Red Hill Primary School
The Pioneer Academy

Design and Technology Policy

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Principle Academy Vision

The Pioneer Academy promotes and achieves excellence by ensuring the very best care and guidance for every child within our family of schools. It recognises the importance of outstanding learning and teaching by actively encouraging creativity and innovation, whilst having consistent standards of behaviour and attendance. Treating everyone as equal, whilst celebrating diversity, is a non-negotiable; protecting all through safeguarding, health and safety and welfare is paramount.

School Vision

Everyone at Red Hill Primary School is committed to providing the building blocks for every child to flourish in a safe and nurturing environment. We offer a creative curriculum, enriched with opportunities to enable our pupils to understand the world around them and be responsible citizens. Through developing their resilience, independence and confidence, our pupils see learning as a way to realise their full potential.

Through Design and Technology (DT) we endeavour to provide children with transferable skills which they will be able to apply in all areas of the curriculum, for example, resilience, communication, planning and evaluation skills and critical thinking.

Aims

In teaching D&T, we aim to help pupils:

- Develop their design and making skills.
- Develop their knowledge and understanding of design and technologies.
- Use a wide range of tools and materials.
- Learn about working safely and protective measures.
- Work individually and collaborate with other pupils in a variety of contexts.
- Develop the capability to create products of a high standard through skills and understanding.
- Evaluate products, made by themselves, their peer groups and companies.
- Explore the man-made world and encourage discussion of how we live and work within it.
- Develop an interest in and understanding of technological processes and the role of manufacturing in society.
- Learn the principles of nutrition, healthy eating and how to cook.

Roles and Responsibilities

The **subject leader** is responsible for:

- Implementing this policy across the school.
- Maintaining resources and advising staff on the use of materials.
- Assisting the head teacher in deciding on the allocation of resources.
- Supporting teaching staff, advising and offering to share their expertise and experience.
- Leading staff training on new initiatives.
- Helping staff to plan future lessons and assessments and advising teachers on teaching methods they may wish to explore.

- Encouraging staff and pupils to be creative.
- Assisting the head teacher in reviewing this policy.

Classroom teachers will be expected to:

- Plan and deliver interesting and engaging lessons that adhere to the national curriculum.
- Provide equality of opportunity through their teaching approaches and methods.
- Keep up-to-date assessment records.
- Ensure pupils' development of skills and knowledge progresses through their learning and understanding of D&T.
- Set pupils suitable targets based on prior attainment.
- Maintain an enthusiastic approach to D&T.

Curriculum

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.

Programme of study

KS1

By the end of KS1, pupils will be able to:

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 and mock-ups and, where appropriate, ICT.

Make

- Select from and use a range of tools and equipment to perform practical tasks, e.g. 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, e.g. levers, sliders, wheels and axles, in their products.

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed through a variety of creative and practical activities. They should work in a range of relevant contexts, e.g. the home, school, leisure, enterprise, industry and the wider environment.

KS2

By the end of KS2, pupils will be able to:

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 accurately, e.g. cutting, shaping, joining and finishing.
- 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 D&T 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, e.g. gears, pulleys, cams, levers, and linkages.
- Understand and use electrical systems in their products, e.g. series circuits incorporating switches, bulbs, buzzers and motors.
- Apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

As part of their work with food, pupils will be taught how to cook and apply the principles of nutrition and healthy eating. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

By the end of KS1, pupils will be able to:

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

By the end of KS2, pupils will be able to:

- 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.

<u>Teaching and Learning</u>

DT at Red Hill is based on the International Primary Curriculum (IPC) units of work and projects are designed and adapted to suit the class and their current topic. The structure is as follows:

- DT is taught either in blocked weekly sessions or in a condensed two or three day time frame where appropriate; for example the topic of bread may be better suited to a condensed time frame whereas making moving cars would be better taught over a period of weeks. Individual class teachers will decide whether or not their topics will be taught over a period of weeks or whether to teach it in a condensed period.
- Each term children will experience an evaluation task, preferably of an existing product or process, a series of focused practical tasks which will develop the skills necessary for the children to carry out the D&M task (Designing and Making). This might be looking at actual existing products or researching products via computer search engines.
- The emphasis in Reception is for children to be encouraged to examine and talk about everyday objects and give possible reasons for why things are made the way they are.

