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Abstract

As government attention turns to Key Stage 3, every teacher will be asking: 'Why should I become involved?' Design and technology has come a long way since the start of the National Curriculum and we have both a lot to learn and a lot to offer the Key Stage 3 thinking. We have been prevented from improving some key areas in our departments due to lack of funding for training and time. Used constructively, the Key Stage 3 strategy provides a well-timed vehicle for us to move our teaching and learning forward.

'There have been tremendous improvements in primary education over the past five years and we have to build on those improvements. That is why I am now focusing on children aged between 11 and 14 and am determined that we will raise standards and improve behaviour through these middle years.

'My mission is to improve learning during these middle years. I am fully aware of the scale of this challenge, but I believe that together – teachers, parents and the pupils themselves – all our children will reach their potential.' (Estelle Morris 21 March 2002 – *Transforming Secondary Education*)

When another new government initiative arrives in schools, teachers might be forgiven for thinking 'Here we go again!'. This year, the 'Key Stage 3 Strategy' will become the word of the moment, and teachers can ignore it or they can embrace it.

Many design and technology teachers may reflect wearily on the large number of initiatives undertaken in the last three years – National Curriculum 2000, new GCSEs, new A' Levels, new vocational courses, new Schemes of Work, performance assessment, National Opportunities Fund (NoF), Information and Communication Technology (ICT) training ...

Furthermore, quite justifiably, teachers will wonder what the Key Stage 3 Strategy has to offer them and how it will help their pupils.

Design and technology teachers are naturally reflective practitioners; it has something to do with adopting those principles from the manufacturing industry that we share with our pupils, such as continuous improvement and 'Right First Time'.

So if any of the following issues concern design and technology teachers then perhaps the Key Stage 3 Strategy will provide an opportunity to address them:

- no time for design and technology team training or discussion
- differentiation
- motivating disaffected pupils
- carousels or eight-week projects
- dip in achievement at Year 8.

The Key Stage 3 Strategy is a government initiative that aims to:

- raise standards
- engage and motivate pupils
- support and develop high quality teaching.

Its purpose is to help teachers become more effective, in order that pupils improve in how and what they learn. It does this by illuminating best practice in generic aspects of teaching and learning and offering subject-specific guidance and materials. The foundation subjects strand is additional and complementary to literacy and numeracy strategies.

What is the bigger picture?

Design and technology has come a long way from its early days in the National Curriculum in the 1980s; there have been continual improvements in standards. However, recent OFSTED design and technology reports (www.ofsted.gov.uk/public/yearspub01.htm) highlight a number of continuing issues for our subject. Teachers have been frustrated that they have not been given sufficient department in-service time to address some key concerns. For example:

How can I improve progress and attainment of pupils?

- How can I plan to differentiate work that motivates and engages individuals and helps them work to the best of their ability?
- How can I plan a series of projects that allow enough time for the important aspects to be well covered and develop rather than repeat generic skills?
- How can I improve the performance of boys as well as girls?
- How can I improve the teaching of designing or systems and control?

How can I improve my resources?

- How can I provide the best teaching possible within the resources and class sizes I have and how can I persuade my senior management team to improve our situation?

- How can I keep up with new developments in my subject and challenge able pupils sufficiently?

The Key Stage 3 Strategy Foundation Subjects strand does provide a positive whole school opportunity to address some of these issues if used constructively.

The key principles of the strategy are:

- expectation
- progression
- engagement
- transformation.

What are the main principles of Teaching and Learning in the Foundation Subjects?

The strand's principles for teaching and learning are consistent with those informing the rest of the strategy and are summarised in the table below.

Why is there a need to focus on Key Stage 3?

Standards and progress

The Key Stage 3 National Strategy builds on the National Literacy and Numeracy Strategies at Key Stages 1 and 2 as these have been shown to improve standards. In 2001, 74% of pupils reached Level 4 in English and 70% in mathematics, a rise of 9 points and points respectively since 1998. (*SFR 546/99 and SFR 40/2001.*)

This has been an excellent improvement and reflects the dedication of primary teachers in

implementing the Literacy and Numeracy Strategies. Increasingly pupils will arrive at secondary schools with higher levels of attainment, and teachers will need to raise their expectations of what pupils can achieve between 11 and 14.

