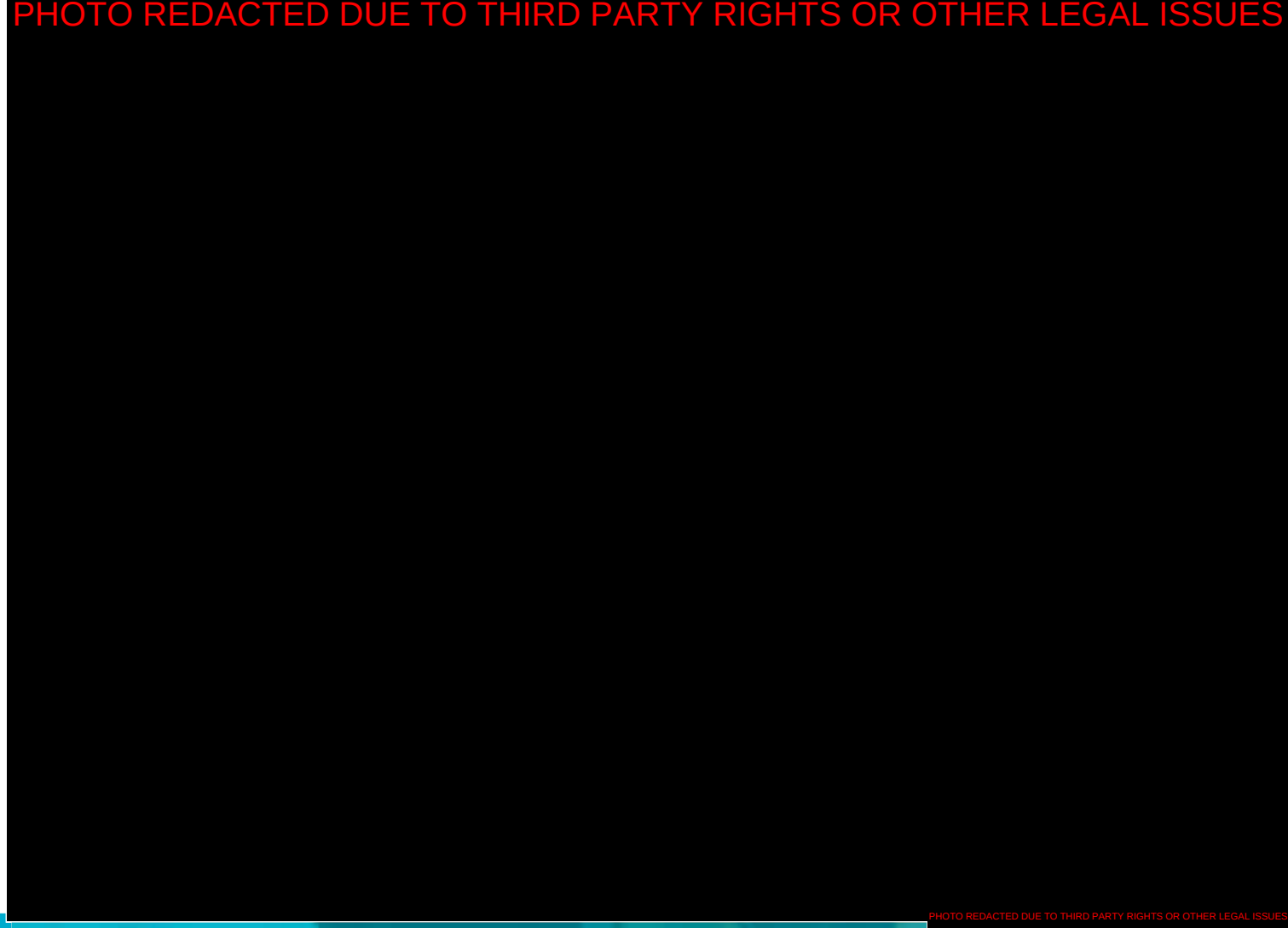


Accelerating the progress of able pupils at Key Stage 3 in English, mathematics and science

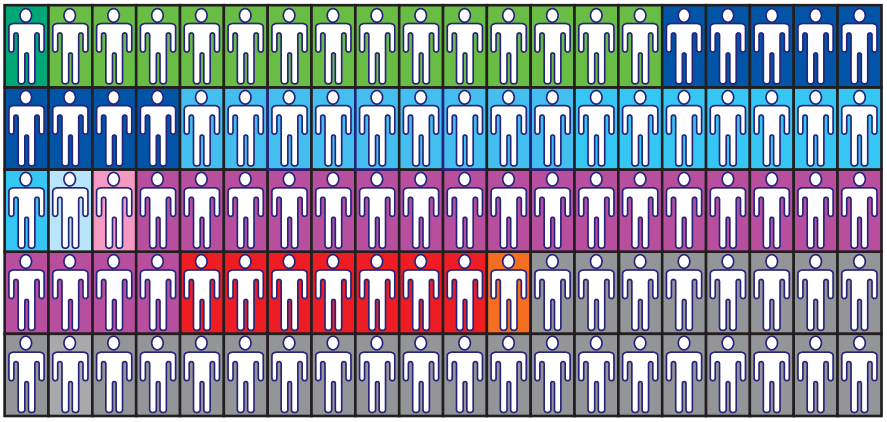
(Improving pupil progression from Level 5 to Level 7)

Making Good Progress Series

department for
children, schools and families

High attaining pupils: KS3 Science (2006)

Local Authority National



Key

15% of pupils were at Level 7 in 2006 of which:
- 1% Fast Moving from L4 or below
- 14% Making Good Progress from L5

27% of pupils were at Level 6 in 2006 of which:
- 9% Making Good Progress from L4
- 17% Slow Moving form L5
- 1% either A, D or no KS2 level recorded

31% of pupils were at Level 5 in 2006 of which:
- 1% Making Good Progress from L3
- 22% Slow Moving form L4
- 7% Stuck at L5
- 1% either A, D or no KS2 level recorded

28% were not high attaining pupils

The figures have been rounded and do not sum to 100%. Therefore, the number of 'stick people' representing slow moving pupils at L5 has been adjusted to ensure that the total sums to 100%

The pupil progression chart is a powerful tool that can be used to represent the proportion of pupils who are meeting the national expectation at the end of the key stage, as well as the proportion who do not.

Crucially the chart highlights the proportion of pupils achieving particular progression trajectories during the key stage. Each 'stick person' represents 1% of the pupil cohort in Year 9. In the charts used throughout this report:

- Green represents pupils who reached Level 7. The different shades of green represent different starting points at the beginning of Key Stage 3.
- Blue represents pupils who reached Level 6. The different shades of blue represent different starting points at the beginning of Key Stage 3.
- Pink through to orange represent pupils who reached Level 5 from different starting points at the beginning of Key Stage 3.
- Grey represents pupils who did not meet the national expectation of Level 5 at the end of Key Stage 3.

This report focuses on a group of pupils who started Key Stage 3 at Level 5 but in Year 8 and 9 were judged to be at risk of not achieving Level 7 at the end of the key stage.

Contents

1 Introduction

As a measure of the progress of able pupils, the proportion of pupils achieving Level 6 or better in English, mathematics and science at the end of Key Stage 3 has increased significantly since these subjects became a focus of the Key Stage 3 National Strategy. The improvements are shown in the table below:

Subject	% Level 6+ (benchmark data)	% Level 6+ (2006)
English	24% (1997)	34%
Mathematics	37% (1997)	57%
Science	27% (1998)	41%

However, the proportion of pupils who make two levels of progress from a starting point of Level 5 at the beginning of Key Stage 3 varies considerably across the core subjects. The 'conversion rates' in 2006 for pupils who entered Key Stage 3 with a Level 5 and achieved a Level 7 or better at the end of the key stage in each of the core subjects are shown in the table below:

Subject	Conversion rate (Level 5 to Level 7+) 2006
English	32%
Mathematics	81%
Science	35%

This report presents the issues arising from a small scale investigation focusing on pupils who are at risk of not converting a Level 5 in English, mathematics or science at Key Stage 2 into a Level 7 at the end of Key Stage 3.

42 schools were selected on the basis of Key Stage 2 to Key Stage 3 conversion rates in 2006 (20 for English, 14 for mathematics and 8 for science). There was a reasonable balance between shire, London and unitary local authorities.

Each school was visited for up to a day by a DCSF school standards adviser. The methodology of the investigation was based on a series of detailed interviews with Year 8 and Year 9 pupils (identified by the schools as 'at risk' of not adding two levels during the key stage), the headteacher and a senior leader with responsibility for pupil tracking, Year 8 and Year 9 teachers and the relevant subject leader. In addition, some samples of pupils' work and teaching plans were examined. Lessons were not observed.

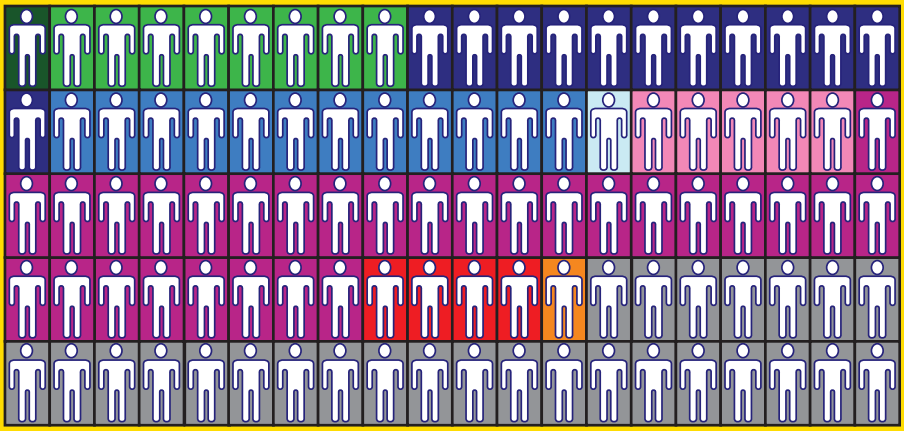
The report focuses on the experiences of approximately 245 pupils in the schools visited. It is split into separate chapters on how to identify those making slow progress in English, mathematics and science.

Based on these research findings, the report also includes practical suggestions for schools and teachers on how they can improve the progress made by these pupils.

High attaining pupils: KS3 English (2006)

Pale green represents those pupils who entered the key stage at Level 5 and have made progress to Level 7 by the end of the key stage. Blue and red indicate the progress of other pupils who started the key stage at Level 5.

