



DESIGN AND TECHNOLOGY GUIDELINES

ORGANISATION

At Cockfield Primary School Design and Technology assignments are planned for on an evolving two-year rolling cycle in order to accommodate classes containing mixed year groups and to fit in with the creative approach to the curriculum, where links between subjects are made wherever possible.

Planning the D & T curriculum is a process in which all teachers are involved and has been developed through collaboration between staff.

PROGRESSION AND CONTINUITY

Topics identified in the school's long term plans are developed in further detail by teachers, who are responsible for their delivery, in collaboration with the subject leader.

The planned activities will relate directly to the programmes of study appropriate to individual needs.

Topics are planned with balance, continuity, coverage of D & T curriculum and progression in mind.

This will therefore show: -

- Progression in knowledge, skills and understanding from one assignment to the next, between years and Key Stages
- Coverage of the National Curriculum requirements of D & T
- Balance of activities and materials used, as well as tools and equipment
- Continuity between years and Key Stages

TEACHING AND LEARNING

The child's capability is developed through specific assignments in which pupils design, make and evaluate a product using a range of materials and components, learn technical knowledge through exploring materials. In order to develop each child's D & T capability the National Curriculum is set out in this way:

Design

Make

Evaluate
Develop Technical Knowledge

Children in both Key Stages will be taught D & T through topics , which will include these key areas of learning. The topics will be cross-curricular and will follow the school's belief in a creative curriculum, where subjects are linked together.

FOUNDATION STAGE

UNDERSTANDING OF THE WORLD

Early Years Foundation Stage for Designing and Making.

Build and construct with a wide range of objects, selecting appropriate resources and adapting their work when necessary.

Select tools and techniques they need to shape, assemble and join materials they are using.

Use simple tools and techniques competently and appropriately.

Construct with a purpose in mind, using a variety of resources.

Begin to try out a range of tools and techniques safely.

KEY STAGE 1

Within Key Stage 1, children will be given the opportunity to work within a range of materials and components and will develop their Design and Making skills, knowledge and understanding through D & T Assignments which target the following at least once: -

Year One

Control

(e.g.. produce a moving picture page for a class book about ourselves)

Cooking and Nutrition

Structure

(e.g. make a lighthouse/Stephenson's Rocket)

Year Two

Textiles

(e.g. make an animal puppet)

Mechanism

(e.g. make a vehicle with wheels based on exploring)

Structure

(e.g. design and make a miniature garden/seaside)

Within Key Stage 2 the children will be given the opportunity to work with a range of materials and components and will develop their Design and Making skills, knowledge and

understanding through Design and Making Assignments which target the following at least twice: -

Lower Key Stage Two

Control

(e.g. produce a book with moving parts)

Design and make an alarm something which triggers a light or buzzer to come on

Structure

(e.g. make a photo frame/mirror - to display a map of the UK or a city)

Textiles

Linked to topic

Mechanism

e.g. make a moving character using

Cooking and Nutrition

Upper Key Stage Two

Electrical control

(e.g. make an electrically controlled moon buggy)

Textiles

Investigate and make an item of Viking clothing or design a Viking tapestry

Record an event using fabric as the media

Cooking and Nutrition

Mexican food

Structure

Make a shelter to survive in the rain forest, bush craft activity

Mechanism

Make a moving cam model to show a sporting hero

The skills, knowledge and understanding that children will develop, will be carried out through, for example, children: -

- Making plans, generating ideas, making preliminary models (**designing skills**)
- Choosing material and tools and learning how to use these appropriately. Learning how to cut and shape, join and combine and finish products (**making skills**)
- Experiencing a range of materials and developing ways of using these materials to suit particular purposes. (**Knowledge and understanding of materials and components that could be used**)
- Learning how to combine materials to create movement and using switches or handles to control movement (**knowledge and understanding of mechanisms and control systems to be used**)
- Taking apart products to find out how they will work and mentally disassemble. (**Knowledge and understanding of existing products that can provide starting points and ideas.**)

- Considering how well a product has been made, learning how to recognise hazards when designing and making and considering how these can be minimised.
(**Knowledge and understanding of quality, health and safety, and vocabulary**)

It is recognised that the work in the Foundation Stage will lay the foundations for future work in D & T by introducing children to materials and tools and by focused practical tasks and by allowing children access to a range of construction kits in order for children to explore, design and make. Children will be encouraged to communicate their ideas individually and in groups through talking and drawing and to discuss what they have done during they're designing and making.

