

Grand Avenue Primary and Nursery School

A Policy for Design and Technology

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Grand Avenue Rationale

We believe that 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

Following the National Curriculum for Design and Technology Grand Avenue School 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 own ideas and products and the work of others
- Understand and apply the principles of nutrition and learn how to cook.

Teaching and Learning Experiences

Through a variety of creative and practical activities, throughout the school, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They will work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

Foundation stage

Children are encouraged to build with a wide range of objects, selecting appropriate resources and adapting their work where necessary. Design and Technology forms part of the Knowledge and Understanding section of the Early Years Foundation Stage curriculum.

In Key stage 1-When designing and making, pupils will be taught to:

Design-

-design purposeful, functional, appealing products for themselves and other users based on design criteria

-generate, develop, model and communicate own 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 own ideas and products against design criteria

Use and Apply 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.

In Key Stage 2- When designing and making, pupils will 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-

-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 ideas and products against 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

Use and Apply Technical knowledge-

-apply 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 understanding of computing to program, monitor and control their products.

Time allocation and organisation

In **Nursery** there is always at least one construction or 'making' activity available for the children during each session, in line with the early learning goals for designing and making skills.

In **Reception** there are several opportunities each week for children to explore a variety of construction materials. Each term the children undertake a design and make task. See Curriculum Map Appendix 1. This needs attaching!

In **Key Stages 1 and 2** children complete one unit of work per term from the 'Projects on a Page' scheme from the D&T Association. In **Key Stage 1** and **Key Stage 2** each project is linked where appropriate with Science, Mathematics, ICT or English.

Planning

Planning for Continuity and Progression

The school follows the 'Projects on a Page' scheme. The long term plan ensures the pupils develop their knowledge, skills and understanding by building on their previous experiences through a range of investigative activities, focused practical tasks and design and make assignments. The design of the 'Projects on the Page' allow the different projects to be fluid across the different key stages to allow teacher that flexibility to include as much cross curricular links as possible.

Medium Term Planning

The medium term planning from the Projects on a Page unit is used and adapted by each year group in collaboration with the coordinator. Plans are completed on the proforma provided . See Appendix 2

Short Term Planning

All class teachers are responsible for weekly planning based on the agreed medium term plans. They ensure that all essential activities (as identified in each unit) and assignment stages are covered.

Monitoring and Evaluation

The monitoring and evaluation of Design and Technology meets the requirements of the school monitoring policy and activities include:

- referring to teachers' plans;
- sampling children's work;
- observing lessons;
- interviewing staff and children;
- assessment and record keeping;
- photographing displays of models

Learning outcomes in each unit identify how children can demonstrate their knowledge, understanding and design and make skills. These are reflected in the children's recording of focused practical tasks and design and make assignments and also in teachers' comments on children's work.

Marking and Assessment

Teachers of Design and Technology will use the school Marking Policy and Assessment Policy. We:

- Allow for different learning styles and ensure that pupils are given the chance and encouragement to demonstrate their competence and attainment through appropriate means
- Make sure our approach to marking and assessment is familiar to the pupils and the children have been adequately prepared for our assessment methods
- Use materials which are free from discrimination and stereotyping in any form
- Provide clear and unambiguous feedback to pupils to aid further learning

For Key Stage 1 and 2- At the end of each unit taught the class teacher will make a record of each child's achievement using the proforma provided. This information will be saved on the system, alongside other Foundation subjects. See Appendix 3 for example of grid

The Role of the Coordinator

The coordinator will be responsible for:

- advising and evaluating the needs of staff and assisting colleagues in planning;
- undertaking an annual review of resources
- monitoring and evaluating the teaching and learning of design and technology in the school;
- liaising with outside advisory teams and other agencies;
- ensuring staff are aware of health and safety issues;
- reporting to the head teacher, staff, parents and governors.

The Role of the Governors

The governors will be responsible for:

- becoming familiar with issues surrounding this policy;
- agreeing the policy, revisions and amendments;
- evaluating the success of the policy through visits to the school;
- raising the topic on a regular basis at Governing Body meetings;
- regularly reviewing the policy, alongside the Design and Technology Coordinator;
- supporting the implementation of the policy;
- ensuring funding to support this policy is considered during the budget setting process;
- meeting with the Design and Technology coordinator on a regular basis;
- having a clear view of the strengths and areas for development;
- attending relevant training;

Staff Development

The staff needs are initially met by the coordinator through leading staff meetings and INSET. Needs are identified through monitoring arrangements and discussions with staff members. Courses organised by the Borough are available for teachers to attend.

Resources

Resources are ordered at the beginning of the year and kept in each year group. Resourcing needs are regularly monitored and new/replacement resources are obtained within the curriculum budget set by governors as identified by the coordinator and staff.

Equal Opportunities/ Entitlement

All children have equal access to the Design and Technology Curriculum, irrespective of race, gender, class or ability. The school ensures that:

- All children cover the content made statutory by the Programmes of study within the National Curriculum;
- Children access the curriculum at the appropriate level, thus ensuring progression and differentiation;

- Suitable resources and learning environments will be available to enable children access to the learning required.