Local Authority National



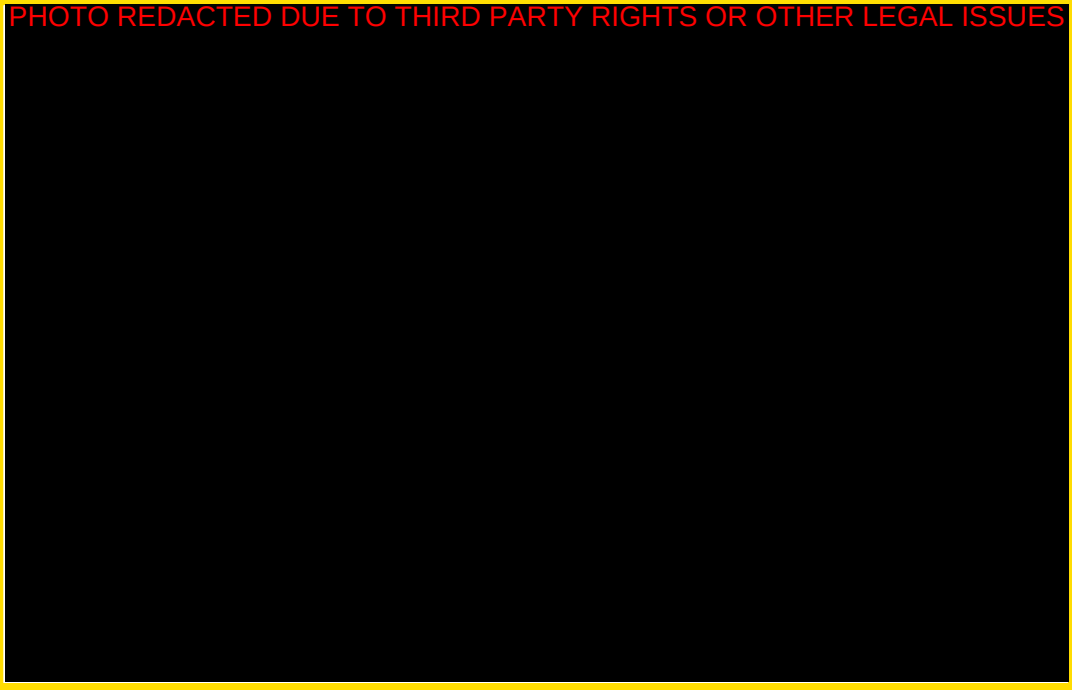
Key

- 9% of pupils were at Level 7 in 2006 of which:
  - 1% Fast Moving from L4 or below
  - 8% Making Good Progress form L5
- 25% of pupils were at Level 6 in 2006 of which:
  - 12% Making Good Progress from L4
  - 12% Slow Moving from L5
  - 1% either A, D or no KS2 level recorded
- 37% of pupils were at Level 5 in 2006 of which:
  - 5% Making Good Progress from L3
  - 27% Slow Moving from L4
  - 4% Stuck at L5
  - 1% either A, D or no KS2 level recorded
- 27% were not high attaining pupils

The figures have been rounded and do not sum to 100%. Therefore, the number of 'stick people' representing slow moving pupils at L5 has been adjusted to ensure that the total sums to 100%

Chapter 2:

Identifying slow moving pupils in English in KS3



2 Identifying slow moving pupils in English in KS3

The main findings from the investigation are grouped into three separate sections: the pupil characteristics, the obstacles to progress and other significant findings.

Pupil characteristics – general

'When I was in Year 6, I was Level 5. When I was half way through Year 8 I was Level 4. Now I'm 5a. I've not gone up.' (Year 9 girl)

'I've got a story on the go at the moment – I've written about forty pages and I've sent bits out to my friends on MSN.' (Year 9 boy)

'I just like things in English to be relevant – you need to know why you're doing something – preparation for a test isn't enough of a reason.' (Year 9 boy)

'I think I'm doing well because I went up to the top set. I must have done well in a test.' (Year 8 girl)

'I do have quite a lot of spare time but I choose to do other things. I go on my computer or mess around!' (Year 8 girl)

- They were bright, confident and articulate
- They were keen to share their experiences and reflect on their learning although a small minority (especially in Year 8) was more reticent and cautious in discussion
- They had clear opinions about what they liked and disliked in English
- They were generally well motivated although several admitted to leaving their homework to the last minute
- They were imaginative and a number of them used their ideas to write at home for pleasure
- They liked choice and independence and preferred the freedom to write without constraint
- They wanted to know the broader relevance of the work they did in class and felt that preparation for an examination was not a sufficient reason
- Most were in a top set which they saw as evidence that they were doing well. Some felt under pressure to retain their place in this group, especially when the pace of work was fast
- The vast majority knew that they had attained Level 5 at Key Stage 2 and many were aware that this represented high attainment. However, most were unaware of their current level and were vague about their progress. Some clearly suspected that they were not progressing through the levels as they might have expected

- A minority was negatively influenced by peer pressure and did not wish to be identified as able
- Some felt unnoticed and were conscious that much support in the school targeted the less able and the gifted and talented

Obstacles to progress in English

'We should never have any youngster who stands still.' (Deputy headteacher)

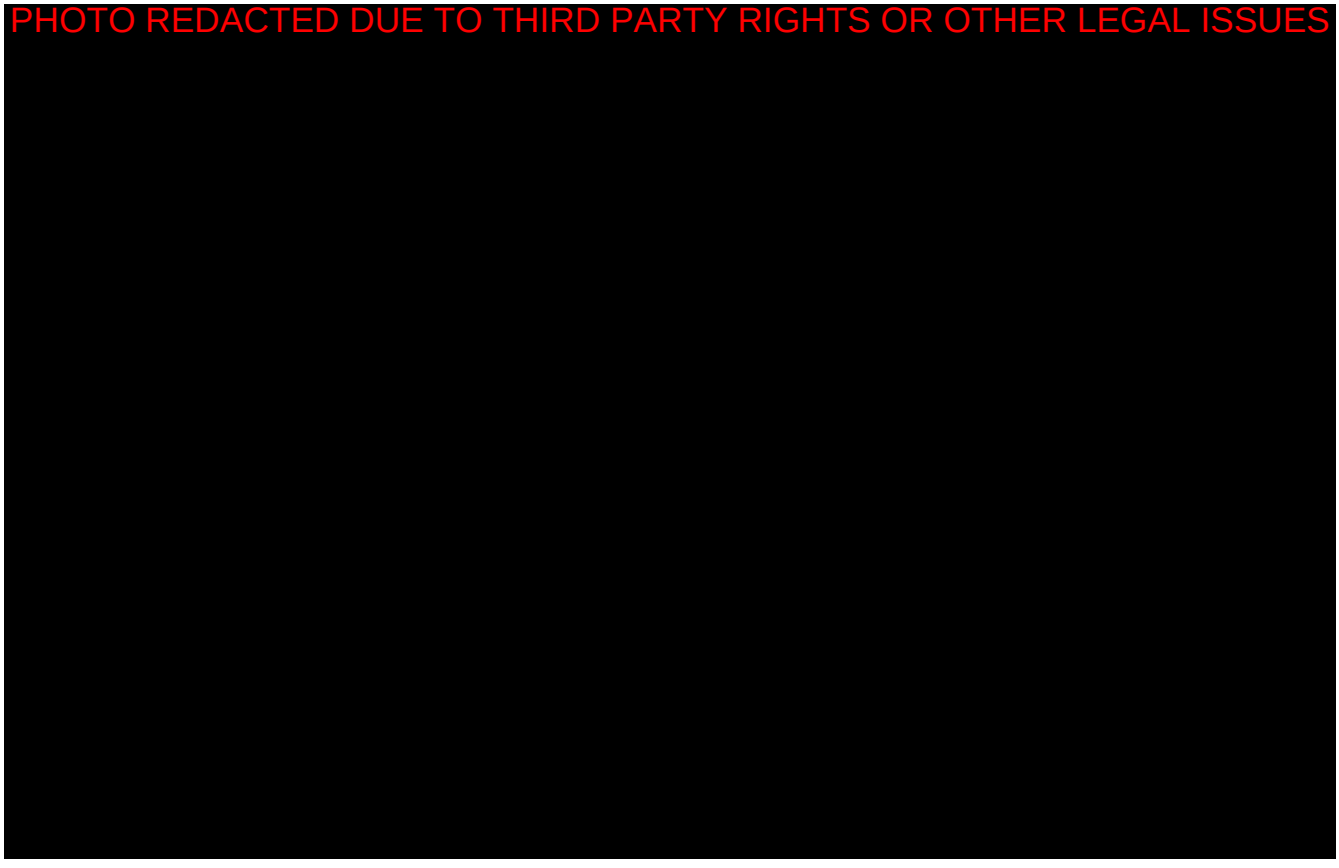
'You can teach a child to hit the Level 7 criteria – you can teach them to be creative. It's about an appreciation of quality.' (Subject leader)

'Miss writes down words which we could use. It has boosted my writing – sparked my imagination.' (Year 9 boy)

'There's no difference from one year to the next. I think they should just recap what we find difficult and then do other more challenging things.' (Year 8 girl)

'I don't know if I'm making progress...I don't know what a Level 5c means. Is that good or bad compared to the top or bottom set?' (Year 9 girl)

'I am trying to ensure that all teachers accept that all progress is valued equally. We want children to do their best whatever the level.' (Headteacher)



Pupils' own comments, together with evidence provided by their teachers and senior leaders, suggested the following:

- Virtually all of the pupils interviewed knew that they had attained Level 5 at the end of Key Stage 2 and most knew that this represented very good achievement, although some were surprised to discover this. Most pupils were unaware of the progress they were making in Key Stage 3 although some pupils, especially in Year 9, were becoming aware of their lack of progress. Most of the pupils interviewed were in top sets which they took as a sign that they were making good progress.
- Many English teachers mistrusted Key Stage 2 data and did not accept that Level 5 attainment at Key Stage 2 represented the same level of challenge at Key Stage 3. However, few English teachers had analysed the separate reading and writing levels for their incoming Year 7 pupils. Furthermore there was scepticism about the amount of perceived test preparation in Year 6 and a belief that the results did not represent what pupils could do independently on transfer to secondary school. As a result, some schools had decided to teach pupils in mixed ability groups in Year 7 with setting from Year 8 onwards. One school, however, was implementing a new system of target level grouping from the spring term in Year 7.
- Many teachers articulated Level 7 attainment in terms of 'creative flair' or 'natural ability'. The implication was that pupils would either reach (or not reach) Level 7 as a result of their innate ability and therefore had little to do with teaching and learning. Some schools had seen a reduction in the number of pupils awarded a Level 7 in the end-of-key stage tests the previous summer which had led teachers to question their understanding of the standard expected.
- There were no specific intervention programmes in place for this particular group of pupils and most teachers talked about tailoring their teaching to meet their needs within the mainstream classroom. However, there was not a clear view of what constitutes progression in English from Level 5 to Level 7, although some emergent use of the Assessing Pupils' Progress assessment criteria and the Secondary National Strategy's Progression Maps were beginning to support teachers in their understanding of this.
- Some schools had begun to operate a condensed Key Stage 3 curriculum. In some cases, the model was proving inflexible, especially when all pupils in a particular set were entered early, regardless of their readiness. Some Year 9 pupils, who had started their GCSE courses early as a result of the condensed curriculum, were keenly aware that they had not made the progress they had hoped for and felt demotivated as a result.
- For many schools, these pupils were simply not on the school's 'radar'. In a number of schools, pre-visit data analysis had identified significant numbers of pupils who had both entered and left Key Stage 3 at Level 5 and this had prompted much discussion at senior leader level. However, some senior leaders were clear that their Key Stage 2 to 4 contextual value-added data was a priority – as long as this was positive, pupil progress from Key Stage 2 to 3 was judged to be less significant.