Quality of teaching and learning

The Key Stage 3 National Strategy focuses on the quality of teaching and learning because the DfES have collected evidence to indicate that:

- there is more unsatisfactory teaching at Key Stage 3 than at either Key Stage 2 or Key Stage 4 in mathematics, science, music and RE (HMC annual report 98/99.)
- boys' underperformance is most significant at Key Stage 3
- league tables have meant the best teachers teach older pupils.

The National Literacy and Numeracy Strategies have changed primary classrooms. There are structured lessons with a high proportion of direct whole class teaching.

Pupils entering Year 7 should be used to an interactive style of teaching: listening and contributing to whole class discussion; working independently while the teacher works intensively with one group; reviewing learning as a whole class in the plenary session. The Key Stage 3 National Strategy provides an opportunity to build on this and much of the good practice that already exists at Key Stage 3.

The Principle

Focus the teaching

Provide challenge

Make explicit concepts and conventions

Structure the learning

Make learning active

Make learning engaging and motivating

Develop well-paced lessons with high levels of interaction

Support pupils' application and independent learning

Build reflection

The Action

Plan to objectives and ensure pupils know what they are

Set expectations and teach to them so that pupils surpass previous levels of achievement

Use questioning, explaining, modelling

Use starters, plenaries and a clear lesson structure

Provide tasks in which pupils make meaning, construct knowledge and develop understanding and skills through problem-solving, investigation and enquiry

Use stimulating activities and materials

Use collaborative tasks and talk for learning

Use prompts, frames, scaffolds and targeted intervention

Teach pupils to think about what and how they learn and set targets for future lessons

Year 6/7 transition

The Key Stage 3 National Strategy focuses on Year 6/7 transition because the DfES have collected evidence to indicate that:

- too many pupils make insufficient progress in core subjects in Year 7
- transfer strategies, where used, focus on administrative routines between schools and helping pupils with personal and social issues rather than curriculum and teaching strategies
- insufficient use is made of Year 6 transfer data and information about primary school practice and pupil skills.

Disaffection and attendance

The Key Stage 3 National Strategy focuses on disaffection and attendance because the DfES have collected evidence that indicates growing disaffection among pupils in the early years of secondary education. An analysis of a database of 30,000 secondary pupils compiled by Keele University, concluded that 60% or so of pupils in early secondary schooling were making reasonable progress, the rest split into three groups:

- 20-30% were bored – the disappointed
- 10-15% who were beginning to truant regularly and behave badly – the disaffected
- 2-5% who had given up school altogether – the disappeared (Barber, 1997).

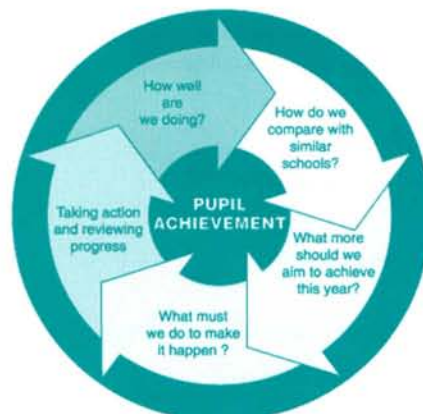
There is a very high correlation between disaffection and attendance (which become key issues in Key Stage 3) and falling standards.

Ignore the Strategy at your peril

During the last two years, our primary colleagues have been through a similar process with the Literacy and Numeracy Strategies. When talking to primary teachers and pupils they often mention that the focus on literacy and numeracy had a detrimental effect on the amount of time devoted to design and technology, and only now are they able to give design and technology sufficient attention again. Design and technology has a central role to play in the Foundation Subjects strand of the Key Stage 3 Strategy, it would be a tragedy if it did not. This is an opportunity for design and technology to be at the heart of the curriculum and play a full part in developing learning through literacy, numeracy and ICT. Furthermore, in our hearts we always want to be teaching the best we possibly can.

