Juniper Hill School

Design and Technology Policy

Kindness Enjoyment Achievement

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'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'.

National Curriculum statement 2014

Intent

At Juniper Hill School, our intent is to build a Design Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more. Our curriculum encourages our children to be like designers: to design, construct and evaluate.

Introduction

Our school vision is to empower our community to have the courage to make a difference in the world, teaching children to be open to working with tools, new technologies and skills, working together to enable everyone to achieve their goals. Therefore, our Design and Technology Policy is underpinned by our three aims:

Kindness – Children support each other and help to develop the ideas of others.

Enjoyment – Design and Technology lessons are fun and creative. Children will be given the opportunity to explore new processes and will develop knowledge and skills ending up with a finished product.

Achievement – We encourage everyone to achieve all that they can, by engaging learners in quality teaching and learning opportunities and providing appropriate resources, progression and interventions. Children will feel a sense of ownership in their work and learn to evaluate and appreciate their achievements.

What is the nature of Design and Technology?

Design and Technology prepares children to take part in the development of today's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of design and technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts. Design and technology helps all children to become discriminating and informed consumers and potential innovators. We live in a technological age, surrounded by artefacts and systems which have been produced,

designed and made for us by other humans working together in a complex range of activities

Aims:

- To develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making;
- To enable children to talk about how things work, and to draw and model their ideas;
- To encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;
- To develop an understanding of technological processes, products, their manufacture and their contribution to our society;
- To develop an understanding of the ways in which people have designed products in the past and present to meet their needs;
- To develop a curriculum which is broad and balanced;
- To understand and apply the principles of nutrition and learn how to cook.
- To foster enjoyment, satisfaction and purpose in designing and making;
- To promote skills, attitudes and attributes that can support learning in other subject areas, and that are needed for life and work.

Curriculum

EYFS

- Fit things together and take them apart
- Explore and select materials and equipment
- Change the shape and arrangement of objects, in a variety of ways, for example stacking, connecting, stretching, enclosing
- Experience and experiment with a range of technology with support
- Use a variety of tools safely
- Use skills such as cutting, joining, folding and building for a variety of purposes
- Talk about what works/ does not work and suggest improvements
- Recognise a problem and suggest ideas for solving it
- Help to plan the sequence and details of tasks
- Build and construct with a wide range of objects, selecting appropriate resources, and learn to adapt their work when necessary
- Select the tools and techniques they need to shape, assemble and join the materials they are using
- Cooking children will mix, stir, and spread ingredients. Children will observe changes during the cooking process. They will also decorate and taste.

Legislation and Guidance as set out in the National curriculum Design and Technology programmes of study (Published 11 September 2013)

Key stage 1

Through a variety of creative and practical activities, 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 [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught 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, mock-ups and, where appropriate, information and communication technology

Make/Construct

- 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.

Key stage 2

Through a variety of creative and practical activities, 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 [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught 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 / Construct

- 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

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. 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.

Pupils should be taught to:

Key stage 1

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

Key stage 2

- 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.
- Find out and identify the uses of everyday technology to support their learning.

Teaching and Learning

The minimum amount of Design and Technology undertaken should be one unit per term. This could be delivered as two dedicated Design and Technology days during the term.

In line with National Curriculum requirements, units of work will always include three types of activity so that children have the opportunities to develop their Design and Technology capability through:

- Investigative, disassembly and evaluative activities
- Focused practical tasks
- Designing and making assignments

At Juniper we have planned units which ensure coverage in line with The National Curriculum. Teaching and learning should facilitate progression across all key stages. Children have access to resources, equipment and tools, which provides them with the opportunities to develop their knowledge and skills.

Organisation

All class teachers will have responsibility for planning and teaching Design and Technology to their classes.

Role of the Subject Leader

- To lead the development of Design and Technology in the school
- To provide guidance on the teaching and learning of design and Technology in school
- Order, organise and maintain Design and Technology resources
- Monitor the development of the Design and Technology curriculum and give guidance on assessment, recording and reporting
- Keep up to date with local and national developments in Design and Technology.

