Using ICT to facilitate planning for primary school design and technology: a case study that also considers the impact of literacy and numeracy developments on the primary curriculum

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Using ICT to facilitate planning for primary school design and technology: a case study that also considers the impact of literacy and numeracy developments on the primary curriculum

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Abstract
The pressure on primary schools from Government initiatives such as ‘school improvement measures’ and ‘target setting’ (DfEE, 1997) is immense. These together with the imperative to ‘deliver’ the National Literacy Strategy (DfEE, 1998) have resulted in a ‘squeeze’ on the foundation subjects of the National Curriculum. The pressure will increase with the Numeracy (DfEE, 1998a) developments planned for the next academic year. This paper discusses how a primary school is, with the assistance of a university-based facilitator, attempting to manage its curriculum planning to ensure Design and Technology remains an important aspect of children’s education within a broad and balanced curriculum. It explores the processes the school has undergone in examining its current practice and develops tentative plans for projection of its curriculum 1999-2002. Central to this planning is the use of an ICT-based system to facilitate curriculum planning processes and curriculum documentation. Findings explore the implications of the curriculum development process implemented in this school and the implications of using ICT for curriculum planning.

Keywords: primary, curriculum, ICT, literacy, numeracy, education

The Nature of the School
I first worked at this school (the names of teacher colleagues and the school have been omitted to ensure anonymity) during the Spring Term of 1993. It is a small primary co-educational school for pupils aged 5 - 11; having four classes spread between infant and junior departments, each class containing children from more than one age group. This work is a development of the action research I have been carrying out over the last six years.

Theoretical Underpinning
The work resides within the genre of ‘Collaborative Social Research’ (Miles and Huberman, 1994, p.8) and is focused on the question:

How can the Design and Technology curriculum be planned effectively within the current educational climate in primary schools?

It is specifically ‘practical action research’ as defined by Carr and Kemmis (1986):

‘In practical action research, outside facilitators form co-operative relationships with practitioners, helping them to articulate their own concerns, plan strategic action for change, monitor the problems and the effects of changes, and reflect on the value and consequences of the changes actually achieved. ... In practical action research, participants monitor their own educational practices with the immediate aim of developing their practical judgement as individuals. Thus, the facilitators’ role is Socratic: to provide a sounding board against which practitioners may try out ideas and learn more about the reasons for their own action, as well as learning more about the process of self-reflection.’ (p.203)

Carr and Kemmis describe educational action research in terms of ‘A Dialectical View of Rationality’ (1986, p180). They define ‘dialectical’ as the process of weighing
contradictory ideas systematically by discussion with a view to identifying how conflict may be resolved and change implemented. They regard this process as the one which characterises the relationship between educational theory and practice. They further clarify this notion, stating:

‘Action research, being concerned with the improvement of educational practices, understandings and situations, is necessarily based on views of truth and action as socially-constructed and historically-imbedded. First, it is itself an historical process of transforming practices, understandings and situations - it takes place in and through history. Any action research study or project begins with one pattern of practices and understandings in one situation, and ends with another, in which some practices or elements of them are continuous and others are discontinuous (new elements have been added, old ones have been dropped, and transformations have occurred in still others).

... Second, action research involves relating practices and understandings and situations to one another. ... The action researcher, ... is aiming therefore to move more surely into the future by understanding how her or his practices are socially-constructed and historically imbedded... .

Action research is also a deliberately social process. ... it engages the action researcher in extending the action research process to involve others in collaborating in all phases of the research process.’ (p.182)

This work accords well with this definition of action research. It is building on the established relationship that I have with colleagues in this school.

