

talented pupils. However, this needs to be accomplished at an early stage so that the pupil can form friendship groups. The pupil needs to be physically, emotionally and socially well developed and must remain with the same peer group during the move from primary to secondary school. It must also be emphasised that acceleration by one year does not completely meet the intellectual needs of highly able pupils who are often able to work at levels several years above their chronological peers.

### Fast tracking (compacting or target setting)

Fast tracking describes a strategy whereby pupils can move faster through the basic programmes of study in order to move into more advanced individual or small group work. There are benefits to this practice if a pupil uses acquired skills to work in greater depth and breadth on real problem-solving activities. Often a mentor (who may be an expert from outside school) can provide tutoring and support. However, there is little merit in fast tracking if the pupil skates superficially through narrow content for the sole purpose of taking a GCSE (General Certificate of Secondary Education) examination early. The purpose of fast tracking is to alleviate the repetition of content and skills already mastered, thus creating time for intensive project work in depth and breadth.

### ENRICHING, EXTENDING AND DIFFERENTIATING LEARNING FOR ALL PUPILS

The importance of careful, flexible planning and appropriate differentiation has already been stressed. This section suggests the underlying rationale and strategies for the planning of appropriate differentiation. It is important to stress at the outset that all pupils need to acquire the skills of learning how to learn: the skills of enquiry and research, the skills of logical and creative thinking and problem-solving along with the skills of self-monitoring and self-assessment. Differentiation does not mean that only able learners should acquire these enabling life-skills, but does mean that able learners can acquire these skills more quickly and can apply them in more complex depth and breadth of content.

In addition, differentiation applies holistically across the whole content of the curriculum. It is not sufficient to rely on, for example, a 'challenge box' in the classroom (e.g. puzzles, problems and extended reading) for pupils who complete work early. If differentiation is appropriate and meaningful, pupils should be fully engaged until the series of lessons or the extended project ends!

We will now consider a range of strategies which can apply to all pupils across a range of levels and content complexities, but the fundamental strategies will enable teachers to respond to the needs of more able and talented pupils by:

- helping pupils to develop and make effective use of cross-curricular strengths
- further enriching and extending the curriculum, accommodating the full range of multiple abilities
- planning challenging questions which develop higher-order learning skills
- systematically training problem-solving and thinking skills.

### Higher-order learning skills based on Bloom's taxonomy

Bloom's (1956) taxonomy of educational objectives still provides a useful framework for planning thinking and learning tasks. It is important to stress, however, that the taxonomy should not be used as a hierarchy, but as a flexible framework for planning. All pupils can undertake activities developed using the framework, but the learning skills for more able pupils need to be developed using increasingly complex content.

The following text presents an analysis of activities based on Bloom's original taxonomy and is taken from Wallace (2000).

The taxonomy is made up of the following:

- 1 **Remembering** Pupils need to know and recall various types of knowledge' as a basis for action. No-one can think in a vacuum: there is a core of relevant experiential and factual knowledge and theories that pupils need in order to engage in a thinking activity. To do this efficiently they need to acquire and use a range of research skills and basic subject skills such as procedures in maths and science and technical skills in literacy, art and ICT (Information and Communication Technology). Given practice at asking the right questions pupils will learn the criteria for good questioning and be able to select relevant facts. Importantly, pupils need to learn how to present ideas using a diverse range of efficient recording and communication skills. To support their learning they need demonstration and examples, practice and opportunities to share with others. Remembering is involved in activities which ask: *What happened when — Make a list — Write an account — Make a summary —*

- 2 **Comprehension** Pupils need activities that demonstrate understanding. The lower order comprehension tasks include: paraphrasing, explaining and selecting relevant information to answer a question. However, more able and talented pupils need to use *higher-order* comprehension skills. They need to learn how to interpret knowledge by presenting a new perspective, comparing and contrasting data and viewpoints, re-ordering information and examining consequences. Higher-order comprehension is shown through activities such as:

*Write a summary of the main points — Explain why that happened — Discuss this from the point of view of — What are the similarities between — Explain the*

