Appendix 3: Curriculum statement for Design and Technology

Introduction

Our school has agreed on the following definition:

'Design and technology is about providing opportunities for students to develop their capability, combining their designing and making skills with knowledge and understanding in order to create quality products.' (Design and Technology Association 2015)

We regard the activity as a vital part of each child's development. Our aims are: to enable pupils to develop a curiosity, understanding and appreciation of the technological world; for children to make considered choices; to enhance their independence and develop creativity and imagination within a safe, well-resourced environment.

Coverage and Planning

A Progression Framework of skills (developed from materials provided from the Design and Technology Association and National Curriculum Expert Group for D&T 2014) covering the major strands of technology capability can be found in Appendices A and B. The strands of technology capability covered include:

Designing
Making
Evaluating
Technical knowledge
Cooking and Nutrition

Staff plan a range of activities throughout the year which are mainly linked to whole school themes, although not exclusively, to enable children to develop their skills in these areas.

Classroom Organisation

The classrooms will be organised to promote an efficient, safe and creative learning environment. Children may be required to work independently, in pairs or in larger groups. Children will be given opportunities to develop their technological capability through working on:

INVESTIGATIONS – where children examine simple products to see how they are made or how they work.
FOCUSED PRACTICAL TASKS – where children are taught specific skills by the teacher. Opportunities are provided for children to practise these skills in simple prescribed tasks.
DESIGN & PLANNING ASSIGNMENTS – where children have the opportunity to apply the skills and knowledge they have been taught in developing a product within a given set of criteria. No one assignment will provide an opportunity to apply all of the following but may include an opportunity to:

- Research from sources provided, once design criteria have been established;
- Select appropriate materials from a given range;
- Plan a sequence of steps;
- Evaluate progress and make ongoing alterations to plans;
- Record their work appropriately;
- Test and review finished work;
- Have a regard to the quality of their work and how well it meets the design criteria.
- Use of ICT.

Resourcing

Resources for use in Design and Technology are centrally stored for Key Stage 1 and 2. This includes both consumable materials and tools and equipment. The Foundation Stage store many resources in the classrooms but have access also to the central store.

Health and Safety

Information regarding Health and Safety in D&T lessons can be found in the 'Be Safe!' booklet (Association of Science Education 2011). However, we wish to specify the following within the policy:

- Glue guns and irons should never be used without direct adult supervision.
- Scissors: KS1 and nursery pupils should not use pointed scissors.
- Cooker: no pupil should use the cooker except under direct adult supervision.

Adult helpers

Frequently adult helpers, including Teaching Assistants and volunteer parents (DBS checked) are used in a supervisory role in the classroom. These need to be well versed in the learning objectives of the activity they are supervising and in any health and safety issues relevant to the activity. Teachers give guidance to adult helpers.

Assessment and Record keeping

See 'Assessment and Record Keeping' policy

Charging Policy

The Governors reserve the existing right to charge parents for the cost of small items of consumable equipment and products in cookery, pottery or other art and technology lessons. Such charges can be legally made only if parents have indicated that they are willing to receive the finished product. We shall make a small charge early in the Autumn Term each year to cover all these minor items. The charge will take the form of a letter to parents with a tear off slip.

The current charge is £12 per child per year.

M G Linney
April 2015
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Appendix A Design and Technology

Progression of skills in Design and Planning:

Talk to teacher about what they are making.
Experience working with pencils and crayons and know the difference between drawing and writing.
Draw models they have made and use colours to match.
Know what they have done and develop an idea of what to do next.

Talk about what they want to make.
Comment on it after it is made and suggest possible changes they might make.
Draw what they have made. Encourage attention to detail. Simply label the drawing using appropriate vocabulary.
Know what they are doing and what they intend in the context of a specific task.

Describe and name the parts of what they are making.
Use appropriate names for the equipment they have used. Evaluate their work against their design criteria.
Draw with some accuracy, pictures of what they have made and annotate with simple sentences.
Introduce drawing of what they want to make with simple labels.
Know what they should do next when engaged in making.
Recognise modelling as a design process (e.g. paper puppet mock up, use of construction kits).

To plan and know sequence of events a few steps ahead and be able to collect appropriate resources.
Develop more detailed annotation of drawings.
To evaluate their product against design criteria.

Introduce an element of scale into drawing.
Introduce simple symbols into drawing such as circuit diagrams.
Encourage more detailed drawing of more complex parts of their work.
Plan in outline a sequence of steps and list materials and tools required.

Have a number of ideas based on research and select and appropriate idea.
Make informed decisions about the choice of materials and equipment.
Produce a scale drawing, developing detail and introducing formalised 3D representation.
Make sequenced plans of stages of work and lists of resources prior to making.

Develop the skill of drawing an object from more than one viewpoint.
Introduce 3D drawing in recording and planning their work.
Write sequenced plans for a complete process.
Write accurate instructions for a third party to follow (e.g. recipe)
Record detailed resource requirements for a task.

Design and Technology

Progression of skills in Food Technology:

Investigate the sensory properties of food.
Select favourite tastes and name basic foods.
Use basic measuring skills (e.g. spoonfuls).
Use basic techniques for spreading, cutting and pouring.

