



Key Stage 3 National Strategy

Guidance

Curriculum and
Standards

Literacy in design and technology

For school-based use or self-study

Heads of design
and technology
Teachers of design
and technology

Status: Recommended

Date of issue: 04-2004

Ref: DfES 0256-2004 CD



Key Stage 3 National Strategy

Literacy in design and technology

For school-based use or self-study

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department for
education and skills
creating opportunity, releasing potential, achieving excellence

General introduction to the Literacy in series

The aim of the subject-specific material in the Literacy in series is to exemplify how aspects of the Literacy across the curriculum training file relate to individual subjects.

Where appropriate, the relevant section from the Literacy across the curriculum training file is indicated so that you can refer to it as and when you wish.

Key principles

- To develop consistent approaches to teaching and learning in literacy across departments, and to build increased awareness of the skills, knowledge and understanding that pupils could be expected to bring to lessons
- To use speaking and listening to develop subject learning
- To develop active reading strategies to increase pupils' ability to read for a purpose and engage with text, and to realise the learning to be gained from it
- To demonstrate the sequence for writing and modelling writing for a key text type within the subject; seeing how it is done helps pupils to achieve it for themselves more quickly
- To make suggestions for the learning of subject-specific vocabulary

English Framework objectives The objectives from the Framework for teaching English: Years 7, 8 and 9 which apply across the curriculum appear in an appendix: most are the key objectives (in bold) but others have been added for clarity or exemplification. This will help you to set literacy curricular targets and ensure common approaches through the objectives.

Developments in cross-curricular literacy As expertise grows, schools may wish to decide which department teaches a particular aspect of literacy, such as explanations in non-fiction writing, and how other subject areas can support and develop pupils' learning by reinforcing it and applying it to their subject as appropriate. This will save time and ensure that pupils have a consistent approach to specific aspects of literacy.

As expertise develops in, for example, active reading strategies or managing group talk, and pupils know the expectations across the curriculum, their confidence will grow and their ability to take responsibility for their learning will also develop. This, again, will save time for teachers as they will not have to keep teaching the skills.

Making use of the Literacy in materials Each subject is available on its own CD. On the disc you will find both the text (a combination of information, guidance, case study materials, mini tasks and ideas for practical application in classrooms) and the video clip(s) that accompany it. Where a short task has been suggested, you are invited to check your responses against those of other teachers in the examples provided.

The materials can be used by an individual teacher to reflect on current practice and identify fresh approaches. However, we recommend collaborative use by a department team, so that the activities and discussion topics can be used to promote joint review and collective action. In this way, approaches can be trialled and discussed, and greater consistency of practice ensured.

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1

Word level

Aim

- *To suggest approaches to spelling and vocabulary in the design and technology lesson*

1.1 Teaching spelling You may have a list of key spellings (like the list below, taken from the Framework for teaching English: Years 7, 8 and 9), which you encourage pupils to learn. This may be in the form of word walls or lists in student planners. This section aims to go beyond the learning of spelling lists and to consider ways of teaching spelling and understanding the subject-specific meanings of words.

Design and technology spelling list aesthetic machine brief manufacture carbohydrate mineral component natural design nutrition diet polyester disassemble portfolio evaluation presentation fabric production fibre protein flour recipe flow chart sew hygiene specification ingredient technology innovation tension knife/ knives textile linen vitamin

Printed below are some words taken from the above list with others added. Take a few moments to think about how you currently help pupils learn to spell these words.

adaptable

process appearance

resilient component

suitable design

technology ingredient

temperature manufacture

versatile

Now compare your ideas with the suggestions from other teachers that follow.

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Examples of spelling strategies to consider

- Refer to root meanings – for example, proto = original
- Break it into sounds – for example, c-o-m-p-o-n-e-n-t
- Break it into syllables – for example, e-val-u-a-tion
- Break it into affixes – for example, re-search
- Apply a rule – for example, I before E except after C, for brief
- Refer to a word in the same word family – for example, design, sign, signature
- Use a key word – for example, process as a key word for excess, recess, and so on
- Look for words within words – for example, one in component
- Say it as it looks – for example, technology
- Use a mnemonic – for example, one collar, two sleeves, for necessary
- Encourage the use of visual memory (look – say – cover – write – check)

Of course, a number of words will yield to more than one strategy – for example, several words contain other smaller words within them. What matters is suggesting a range of appropriate strategies to pupils so that they can decide what is appropriate for them.

Design and technology is rich in root words drawn from Latin and Greek. Although pupils may find these words difficult to spell, they are useful in developing an understanding of what the words mean. This understanding can be transferred to other subjects and thus further support pupils' learning.

Printed below is a word web involving the roots tech, ology, phobia, graph and geo. The left-hand column under technology takes tech- as its starting point; the right-hand column takes -ology as its starting point. The other roots are picked up as the web develops.

Word web technology

technical archaeology technique psychology technician horology technophobia geology

claustrophobia geophysics arachnophobia geometry homophobia geography

photograph autograph graphic graphite

Take a few moments to decide on the meaning of the roots.

