



The Winterton Federation Engineering Policy



“TO BE THE BEACON FOR LEARNING”

*“The teaching of your word is light, so everyone can understand”
(Psalms 119:130)*

Introduction

Engineering 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 engineering education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum 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.

Curriculum Provision

The teaching and learning of Engineering helps to give pupils the knowledge, skills and understanding they need in order to meet the above aims. Winterton Federation pupils are given opportunities to plan, develop and communicate ideas, through talking, drawing and writing. They work with a wide range of tools, equipment and materials to make products of increasingly good quality. Pupils are given opportunities to evaluate what they are making and the finished product, saying how they think it can be improved. Pupils increase their knowledge and understanding of materials and components. At The Winterton Federation, Engineering is delivered within a whole school approach that includes:

- Teaching as a discrete, timetabled subject;
- Delivery as part of other curricular activities, making links wherever appropriate;
- As part of extra-curricular activities such as clubs, visits and visitors.

Planning

Our federation uses the Design and Technology Association project on a page scheme as the basis of its long-term curriculum planning for engineering. Our framework shows how engineering coverage is ensured through a progressive build-up of skills and opportunities.

Our medium-term plans give details of each unit of work (Project on a page) in each year group. These plans are edited to suit the needs of the children.



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Teaching methods and learning approaches

Good teaching relies on using appropriate methods for the aim of the lesson or unit of work. All teachers are encouraged to develop a repertoire of flexible, active learning methods, as well as an understanding of how children learn. Teaching methods may include a variety from the following:

- Effective strategies for starting and ending lessons, sharing objectives with the pupils;
- Encouraging an active, questioning approach among the pupils;
- Providing opportunities for children to work both individually and as part of groups;
- Problem solving, with older children deciding on their own lines of enquiry;
- Developing strategies to encourage independent learning;
- Focusing on key skills, concepts and attitudes of the subject;
- Time for reflection, review and evaluation.

Assessment, Reporting and Recording

All class teachers are responsible for adapting and modifying planning based on the needs of their class.

Subject Leadership

Engineering is monitored by the subject leader, they:

- ensure that the subject is regularly discussed, reviewed and monitored within the federation;
- keep resources up-to-date and relevant, however, it is the responsibility of the class teacher to prepare and sort their own resources for each unit of work;
- promote engineering good practice through the federation;
- set a good example of engineering practice;
- support long term planning for the whole federation;
- monitor engineering through the federation;
- provide INSET;
- promote engineering's high profile in the federation;
- encourage cross-curricular links when it is of benefit to engineering learning.

Resources

At Winterton Junior school, resources for engineering are kept in the engineering hub and central resource store and at Winterton Infant school the resources are kept in each classes allocated store cupboard.

Engineering in the Foundation Stage

At Winterton Infants' School engineering is about how children experiment with media and materials finding out about their properties and modifying and manipulating them. It includes exploring sounds, patterns, movement and different tools and techniques. As children develop, they will use and explore a variety of materials, experimenting with colour, design, texture, shape, and form.

Aims

We strive to help pupils to be as creative as possible building on individual or group interests. Building on children's interests can lead to them creating amazing inventions or making marks on paper that represent for them an idea, an experience or something they have seen. It is as much about encouraging attitudes of curiosity and questioning as about skills or techniques.



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Planning and provision

The resources and materials in our setting are organised in a way that enables children to choose and use materials and resources in an open-ended way. Pupils are able to follow their own interests and choose independently from a range of resources to support their ideas. Engineering challenges may be planned by staff to support an area of learning and move learning forward.

Teaching methods

Adults respect children's ideas and show interest in the process a child has gone through, asking open questions such as 'Can you tell me about it - that looks interesting', whilst scaffolding their learning. Adults model to pupils the use of relevant vocabulary in this area. They encourage children to design, create, test, develop, record and evaluate their ideas in a way that is suitable for each individual child. Adults take into account 'the characteristics of effective learning' and aim to embed them into children's attitudes towards engineering.

Assessment

Adults use Tapestry to record observations involving engineering work. We understand that these observations not only link to EAD but involve and support many other areas of learning within them. These observations are used to make assessments against curriculum guidance and the early learning goals.

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