- They will also be given opportunities to handle and use a wide range of materials, developing their knowledge and understanding of these through practical design and make activities. There will be more teacher direction within design and technology activities within the reception class but this support will decrease as children move through key stages 1 and 2.
- During their experience of DT the children are introduced to a variety of contexts including; home, recreation, industrial and community.
- Opportunities are provided for each child to experience construction/model making, graphic media (ICT), textiles and food technology.
- Opportunities will be made each year to celebrate achievement in DT as a whole school community, either through DT assemblies, DT displays and presentations or whole school DT curriculum days.

Planning

Lesson plans will demonstrate the balance of visual, auditory and kinaesthetic elements used in teaching ensuring that all pupils with different learning styles can access the learning experience. Long term planning will be used to outline the IPC units within each year group and to outline the skills that will be taught in each unit of work. Medium-term plans will identify learning objectives, main learning activities and differentiation. Medium term plans will be shared with The DT Subject Leader and Curriculum Leader to ensure there is progression of skills between years.

Assessment and Reporting

Teacher assessment is used to inform future planning and to review children's capability. Children are encouraged to peer and self-assess their work in technology throughout the key stages. When evaluating their own work, children should refer to the design criteria established in the design brief as their basis for deciding on how good their product is. On an individual lesson basis, pupils can assess their progress against the 'steps for success'. Teacher assessment is both verbally and in sketchbooks by using positive comments and an improvement opportunity in line with the Progression of Skills Criteria. This evaluation contributes to the end of year written report.

Equipment and Resources

Resources are stored in the DT area of the Art Cupboard and staff should take responsibility in returning the equipment tidily and reporting any equipment that needs replacing. Children should be presented with a choice of tools and resources so that they are best able to meet their designs effectively. The Art/DT Lead is responsible for the auditing and maintenance of resources. Children will use process diaries/sketchbooks to plan, record, assess and evaluate their work in their DT folder.

Teaching staff and pupils have the opportunity to use digital cameras and specific computer graphics programs during DT. Good use is made of the internet for research purposes.

Health and Safety

It is not always possible to remove all the hazards when undertaking DT activities, therefore it is important that from the Foundation Stage, children are taught how to care for and handle equipment and media safely and with respect. This instruction is not in the form of rules external to the lesson but are an integral part of the teaching of DT. Children are taught;

- use of protective clothing
- proper care, use and storage of equipment and materials
- hazards (such as; scissors, slippery surfaces, hot glue)
- to manage their environment and ensure the health and safety of themselves and others

Parents must inform the school if their children have any allergies to DT materials.

Equal Opportunities

At Red Hill we are committed to inclusion in all its aspects and ensure that all children, regardless of ability, race, gender, culture, SEN or disability, are given appropriate opportunities to access learning. In order to achieve this, we provide a differentiated learning environment and, where possible, additional support. (See also our Equality/SEN/Inclusion Policies.)

Effective learning opportunities are provided for all by;

- Offering all DT activities to both boys and girls.
- Setting suitable learning challenges by differentiating tasks when necessary.
- Responding to children's individual learning needs when necessary, this may include providing individual adult support.
- Challenging the more able in DT as they are in all other subjects.

Design and Technology projects that have been created by all abilities are celebrated in displays around the school. At Red Hill, we believe displays can and do, have a direct impact on pupils' learning. Although one of their purposes is to make the classroom and school environment brighter, we believe displays should never be merely decorative. Their primary aims are to:

- Stimulate
- Educate
- Motivate
- Celebrate.