The following notes will help you to check the meanings if you are unsure. tech = make, do ology = study
phobia = fear graph = draw geo = earth

It is possible to work out the meaning of a root, and to spell new words by analogy with known words by using the root. This is important to pupils as they can transfer their understanding of roots across the curriculum. As a department, or with a colleague, you could develop further examples for use in the classroom – for example, starting with manufacture, process, carbohydrate, production or polyester.

It might be useful to keep an etymological dictionary in the department for your own and your pupils' reference.

1.2 Subject-specific vocabulary Subject-specific terminology enables precise meaning to be conveyed. However, not all words used in design and technology are free of ambiguity. Pupils may use design and technology-specific vocabulary differently in other contexts.

Using words in different contexts Printed below is a grid which includes some words that have very specific meanings in design and technology, but that may have different, or less specific, meanings in other contexts. Take a few moments to think of the design and technology meaning and then any other meaning pupils might bring to the word. There are blank rows so that you and/or the department can add other words that might confuse pupils. It might be useful for pupils to do such an activity at the beginning of a topic or project to assess their prior knowledge and support you in deciding what needs to be taught.

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Using words in different contexts

bias

current

discrimination

grain

mould

smart

tension

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It is worth noting that:

- the best learning is achieved not through a test, but through an active task
- it is best to introduce terminology at the time it is in use in the topic, so that pupils can see how it is used in context
- there are often moments in a lesson when word level activities can take place; these might be when work is being given out, or at the beginnings and ends of lessons.

1.3 Teaching subject-specific vocabulary Take a few moments to note down some ways in which you might teach subject-specific vocabulary in your classroom. Compare your ideas with the following suggestions from some other teachers which have proved helpful.

Possible activities for learning subject-specific vocabulary

- *Laminate a set of key term and definition cards for matching activities. Read the definitions aloud and ask teams to provide the matching key terms.*
- *Delete the subject-specific terminology from a passage and ask pupils to write in the correct terms.*
- *Display terms and definitions for a current topic on the wall.*
- *Set a crossword puzzle in which the words sought are terms and the clues are definitions.*
- *Set a key terms word search in which definitions are given as clues and terms have to be located in the grid.*
- *Feed subject-specific words into a hand-held spell-checker so that they can be used for the word games.*
- *Ask groups of pupils to devise A3 posters to illustrate the terms.*

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2

Speaking and listening

Aims

- *To consider the ways in which speaking and listening can support the development of concepts in design and technology*
- *To identify teaching strategies to support this development*

2.1 Introduction Before starting on this section, it is worth thinking about talk (i.e. speaking) and some of the issues surrounding it.

- We often use group work and pair work, so pupils will benefit from being taught how to use these ways of working effectively.
- We often assume talk is natural and easy, but for many pupils it isn't.
- We don't always take full advantage of the range of types of talk available.
- Talk has as many, if not more, 'text-types' than writing; the main categories (e.g. explanation, instruction, description, information) are used in talk as well as in written text.
- Talk is also quick, fluid and shared: it can do some things better than writing – for example, exploratory work, quick sharing of ideas.

2.2 Oral frames Oral frames can be used in the same way as writing frames: to provide structures for pupils at text, sentence and word level.

Printed below are some useful phrases for analysing and evaluating a product.

To begin with At first Firstly Initially There are several reasons why In order to I now know that One problem was A possible solution would be This shows that Perhaps I could have To improve this I need The result is As a result

You will recognise these immediately as phrases that can be deployed in both speech and writing when evaluating a design or product.

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Try taking the first four words or phrases from the list and think about how variations on a key phrase can be used to fit any sentence – for example, To begin with, we looked at a range of toys to assess their use for young children; To begin with, I decided to use red and green acrylic ...

This sort of grammatical reshaping is a valuable asset to speakers because evaluations are often started in both speech and writing before the sentence has been grammatically polished and hence may not be as clear as the speaker or writer intended.

Now take a few moments to think about similar phrases for exploratory, hypothetical, speculative talk – for example, What if ...

Here are some further suggestions: Supposing ... I wonder if ...? Imagine ... Ought we to ...? Conceivably ... What about ...? Perhaps ... Why would ...? Maybe ... It's possible that ... Could we ...? It's probable that ... It might ... It could be that ...

You may want to think about introducing an activity that involves gathering key phrases as a good starter activity prior to group work; this would also feed into written work.

Another useful way of developing spoken language is to place pupils in groups of four and ask them to generate suitable phrases as part of ongoing work. Examples might include the language of:

- collaborative problem-solving – for example, generating a design proposal
- drawing out similarities and differences – for example, in different products
- explaining a process – for example, a design proposal.

The department may feel it would help to draw up a list of its own before asking pupils to do so.

2.3 Using talk to deepen understanding Talk is often referred to as a 'tool' for learning because it can help us to:

- think through ideas
- express thoughts, feelings and opinions
- influence other people
- articulate ideas
- share knowledge
- feed back and review ideas
- adapt and refine ideas
- reach closure, accommodation or acceptance of different ideas
 - negotiate solutions and much more.