The primary form of data collection has been taped structured interviews and the predominant forms of data analysis are ‘case analysis meetings’ (Miles and Huberman, p.76) and ‘dialectics’ (Winter, 1989)

The Development of Design and Technology Over the Last Six Years

At the time of first contact with the school (1993) they had an established statement on the inclusion of technology, which in their view at that time included both Design and Technology and Information Technology in the curriculum:

‘This (Technology) involves the application of experience and knowledge about design together with an understanding of how a variety of information may be stored and retrieved using calculators and computers. We plan many instances in our project themes for children to realise the need for solutions to problems in everyday situations or environments. Children find this work very stimulating and there are opportunities to work with construction kits, simple woodworking tools and a variety of materials.’ (School Prospectus, 1992, p.14)

The school was very supportive of my actions and were keen to move forward their thinking about Design and Technology. I had a number of meetings with the head teacher who was interested in gaining insight into my research. Design and Technology did take place in most classrooms though it was not, perhaps, as coherently planned as would be ideal.

Initial work saw me acting in the role of class teacher, in terms of both planning and delivering the Design and Technology curriculum, with the normal class teacher acting as an observer. From this work came initial insight into teaching Design and Technology and into methods of planning. This form of activity was spread over four years and one of the results was the development of a Policy Statement and associated Schemes of Work and ‘Units of Work’ (SCAA, 1995). Extracts from the policy statement illustrate the changes in thinking about the nature of Design and Technology

1 I was working in three other schools and carrying out my normal role as a teacher educator at this time, hence progress was slow. This activity was also the empirical aspect of my Ph.D. research which was focused on gaining understanding about the subject rather than developing the school’s curriculum.
and its implications for children’s development during this time:

‘Rationale
Through Design and Technology children are developing better understandings about the technological world in which we live. They are acquiring confidence in their ability to design and to make as well as gaining skills and knowledge that will be relevant to them as adults.

Aims
1. To develop children’s personal capability to design and make.
2. To progress children’s understandings of the concepts, skills and knowledge of Design and Technology.
3. To enable children to gain insights into the technological world around them.

Objectives
Through Design and Technology children will:
1. develop creative problem solving abilities through the interaction of hand and mind;
2. develop motor skills through performance with tools;
3. cultivate personal qualities - e.g. persistence, determination, respect for others and their views, a personal value system;
4. respect the values of craftsmanship;
5. accept responsibility for the consequences of decisions;
6. acquire appropriate conceptual knowledge;
7. value knowledge as a tool for the realisation of a design rather than an end in itself;
8. recognise that the possession of procedural knowledge is crucial;
9. establish designing as a life skill;
10. develop a set of skills and appropriate knowledge that enable the maturing of views on the advantages and disadvantages of technological developments.’

The policy, scheme of work and associated Units of Work were planned to run over a two year cycle and with school based colleagues carrying out an on-going review during the implementation.

Re-establishing Formal Contact
I re-established formal research contact at the start of the 1998/99 academic year with a view to continuing our work on the development of the Design and Technology curriculum. However, the ‘Literacy Hour’ developments were causing peak anxiety for primary teachers at this time. The school was committed to Design and Technology (and the other foundation curriculum subjects) but the pressure on the time to undertake these subject was very high. Changes to the National Curriculum requirements – ‘Breadth and Balance’ (July 1998) – introduced by David Blunkett (Secretary of State for Education) – had confused the status of Foundation subjects.

Other pressures on this primary school, as on others, caused by external development were also very demanding, for example, ‘Target Setting’ and ‘School Improvement Measures’ (DfEE, 1997). Further, this school, being small, had additional difficulties. With few teachers (4, plus the Headteacher) amongst whom to spread the load and at least two age groups in each class complicating the planning and teaching strategies, they were finding it difficult to deal with these extensive demands.