Special Educational Needs

Children with learning difficulties will be diagnosed and provision for their particular needs will be made in consultation with the SENCO. These may include differentiated activities and access to appropriate construction materials.

More Able Children

More able children's needs will be addressed by differentiated activities. This may involve working on a design and make assignments with more than one feature, undertaking independent research or trialing designs.

Cross Curricular Opportunities

As well as making distinctive contributions to the school curriculum, Design and Technology contributes to the wider aims of primary education and makes significant contributions to the following cross curricular areas;

- PSHE and Citizenship;
- The Development of Key Skills;
- The Development of Thinking Skills;
- Education for sustainable development;
- The Development of Enterprise and Entrepreneurial skills.

Design and Technology continues to make an important contribution to English, Mathematics, Science, Art and ICT as identified in each 'Projects on a Page' unit.

Health and Safety

The Health and Safety guidelines will be displayed in each classroom. See Appendix 4

Appendix 1

Long term plan

Key Stage 1

Year 1	Mechanisms Sliders and Leavers	Structures Freestanding structures	Food Preparing fruit and vegetables (including cooking and nutrition requirements KS1)
Year 2	Mechanisms Wheels and axles	Food Preparing fruit and vegetables (including cooking and nutrition requirements KS1)	Textiles Templates and joining techniques.

Lower Key Stage 2

Year 3	Structures Shell structures (including computer aided design)	Food Healthy and varied diet (including cooking and nutrition requirements KS2)	Textiles 2-D shape to 3-D shapes
Year 4	Mechanical Systems Levers and linkages	Electrical Systems Simple circuits and switches (including programming and control)	Food Healthy and varied diet (including cooking and nutrition requirements KS2)

Upper Key Stage 2

Year 5	Structures Frame structures	Food Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)	Mechanical Systems Pulleys or gears
Year 6	Textiles Combining different fabric shapes	Electrical More complex switches and circuits (including programming, monitoring and control)	Food Celebrating culture and seasonality (including cooking and nutrition requirements for KS2)

Appendix 2

MEDIUM TERM PLAN PROFORMA

DT:

TERM:

YEAR GROUP:

Session	Learning Challenge	Literacy Skill Numeracy skill ICT	Steps to success <i>'What Makes Good...'</i>	Activity and Organisation (inc. key questions, vocabulary, focus groups and Plenary,)	Key vocabulary/ Resources	Differentiated provision/ MGP
1					Key vocabulary: Resources:	MA LA
2						
3						
4						
5						
6						
7						
8						

Curriculum Enrichment:

Resources:

Independent Writing -

Home Learning –

DT Assessment

Year 1

Designing

- Is able to generate ideas based on simple design criteria and their own experiences, explaining what they could make.
- Develop, model and communicate their ideas through drawings and mock-ups with card and paper.
- Design appealing products for a particular user based on simple design criteria.
- Generate initial ideas and design criteria through investigation
- Communicate these ideas through talk and drawings.

Making

- Plan by suggesting what to do next.
- Select and use tools, skills and techniques, explaining their choices.
- Use simple finishing techniques suitable for the product they are creating.

Evaluating

- Explore a range of existing products, everyday products, etc comparing them to their finished product.
- Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.

Technical knowledge and understanding

- Explore and use sliders and levers.
- Understand that different mechanisms produce different types of movement.
- Know how to make freestanding structures stronger, stiffer and more stable.
- Know and use technical/ sensory vocabulary relevant to the project.

	Emerging	Mastery with greater depth
Autumn		
Spring		
Summer		

Health & Safety

Whilst Health and Safety considerations & risk assessment remain the primary responsibility of the teacher in charge, the children should be taught to;

1. Reduce risks through responsible behaviour and use good practice to avoid hazardous situations developing.
2. Abide by simple safety rules when using tools or equipment.
3. Consider and recognise hazards in their proposed ways of working, and take action to minimise them.
4. Assess the risk of hurt or damage posed by evaluating their own and other designer's products and suggest remedial action.
5. Store tools and materials with due regard, and organise their working environment / practices in a safe way.

Areas for special concern include;

- ✓ The use of hot-melt glue guns and saws and to be aware of what to do in the event of a minor injury.
- ✓ Food Technology lessons require that hygiene is given the utmost priority. Activities involving the use of cookers / ovens / microwaves require a high level of supervision with appropriate safety / protective clothing being available.
- ✓ Fabric work that involves scissors, sharp cutting tools, pins and needles requires careful resource management. Children should be taught simple storage strategies for dealing with sharp objects that are 'not in use'.
- ✓ Construction kits may pose some small risk (particularly at KS1) and children should be warned of the dangers of placing pieces in their mouths etc.
- ✓ Safe practices for handling soft mouldable materials should also be taught to minimise small pieces being inappropriately used!
- ✓ Contact with foodstuffs and other materials likely to cause allergic reactions should be avoided.

Appendix 5

Curriculum targets for Literacy apply to all subject areas.

To ensure high standards in all written work and promote the aims of the school in all subject areas by -

- highlighting the importance of higher order writing skills
- providing opportunities to develop speaking and listening skills
- ensuring the correct use of grammar is a high priority in all written work
- developing positive cross curricular links between Literacy and other subject areas