- differences between — What would have happened if —? How would this affect —? Why did — react in this way —? What were the results of this —?
- 3 **Application** The acquisition and understanding of knowledge is inert, and only becomes active knowledge when pupils use the knowledge to solve a problem. Pupils need opportunities to manipulate or construct something using their new knowledge, to convert the knowledge into a different format, apply it to a similar situation, build a model, illustrate it and apply it to an example. Applying knowledge involves the following activities:  
 How would you use this to —? How does this rule apply —? How can you use what you have learned to solve this —? Does the same principle apply in this —? What else do you know that would apply —? Is this the same kind of —?  
 Construct a diagram to show — Conduct an experiment to prove — Paint a picture to show —
  - 4 **Analysis** Pupils need to understand overall relationships and patterns. Pupils need to fit the pieces of the jigsaw into a whole: they need to identify connections, patterns, sequences and themes. They need to see the big picture and to be aware of how the bits they are learning are contributing to a coherent plan of the whole. While this applies to all pupils, able pupils particularly can appreciate the big picture: they can cope with complex scenarios and intricate themes. Analysis can be shown through activities such as:  
 In what ways are they the same —? different —? better —? worse? What was the overall plan —? How do the elements combine —? Discuss why the causes had inevitable consequences — What is the general rule? — Explore the possible future consequences —
  - 5 **Synthesis** Pupils need to create something new with the knowledge and skills they learn. Knowledge lies in a stagnant pool unless it is used for thinking and action. If all learning is merely the acquisition of other people's knowledge, then nothing new is created. Able pupils using any of the multiple abilities will become the creators of the future. Pupils need to design, invent, imagine, change and improve. Synthesis is shown in activities that ask:  
 Do you agree with —? How would you change —? What would happen if —? Is there another way —? Is there another conclusion? — In how many ways can you —?
  - 6 **Evaluation** Pupils need to make decisions and judgments. Impulsive decisions and actions which cannot be justified usually result from bias, prejudice and woolly thinking. All pupils can be taught how to balance decisions against reason and evidence, more able pupils will become the leaders

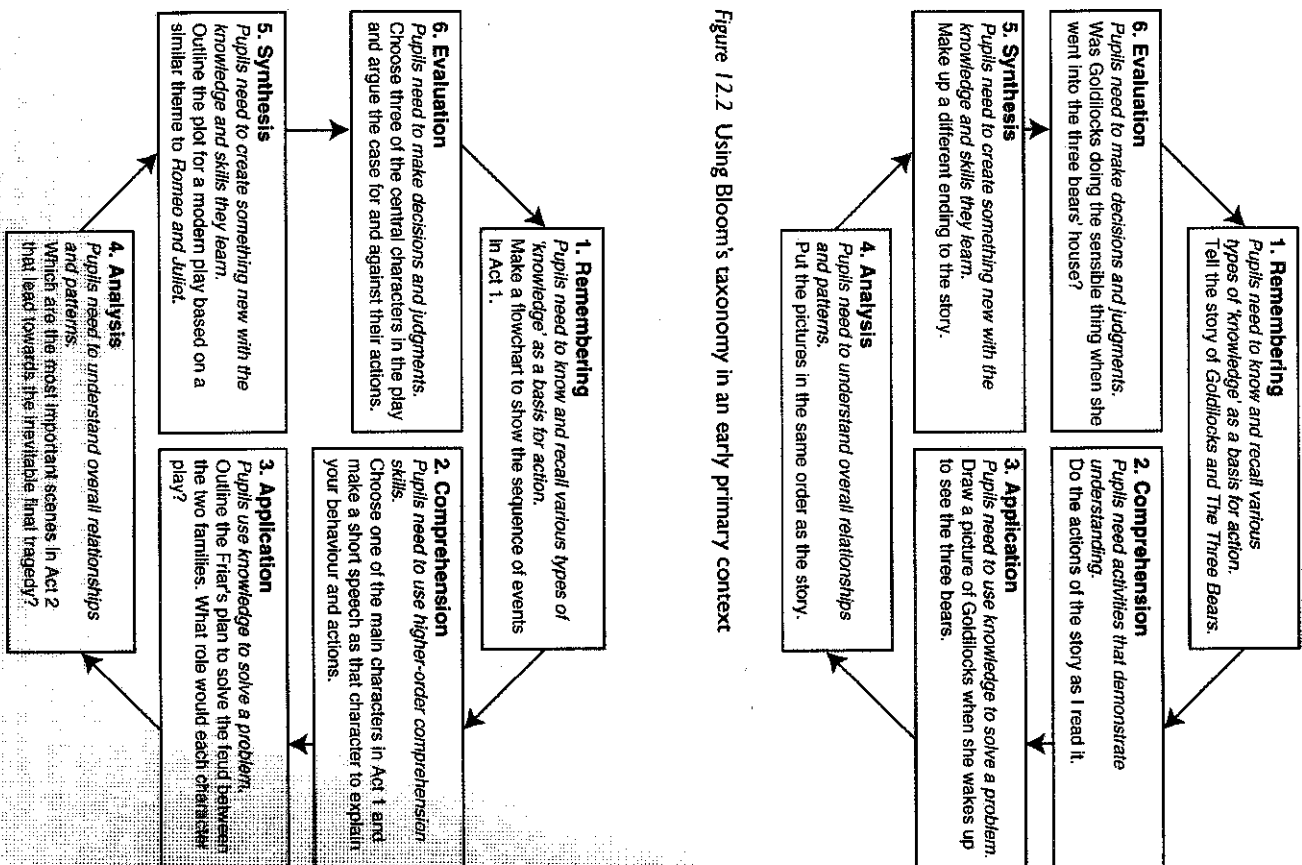


Figure 12.2 Using Bloom's taxonomy in an early primary context

Figure 12.3 How Bloom's taxonomy can be applied to Romeo and Juliet to develop higher-order learning skills for older pupils

and decision-makers on behalf of future generations of people. Evaluation can be developed by asking pupils:

*How do you know* —? *On what grounds can you justify* —? *What is the evidence* —? *Why would you make that decision* —? *What are the arguments for and against* —? *Why do you believe* —? *Did* — have a valid case —? *Draw a conclusion giving reasons* —

The range of higher-order learning skills can be used by all pupils at any age, although the content for able pupils should always embody material of greater complexity. Obviously as learners become more mature the content used as the basis for higher-order thinking becomes more age-appropriate. In addition, the thinking questions can be answered at levels of varying complexity.

The examples on the following page show how the taxonomy outlined above can be used a) in an early primary context, and b) in a secondary context.

Figure 12.2 illustrates how tasks based on Goldilocks and the Three Bears can develop higher-order learning skills for young pupils.

Figure 12.3 illustrates how tasks based on Romeo and Juliet can develop higher-order learning skills for older pupils.

### Problem-solving and thinking skills based on the TASC framework: Thinking Actively in a Social Context

All pupils can become more efficient problem-solvers with training and practice, but they need models, examples, and regular and sustained experience of working in a problem-solving way across the curriculum. As we have already stressed, the complexity of the problem presented to or negotiated with the pupils varies according to the age, experience and ability of the pupils. The following analysis is taken from Wallace (2001).

While there are a number of programmes which aim to teach problem-solving and thinking skills, the basic requisites that should be clearly evident in any thinking-skills programme are set out in the TASC framework (Figure 12.4).

- *Gather and Organise*: *What do I know about this?* Pupils need to gather and organise what they already know at the beginning of a new topic or series of linked lessons; only then can teachers and pupils identify what is already known and understood. This is the critical point from which differentiation of lesson planning begins. Such differentiation is essential if repetition of knowledge and skills already mastered is to be avoided.

- *Identify*: *What is the task? Evaluate*: *How well did I do?* Identifying the meaning and requirements of the learning activity, together with the criteria for evaluation, is an essential process before any learning activity is begun. These stages of thinking can be used to model questioning techniques such as (Identify) *What questions should I ask about the task? Do I fully understand what I must do? What do I need to find out? How will I judge the*

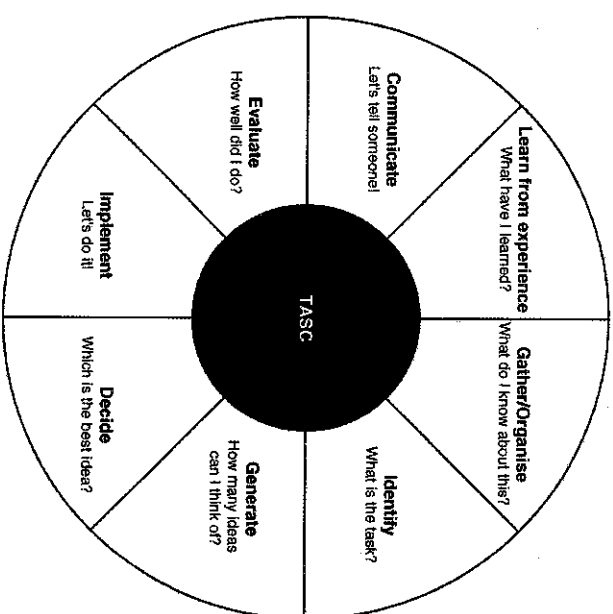


Figure 12.4 The TASC problem-solving framework: Thinking Actively in a Social Context. Taken from Wallace (2001) *Teaching Thinking Skills across the Primary Curriculum: A practical approach for all abilities*. London: David Fulton (A Nace/Fulton Publication). With permission

success of the task?; (Evaluate) *How well did I do the task? What must I do to improve? How can I work more efficiently?*

The criteria for the successful (and high quality) completion of any activity need to be established at the start. All pupils need examples of competent work to analyse the success criteria; more able and talented pupils need examples of excellence which they can analyse to identify traits to replicate in their own work. In evaluating their work they can then learn to measure the degree of their success against known criteria.

- *Learn from Experience*: *What have I learned?* Learning is crystallised when pupils reflect on the 'what' and 'how' of their learning. All pupils need to see how they are changing and progressing. This process of metacognition lies at the very root of learning how to learn. At the end of every topic of work, learners need to analyse what new knowledge, skills and concepts they have acquired and how else this newly acquired learning can be used across the curriculum and in life outside the classroom. In an inclusive classroom, problems can be set in varying degrees of complexity for individual or small-group work.

An example of the process can be seen in Figure 12.5. The children at Key Stage 2 decided to organise their end-of-term disco and they used the TASC wheel to guide their planning.