The Processes of the Curriculum Development Activity
It was within this context that I began to work. Initially, I worked with the Headteacher in developing the framework for our collaboration. It quickly became clear that I could not just focus on Design and Technology as the pressures noted above were having whole school curriculum implications. The focus needed to be Design and Technology within the context of curriculum change. We identified the following:

‘Key points
1. I should review the Design and Technology planning with staff
2. Areas to develop were:
   • medium term planning for Design and Technology within the context

Key questions addressed by the review are included at Appendix 1.
of whole school planning;
• the possibility of a more integrated approach to the curriculum should be considered;
• planning for differentiation across the two ‘Year Groups’ in each class.’ (Planning Meeting, 15 September 1998)

Two case analysis meetings concerned with reviewing the Design and Technology planning were carried out. Teaching staff were interviewed using the review questions listed at Appendix 1, extended to include the key points noted above, to structure the interaction. From a review of this data a number of key issues about the development of the subject and its relationship to other curriculum areas emerged:

‘1. Staff indicated that the policy was satisfactory and needed no major modification. There was some feeling that it was ‘in the background’ but that it did underpin the activities.
2. The scheme of work was generally seen as useful but that it contained too much detail to be of use when planning. It was better thought of as a reference document that laid out the whole of Design and Technology but that a more practical and narrower document (a more functional scheme of work?) should be developed from it. This could be built from the National Schemes of Work.
3. The Units of Work were felt to be very useful. However they need further refinement:
   • they varied in quality;
   • the expectation in some of them was too high - finding the time (as designated with the Unit of Work) was problematic;
   • the format was too complex;
   • they contained too much detail and content;
   • there was a need to identify the core learning for a Design and Technology activity and possible extension activities related to this core learning;
   • the relationship between Focused Practical Tasks and the Designing and Making Assignments needed to be considered. How many Focused Practical Tasks are really needed? Do all children need them all?
   • the pace of teaching and sequencing of activities needs to be articulated in the Unit of Work.
4. A possible narrowing of the subject’s expectations to focus on a number of key areas was seen as valuable. This would enable Continuing Professional Development work to be targeted in these areas.
5. A more integrated approach was seen as achievable, but the nature of the integration needed to be carefully considered to ensure that links were valuable and valid.
6. It was suggested that Design and Technology could be supportive of literacy activities.
7. Information and Communication Technology (ICT) links should be considered when this new medium term planning was developed.
8. ICT should be used to aid the school to develop the medium term planning in relation to the points listed above.
9. Any planning systems developed need to be practical and simple but also effective.’ (Review of meetings 6 and 8 October 1998)

Following a further case analysis meeting with the Headteacher (11 January 1999) it was decided to focus on the development of an ICT based system for planning Design and Technology. This would be seen as a pilot project to test the viability of ICT-based planning systems. If successful, the developed system would be used in other curriculum areas and would, consequently, enable a more integrated approach to curriculum planning across the National Curriculum subject range.

Building on the Current Planning System
The school had mapped out a programme of Design and Technology ‘Units of Work’ (SCAA, 1995) to run over a two year period 1997-99 (see Appendix 2). It was decided that the first stage in the ICT development would be to develop a database that would contain information at this level of planning.
<table>
<thead>
<tr>
<th>Field</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID (Identification Code)</td>
<td>Unit of Work Code — track the number of Units of Work and their kind, e.g. Design and Technology 1</td>
</tr>
<tr>
<td>Subject</td>
<td>National Curriculum Subject</td>
</tr>
<tr>
<td>Module Title</td>
<td>Use to map the curriculum activities</td>
</tr>
<tr>
<td>Year</td>
<td>Year of children s in school, e.g. R to Y6</td>
</tr>
<tr>
<td>Class</td>
<td>The designation of the class used for internal curriculum organisation</td>
</tr>
<tr>
<td>Term</td>
<td>Autumn, Spring, Summer</td>
</tr>
<tr>
<td>Time</td>
<td>The total curriculum time allocated to this activity</td>
</tr>
<tr>
<td>Material Focus</td>
<td>As defined by the National Curriculum</td>
</tr>
<tr>
<td>Concept</td>
<td>The FOCUS concept area(s).</td>
</tr>
<tr>
<td>Delivery</td>
<td>Pattern of class organisation, e.g. whole group, rotating groups, etc.</td>
</tr>
<tr>
<td>Knowledge Areas</td>
<td>Specific knowledge being addressed through the activity structured under the categories defined in the school s policy statement as:</td>
</tr>
<tr>
<td></td>
<td>- Design and Communication</td>
</tr>
<tr>
<td></td>
<td>- Textiles</td>
</tr>
<tr>
<td></td>
<td>- Mechanisms</td>
</tr>
<tr>
<td></td>
<td>- Structures</td>
</tr>
<tr>
<td></td>
<td>- Materials and Components</td>
</tr>
<tr>
<td>IDEA</td>
<td>Investigative, Disassembly and Evaluative Activities</td>
</tr>
<tr>
<td>FPT</td>
<td>Focused Practical Tasks</td>
</tr>
<tr>
<td>DMA</td>
<td>Designing and Making Assignment</td>
</tr>
<tr>
<td>ICT</td>
<td>How Information and Communication Technology will be used by the teacher and the children.</td>
</tr>
<tr>
<td>Assessment Opportunities</td>
<td>Related to school policy on assessment and focused on the knowledge and skills defined above.</td>
</tr>
<tr>
<td>Resources</td>
<td>Specific resources over and above those generally available in the classroom</td>
</tr>
<tr>
<td>Information</td>
<td>Any additional information that may be of use, e.g. reference to worksheets, books, ICT sources of information, etc.</td>
</tr>
</tbody>
</table>