WORKING THROUGH THE DESIGN AND TECHNOLOGY ASSIGNMENT

1. Children are presented with practical problems, which should be appropriate to their age, ability and interest.
2. A brainstorming session, involving the whole class, should then follow where ideas are investigated and designs are suggested to solve the problem.
3. Drawings and plans will then be constructed, using suitable materials in an attempt to solve the problem.
4. 3D models should then be constructed, using suitable materials, in an attempt to solve the problem.
5. The model will then be tested to evaluate how successfully it provides a solution to the problem.
6. Modification may be necessary at this stage in the light of these findings.
7. A report/evaluation should then be made on the activity.

The school recognises that for younger children the design process may be simplified into three stages: -

1. Drawing and plans
2. Making a 3D model
3. A simple evaluation of how something was made, written or verbal

They will also be encouraged to understand the safe and appropriate use of materials and equipment and to recognise the need for safe storage and maintenance. Children will also have access to a variety of simple manufactured items e.g. teddies, toys, in order that they can investigate and disassemble and begin to evaluate these as they begin to understand how they have been designed to perform their purpose.

CLASSROOM ORGANISATION FOR DESIGN AND TECHNOLOGY

The teacher has overall responsibility for the organisation and management of D & T within the classroom. This organisation should provide opportunities for class teaching, group and individual work. However it is recognised that the predominant mode of working will be co-operative group work. Children are encouraged to develop inter-personal skills through discussions, enquiry and negotiation whilst working as part of a team.

It is also recognised that D & T activities will span all areas of the curriculum and therefore cannot be taught in isolation. In particular D & T makes special links with Science, Mathematics, Art and Computing.

Classroom support is used to assist in the preparation of materials and supervision of group activities. It is important that they are aware of the aims and learning objectives of the activities they are involved in.

D & T assignments will take place in the classroom as far as is possible and should allow for a variety of materials to be used appropriately and safely. Food technology will also take place, as far as possible, in the classroom (using the portable hobs), although any use of the cooker will usually take place, under supervision in the designated place – the staff room. Hygiene and safety issues regarding food technology are addressed in our “Food Policy” which can be found in Appendix 2. Classroom safety and training in the use of tools and equipment will form an important and integral part of the technology curriculum. If teachers suspect that tools or equipment are unsafe they must inform the subject leader and remove the equipment or tool.

Children’s work in D & T should be celebrated through classroom displays and where possible work should be shared throughout the school in presentations and communal displays.

Teachers will need to consider these points: -

- Pupils need access to a variety of tools, to make choices for themselves. Pupils should see what is available; scanning resources helps to stimulate ideas. Equipment and materials should be organised, accessible and labelled.
- Space should be available for children to work, gain access to well organised resource materials and display their work. There should also be adequate space for storing children’s unfinished models and artefacts, which they may be working on for a period of time.
- Pupils should be taught to use materials economically and be responsible for their own working areas. They should be taught to work safety and hygienically.

ASSESSMENT, RECORDING AND REPORTING

ASSESSMENT

Informal assessments are made as each child works through the D&T task, by observing and talking to the child. Such assessment will concentrate either on the process or the outcome.

Teachers make comments in their planning files to inform future planning.

Children’s recorded work (Design plans, written evaluation etc) will form part of the evidence and when the outcome is being assessed the evidence may be in the form of the product of photographs of the product. This evidence is kept in children’s topic books.

Feedback is given to pupils about their own progress in D & T through the making or work. Effective feedback:

- Aims to help children learn, not find fault, and to be positive and constructive
- Is done while a task is being carried out through discussion between the child and the teacher
- Of written work and design drawing may be carried out by the teacher or with pupil present and is always followed up by discussion between child and teacher

RECORDING AND REPORTING

Teacher's record which skills children have covered in each topic, using the National Curriculum Milestones documents.

