in all it's fullness and subjects are taught in the context of our whole school Curriculum Intent.

Teaching is underpinned by strong leadership from staff who support and monitor the delivery of the subject through the Progressive DATA (Design and Technology Association) scheme of work that facilitates projects that link to learning journeys and other subject areas, in particular STEM and design. Children have regular planned Design and Technology lessons, with many opportunities for practical food technology lessons which are linked to the skills acquisition required by the Healthy Schools initiative. The Design and Technology subject leader accesses and cascades CPD to staff through membership of the Design and Technology Association. Additionally, the subject leader attends training on Digital Technology in conjunction with the science leader to support staff to meet the remote programming requirements of the Programme of Study. Through it's close link to science pupils and staff have benefitted from visiting engineers delivering CPD to class teachers to facilitate the development of design and control lesson material.

Design and Technology necessitates developing a range of skills and children benefit from a balance of whole class, larger group and smaller group working. They are encouraged to use their sketchbook to think about use, plan, research and show innovation in the design of their products. Children are provided with a range of tools and materials from which to make choices. Skills teaching enables children to realise their designs and evaluate the choices they have made.

Communicating their ideas and thoughts visually and verbally is promoted. Adapting their plans is an important aspect of the learning process. Children have opportunities to; create structures, work with textiles, use technology, construction kits and create functional products using resistant materials.

Wherever possible, teachers should seek opportunities for enrichment through visits and visitors to school. This often takes place, for example; in year 3 the children visit a chocolate factory, in year 2 Warburtons made bread with the children, in year 1 an architect came to talk about his job as a designer to help children with the designing their play park equipment. Design and Technology often takes place in the context of other subjects enabling the children to demonstrate the extent to which they are securing or mastering taught skills.

Teachers understand that all children have differing abilities and meet children where they are by providing learning opportunities which match the challenge of the task to the ability of the child.

Subject content

Early years

During EYFS children should be given opportunities to play, explore and create with a variety of materials. They should engage in active thinking and facilitated to speak and develop vocabulary to articulate their thoughts to peers and adults. They should be provided with a range of construction kits, on a variety of scales that provide progression from nursery through to the end of reception. There should be opportunities, props and other resources for role play that encourage the use of everyday technology. Books and display material should encourage the discussion of the uses of design and function of technology around us. Children should increasingly think of a purpose for what they are creating and challenged to meet simple needs eg. A chair for baby bear.

During KS1 children will be taught to apply skills learnt in literacy, numeracy and science to design 'Something, for somebody for some purpose.' (DATA). Six principles should be introduced to children in years 1 and 2. They will be supported to begin to use these principles in designing, making, evaluating and developing their technical skills.

Children will:

1. **User**
   Learning that products are for someone and they will begin to identify with a group or individual that they are designing for.
2. **Purpose**
   Children will be introduced to the idea that the product they are designing/making will need to perform a task or a function
3. **Functionality**
   Children will begin to think about what their product will need to do to be successful.
4. **Design Decisions**
   Children will be given opportunities to make their own choices of materials or techniques. They will learn how to overcome setbacks and mistakes and begin to see them as a valuable learning process.
5. **Innovate**
   Children will be encouraged to innovate and begin to think how they can make their product individual.
6. **Authenticity**
   Children will be provided with opportunities to think about how real or believable the final result will be for the end user or to them.

During KS2 children will be taught to apply skills learnt in literacy, numeracy and science to design 'Something, for somebody for some purpose.' (DATA). The six principles will become familiar to children in years 3-6. These principles will be evident in children's sketchbooks and inform the design, make, evaluate and technical knowledge developed within projects.

Knowledge

EYFS

- the delivery of the EYFS Statutory Framework, using our EYFS progression document which is informed by the Development Matters non-statutory guidance.

Key Stage 1 Programme of study (see National Curriculum for further details and Healthy Schools skills development progression sheets)

Design

- design purposeful, functional, 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 [for example, cutting, shaping, joining and finishing]
- select from and use a wide 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 [for example, 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.

Cooking and nutrition skills

- Following the healthy schools initiative skills development programme children will practise food preparation skills such as cutting, rolling, mixing etc.

Key Stage 2 Programme of study (see National Curriculum for further details and Healthy Schools skills development progression sheets)

Design

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

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], 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 shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control 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.

Cooking and nutrition skills

- Following the healthy schools initiative skills development programme children will practise cutting, cooking, baking etc.