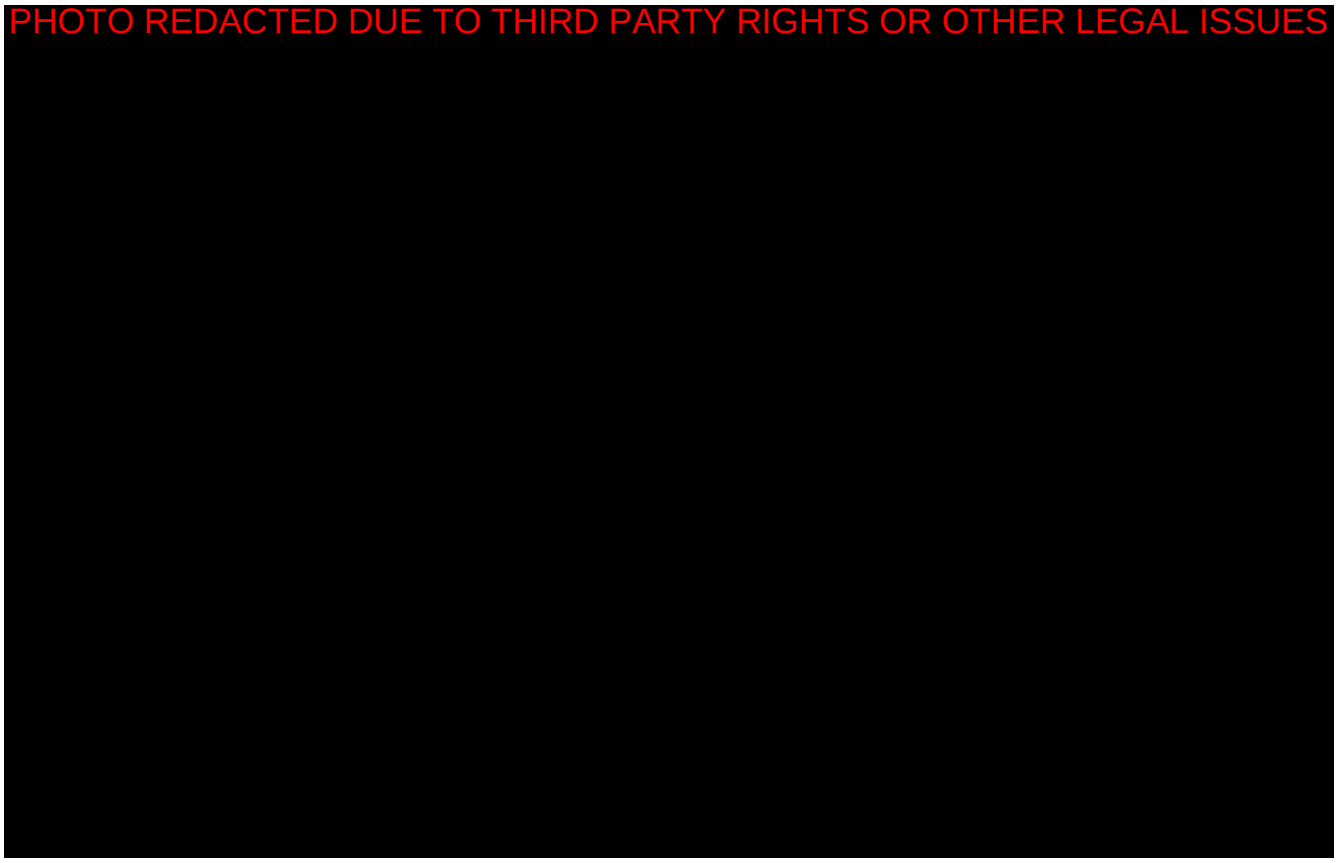
Other significant findings

Pupils:

'If he says something is good, we ask him why. If something needs to be improved, we ask him how. It's only the lazy ones who don't.' (Year 8 boy)

'We always have time to look at our teacher's comments and talk about our targets – we have to before we go on the next piece of work.' (Year 8 pupil)

'I think it would be helpful if we had some handy hints stuck inside our books so that we could see what we need to do to improve. If I'm a 5c I want to know how I could be a 5b or a 5a.' (Year 9 girl)



- A significant number of pupils, both boys and girls, wrote at home for pleasure. Not all of this writing was shared with a wider audience but some of it was and one boy had sent some of his work out on MSN messenger for feedback. Several pupils kept notebooks in which they jotted down ideas for stories and several others were planning novels. They all enjoyed narrative more than non-narrative writing and a number had made clear links between their reading and writing practice.
- Pupils had been given few opportunities to compose and edit their writing on screen: ICT, when used, was mainly seen as a tool to type up a neat copy.

- Most pupils read independently and talked enthusiastically about their choice of novels although these did not always represent particularly challenging material. Most pupils also read magazines, newspapers and electronic communications, such as MSN messaging and text messages although they did not regard these as valid reading. Some, however, seemed to have lost the reading habit even though they had enjoyed reading when they were younger.
- Most pupils enjoyed their class novels but not the classroom approaches deployed, such as reading round the class, and many felt frustrated at having to follow at the pace of other, slower readers in their group.
- All pupils were good speakers and listeners and many enjoyed drama. A number said that they would have liked some more challenging opportunities to use these skills in lessons.
- Some pupils had benefited from enhanced curriculum opportunities, such as theatre visits, Carnegie shadowing and visiting poets and several pupils had been inspired to write by visiting writers to the school.
- In a number of schools, peer assessment was well-established although pupils were less confident with self assessment. Pupils said that they found it helpful when shared success criteria were agreed in advance of a task and not just in order to provide feedback on a partner's work. In one school, pupils wrote the target provided by their partner as a result of peer assessment at the top of their final draft as a reminder.
- Many pupils were trying hard to make good use of teacher feedback and were critical of targets which focused on what they needed to improve without telling them how to do so. Some pupils were vague about their curricular targets even when they had been agreed quite recently.

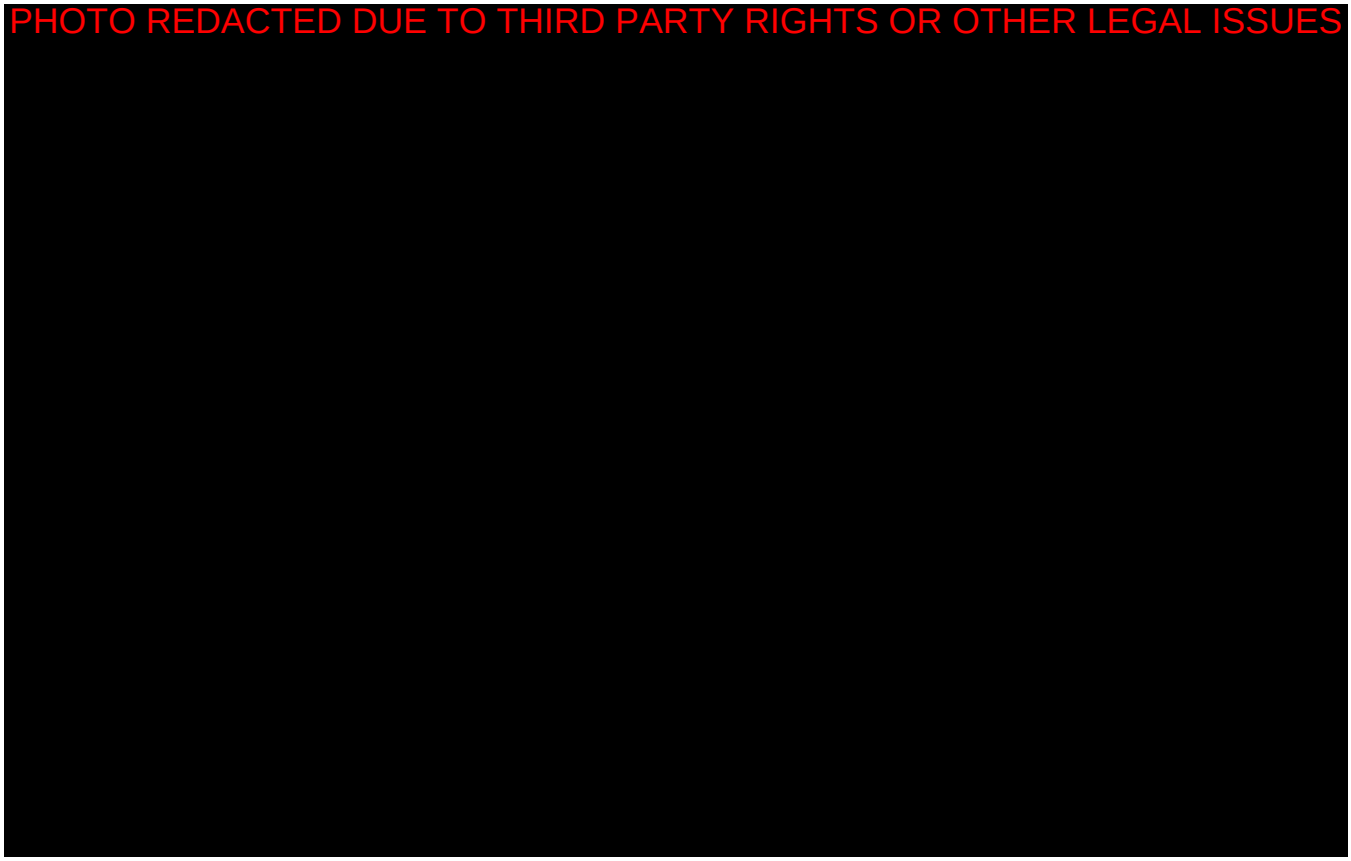
Teachers and senior leaders:

'We have always given targets but we are now really working on how pupils use them to improve.' (Key Stage 3 Co-ordinator)

'Now I think about it, teachers are more likely to see Key Stage 4 pupils out of lessons for discussions about their work than they would at Key Stage 3.' (Subject leader)

'We don't know when to step back...we stop them becoming independent.'
(Deputy headteacher)

- Teachers often set several targets on each piece of assessed work although it was rare for these targets to be followed through or monitored. However, some teachers dedicated lesson time to discuss targets and pupils said they found this helpful.
- Most English Departments were beginning to implement Assessing Pupils' Progress although many subject leaders felt that they had insufficient opportunities to standardise and moderate pupils' ongoing work.
- Teachers rarely used guided work as a means of tailoring their teaching for particular groups of pupils within the class.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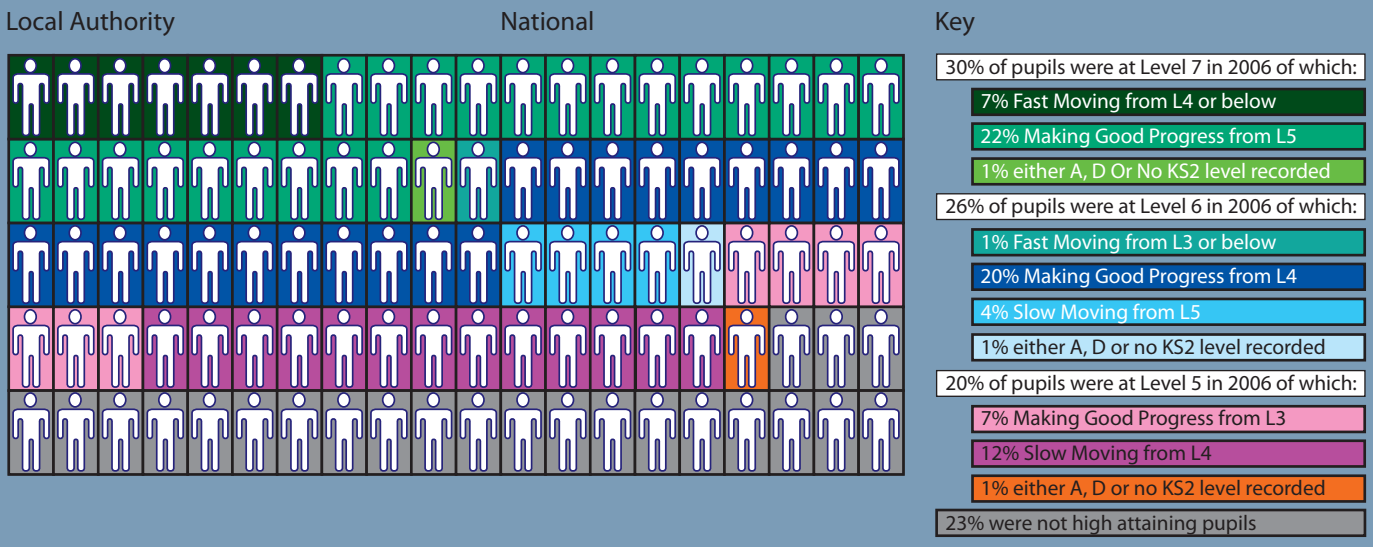
High attaining pupils: KS3 Maths (2006)

Mid green represents those pupils who entered the key stage at Level 5 and have made progress to Level 7 by the end of the key stage. Light blue indicates the progress of other pupils who started the key stage at Level 5.