Reporting to parents will be carried out annually through end of year written reports. Reporting may focus on each child's

- Design and making skills
- Knowledge and understanding

EVALUATION AND MONITORING

The strategies employed by the school to enable the D & T subject leader to monitor the delivery of the design and technology curriculum in the classroom will be:

- The subject leader overseeing the long, medium and short term planning of the staff for design and technology
- Teachers working together on subject monitoring at the end of each topic
- Teachers and the subject leader checking skills coverage and progression

THE ROLE OF THE SUBJECT LEADER

The role of the subject leader at Cockfield Primary School is to:

- Have a sound knowledge of the National Curriculum in their subject as they relate to the whole range of children at Cockfield Primary School
- Keep up to date with changes and innovations in that subject area
- Advise the Head Teacher and teaching colleagues
- Accept responsibility for the ordering and organisation of appropriate resources for learning and teaching after discussion with the Head Teacher and teaching colleagues
- Assist colleagues in the preparation and teaching of their subject area using support and development time where appropriate and in negotiation with the Head Teacher
- Carry out, in negotiation with the Head Teacher and in accordance with the School's agreed priorities, support and development activities as and when appropriate
- Take a leading role in the discussion and preparation of policy and guidelines relating to planning, teaching, assessing and recording their subject area
- Appropriately monitor and evaluate the resources, materials and strategies used in their subject area throughout the school using support and development time as appropriate and in negotiation with the Head Teacher
- Keep a subject leaders file

SPECIAL EDUCATION NEEDS

Pupils with special educational needs receive help from the class teacher/teaching assistant to undertake exercises or projects geared to their level of ability and to take an effective and valuable role in mixed ability co-operative work. This will include:

- Pupils with learning difficulties who may need support with reading and writing but who may have well developed practical skills in designing and making

- Pupils who have difficulties with practical tasks who may need more support and extra opportunities for practice
- Pupils with particular ability and flair for D & T who are to be extended through the use of additional, more demanding, assignments

Extra classroom support is often required and individual work plans including reference to IEP's may be needed for children who have difficulties with practical tasks or reading and writing. Teachers will endeavour to ensure that work is challenging, yet achievable and that tasks are structured so that pupils can succeed. Teacher's expectations will be appropriate and the success of pupils recognised.

The statutory order makes provision for pupils with disabilities:

A pupil who, because of a disability, is unable to undertake a practical activity required under the programme of study, might undertake an alternative activity, which most closely matches that activity

E.g. A pupil lacking the co-ordination to cut materials with a hand saw might separate dough into pieces for making buns

E.g. A Pupil unable to use materials to make objects might use a computer to make an information system

EQUALITY OF OPPORTUNITY

Our approach to D & T aims to ensure equal access for children of all abilities, physically, emotionally and academically. Planning should ensure all children, irrespective of gender, race or class, would have equal access to the D & T curriculum.

COMPUTING

Computers are a major resource, which is used in D & T for:

- Planning, design and making
- Desk-top publishing of printed materials
- Research – using encyclopaedias and other reference sources

CULTURAL AND HISTORICAL DIVERSITY

At Cockfield Primary School we recognise that D & T can benefit from the contribution of different cultures and historical periods. This may involve the study of the development of interventions, skills, techniques and materials used and developed in other times or cultures.

HOMEWORK

Homework will be used to support D & T through tasks such as

- Library research in areas such as the work of distinguished engineers and the historical development of familiar products
- Bringing artefacts from the home environment into school for display and discussion

ASSISTANCE FOR, AND THE DEVELOPMENT OF TEACHERS

Teachers may seek advice from the subject leader and their personal development in D & T will be provided through:

- Discussions with the subject leader
- Staff meetings on planning / skills development
- In-service training both inside and outside school
- In-school support provided by the LA

Staff will be encouraged to attend courses, review resources and mount exhibitions. The subject leader will have access to specific training to develop and support their role. Inset will be organised as appropriate.

RESOURCES

Central resources in D & T are the responsibility of the Design and Technology subject leader.

Tools and equipment are stored in the cupboard outside the staffroom. Children are expected to take growing responsibility for their care and organisation. The range of resources used will depend upon the needs and abilities of the children. Teachers should be aware of the full range of resources available in school. Tools and materials will be used progressively throughout the school.

HEALTH SAFETY ISSUES IN DESIGN AND TECHNOLOGY

These issues include:

- Use of materials, tools and techniques in accordance with Health and Safety requirements
- Appropriate storage of tools and materials
- Teaching pupils to recognise hazards in a range of products, activities and environments and to take action to control the risks to themselves and others.