Design and technology has a role to play in helping other subjects and advising colleagues in areas that are our strength. For example:

- pupils with special educational needs make better progress in design and technology than in most other subjects (www.ofsted.gov.uk/public/yearspub01ht)
- we help develop numeracy and language skills in a very practical and relevant way when pupils struggle with these elsewhere (QCA/DfES: A Scheme of Work for Key Stage 3 Design and Technology 2000, Teacher's Guide p18-20, <http://www.standards.dfes.gov.uk/scheme>)
- we are often very proficient at adopting different types of teaching roles, such as negotiator or facilitator, and encouraging different learning styles (<http://www.nc.uk.net/gt/design/teaching.htm>)
- we motivate pupils and make learning relevant to their lives (http://www.nc.uk.net/ld/DT_respond.htm)
- our best teachers demonstrate excellent skills in promoting active learning, collaborative activities, individual responsibility for learning and setting targets and learning about how to learn (QCA/DfES: A scheme of work for KS3 D&T 2000, Teacher's Guide p23-26, <http://www.standards.dfes.gov.uk/scheme>)



A five-stage cycle for school self-improvement

<http://www.standards.dfes.gov.uk/otherresources/cycle/diagram>

So what will happen in my school?

The strategy is based on good practice in secondary schools. The process begins with a whole school development plan and a subject audit to highlight the strengths and areas for improvement in your own department. There are different sections of the audit that help departments review the attainment and

progress of pupils, attitudes and behaviour, planning teaching and management. Departments will probably generate a list of possible issues and have to analyse which ones are priorities. The action plan will select ones that will make a difference, and teachers will then plan how and when to carry out the activities.

As part of the process of development, schemes of work are often revised in order to embed the outcomes in day-to-day practice. The extent to which this is necessary, however, depends on the quality of the existing Schemes of Work and the focus of the development work.

Use the Strategy Audit tool ('Auditing a subject at Key Stage 3')

- Prepare for the audit (additional preliminary activities and information collection).
- Carry out the audit.



Identify what could be done

- Analyse the issues – what will make a difference?
- Choose from a *bank of opportunities* to provide appropriate and relevant activities to address design and technology issues.
- Choose relevant generic Foundation Subject activities.



Action Plan

- Plan-do-review cycle.
- Prioritise the most important activities first – to make a difference.
- Plan how it will be done, how long it will take and when it will be reviewed.

What might this look like in practice?

For example, after the audit a school might list many action points from the lists below, before identifying the focus of the action plan:

What could be done – list up to two action points directed at addressing differences in progress and attainment of:

- different year groups, sets or classes, including differences between boys and girls
- pupils learning English as an additional language
- pupils with SEN or gifted and talented pupils
- pupils from particular communities.

For example:

- how to check the pitch of work you set pupils against national markers such as Key Stage 3 Schemes of Work
- how to review your Scheme of Work for differentiation and implement more differentiation
- how to review your Scheme of Work so that it is more inclusive of boys and girls
- how to make more effective use of classroom assistants to support a range of learners
- how to support pupils with EAL in design and technology lessons
- how to adapt your Scheme of Work to meet the needs of SEN pupils and challenge able pupils.

What could be done – list up to two action points to improve pupils' attainment in each year group

For example:

- how to use your department records to track progress
- how to use work sampling to review strengths and weaknesses of pupils
- how to address the Year 7 dip, using transition from Year 6 activities
- how to teach and develop designing skills more effectively
- how to use assessment for learning to set clear targets for individuals
- how to use self assessment to help pupils improve their own learning
- how to use differentiated assessment
- how to manage the carousel so that pupils build on previous learning.

What could be done – list up to three action points to improve pupils' attitudes and behaviour

For example:

- how to plan work that is motivating, relevant and promotes enjoyment of the subject
- how to understand different teaching and learning styles
- how to promote independent work
- how to understand how pupils work best
- how to use self assessment to help pupils improve their own learning
- how to improve the classroom environments that the pupils work in
- how to value pupils' contributions and promote their work through exhibitions, displays etc.
- how to make attractive learning materials
- how to make the start of your lessons exciting and the content of your lessons interesting
- how to make homework purposeful and engaging.

What could be done – list up to two action points to improve medium term planning

For example:

- how to develop an effective Key Stage 3 model (examples in practice)
- how to develop clear Schemes of Work objectives for a set of projects/activities
- how to check the pitch of work you set pupils against national markers such as Key Stage 3 Schemes of Work
- how to review your Scheme of Work for differentiation and implement more differentiation
- how to address the Year 7 dip, using transition from Year 6 activities
- how to ensure pupils transfer their learning from one project to another – coherence, progression in generic skills
- how to ensure pupils at the end of the carousel (summer term) are sufficiently challenged
- how to develop cross-curricular skills – literacy, numeracy, ICT
- how to plan your assessment opportunities
- how to get pupils to choose their own differentiated route.