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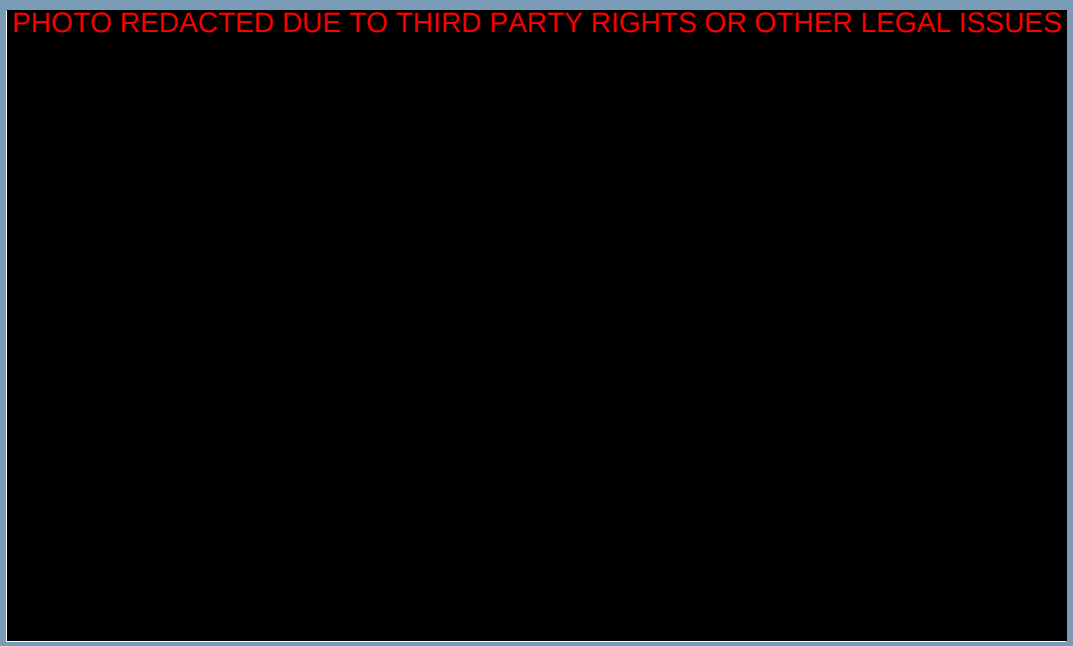
Chapter 3:

Identifying slow moving pupils in mathematics in KS3



3 Identifying slow moving pupils in mathematics in KS3

The main findings from the investigation are grouped into three separate sections: the pupil characteristics, the obstacles to progress and other significant findings.

'What's the point of doing 50 questions when you've already done 10 and got them all right?' (Year 9 girl)

'Being told what to do doesn't help – I need to know why.' (Year 9 girl)

'They don't want the teacher to know they can't do it so they give up.' (Subject leader)

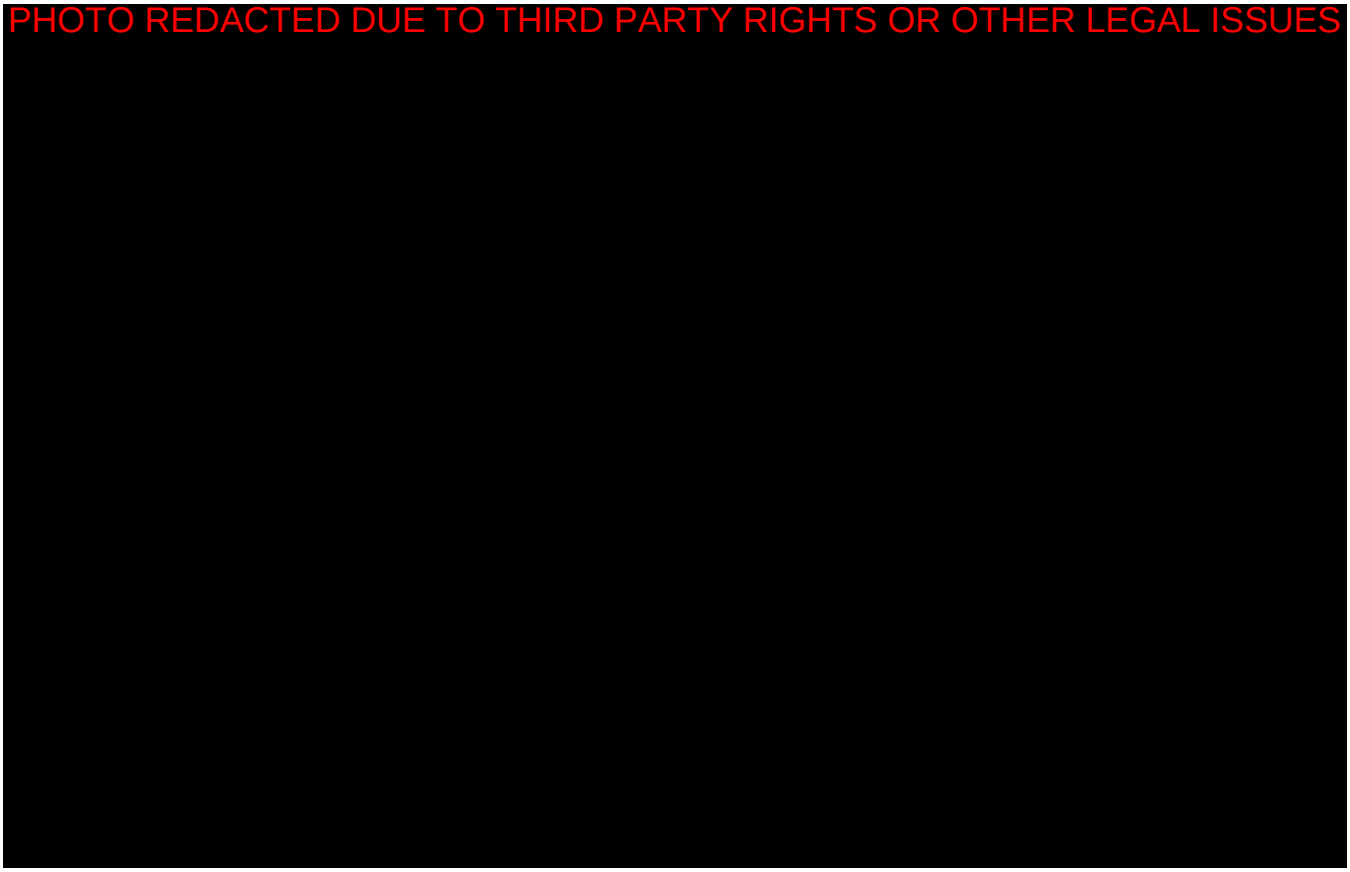
'No one likes working in silence in any lesson.' (Year 9 boy)

'They are the children who you would expect to be doing better than they are. They are generally not attention seeking and their attendance is good so they are not often brought to my attention.' (Deputy headteacher)

Pupil characteristics

- They were bright, articulate pupils who were keen to talk about their learning but they found it difficult to express themselves mathematically. They listened well to each other
- They did not see themselves as being good at mathematics, particularly the girls
- Some said they were quiet and hard working in lessons; others knew they were chatty and easily distracted
- Some seemed to be 'switching off' mathematics because they no longer enjoyed it, often because they found the routine structure of the lessons demotivating
- They described the work in lessons as either easy or hard with little in between and tended to think of hard work as inaccessible rather than as a challenge
- They liked to follow given methods and get answers right but many knew they did not fully understand the underlying mathematics
- Many felt they often did not understand, but they avoided communicating their confusion to their teacher
- They disliked repeating work they felt they had done many times before

- Many of these pupils could see the importance of talk in their learning but they viewed mathematics as a subject where they usually work quietly on their own
- They felt that who they sit with made a difference to their learning and they wanted to sit with someone who worked hard
- They did not seem to know how to work in pairs or groups in mathematics
- They said that visual images and practical work helped them to understand what they were doing
- They said they liked it when the teacher made them think as it helped them to make sense of the mathematics
- Year 9 pupils were more focused on their target levels than Year 8 but they did not know what they needed to do to achieve a Level 7, apart from work harder
- Some pupils felt they did not perform well when doing tests



Obstacles to progress in mathematics

'*Find the value* of usually means working with money.' (Year 9 girl)

'We copy from the board. It doesn't mean much to me but I just follow the examples.' (Year 8 girl)

'We need to encourage these pupils to feel good about making mistakes as that is how they learn. They think they are doing well if they get everything right.' (Year 8 teacher)

'I'd really like to work at something that makes me think.' (Year 9 boy)

'I'd like it if we could do more for ourselves rather than Miss always doing it for us.' (Year 9 boy)

'I like working with a partner. We did a practical activity on sequencing the steps in solving an equation. It really helped me to understand the balancing method.' (Year 9 girl)

'We plan discussion activities such as telling stories to go alongside distance-time graphs – you can almost sit back and watch the learning.' (Subject leader)

'I don't know what a rhombus is. Miss will draw one on the board but I don't remember. I'd like to see it and fold it' (Year 9 girl)

'We often play games on the interactive whiteboard at the beginning and end of lessons. I'd like to go out to the board more because it helps you to understand.' (Year 8 girl)

'The comments written by my teacher are useful. They tell me what I need to concentrate more on.' (Year 8 girl)

Pupils' own comments, together with evidence from their exercise books and from their teachers and senior leaders, suggested the following:

- Vocabulary was a particular weakness for these pupils. They could remember words from recent lessons such as *product, factor, simultaneous equation* and *nth term* but they had difficulty explaining the meaning and concepts behind them. They did not see learning vocabulary as part of learning a topic. Many said they found the words used on test papers very confusing.
- Many pupils said they did not understand algebra, although most could manipulate simple expressions and equations. They could follow methods and procedures, for example for finding the *n*th term or for solving simultaneous equations, but they knew they could get the answers right without really understanding what they were doing. Very few of the pupils understood the difference between an *unknown* and a *variable*. Most struggled to manipulate positive and negative numbers often applying 'rules' incorrectly.

- Pupils were happy to 'play it safe' and stay in their 'comfort zone'. They wanted to follow examples and tended to focus on the steps needed to get the right answers rather than trying to make sense of the mathematics. Even when they knew they were confused, which for some was often, they avoided communicating this to their teacher. Instead they hoped they could sort it out for themselves. Whilst pupils seemed happy working in their comfort zone, they did also recognise the importance of challenge in their learning.
- The pupils said they rarely had opportunities to work in pairs or groups – they viewed mathematics as a subject where they worked on exercises mainly on their own. Even pupils who were encouraged to work in a pair did not seem to know how to discuss and explore the mathematics together. They tended to do the mathematics alone and then compare answers. Some pupils felt that seating plans, particularly when arranged boy/girl, stopped them from working in pairs. Where pupils were given planned opportunities to work together, such as summarising the key points and connections at the end of a topic or working on matching or sequencing activities, they found the experiences helpful and enjoyable.
- Visual images and practical activities seemed particularly important to these pupils in developing their understanding of mathematics. Some pupils could talk with understanding about examples of activities that used visual and practical approaches such as seeing the area of a triangle as half the area of a parallelogram, and exploring loci using pupils to represent the points on the path. Exercise books contained few visual images and many pupils said they did not use visual images often. Nearly all pupils said they enjoyed the use of interactive whiteboards in mathematics lessons because the explanations were made clearer with realistic diagrams. They liked using an interactive whiteboard.
- Assessment for learning strategies, such as the sharing of learning outcomes with pupils, were being developed in many of the schools. Some departments were seeing the use of formative comments in exercise books as being significant in moving these pupils forward. However, pupils were rarely involved in identifying their own strengths and weaknesses and they did not seem to have a feel for the important areas of mathematics needed to achieve a Level 6 or Level 7.