Key Stage 1

Y1	**Mechanisms** Sliders and levers **Toys**	**Structures** Freestanding structures **Playground Equipment**	**Food** Preparing fruit and vegetables (including cooking and nutrition requirements for KS1) **Fruit Kebabs**
Y2	**Mechanisms** Wheels and axles **Fire Engines**	**Food** Preparing fruit and vegetables (including cooking and nutrition requirements for KS1)	**Textiles** Templates and joining techniques **Puppets**

Lower Key Stage 2

Y3	**Structures** Shell structures (including computer-aided design) **Packaging for food**	**Food** Healthy and varied diet (including cooking and nutrition requirements for KS2) **Fair Trade Cakes**	**Textiles** 2-D shape to 3-D product **Making a bag**
Y4	**Mechanical Systems** Levers and linkages **Catapults**	**Electrical Systems** Simple circuits and switches (including programming and control) **Microbit project**	**Food** Healthy and varied diet (including cooking and nutrition requirements for KS2) **Greek salads/dressings and bread**

Upper Key Stage 2

Y5	**Structures** Frame structures **Earthquake Proof Buildings**	**Food** Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	**Electrical Systems** More complex switches and circuits (including programming, monitoring and control) **Microbit project**
Y6	**Textiles** Combining different fabric shapes (including computer-aided design)	**Mechanical Systems** Pulleys or gears	**Food** Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) World War 2 Food (Rationing)

Planning

The National Curriculum is used as the starting point for staff to develop subject planning. Our individual subject planning approach also facilitates cross curricular links and these are intentionally made where possible. Long term plans have been developed following the whole school consultation and follow the progressive framework set out by the Design and Technology Association. Planning is reviewed in response to the needs of cohorts of children and their changing interests. Class teachers make use of supporting material from the design and technology association when creating short term plans.

Inclusion

The same high expectation, that children will reach their full potential applies to all children in keeping with the school's values and ethos. We have due regard for our duties under equality legislation that covers all the protected characteristics. Teachers understand that all children have differing abilities and meet children where they are by providing learning opportunities which match the challenge of the task to the ability of the child. All children will be given equal access to design and technology. Lessons are planned to include more stretching work for pupils whose ability is significantly above the expected standard as well as those who come from lower starting points and need more structured support. We remain vigilant about removing barriers to success; particularly for children who come from disadvantaged backgrounds or have special educational needs or disabilities. Additional resources are provided to support individual children when required.

Resources

The subject leader is responsible for ensuring both practical equipment and digital resources are adequate and appropriate for the successful teaching of this subject. Technology and art resources are centrally stored, replenished, repaired and regularly checked for safety in line with CLEAPPS guidance.

Health and Safety

The school has extensive arrangements in place to ensure the health and safety of everybody and all staff must have due regards to the school's health and safety policy. All educational visits are undertaken in accordance with the school's Educational Visits Policy and the Educational Visits Coordinator is Mrs C. Sutherland, School Business Manager.

A risk assessment programme is coordinated by the school business manager for all aspects of school life. The CLEAPPS website is used by all staff, supported by the subject leader, to ensure appropriate guidance for practical design and technology activities and the CLEAPPS risk assessment process is followed before undertaking with children. Specific guidance from the subject leader is accessed where needed.

This school is committed to safeguarding and promoting the wellbeing of children and young people and expects all staff and volunteers to share this commitment.

Assessment and Recording

Formative assessment can be made from a range of sources within day to day teaching and is ongoing to inform future planning as part of Assessment for Learning. Formative assessment can be made from a range of sources within day to day teaching and is ongoing to inform future planning as part of Assessment for Learning. Assessment for Learning in design and technology across school makes use of a range of strategies to self-assess, peer assess, address misconceptions, talk, discuss and question.

Children are formally assessed against the EYFS Framework and our curriculum progression framework end of year expectations. Teachers use the O track assessment tool to record children's progress against the progression framework at the mid-year point to judge whether they are on track to meet end of year expectations. At the end of the year, teachers make a best-fit judgement for each child, based on their attainment. This information is monitored and evaluated by the subject leader and shared with the next year's teacher.

Role of the Subject Leader
Each subject leader has a job description with clear responsibilities for their role:

Intent
- Having oversight of curriculum coverage and ensuring that the curriculum meets national requirements
- Ensuring that colleagues are aware of expectations of curriculum, planning and assessment
- Action planning for future development
- Ensuring that appropriate resources are in place to deliver a rich and challenging curriculum.

Implementation
- Ensuring that teaching within the subject is strong and promotes the acquisition of key knowledge, building on prior learning
- Leading professional development, providing guidance and support to colleagues
- Oversee assessment
- Making best use of financial and human resources to impact on standards and have a clear evidence based rationale for use of any allocated funding
- Promoting the subject and championing the subject with colleagues and pupils.

Impact
- Monitoring the effectiveness of teaching and the impact on learning and standards
- Evaluating and summarising all aspects of the subject to define next steps for improvement.

Reporting
- Maintain a clear overview of your subject for interested parties on the school website ensuring any statutory requirements are met (where appropriate)
- Produce an annual Subject Leader Report which as a full and current evaluation of your subject and incorporate areas for development in the following action plan
- Monitor and update your current action plan to reflect the current position of the subject
- Organise all aspects of evidence in a coherent and accessible subject leaders file

Monitoring, Evaluation and Accountability
Monitoring and evaluation of this subject is the responsibility of the Subject Leader in connection with the school governor for science. A range of strategies are used including: pupil interviews, staff interviews, children's work and planning scrutiny as well as data analysis to explore standards of attainment and progress.

An Annual Subject Leader Report is produced and shared with governors. This report will clearly reflect the strengths of the subject and the current key areas for further development which will form the basis of the subject action plan.

In all aspects of monitoring, the subject leader will ensure that the policy is being followed consistently across the school.

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