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|    | <h2>Design and Technology Policy</h2>  |  |
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| <b>Intent in Design and Technology</b>  |  |   |
| <p>We believe that Design and Technology plays a part in all of our lives. With constant advances in technology across the world it is increasingly important for children to have a good understanding of design and the processes involved in producing a quality product in a range of relevant contexts. Our intent is therefore:</p> <ul style="list-style-type: none"> <li>• To create an interest and enthusiasm for designing and making in children of all abilities and ages.</li> <li>• To provide a developmental range of activities to increase the children’s capability and confidence in their own ideas.</li> <li>• To help children gain an understanding of the ways in which people from the past and present have used design and Technology to meet their needs and how this is relevant to them.</li> <li>• To develop children’s confidence and skills in using and selecting from a wide range of tools and materials.</li> <li>• To help the children to become increasingly proficient across the range of media used.</li> <li>• To encourage children to be self-critical, to evaluate and seek to improve their work and solve problems.</li> <li>• Understand and apply principles of nutrition and learn how to cook.</li> </ul> |  |   |
| <b>Role of the Subject Leader</b>   |  |   |
| <p>The Role of the Subject Leader:</p> <p>The subject leader is not expected to know “everything” about a subject but is expected to be fully abreast of how best to teach and organise the subject in addition to being aware of current best practice and research in the subject.</p> <p>The coordinator will moderate the standards of children’s work and the progression of planning, teaching, and learning across the school. This includes the transition from the Foundation Year; understanding how the subject’s foundations are grounded and developed in the Foundation Year.</p> <p>The subject leader will support colleagues in the teaching of the subject, informing them about current developments in the subject, and providing a strategic lead and direction for the subject in</p>   |  |   |

the school. This will involve leading teacher meetings as required and producing an annual subject evaluation to feed into the Standards Night and through to the new School Improvement Plan.

The coordinator should advise the Headteacher, staff and governors of current practice in the subject and any new initiatives put forward by the government or LA.

### **Role of the Class Teacher, Senior Management Team & Governing Body**

The Role of the Governing Body:

The governing body should, in cooperation with the Head teacher, determine the school's general policy and approach to the subject at the school. This will include the priority given to the subject within the context of the whole curriculum.

### **Implementation - Entitlement, Curriculum Organisation & Planning**

#### **Long Term Plan**

Design and Technology has been allocated 36 HOURS per year.

The time is then distributed across the media/units in which the children will work as shown on the Key Stage Long Term Plans for Design and Technology. Refer to the Curriculum Long term Plan for details of distribution.

The Medium-Term Plans for Design Technology have been created by the subject leaders to cover the breaths of skills and knowledge stipulated in the new curriculum.

. They:

- Provide clear guidance and enable differentiation and extension activities to be arranged.
- Ensure progression.
- Give staff who are not experts in Design & Technology the confidence to tackle the subject well with their pupils and to meet the requirements of the National Curriculum fully.
- Provide a starting point.
- Provide a focus for discussions between the teacher and coordinator.
- Avoid the stage of having to think what to do.
- Avoid activities which are less than adequate.
- The medium-term plans have enabled confidence to grow and enabled staff to use the models given and to adapt the activities or to change them altogether and produce original plans based on a well-tested approach.

The decision-making process involved as teachers prepare to implement a Design and

Technology module is as follows:

1. What experiences have the children had previously in D&T and notably using these materials/processes?
2. Does the D&T project involve the three types of D&T activity?
  - a) investigate, disassembly and evaluative activity (IDEA) ]
  - b) focused practical task/s (FPT) ] Technical  
] Knowledge
  - c) design and make assignment (DMA) ](it should be noted that IDEA activities do not have to be taught before a FPT but each unit of work should always have a DMA, this will be at the discretion of the Class Teacher based on the needs of the children being taught and the nature of the D&T project).
3. How and when is the D&T module to be blocked?
4. Agreements need to be sought over access to materials particularly across Key Stage 2.
5. Which resources are required? Are any extra resources required?  
Approach coordinator to order these if necessary.
6. If colleagues feel insecure about a particular project or require support in a particular element of it, classroom support from the coordinator can be sought.
7. Volunteer Helpers / support staff have to be arranged, particularly if there are potentially hazardous activities (e.g. hot glue guns)
8. Is setting appropriate? (See also Special Needs section).
9. What needs to be gathered to enable children to evaluate and disassemble related products?  
(Note; disassembly does not necessarily mean taking the toaster apart! It can be an evaluation of a product without its destruction. Similarly, it could involve making a working model in Technical Lego to establish how it works and how linkages are made.)
10. Which skills need to be taught/revised before the children can begin making e.g. use of hacksaw and bench hook.
11. Are children to be working as individuals, in pairs or small groups?
12. What are the essential rules of the classroom when hazardous activities are being tackled?