Other significant findings

Pupils

'We do fractions every year and every time I think I still don't understand them.' (Year 9 girl)

'I'd like to have more time to write my own notes but we are always rushing so I end up with nothing to revise.' (Year 8 boy)

'Sometimes I look back at what I've done in my exercise book and it just doesn't mean anything.' (Year 9 boy)

- There was a sense that these pupils did not recognise that they had been above national expectations at the start of Key Stage 3 even though they knew they had achieved Level 5. Many of the pupils had been moved into lower sets having started in the top set in Year 7. This had reinforced their feelings of not being good at mathematics. High teacher expectations and a positive 'can do' approach had helped to address this in some schools.

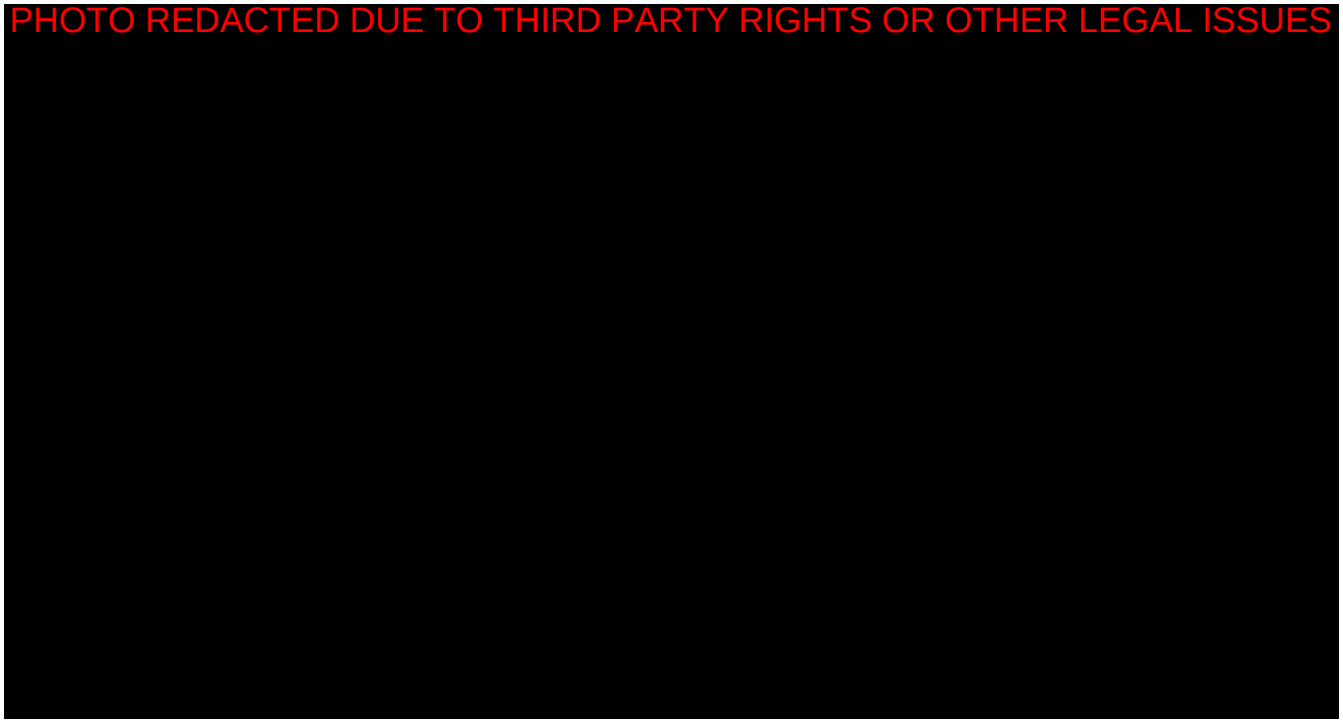
- Most pupils were good at calculating mentally and were confident with a range of strategies for calculating with whole numbers, decimals and percentages.
- Most pupils said they did not understand fractions. They could follow given rules to combine fractions but the processes were not fully understood.
- Exercise books were mainly used to record notes copied from the board and to write answers to exercises. Pupils did not see their books as a valuable learning resource and boys in particular could not see the point of recording their method in their exercise books when they could work the answers out in their heads.

Teachers and senior leaders

'If you move down a group your target level will be lower.' (Year 9 girl)

'We have been focusing intervention on borderline students. These pupils have not previously been on our radar.' (Subject leader)

- Evidence from pupils' exercise books suggested that in some schools the pitch of the work was unlikely to enable the pupils to achieve a Level 7 by the end of Key Stage 3. In a few schools not all of the pupils interviewed were targeted to achieve a Level 7 at the end of Key Stage 3.
- In some schools with staffing shortages the strongest teachers had been assigned to the borderline groups in Key Stage 3 or to groups in Key Stage 4. Some pupils felt they had made little or no progress earlier in Key Stage 3 because of difficulties with staffing.
- Many schools were making good use of data and had tracking systems in place. Teachers in these schools felt a sense of ownership and accountability for the data for their groups. Many teachers and subject leaders had a clear expectation that these pupils should make two levels of progress during Key Stage 3. However, intervention support was mostly targeted at pupils at risk of missing Level 5 at Key Stage 3 or grade C at GCSE.



High attaining pupils: KS3 Science (2006)

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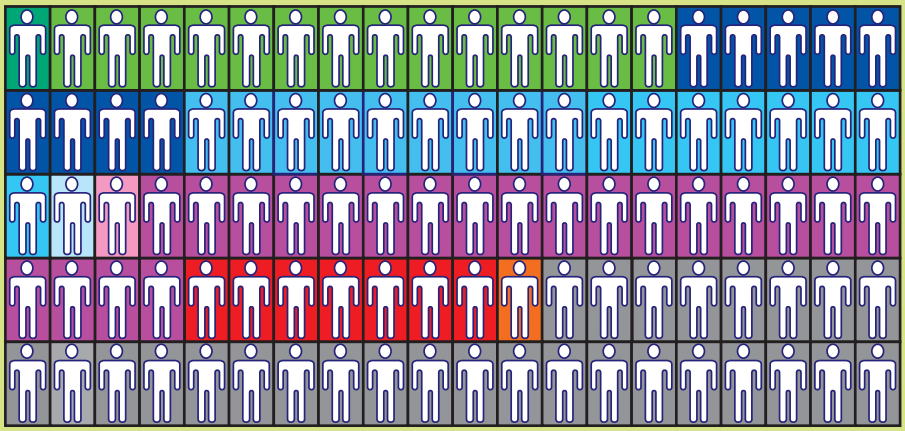
Local Authority National



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28% were not high attaining pupils

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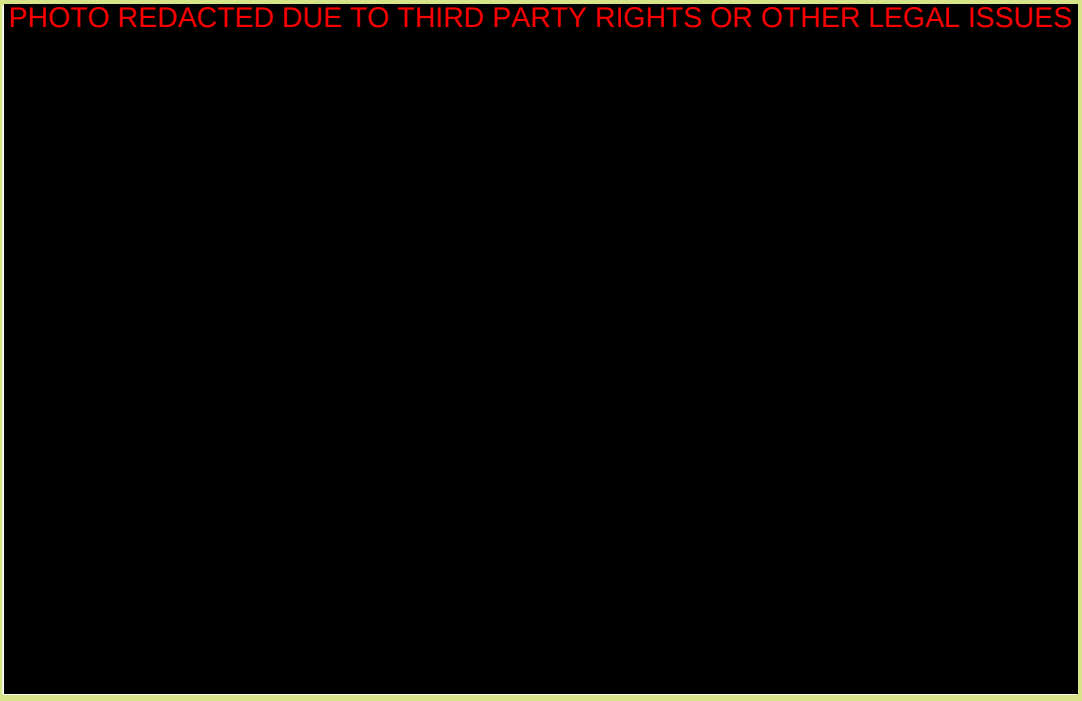
Chapter 4:

Identifying slow moving pupils in science in KS3



4 Identifying slow moving pupils in science in KS3

The main findings from the investigation are grouped into three separate sections: the pupil characteristics, the obstacles to progress and other significant findings.

Pupil characteristics

'Now I know exactly what I need to do to get a Level 7 I'll have a go!' (Year 9 pupil)

'I'm not really that bothered that I'm making slow progress.' (Year 9 pupil)