What could be done – list up to two action points to improve short term planning

For example:

- how to write clear lesson objectives and be clear about the difference between an activity and an objective
- how to ensure each lesson has specific knowledge/concept taught, particular skill developed and an opportunity to apply these newly acquired knowledge and skills
- how to match activities and teaching styles to your objectives
- how to plan differentiation into your lesson
- how to manage lessons where there are on-going projects to maintain pace and teacher input/learning
- how to set effective homework tasks
- how to identify and plan to develop key vocabulary
- how to plan, carry out and use classroom assessment.

What could be done – list up to three action points to strengthen teaching

For example:

- how to use techniques such as video/peer review to strengthen teaching
- how to carry out peer observations
- key areas identified will point back to other 'what can be done' sections, for example if there is a weakness in planning the planning activities will be appropriate.

What could be done – list three actions points to improve assessment

For example:

- how to develop an agreed departmental assessment policy in line with the schools policy
- how to share the assessment objectives with pupils and help them set their own targets
- how to carry out effective tracking and record keeping and use records as groups move to next project
- how to use differentiated assessment
- how to decide the types of evidence you need to collect
- how to mark pupils' work, how to analyse errors and misconceptions
- how to use self assessment to help pupils improve their own learning
- how to moderate pupils' work across the subject.

What could be done – list up to three action points to improve the management of the subject

For example:

- how to promote effective team working, so that design and technology is one subject for the pupils
- how to manage the carousel so that pupils build on previous learning
- how to moderate pupils' work across the subject.

Resources that could be available

School will be supported with:

1. Training

Schools will be provided with a wide range of training material, which has been extensively trialled as part of the pilot. The training material consists of a number of modules each designed to support 75-minute training sessions for teachers. The training guidance consists of activities with supporting trainers' notes, OHTs, handouts, and often includes video of effective practice. Departments will be able to select training modules. There are 14 modules organised into four sections that will be available in the Autumn term.

- *Planning and Assessment*
 - Long and medium term planning, assessment for learning in everyday lessons, the formative use of

summative assessments, from medium term planning to teaching and learning.

- *Teaching repertoire*
 - Questioning, objectives, explaining, modelling.
- *Structuring learning*
 - Starters, plenaries, intervention, challenge, engagement.
- *Knowing and learning*
 - Teaching thinking, thinking together, reflection, big concepts and skills.

2. School-based team work

Schools in the pilot have created teams of teachers from two departments working with a senior manager. This has provided a forum for mutual support and challenge. Departments will be able to share their experience and the improved practice they have generated with the rest of the school.

3. External consultancy

Consultants working in LEAs will work with schools to support the audit and action planning process. They will also work in schools to support changes in classroom practice as well as providing school and LEA-based training. There will be opportunities for the development of networks across LEAs to enable sharing of ideas and practices to take place more widely.

4. DATA

Consultants in LEAs are supporting individual subject departments with themes such as audit and planning. The training materials provide exemplification of good practice in teaching and learning. Whilst they presently do not provide direct subject specific guidance they draw on effective practice across the range of foundation subjects. Subject-based networks are also being set up to enable best practice to be shared both within and across LEAs.

DATA and others will provide subject-specific support. These will focus on facilitating the audit process and team or self-study activities, case studies, models of good practice, prompts or check lists. Many of these will bring together resources and work that have been developed already.

When will this begin?

LEA briefings will take place across the country in the summer term of 2002 and the national roll-out to all local authorities will begin in September 2002. LEAs and schools will agree a phased introduction of the strand to all secondary schools from the Autumn of 2002. A proportion of schools in an LEA will receive additional support in the form of consultancy, time for training and money for

resources and this will be extended to further schools in subsequent years.

Summary

The Key Stage 3 Strategy is a high profile national initiative. Design and technology should seize the opportunity to be central to the Foundation strand. We use it to celebrate what we do well and we can use it to help us address issues that are holding our subject back. All schools will receive a standards fund grant to support their training and development – be ready with a clear view on how best to spend that money on the training that you have long waited for!

Think and plan now, be ready for the Strategy. Assume an active role.

References

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Further information

www.data.org.uk

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The authors of this article are working as freelance consultants to DATA to provide advice on how DATA can best serve its members during the KS3 National Strategy.