Recognise familiar foods.
Identify simple natural and processed foods (e.g. potatoes and crisps) and the effect of processing on texture, taste, appearance etc.
Use senses and sensory vocabulary when handling food.
Use a variety of simple tools under supervision.

Observe and copy a variety of ways of joining ingredients (e.g. stirring, beating).
Investigate the effect of heat on food.
Learn to handle and shape food (e.g. slice, grate, cut).
Investigate the needs and wants of food consumers and how food groups contribute to a healthy diet.

Classify food sources and consider healthy eating.
Combine cut and shape food to make a product.
Use a range of tools and equipment safely with adult supervision.
The importance of hygiene and storage in food preparation.

Draw up simple plans for food preparation (e.g. flow charts and recipes).
Roll and shape dough. Shape and cut food safely.

Accurate weighing and measuring of food.
Begin to develop criteria for developing a new food product. Comparison of sensory properties of food caused by heat.

Design 'new foods' for an identified need with set criteria.
Use a range of food products and equipment.
Select appropriate equipment for a task.
Follow a recipe and measure accurately.

Design and Technology

Progression of skills in Textiles:

Cut small pieces of fabric.
Look at, feel, describe and draw textures of yarns and fabric.
Use large eyed, blunt needles and simple stitches.

Cut fabrics to simple shapes.
Use simple stitches to hold and decorate fabrics.

Investigate fabric construction (e.g. weaving, knitting).
Identify fabric properties (e.g. stretchy, absorbent).
Use fabrics and yarns for different purposes (e.g. simple weaving, wrapping and sewing).

Use a range of methods of adding colour to fabric (e.g. printing, dyeing, fabric pens).
Develop a range of stitches.
Cut out and use simple shape patterns.
Consider available fastenings (e.g. zips, buttons, press studs).

Use of patterns with understanding of seam allowances.
Use pins to join fabrics in construction.
Investigate simple properties of fabrics and suitability to task.

Add surface decoration techniques to fabrics (eg applique, printing etc)
Investigate fabric properties (eg insulation) to select appropriately for task.

Develop assembly techniques using temporary and permanent stitches.
Make use of simple paper patterns.

Design and Technology

Progression of skills in Structures:

Use of construction kits with interlocking components to build structures (e.g. walls).
Use a range of simple methods of joining materials (glue, split pins, sticky tape) in order to make things.

Use boxes and/or wooden blocks to build towers and explore stability.
Make and use tubes for tall structures.
Use construction kits to make containing structures (e.g. houses).

Use construction kits to build frame structures.
Use supports to make a structure more stable.
Know that some structures contain or protect things.

Use wood and cardboard to construct 2D frames (e.g. photo frame)
Know that some structures can span something.
Make a variety of shaped beams from paper and card to span something.

Use wood and card to construct 3D frames.
Use papier mache to construct a shell structure.
Make frame structures using the concept that triangles are strong.
Know that some structures support something.
Reinforce paper and card through folding.

Use reinforced materials to create structures (eg T or I shaped beams).
Investigate and make arched structures.
Make and investigate corrugated structures.
Use a variety of techniques to build a rotating structure (eg windmill, fairground ride).

Investigate how structures can fail when loaded.
Investigate techniques for reinforcing them.

Design and Technology

Progression of skills in Mechanisms:

Make models, some of which have simple moving parts (wheels, hinges and levers). Include use of construction kits.

Make teacher led models from a variety of classroom materials, which allow some movement.
Develop techniques using simple sliders and levers (eg hold making and use of split pin).
Make items involving use of simple wheels which rotate using an axle.

Make objects with a few moving parts or joints (eg simple wheeled vehicles, puppets, pop-up cards).
Make simple pneumatic toys with balloons.
Investigate and make simple circuits using bulbs and pre-made switches.

Use simple gears using construction kits.
Use winches and handles.
Make and use a variety of simple switches in electricity work.

Use pulleys for transferring motion (e.g. well, crane).
Develop pneumatic work to include use of syringes.
Introduce simple use of motors in electricity work (e.g. propeller, coloured spinner).

Develop use of gears with construction kits to include a change of direction through 90 degrees.
Introduce simple cams.

Develop pneumatic work into a simple understanding of hydraulics.
Use controllable devices.
Use of simple gears with construction kids and introduce more complex gears (e.g. worm gears).
Use motors on electrically powered vehicles for movement linked to wheels).

Design and Technology

Progression of skills in Model Making and Materials:

Use a variety of different papers, reclaimed materials and appropriate tools and equipment for model making.
Use of mouldable materials (e.g. wet sand, clay, playdough etc.)

Continued use of reclaimed and mouldable materials.
Using tools safely (e.g. scissors and hole punch)

Learn to cut and shape materials accurately.
Have an awareness of risk in using some tools and equipment.

Use a range of mouldable materials (e.g. modroc, papier mache, marzipan, clay).
Use square section wood in model making.

Use of sheet materials.
Further development of mouldable materials.

Safe use of a range of available tools and equipment.
Use of plaster of Paris (eg modroc).
To join and combine materials accurately.

Use of sheet and sectional wood in construction of models (eg balsa).
Continued use of mouldable materials.