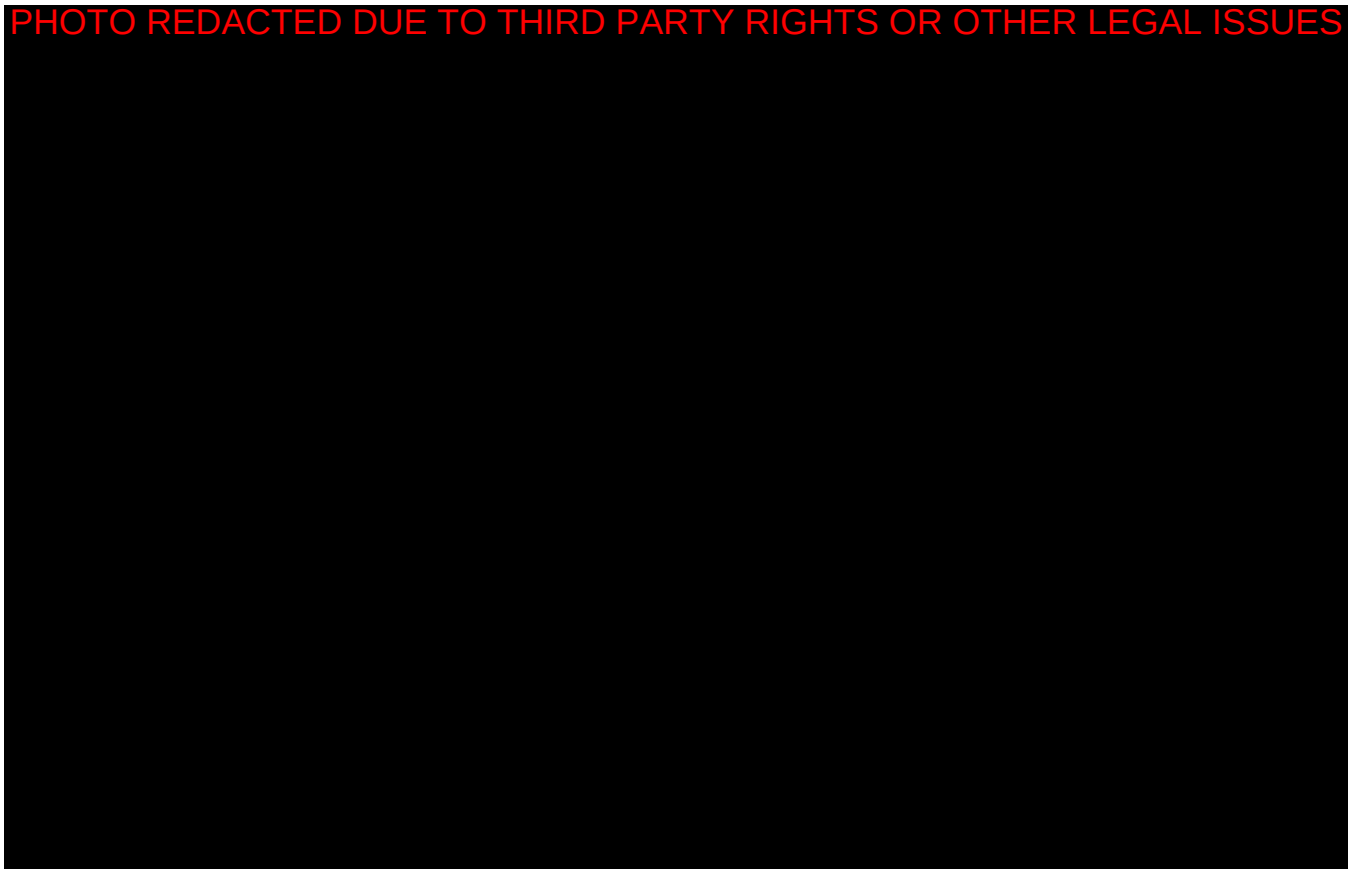
'I know that I got a Level 5 in science at primary school but I didn't know that was the best you can get.' (Year 8 pupil)

Whilst there were a few characteristics that all the pupils shared, generally they did not present a homogeneous group with a set of common characteristics. Instead, between them they displayed a wide range of characteristics, some of which were exact opposites:

- Most of the pupils spoke positively about their work in science and singled out practical work as a major highlight
- They were all articulate and could express their ideas clearly and with a good degree of precision
- They were keen to contribute and particularly enjoyed being involved in discussion, either as a whole-class or in small groups, although opportunities for small group work were often limited
- A number were confident and secure in their ability whilst a similar number were much less confident and, as a consequence, were rather reticent and quiet in class
- Whilst most displayed a highly motivated and committed attitude to their work, a significant minority were less positive, for example giving only cursory attention to homework and rarely devoting sufficient time to revision
- Most were attentive in class but a number were of a 'sociable nature' and so were very talkative and needed to be frequently reminded to concentrate
- A number of the pupils performed significantly worse in tests than their oral work in lessons would have indicated

In addition:

- More than half of the pupils were not in the top sets and a number had been moved down one or more sets since they started in Year 7 – in some cases the demotion had initiated an impetus to do better but in other cases it had tended to erode confidence
- Nearly all the pupils could remember the levels they achieved in English, mathematics and science in the national tests at the end of Year 6 but a significant proportion, especially those in Year 8, were less aware of their current levels of performance or whether their progress was in line with expectations
- A minority of the pupils displayed significant weaknesses in literacy skills and this clearly limited their progress in science
- Some pupils did not see extension tasks as something they should attempt, either because they didn't feel confident in tackling 'harder questions' or because their level of commitment to the work was limited



Obstacles to progress in science

'We did a lot of copying last year. This year it is much better – we have whole-class debates and these really help you to get your head around the issues.' (Year 9 pupil)

'Until we changed our Key Stage 3 units we were changing units every 12 lessons and it was very difficult to get any sense of continuity in learning.' (Subject leader)

- Many of the pupils had achieved a higher level in science at the end of Key Stage 2 than in English or mathematics. Whilst L5, profiles were common, many of the pupils had achieved a Level 4 in English and a small number had achieved a Level 3. These relative weaknesses in literacy were evident in the pupils' books in terms of the lack of accuracy of their spelling and their inability to express ideas coherently in writing which extended beyond one or two sentences. In comparison, relative weaknesses in mathematics appeared to have less impact on the pupils' progress in science.
- The pupils rarely produced extended pieces of writing (even up to a third of a page) in order to develop explanations, justifications or arguments. Typically conclusions and evaluations were one or two sentences only. Whilst teachers clearly aimed to develop these skills through oral work in class, there was little evidence of the outcomes of this work in the pupils' books. Equally, developing this skill was a focus of 'booster' and revision sessions in Year 9 but evidence of systematic development over the key stage, or of drawing on effective modelling of extended writing used in English lessons, was very limited.
- The worksheets used by the pupils typically required short answer responses for the most part and the more extended writing tasks often featured at the end of the worksheet. Where worksheets were left unfinished, often these later parts were left unanswered. More generally, the pupils' books indicated that the higher demand requirements of making and explaining conclusions and writing evaluations were often set as homework tasks and did not always receive the detailed attention they merited. In addition, some of the pupils avoided responding to extension tasks (which often required more extended answers) unless they were specifically asked to do so.
- Many of the pupils said that talking about their ideas in science was the most efficient way of helping them to learn. Even those pupils who were very quiet said that listening to their peers helped them to improve their own understanding. In some schools the pupils were very positive about the way their teachers engaged the whole class in discussion and said that this enabled them to check and develop their understanding. In addition, pupils talked about how their involvement in small group work had improved their grasp of concepts and overall confidence in the subject. More generally, however, the pupils said that small group work, beyond that used in practical work, was used infrequently.

- The extent of the content of the scheme of work in Key Stage 3 science provided potential obstacles to progress for pupils. For schools still basing their scheme of work on the '30+ unit model' the content was presented in relatively short units with very frequent transitions to new units. In these circumstances, there was a tendency for pupils' misconceptions and difficulties to be identified at the end of the unit when, in many cases, it was difficult to adequately address them. In this situation, setting short term curricular targets to focus on aspects needing development was problematic. To overcome this difficulty, the majority of schools were combining some of the 'traditional' Key Stage 3 units of work into larger units, often covering a half-term's work. This, together with the use of a range of assessment approaches, did lead to greater coherence and continuity of learning for the pupils.
- Some pupils spoke very enthusiastically about the benefits of assessment for learning (AfL) approaches such as peer and self assessment. They welcomed the fact that the marking criteria were shared with them and they found that looking at other pupils' work really helped them to understand the detail and precision required to achieve a particular level. Overall, in the schools visited, this practice was relatively rare. In some cases learning outcomes linked to levels were not provided to the pupils at all. Where they were provided, often in the form of self-assessment lists, there was often variation in how different teachers and pupils used them.
- Generally the pupils judged the amount of 'note taking' in their lessons to be reasonable and it was not seen to dominate the lessons. However, a significant minority of the pupils said that they spent up to half of their time in science lessons writing down information, either from textbooks or from teacher notes on power point slides or the white/black board. For these pupils, this style of learning limited motivation and involvement in the lessons.

Other significant findings

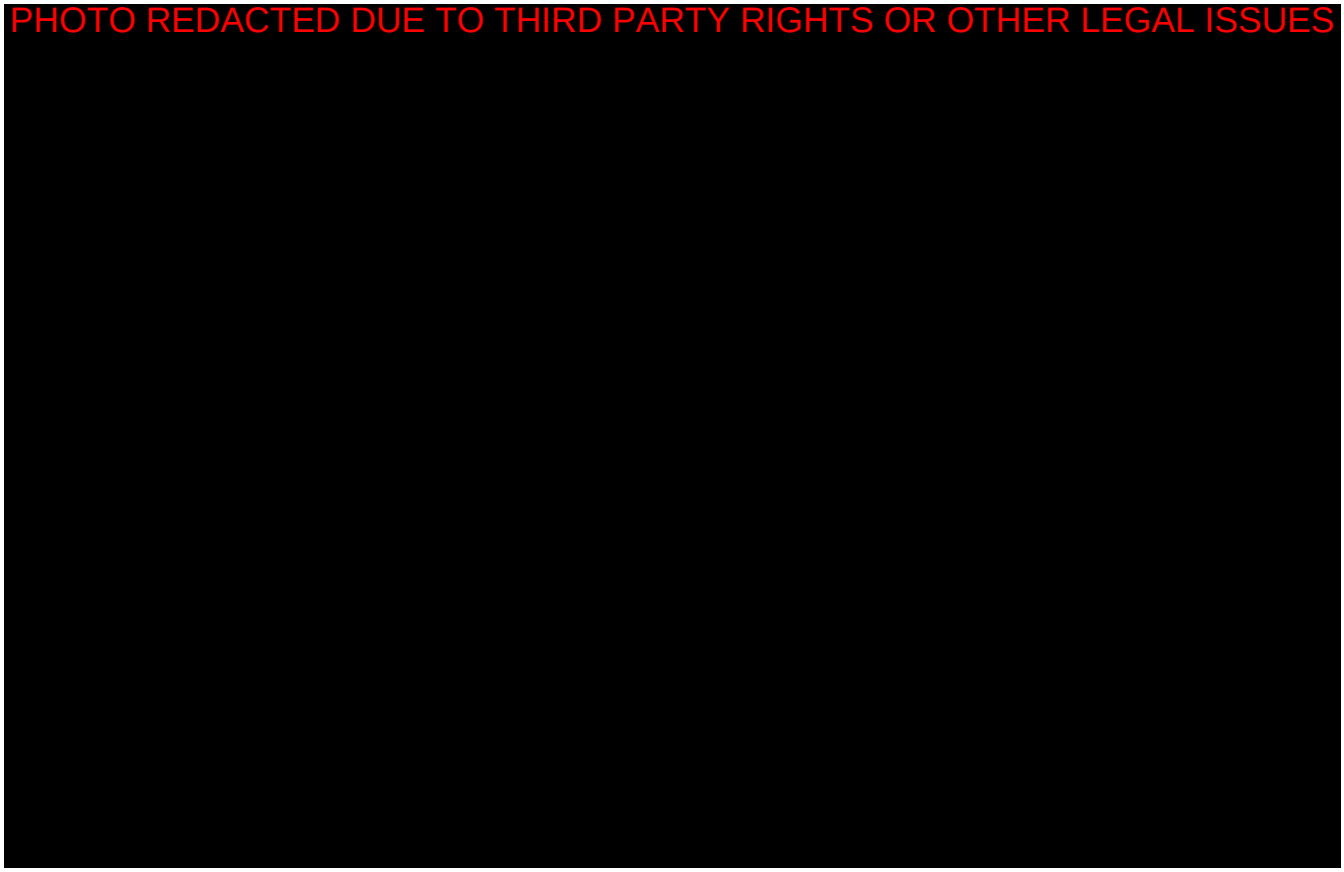
Pupils

'Intervention is initially light touch' and then 'kicks in' strongly in Year 9.' (Subject leader)

'I like it when I'm told exactly what I need to work on – just saying 'work harder' or 'revise more' doesn't really help me.' (Year 9 pupil)

'I enjoy the practical work but sometimes I don't really know what I learn from it.' (Year 9 pupil)

'We give all the pupils a 'level' booklet of past end of year test questions. We give each pupil the booklet for the level one above the one they are currently attaining.' (Subject leader)



- Almost all the pupils could remember the National Curriculum level they attained in science at the end of Key Stage 2. Similarly most could say what their end of Key Stage 3 target was. Typically this was recorded in their science exercise books and/or in their school planners. Effective tracking systems were evident in all the schools visited and through a variety of different approaches to reporting current levels of attainment, pupil progress could be monitored. In some schools, recent changes had been introduced and the new processes were bedding down. As a result there was some variation in the extent to which pupils in different year groups within the same school were aware of their progress towards their end of key stage targets. Overall awareness by the pupils of the progress they were making towards their targets was stronger in Year 9 than in Year 8.
- Practical work was frequently cited by pupils as their main reason for their interest and enjoyment of science. Some pupils, however, could remember the practical activity but were less sure about what they had learnt as a result of it.
- Many of the pupils expressed the view that the way their work was marked did not help them to improve. The books often included comments such as 'improve your presentation' rather than focusing on higher value curricular targets relating to relevant knowledge or concept and skill development.
- Very few of the pupils had received 'intervention support' during Years 7 and 8, although some of the 'booster' preparation in Year 9 was tightly focused on the levels they were targeting.