These issues are debated by planning teams at their **short-term planning** meetings.

#### **Other priorities in the D&T Process**

1. Children should know the range of materials available to them before they start designing, and work with appropriate economy with the available resources.
2. Everyone must appreciate that quality is expected at every stage.
3. Designing, drawing, modelling, and making the final product are all important and should receive a quality input and response from the teacher and pupil.
4. Evaluation of every stage of the process is vital and pupils must accept as normal the need to continually seek improvements.
5. Display of finished products should celebrate the whole process

#### **Level of Adult Support**

Wherever possible children should do all their own work. This is regardless of age or ability. If children are regularly struggling, then clearly the task was beyond them and inappropriate. Children however should not be underestimated and even in the Foundation Stage are clearly able to bake without a volunteer touching their food, except to put it in or out of the oven.

Adult help is constantly required to suggest, question, inform and advise. Adults need to teach specifically how to use equipment properly and this will include demonstrations.

On occasions there will be a need for an adult to offer greater help. This will be when:

- A pupil has tried to solve his/her own problems and failed.
- A pupil needs help over a hurdle which will then open up a whole new range of possibilities for the child.
- A pupil has become de-motivated and needs success to fire them on to the next challenge.
- The area of help is not linked to the specific objectives of the lesson.
- The skill required is way in advance of the pupil, but the design task from the pupil is a reasonable suggestion from the pupil (i.e. not in the realms of fantasy).

An example of this could be in the use of a glue gun. Perhaps due to the age of the child the actual gluing of an object with a glue gun is acceptable by an adult providing.

- a) Gluing with other glue would be unsatisfactory
- b) Gluing is not an objective of the lesson
- c) Not gluing would deny a child any hope of success and prevent a design task from being completed satisfactorily.

Depending on the subject and the specific needs of it, you may need one or more of the following additional sections:

### **Monitoring the Impact (Assessment, Reporting and Recording)**

Formal assessment, recording and reporting arrangements for Design Technology are made using the school's FLiC program. Full details of this formative system are in the Assessment Policy. Teachers will complete their own ongoing assessments to ensure that appropriate progress is being made and assessment informs teaching and learning.

Coordinators conduct their own Learning Walks and analyse the impact of teaching and learning in Design Technology by conducting deep dives, which include sampling the pupil voice and the work at all stages of the process.

Coordinators also produce a Self-Evaluation analysis for governors through the Annual Standards Report and Standards Evening.

### **Mastery in Design Technology**

Pupils fully understand how to use creativity and imagination to design and make high quality prototypes and products that solve real and relevant problems within a variety of contexts. Pupils instinctively in this process consider their own and others' needs, wants and values.

Through the process pupils take risks, are resourceful, innovative and enterprising. They are capable and confident with the range of materials and tools to be used.

Through the process pupils are critical, evaluate and test their ideas and products and the work of others to achieve the best possible results.

Pupils understand and apply the principles of nutrition and can cook.

- Coherence means in Design Technology
  - The process of lesson design is consistent across the school. Each unit should be taught in a manner which is immediately understandable to the pupils.
  - On starting a unit there should be a reminder of the lessons learned in previous units and particularly those with similar materials.
- Variation means in Design Technology
  - The key variation is in the role that pupils take in the process. This should include opportunities to lead and inform the process. Children should experience working alone at times within the unit as well as part of a team.
  - The other key variation is the explicit recognition that the process of design to making and evaluation is applied to all materials.
- Structure means in Design Technology
  - Unit plans should always be taught with the following structure:
    - Analysis of what products already exist, their construction and ingredients.
    - Teaching and mastery of the skills required to enable the children to be able to have success in their design and construction/assembly processes.
    - High expectation in the design stage and critical questioning of plans.
    - Children do not move forward to the building/creation/making stage until they have mastered the skills required to complete the task and have a plan which has passed the critical questioning stage. This will include all health and safety procedures.
    - Products are mutually evaluated by the creators, their peers and teachers.
- Fluency means in Design Technology
  - Pupils are expected to verbalise their reasoning and understanding with open ended questions at regular intervals. Pupils should expect to be challenged by critical questions.
- Making connections / logical reasoning in Design Technology
  - On the commencement of each unit there is reference to the previous time similar skills, and or materials were used and what was learnt then.
  - The context of the work is made explicitly clear in that all children understand how the work fits into a global picture by that in enterprise, human need, architecture or nutrition.