Assessment, Recording and Reporting

The Design and Technology Subject Leader will collect photographs of examples of children's work from the projects in our scheme of work. The examples will be used for identifying progression and expectations. Children in Key Stages 1 and 2 will keep

sketches, photographs of paper mock-ups, notes and evaluations in a topic book. These can be used for assessment purposes and completed against a TAFS (Teacher, Assessment Framework) document that records all of the expected learning outcomes. Class teachers use this to make notes at the end of projects on children who were significant above or below expectations; this will inform future planning. Children are encouraged to make personal assessments of their own work through evaluating activities and identifying what they need to do to improve.

Health and safety

Teachers will read risk assessments prior to teaching each unit. Teachers will always teach safe ways of using tools and equipment at the outset of each unit and insist on good practise. Children will be taught how to take steps to control risks. Children will be taught to return tools to the appropriate place when not in use.

Food hygiene and safety is very important:

- Children and adults will wash their hands thoroughly before handling food.
- Food will be bought when it is needed to ensure the freshest ingredients are used.
- Cupboards, table tops, cookers will be kept clean, tidy and in working order.

Resources

At present, basic resources are stored in a central Design and Technology area (Next to Science resources, near Grebes Year 5 and Waxwings Year 3). Craft knives, saws, hammers and drills are locked away in the art cupboard. All cooking equipment is kept in the kitchen. It is the responsibility of the class teacher to manage the resources required during their unit and advise the subject co-ordinator if additional resources are required.

In relation to everyday general resources, our aim is to organise classrooms in such a way to promote the development of independent learning. Resources and equipment should be clearly marked and labelled in order to allow visual access to the children.

Safe and tidy working practices are encouraged at all times.

Equal Opportunities, Inclusion, SEND

In line with the school's Inclusion Policy, each child will have an equal entitlement to all aspects of the Design and Technology curriculum. We believe that it is important for all children to experience the range of Design and Technology activities. We will use opportunities within Design and Technology to challenge stereotypes.

With specific reference to Design and technology, teachers should be aware of recent research which shows that girls tend to outperform boys in investigating, designing and evaluating and boys tend to outperform girls in planning and making. Teachers should be aware of their own expectations and their position as a positive role model. The children's access to resources, particularly computer, construction kits and tools should be monitored with specific regard to gender.

Throughout all Design and Technology work care will be taken to differentiate tasks and teaching styles in order to take into account the whole spectrum of individual needs. Consideration needs to also extend to children who are left-handed, colour blind or have a physical impairment. It is our policy to ensure that all children, regardless of race, class, or gender should have the opportunity to develop their knowledge and skills in Design and Technology. Lessons are tailored so that all children can access the curriculum. Teachers provide suitable challenges for more able children as well as support for those who have emerging needs.

British Values

At Juniper Hill we understand that the fundamental British Values are widely recognised as universal values which you would expect to find in any democratic society. Our aim in school is to address these wherever possible in the curriculum so that our children are immersed in those concepts on a daily basis.

Democracy

Children are aware that the concept of democracy transcends the more literal understanding of the term to include those processes which select and approve achievements in design technology by the majority, for display and award and this naturally feeds into the wider acceptance of the value of democracy in the political arena.

Rule of Law

Design Technology is a rich and challenging subject through which those values can be investigated by our children who understand the expectations and how they respond positively to feedback.

Individual Liberty

An acceptance of the liberty of the individual to interpret and create a piece of design technology work which may not necessarily match their own criteria is an important aspect of all lessons.

Mutual Respect and Tolerance

The children are given many opportunities to critique each other's work in a positive and constructive manner whilst showing respect for the opinions and beliefs of their peers which may differ from their own. All of this is underpinned by the implementation of school rules which make these choices by the individual or group a safe and non-threatening process for all.

Learning Outcomes

Children will design and make a range of products. A good quality finish will be expected in all design and make activities appropriate to the age and ability of the child. Foundation Stage children will recognise that a range of technology is used in places such as homes and schools and will be able to select and use technology for particular purposes.

Children will keep examples of their work in their DT books to aid assessment and progression and finished products will be displayed in the classroom and around school.

Examples of work, products and relevant photographs will be made available to the subject Leader as evidence of work completed and as an aid to monitoring progression and assessment.

Impact

Children at Juniper Hill will learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. The Children will have clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum. Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school. 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.