Safety when working with tools is carefully considered when undertaking any practical tasks within the school. At Cockfield Primary School we maintain that:

1. All tools provided are selected with the users in mind and are of a size and type suitable for children
2. Tools are maintained in good condition
3. Children are taught the correct technique for using each tool and this instruction is reinforced whenever possible
4. Children are encouraged to think very carefully when selecting tools, to consider their appropriateness for different materials and techniques
5. Children are encouraged to have a personal responsibility for their own and other children's safety

A copy of the pupil and teachers safety code can be found in Appendix 1.

A Food Policy that addresses Health and Safety issues when dealing with food technology can be found in Appendix 2.

POLICY REVIEW AND EVALUATION

The policy for D & T will be reviewed and evaluated regularly. Any alterations necessary will be taken to a staff meeting and discussed. The Governors will be given the opportunity to analyse and comment on the contents of the policy before it is implemented.

APPENDIX 1

WORK SAFETY

It is only by letting children use tools that they can learn to use them correctly. We must point out the dangers to children and teach them to behave sensibly with tools.

Periodically teachers should emphasise safety aspects and follow a pupil safety code together with LA guidelines on Health and Safety

A PUPILS' SAFETY CODE

If you have protective clothing wear it.
Never wear a necktie when working.
Boy or girl, if you have long hair, tie it back
Do not wear any jewellery

When sawing or drilling use a G-clamp.
Secure materials to the work surface so that they can't slip about.
Don't interfere with someone else's cutting or drilling – they may not realise you fingers are in the way.

If you are not certain how to use a tool ask a teacher before you use it.
Some tools are only to be used with teacher supervision – know what they are.
When carrying tools never run about the classroom.

Know what to do in an accident.

TEACHERS' SAFETY CODE

Make sure children are aware of all safety procedures

Make sure all children are aware of which tools are for

- Teacher use
- Only under supervision
- Pupil use

A red / green, stop / go sticker system is easy to manage and visible to all (especially non – readers)

Check table – top vices are clamped properly.

Teachers may decide that they are the only people allowed to place and remove a vice from a work surface.

Vices don't break easily but toes will.

Do not leave vices set-up in the classroom.

Pencils and other classroom equipment will have a longer life if you remove temptation.

Fingers may stay un-nipped a little longer.

Children, in their enthusiasm, will often forget to use a bench hook and need to be reminded.

They must have securely – held materials to work on.

APPENDIX 2

TECHNOLOGY – FOOD WORK

Food work will usually be carried out in either:

1. An area set aside in the classroom for whole class demonstration of skills of techniques
2. The area set aside in the staff room for small group work

Any area used for food work should be safe and clean. It is the teacher's/teaching assistant's responsibility to ensure that hygiene practise and health and safety rules are carried out.

Personal Hygiene

Staff, pupils and any adult other than teacher should

1. Make sure sleeves are rolled up
2. All hands are washed with hot water and soap before starting or when changing activity
3. All participants wear aprons provided
4. Long hair will need to be tied up or back
5. Rings, watches etc. will need to be removed and kept in a safe place

Equipment

All equipment is kept in the fool technology area in the staff room.

It is the responsibility of the class teacher to ensure that all equipment is properly washed and returned to its place at the end of the activity.

The oven and / or microwave should also be cleaned if used.

Food equipment should only be used for food activities.

Any perishable food (margarine, eggs, cream) should be purchased for the activity from school fund and disposed of after use.

Food may be stored in the refrigerator only for the days it is required. Eggs should not be eaten raw.

If working in groups 4 – 6 are a manageable number but some activities (e.g. bread making) the class can work as a whole group.

IF WORKING IN THE CLASS ROOM YOU WILL NEED TO THINK ABOUT:

- Access to hand washing facilities
- Easy access to tools and equipment
- Getting to the sink and water supply
- Not through way for other pupils
- Space to move around
- Safe use of equipment
- Supervision of pupils
- No trailing flexes
- Ability levels of the pupils
- Clear rules about clearing up the clutter

Before you **start work** there should be clear rules about tidiness

- Somewhere to hang aprons
- What to do with chairs etc.
- Somewhere to dispose of food waste

Always clean surfaces with an anti-bacterial spray before you start work

On **finishing work**

Wash all utensils in hot soapy water, obtainable from the office sink, dry them and return to their place.

Wipe down all surfaces with hot soapy water followed by an anti-bacterial spray.

Use paper towels instead of tea towels and disposable cloths for dishcloths.

Special bowls are provided for washing up.

The class teacher is responsible for making sure all these procedures are carried out.