**Table 1 Database fields**

Developing the ICT based System

Microsoft ‘Access’ was selected as the most appropriate database for this initial development. It is a powerful but flexible ICT tool that enables the development of a ‘user friendly’ interface. Following the detailed analysis of the taped interviews which reviewed current provision and further case analysis meetings we identified the range of fields to be included (see Table 1).

Working with a University-based colleague I developed the database, data entry and data retrieval screens. A limited amount of data was entered from the current Unit of Work and the system demonstrated to staff at the
school. Figure 1 shows the data entry screen. It is intended that this will facilitate data entry through the use of facilities such as pull down menus and single keystroke movement between fields.

It should also enable fast and easy modification of Unit of Work planning based on the experience of implementing the plan. The data can be output in a form appropriate for central school records (see Appendix 3 for an example printout). At this stage the database does little more than could be accomplished by a wordprocessor. However, the development of the system envisions numbers of 'Units of Work' that are developed over time which would address key aspects of the subject. Once established these would allow searches to be carried out on a subject knowledge area, e.g. mechanisms or on level based criteria, e.g. work suitable for Year 3 children, to enable fast and flexible development of medium term plans. Progression of this work is currently underway.
Next Stages of Development
The school has been using a paper-based system to define the detail of week by week planning (Figure 2).

The next stage of development will be to explore the expansion of the database to incorporate this level of planning.

At the time of writing only the design and technology database exists and, if this proves effective, this system will be modified and extended to include other curriculum areas. The integration of curricular provision for all subjects over a period of time (half a term?) is currently through the teacher’s knowledge of the content in each subject database. Following further development, the use of ‘searches’ becomes the key to the system facilitating teacher decision making. Once sufficient Units of Work have been entered, using the power of the system to link planning in design and technology to plans in other curriculum areas becomes a possibility. Future development envisages the ability to undertake keyword searches through the linked subject databases that would identify possibilities for the teacher to use one of a number of Units of Work that would be appropriate for children in their class and cover the content targeted for a specific period of time. This does not diminish the teacher’s role in making decisions about the teaching but will provide fast and efficient access to curriculum plans that can, of course, be tailored to particular circumstances.

Conclusions and implications for others
The process identified within this paper is one where a research focused activity is used to facilitate curriculum development in a practical and purposeful manner. The interaction between myself as a university based researcher and teacher colleagues who are struggling to deal with the realities of implementing national policy has proved beneficial to all. The implications of this form of research based curriculum development for the researcher are to ensure that the research has a keen edge of reality. For teacher colleagues, the opportunity of using focused time, free of children and administrative tasks, to consider curriculum planning has enabled them to engage in high quality professional development that they have seen as directly beneficial because of its tangible outcome.
The development is, as yet, in its early stages. There are a number of issues to be resolved if the system is to prove effective and efficient. As with most development activities there are costs as well as anticipated benefits. The research needs to address a range of issues if judgements about the feasibility of the system are to be made.