Teachers and senior leaders

'Last year we focused on improving the proportion of pupils getting Level 6. We didn't look at Level 7 in much detail.' (Subject leader)

'We use the CVA data to set our targets – we haven't considered two levels of progress as such.' (Subject leader)

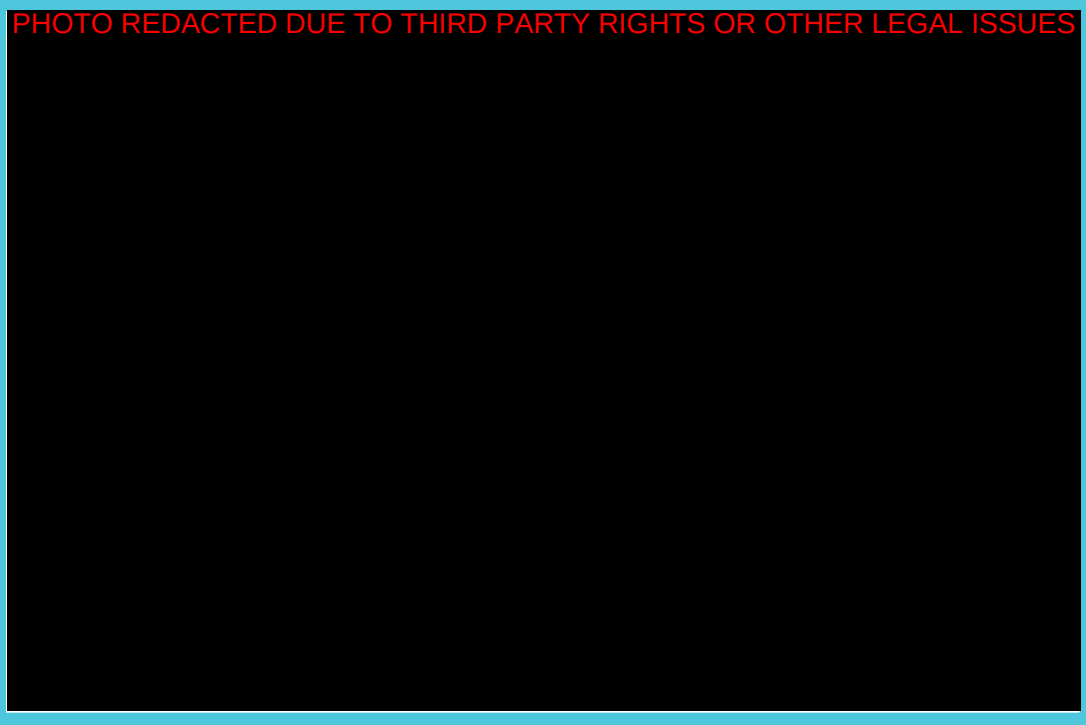
'To set targets we use the CVA predictions and then add one level.' (Senior leader)

'We have half-term units and the unit assessment includes a written test, an assessed task and a practical/investigative task. We also include a self-assessment and a peer assessment task.' (Subject leader)

- Very few departments had really focused on the transition from Level 5 to Level 7 during the key stage. All were focusing on the 'threshold' performance at Level 5 and increasingly on performance at Level 6 and above. In some departments transition matrices were used more generally and these had been used to focus on 'non-movers' or 'slow movers', but in the latter case this rarely included consideration of Level 5-7 conversion. In other departments, level conversions were not really considered explicitly, although they were implicit in the contextual value added (CVA) predictive approach used in the school. In a minority of schools the CVA approach rarely, if ever, predicted conversion from Level 5 to Level 7. Unsurprisingly in these schools, where end of key stage targets for the pupils starting the key stage at Level 5 were set at Level 6, teacher expectations were in line with the targets.
- Subject leaders and teachers in a number of schools said that the tier arrangement in the end of Key Stage 3 national science tests had the potential to limit the number of Level 7s achieved. There was a certain amount of 'playing safe' and entering pupils for the 3-6 tier papers – this was particularly evident where pupil targets rarely included Level 7. There was also some evidence of a so-called 'set 2' issue, where only the top sets were entered for the higher tier papers.
- Many of the schools were developing broader assessment approaches and moving away from judging pupil attainment solely on the basis of their performance on end of unit tests. The use of assessment tasks was being incorporated in a number of schools, together with the assessment of investigative work. This broader evidence base was enabling teachers to pin-point more precisely areas of difficulty faced by the pupils. In addition, the assessment tasks allowed difficulties to be identified part way through a unit and acted upon in a way that can't be done with end of unit tests.
- In a number of schools pupils had been provided with revision/ homework guides to reduce the amount of information and content that had to be transmitted during the lessons. In all cases the pupils appreciated this support although some said that they didn't really use the books to aid their revision!

Chapter 5:

Taking action across the whole school



5 Taking action across the whole school

This chapter highlights possible action that can be taken to address one of the key issues that cut across all three subject areas.

Issue 1: Extending the use of assessment for learning (AfL) strategies so that pupils know more precisely what they can do and what they need to improve upon.

Key concerns

English

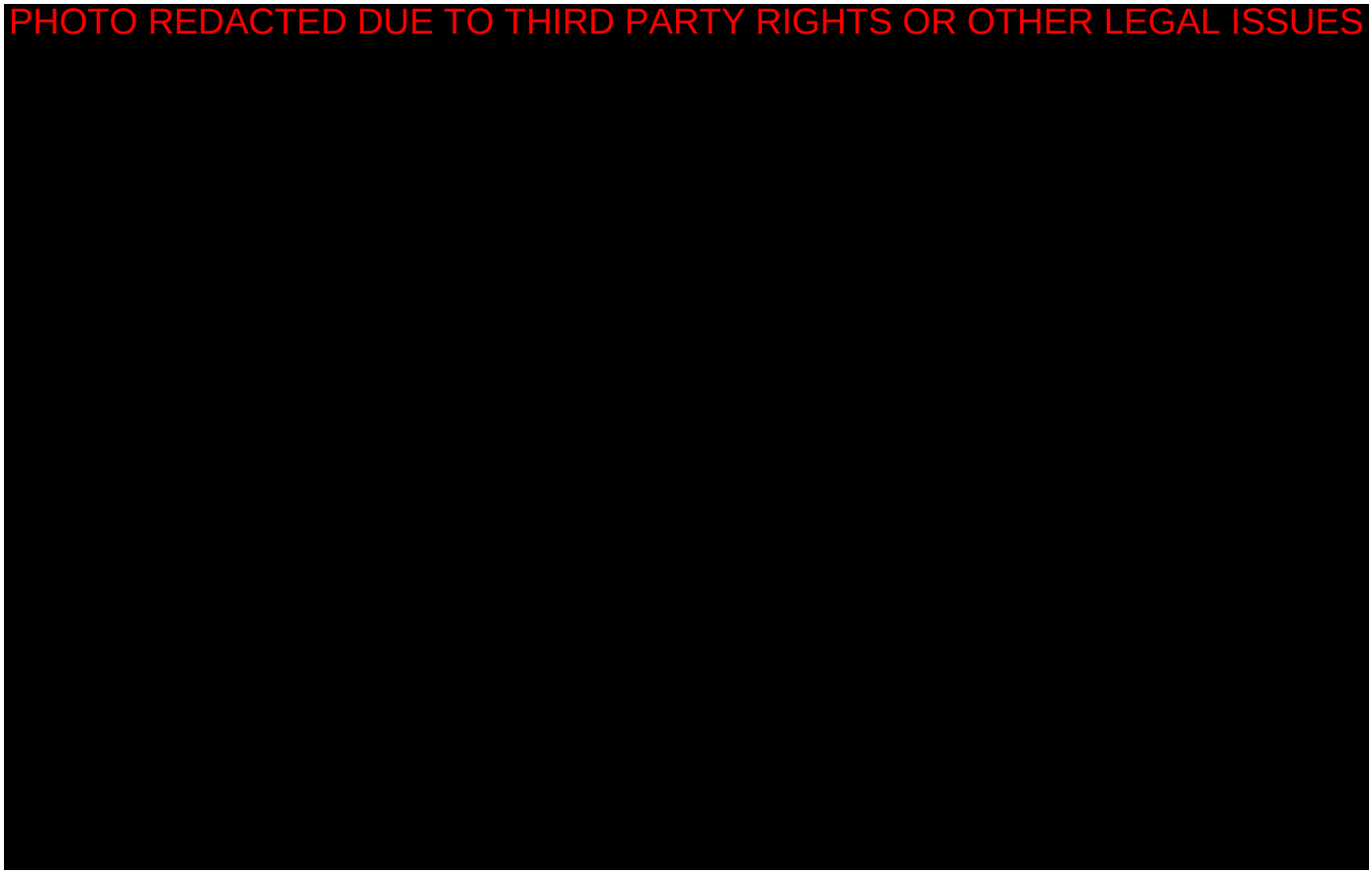
- Many pupils were trying hard to make good use of teacher feedback and were critical of targets which focused on what they needed to improve without telling them how to do so. Some pupils were vague about their curricular targets even when they had been agreed quite recently.
- In a number of schools, peer assessment was well-established although pupils were less confident with self assessment. Pupils said that they found it helpful when shared success criteria were agreed in advance of a task and not just in order to provide feedback on a partner's work. In one school, pupils wrote the target provided by their partner as a result of peer assessment at the top of their final draft as a reminder.
- Teachers often set several targets on each piece of assessed work although it was rare for these targets to be followed through or monitored. However, some teachers dedicated lesson time to discuss targets which pupils said they found helpful.

Mathematics

- Assessment for learning strategies such as the sharing of learning outcomes with pupils, were being developed in many of the schools. Some departments were seeing the use of formative comments in exercise books as being significant in improving the progress of these pupils. However, pupils were rarely involved in identifying their own strengths and weaknesses and they did not seem to have a feel for the important areas of mathematics needed to achieve a Level 6 or Level 7.

Science

- Some pupils spoke very enthusiastically about the benefits of assessment for learning approaches, such as peer and self assessment. They welcomed the fact that the marking criteria were shared with them and they found that looking at other pupils' work really helped them to understand the detail and precision required to achieve a particular level. Overall, in the schools visited, this practice was uncommon. In some cases learning outcomes linked to levels were not provided to the pupils at all. Where they were provided, often in the form of self-assessment checklists, there was often variation in how different teachers and pupils used them.
- Many of the pupils expressed the view that the way their work was marked did not help them to improve. The books often included comments such as 'improve your presentation' rather than focusing on higher value curricular targets relating to relevant knowledge, concept and skill development.