**KEY CONCEPTS/THEMES/PROCESSES which run through the units which need to be developed, step by step, and show progression year on year? These are reflected in the organisation of objectives in FLiC and the assessment grids.**

- Critically disassembling and evaluating articles from the real world.
- Mastering the techniques and skills required to design and make prototypes and products.
- Creating effective and realistic designs.
- Realising designs using technical knowledge.
- Evaluating and testing their own designs, products and those of others.
- Learn how to cook understanding nutritional principles.

### **Design and Technology in the Foundation Stage**

The children in the Foundation Stage are exposed to elements of Design and Technology on a daily basis through their on-going provision.

Examples are:

- Table / floor construction kits
- Sand and water play
- Large construction equipment
- Play-doh and doh disco
- Workshop area

The children are taught specific fine motor skills to encourage their tripod grip which will develop accurate use of tools including scissor skills.

In addition, the children are engaged in specific projects such as designing and making articles linked to a specific theme. These young children should also be exposed to

'disassembly' as described above. Role play also plays an important part in developing a context for the appreciation of the designs and processes in the world around the children. Food technology is a key area of the Foundation Stage D&T programme. This is a much enjoyed and very successful area in which the pupils can work within the D&T curriculum.

The Foundation Stage Policy describes in detail how children are engaged in Design and Technology work.

### **Relationship with the rest of the curriculum/Cross Curricular**

In both Key Stages the positioning of the Technology modules is designed to complement the Focus Link / theme for that term.

For example in Key Stage 2 the Unit "Torches and Signaling" is designed to coincide with work Connecting the World. In Year 6 the unit "Dragon's Den" using resistant materials is specifically timed to coincide with Enterprise Day. Similarly, the "Moving Toys" unit is scheduled to follow the Derbyshire Residential Visit where waterwheels are studied at close hand. The children then design a toy powered by a water wheel.

When arranging the distribution of the Technology Units across the years it was a priority to enable teachers to profit from links with the rest of the Curriculum.

However, the Design and Technology time is not used falsely in order to make models for other subjects. Should the links with other subjects not enable the proper aims and objectives of Design and Technology to be met then the subject will stand alone. Where cross curricular links are sound however it helps greatly to achieve the aim:

*“To help children gain an understanding of the ways in which people from the past and present have used Design and Technology to meet their needs and how this is relevant to them.”*

The subject will not be taught as a weekly lesson as this would be an inefficient use of the time particularly as there are so many resources to gather together. Within the term, the teachers decide how to best apportion the time allocation. Usually, the work is done as a block, which may mean a very intense three days of Technology, with the full three days being devoted to the subject. This really allows the pupils to get to grips with a project. It is also a way of maximising time and not wasting time having to set up and pack up at frequent intervals. It is permissible for teachers to have full D&T days. The Literacy and Numeracy time allocations allow for full special D&T days.

### Promoting Equality & Inclusion

Clearly there still exists in society an inequality in the involvement of girls and boys in technological areas. The danger and practice has been that this has become self-perpetuating.

In the Primary School this can easily be entrenched so that by the time the pupils enter secondary education girls in particular do not see Design and Technology as being relevant to them.

At this school every effort is maintained to demonstrate members of both sexes being involved in all technological activities. (e.g. men and women working with textiles and food, women and men working as engineers).

In addition, careful groupings of pupils must avoid situations where children become sidelined into only certain aspects of a design and make task. The worst-case scenario is where the girls do all the drawing and measuring while the boys do all the sawing and gluing.

### SEND and TALENTED

The S.E.N.D policy expects that there will be appropriate differentiation for pupils in Design and Technology.

Teachers should ensure that a special need in reading or writing for example does not hinder a child's performance in Design and Technology.

Such children should have the necessary support to give the children a level of independence equitable with their peers.

It is also worthy of note that children who do not have S.E.N.D in other areas of the curriculum do sometimes have special needs in Design and Technology. This may come as a shock to the pupils and produce unsatisfactory attitudes to their work.

Strategies need to be prepared to ensure that these needs are met.

Teachers may find it helpful to take note of these factors when planning a differentiated D&T project particularly with children with Special Educational Needs in mind:

- Could the child/children work on shorter more focused assignments rather than longer open tasks as shorter tasks provide small elements of success, rewarding and motivating children regularly?
- It may be more beneficial for the activity to be adapted so that the child/children are using contexts they are familiar with.
- It may be more appropriate for the child/children to adapt or make improvements, or add a new feature to the design of a product rather than 'invent' a whole new product.
- Could they design a product where they are given alternative solutions?
- Could they manage a project where certain aspects are restricted?