- Of concern to colleagues is access to the system; it requires them to be interacting with a computer to undertake the planning. The school currently does not have a laptop for colleagues to take home neither does each classroom have a PC (each has several computers but these are Archimedes). Will this system prove to be efficient enough to make it worthwhile to use it rather than a piece of paper?

- The time cost in initial data entry for the Unit of Work is envisaged as being high. Is this cost justifiable in terms of the long-term advantages noted above?

- The system is intended to add flexibility to the planning process, however it may make planning more rigid if the costs as identified above outweigh the benefits as colleagues probably would not update it.

These issues are key to the future progress of the project. The next phase of development will be to address these concerns and, hopefully, provide a better understanding of how such a system might benefit class teachers.

References
- School Curriculum And Assessment Authority (1995), Planning the curriculum at Key Stages 1 and 2, SCAA, London.
- School Prospectus (1992)
Appendix 1

Illuminating Primary Design and Technology
Review of Published Policy
1996-98

Policy, Scheme of Work, Unit of Work Evaluation

Key Questions- Policy/Scheme of Work

1. Structure
   i. Is the overall structure of the policy clear?
   ii. What are its strengths?
   iii. How could the structure be improved?
   iv. Is the policy structure transferable to your school? How would / does it differ?
   v. The content is structured in two ways - by concept area and by class. Are both needed? Which is the most useful?

2. Content
   i. What issues does the policy content raise for your school?
   ii. How does / would your policy differ?
   iii. Should the policy be more closely allied to the National Curriculum by direct reference to the Programme of study?

3. Usefulness
   i. Has evaluating the policy been of any value to you?
   ii. In what ways has it stimulated your thinking?
   iii. In what ways could a document like this be used to help schools develop policy?

4. Additional Comments
   i. What is needed in this area to help schools?
   ii. Any final comments?

Key Questions- Unit of Work

1. Structure
   i. Is the planning structure clear?
   ii. Is it useful?
   iii. Do the references to other sources of information work?
   iv. Should the reference National Curriculum level descriptions be retained?

2. Content
   i. Is the level of detail about right?
   ii. Was the level of content right for your class?
   iii. How well did you understand the content described?
   iv. What would have helped you gain a better understanding?

3. Time
   i. Are the time estimates realistic?
   ii. How long did the activity take when you did it?

4. Using the Unit of Work
   i. What additional planning was put in place in order to implement the teaching?
   ii. What other information would have been useful in the Unit of Work?
   iii. Is there any irrelevant information in the Unit of Work?
   iv. Any final comments?

Final Points

i. What do teachers need to help them plan for Design and Technology more effectively?
ii. Any final comments?
Activity Map

Our current plan to meet these requirements is as follows. Some of these activities have been developed fully, others are still in outline. Class teachers have details of these. There is also variation in the requirement of each activity to allocate appropriate amounts of time. Other Design and technology activities such as using kits or off the shelf related to other curriculum areas will also take place.

Plan 96/98. This is the recommended list. Any activities may be substituted to cover the same content and materials.