These factors are to be used as guidance only for class teachers when taking account of S.E.N.D children in their planning, thus they may or may not be relevant depending to the needs of the group of children.

### Talented Pupils

There will be pupils who have particular talents for Design and Technology. Staff must be aware and enable such pupils to extend and to put greater demands on such pupils.

Examples will include those who have developed a high level of skill in technical activities

at home and those who have worked at an advanced level with construction kits.

Considering construction kits there will be a huge discrepancy between those who have hardly touched the equipment and those who can create a hydraulic JCB. Gifted children can often be extended by posing increasingly difficult problems on the basic idea.

“Ah but have you considered this?” or

“What if \*\*\*\*\* how could you solve this.

Sometimes particularly talented pupils will need to have the freedom to press ahead on their own. However teamwork is an important part of the process and those who seem particularly talented in D&T may actually only be talented in certain areas of the subject. Most successful products in the market have had a team input, even if invented by one person. Advice on Talented Pupils in Design Technology can be sought from the Talented Pupils Co-ordinator.

### Resources

Resources are stored in a comprehensive central Science and Technology store. Storage in the school is at a premium and therefore the central store was created to become the entitlement for the school.

It is however made up of stackable storage boxes. Therefore, when a class is to begin a block of Technology work the storage boxes are all shipped to the classroom area to set up a mobile temporary classroom technology store so that everything the pupils need is to hand. When the work is complete the storage boxes are returned to the central store. There are wheelie bins for the collection of reclaimed materials. (Note: Staff must lift boxes down using a foot stool when required, probably at the start of the day, and then pupils may carry them to the classroom. The same in reverse applies when the boxes are being returned. Pupils must not help themselves to equipment from behind the resources store as many boxes are too high and the contents are tempting to children to play with.

There is an annual stock take and the coordinator is responsible for bidding for funding for Design Technology. The coordinator is responsible for the requesting of materials, their organisation and good management. Children are not expected to pay for their work and often products are kept at school for exhibition.

There is no charge for Food Technology.

### **Extended Curricular Opportunities, Wider Opportunities and Liaisons with Other Organisations**

A STEM club is highly popular and at different times focusses on Talented STEM pupils, pupil premium pupils and those with a keen interest.

STEM Club sessions welcome people from the community who are working in a STEM environment to provide inspiration and dispel stereotyping.

Every year the school has a special STEM week in which experts are invited to be role models for the children. There has been a focus on promoting women in STEM professions.

Teachers are also mindful to place STEM units into a real world situation and where possible relate to real people who are working in the field or were historically fundamental.

### **Food Technology – Learning to Cook**

The school is fortunate to have a fully fitted kitchen for the teaching of Food Technology. Children are therefore able to have their lessons in an exceptionally appropriate environment and in small groups (usually 10). In addition, from Y1 to Y6 they are taught by a TA who is also one of the school's cooks.

Every unit taught is designed to be progressive. The first lesson of each unit ensures that there is a disassembly stage with evaluation and design of recipes. Nutrition and health and safety is part of every lesson.

### **Health and Safety**

1. Lessons must be safe (see **The Use of Tools in Connection with Technology**)
2. Children must never use a tool until they have been taught how to use it and proved that they can use it properly.
3. Children should appreciate the properties of the materials they are handling and any dangers associated with them.
4. **Food**
  - Particular care should be taken when handling food.
  - Every lesson should start with a review of do's and don'ts with food. All children must wash their hands. This should be witnessed if there is any doubt.
  - All equipment should be washed before and after use.
  - Equipment specifically purchased for food technology must be used for other purposes and must not be taken from the staff or school canteen kitchen.
  - Any child seen to put their fingers in their mouths (or any other unclean place) must wash them immediately.
  - All other equipment and clothing must be moved away from the work surface.
  - Children should do everything for themselves (with support near an oven).
  - This includes weighing, measuring, mixing and cutting. Use of knives however must be closely supervised by an adult.
  - All surfaces must be cleaned thoroughly using cloths only used for this purpose.
  - Ingredients must be stored appropriately.
  - Baking should be consumed on the day or sent home that night.
5. **Health and Safety Staff**
  - HEALTH AND SAFETY CO-ORDINATOR IS THE HEAD TEACHER
  - THERE IS A STAFF HEALTH & SAFETY REPRESENTATIVE THERE IS A DEDICATED FIRST AIDER
  - RISK ASSESSMENTS ARE IN PLACE IN THE PUPIL KITCHEN
  - THERE ARE FIRST AIDERS IN ALL YEAR GROUPS