<table>
<thead>
<tr>
<th>Class / Timing</th>
<th>Time</th>
<th>Activity</th>
<th>Code</th>
<th>Support</th>
<th>Material Focus</th>
<th>Content Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
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<tr>
<td>Year 1</td>
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<td></td>
</tr>
<tr>
<td>Term 1</td>
<td>10/12</td>
<td>How We Move</td>
<td>CIV10</td>
<td>Bindon and Cooper Bk1 P26/27, Bk2 P26/27, P60/61 TB27/57/88/89/94/95/97</td>
<td>Paper and Card</td>
<td>MECHANISMS - Levers and Linkages</td>
</tr>
<tr>
<td>Term 2</td>
<td>14/16</td>
<td>Musical Instruments</td>
<td>CIV10</td>
<td>Bindon and Cooper Bk1 P52/53 Bk2 50/51 TB40/69/70/99</td>
<td>Paper and Card, Reclaimed</td>
<td>STRUCTURES - Control - Electricity</td>
</tr>
<tr>
<td>Term 3</td>
<td>8/10</td>
<td>Healthy Drink</td>
<td>CIV10</td>
<td>Bindon and Cooper Bk1 P52/53 Bk2 50/51 TB40/69/70/99</td>
<td>Paper and Card, Reclaimed</td>
<td>MECHANISMS - Levers and Linkages</td>
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<td>32/36</td>
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<td>Year 2</td>
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<tr>
<td>Term 1</td>
<td>10/12</td>
<td>Clothes for Teddy</td>
<td>CIV20</td>
<td>Bindon and Cooper Bk1 P12/13 Bk12/13 TB21</td>
<td>Textiles</td>
<td></td>
</tr>
<tr>
<td>Term 2</td>
<td>6/8</td>
<td>Animal Biscuits</td>
<td>CIV20</td>
<td>Bindon and Cooper Bk2 P20/21 TB54</td>
<td>Food, Mouldable</td>
<td></td>
</tr>
<tr>
<td>Term 3</td>
<td>12/14</td>
<td>Room Lights</td>
<td>CIV20</td>
<td>Bindon and Cooper Bk1 P40/41 P58/59 TB34/85/92/93</td>
<td>Paper, Card and Reclaimed</td>
<td>MECHANISMS - Levers and Linkages</td>
</tr>
<tr>
<td></td>
<td>28/34</td>
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<tr>
<td>Ongoing</td>
<td></td>
<td>Freplay</td>
<td></td>
<td></td>
<td>Construction Kits</td>
<td>MECHANISMS - Levers and Linkages</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mouldable Materials, Sand, Water</td>
<td>MECHANISMS - Pneumatics and Hydraulics</td>
</tr>
<tr>
<td>Class / Timing</td>
<td>Time</td>
<td>Activity</td>
<td>Code</td>
<td>Support</td>
<td>Material Focus</td>
<td>Content Focus</td>
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<td><strong>Class 2</strong></td>
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</tr>
<tr>
<td><strong>Term 1</strong></td>
<td>14/16</td>
<td>Wheeled Toys</td>
<td>C2Y1T1</td>
<td>Bindon and Cooper Bk1 P28/29 Bk2 28/29 TB28/58/86/91</td>
<td>Paper, card and reclaimed Construction Kits</td>
<td>MECHANISMS - Wheels and gears, CONTROL - Pneumatics and Hydraulics</td>
</tr>
<tr>
<td><strong>Term 2</strong></td>
<td>10/12</td>
<td>My Cat Likes to Hide in Boxes</td>
<td>C2Y1T2</td>
<td>DATA UoW 10 Bindon and Cooper Bk1 P36/37 Bk2 36/37 TB32</td>
<td>Paper and card, reclaimed, Mouldable (for the cat), Textiles</td>
<td>STRUCTURES</td>
</tr>
<tr>
<td><strong>Term 3</strong></td>
<td>6/8</td>
<td>Animal Mobile</td>
<td>C2Y1T2</td>
<td>Bindon and Cooper Bk1 12/13 Bk2 12/13</td>
<td>Textiles</td>
<td>MECHANISMS - Levers and Linkages</td>
</tr>
<tr>
<td><strong>Year 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Term 1</strong></td>
<td>8/10</td>
<td>Moving Picture with Frame</td>
<td>C2Y2T1</td>
<td>Bindon and Cooper Bk1 P30/31 P60/61 TB50/58/95</td>
<td>Wood Paper, card and reclaimed</td>
<td>STRUCTURES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MECHANISMS - Pulleys</td>
</tr>
<tr>
<td><strong>Term 2</strong></td>
<td>10/12</td>
<td>Propagator (Growing plants to eat)</td>
<td>C2Y2T2</td>
<td>Bindon and Cooper Bk1 P48/49</td>
<td>Paper, card and reclaimed</td>
<td>STRUCTURES, CONTROL - Electricity</td>
</tr>
<tr>
<td><strong>Term 3</strong></td>
<td>8/10</td>
<td>Designing and making with Fresh Fruit</td>
<td>C2Y2T3</td>
<td>DATA UoW 4</td>
<td>Food</td>
<td></td>
</tr>
<tr>
<td><strong>Ongoing</strong></td>
<td>28/32</td>
<td>Structured Play</td>
<td></td>
<td></td>
<td>Construction Kits</td>
<td>MECHANISMS - Wheels and Gears</td>
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<td>Time</td>
<td>Activity</td>
<td>Material Focus</td>
<td>Code</td>
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<tr>
<td>16/18</td>
<td>Siege Machines</td>
<td>Construction Kits, Wood</td>
<td>C3Y1T1</td>
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<td>8/10</td>
<td>Good for Your Teeth</td>
<td>Paper and Card, Food</td>
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<td>Paper and Card, Food</td>
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<tr>
<td>10/12</td>
<td>Viking Boat Game</td>
<td>Mouldable (for pieces to move)</td>
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<td>3/4/10</td>
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<td>16/18</td>
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<td>3/4/10</td>
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Bowen

IDATER 99 Loughborough University
<table>
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<th>Class / Timing</th>
<th>Time</th>
<th>Activity</th>
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<td>Year 1</td>
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<td>Shelters</td>
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<td>P34/35 TB 61</td>
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<td>DATA UoW 28</td>
<td>Bindon and Cooper Bk 2</td>
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</tbody>
</table>

**Content Focus**

- **TERM 1**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles, Plastics
  - Weel Toys, Other
  - Fairgrounds, Flavours, Bridges
  - Making Pasta - Adding Flavours, Bridges

- **TERM 2**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles
  - Fairgrounds, Flavours, Bridges
  - Making Pasta - Adding Flavours, Bridges

- **TERM 3**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles
  - Fairgrounds, Flavours, Bridges
  - Making Pasta - Adding Flavours, Bridges

**Code - C = Cycle, Y = Year, T = Term**

- **TERM 1**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles

- **TERM 2**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles

- **TERM 3**
  - STRUCTURES: MECHANISMS - Gears, Pulleys, CONTROLS - Electricity, Pneumatics and Hydraulics.
  - Construction Kits, Wood, Paper and card, reclaimed, Textiles
# Medium Term Planning Design and Technology

## How we Move

<table>
<thead>
<tr>
<th>ID</th>
<th>Module Title</th>
<th>Class</th>
<th>Year</th>
<th>Term</th>
<th>Subject</th>
<th>Material Focus</th>
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<td>How we Move</td>
<td>Class 1</td>
<td>Y1</td>
<td>T1</td>
<td>D&amp;T</td>
<td>Paper and Card</td>
</tr>
</tbody>
</table>

### Concept
- Mechanisms - Levers and Linkages
- Rotating Groups

### Delivery
- Time: 10 hours

### Design and Communication
- Draw what they have made using pencils, crayons and paint as directed.
- Talk to adults and to peers about their product.

### Structures

#### Textiles

#### Mechanisms
- Levers and Linkages
- Early Ideas about balance
- Making paper fastener joints
- Sliders

#### Materials and Components
- Paper, Card and Reclaimed
- Learn how to use scissors
- Cut outlines on paper and thin card with scissors

### Control

#### IDEA
- Examination of teacher made examples of simple lever movements

#### FPT
- Cutting and shaping card, paper and thin plastic. Making hole in materials using single hole punch

#### DMA
- Design a human character with a moving arm or leg
- Extension - more moving parts.
- Safety Net - templates

### ICT
- Wordprocessing - how the model was made. Drawing - draw a person
<table>
<thead>
<tr>
<th>Resources</th>
<th>Assessment Opportunities</th>
<th>Development of skilled use of scissors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers examples, these could be used as templates</td>
<td>Information</td>
<td>Class 1/2 design planner</td>
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