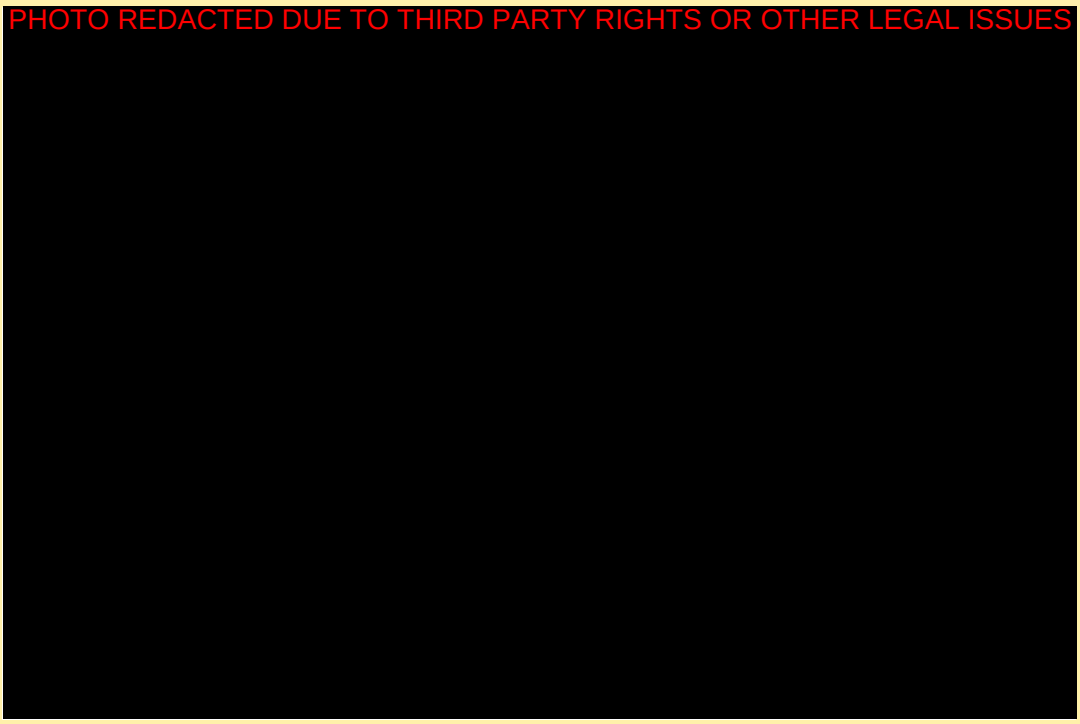


What might subject leaders do to address this issue?

- Promote and support the sharing of success criteria with pupils before tasks are set as well as after
- Explore strategies with teachers to help pupils identify their own success criteria as a way to engage pupils with information on 'levelness'
- Explore the significance of pupil reflection on their learning and strategies to help pupils engage with and evaluate their learning on a regular basis – teach the skills of reflection
- Use SMART targets with pupils – precise targets that help clarify what the pupil needs to do and helps to identify the progress that is being made
- Work with teachers on making the 'learning journey' explicit – how the planned teaching will help pupils progress to the next level
- Focus on doing a few things well – teachers can feel overloaded by curriculum demands – help teachers and pupils see that small changes can make a difference
- Use the 'pupil voice' to evaluate how things are working
- Establish cross-departmental meetings to establish a consistent approach/policy, including marking and strategies for feedback
- Provide departmental time for discussion about particular pupils who are underperforming across subjects
- Ensure that the scheme of work facilitates planned opportunities for pupils to reflect on teacher marking/comments
- Provide response time and a range of response opportunities for pupils, e.g. turning teacher marking into a question necessitating a written pupil response, or providing pupils with reflective diaries
- Raise the profile of target setting – ensure that there are planned opportunities to have a dialogue with pupils about targets
- Consider support such as guided work for groups of pupils with the same or similar targets
- Plan opportunities within each unit of work for teachers to have brief one-to-one dialogue with pupils to ensure that they understand their targets
- Support staff to use peer assessment activities to identify curricular targets so that pupils know what they need to improve to achieve the next level
- Pay attention to the target-getting process by ensuring that pupils know how to meet their targets

Chapter 6:

Taking action in English



6 Taking action in English

This chapter highlights possible action that can be taken to address some of the key issues in English.

Issue 2: Building on Key Stage 2 attainment in the early stages of Key Stage 3

Key concerns

- Many English teachers mistrusted Key Stage 2 data and did not accept that Level 5 attainment at Key Stage 2 represented the same level of challenge at Key Stage 3. However, few English teachers had analysed the separate reading and writing levels for their incoming Year 7 pupils.
- There was some scepticism about the amount of perceived test preparation in Year 6 and a belief that the results did not represent what pupils could do independently on transfer to secondary school. As a result, some schools had decided to teach pupils in mixed ability groups in Year 7 with setting from Year 8 onwards. One school, however, was implementing a new system of target level grouping from the spring term in Year 7.

What do pupils need if they are to address this issue?

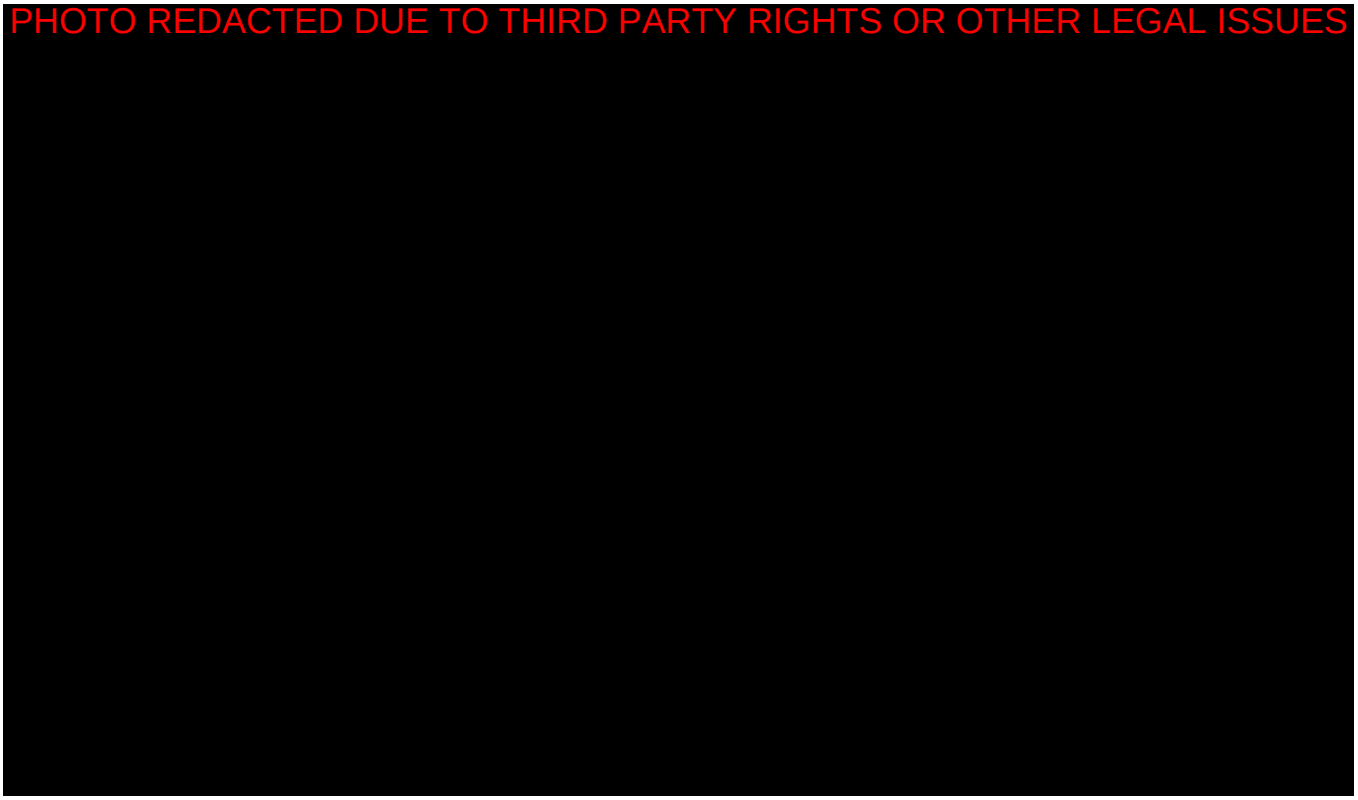
- An understanding that the overall level they have achieved may not be the same in both reading and writing
- Reassurance that their teacher knows their levels in reading and writing from Key Stage 2
- Clarity about their strengths and areas for improvement, particularly if there is a difference in their levels for reading and writing
- Specific curricular targets to address areas of weakness which are reviewed regularly
- High quality and regularly planned feedback, with opportunities for reflection and action

What do teachers need if they are to address this issue?

- A clear understanding of the different emphasis on assessment foci in the Key Stage 2 and Key Stage 3 reading tests
- Accurate data which provides a clear picture for both reading and writing and to accept the Key Stage 2 results as a basis for further development
- Continuing professional development (CPD) which provides an understanding of progression in Key Stage 2, including the possibility of covering some Year 7 objectives in Year 6
- Opportunities to work with Year 6 colleagues in order to apply Level 5 assessment criteria to Year 6/7 work
- On-going transition work to build trust and confidence across the phases

What support can English subject leaders provide?

- Access to data which clearly analyses separate reading and writing levels for incoming Year 7 pupils
- Access to question level analysis of Key Stage 2 papers
- A greater sense and understanding of primary school pedagogy through improved opportunities for liaison with partner primary schools, including cross-phase visits
- Familiarisation with the renewed Primary Framework, particularly continuity and progression through the strands of English



Issue 3:
Tailoring provision in the classroom to help pupils reach Level 7

Key concerns

- Many teachers articulated Level 7 attainment in terms of 'creative flair' or 'natural ability'. The implication was that pupils would either reach (or not reach) Level 7 as a result of their innate ability and therefore had little to do with teaching and learning. Some schools had seen a reduction in the number of pupils awarded a Level 7 in the end-of-key stage tests the previous summer which had led teachers to question their understanding of the standard expected.
- There were no specific intervention programmes in place for this particular group of pupils and most teachers talked about tailoring their teaching to meet their needs within the mainstream classroom. However, there was not a clear view of what constitutes progression in English from Level 5 to Level 7 although some emergent use of the Assessing Pupils' Progress assessment criteria and the Secondary National Strategy's Progression Maps were beginning to support teachers in their understanding of this.
- Teachers rarely used guided work as a means of tailoring their teaching for groups of pupils within the class.

What do pupils need if they are to address this issue?

- A clear understanding of what is required to attain Level 7 in reading, writing and speaking and listening
- Curricular targets which focus precisely on progression to Level 7
- Exemplars of Level 7 work, annotated to show the significant features
- Guided group work which focuses on specific barriers to Level 7 attainment
- Choice and freedom to be creative within a clear framework of appropriateness for audience and purpose
- Opportunities to use more challenging vocabulary in real contexts
- Peer mentoring, for example with an able, older student in the school
- Access to writers who make their living through writing: journalists, novelists, poets, etc.
- Dedicated lesson time to support the development of thinking skills and enquiry-based learning

What do teachers need if they are to address this issue?

- A clear understanding of what is required to attain Level 7 in reading, writing and speaking and listening and how this differs from Level 6 attainment
- Experience of external test marking in order to see the application of Level 7 criteria to a national sample of work
- Flexibility to use guided group work with all pupils, including the most able
- Confidence to encourage collaborative and independent learning
- Knowledge of suitable and challenging texts to extend pupils' reading, both in class and independently
- Freedom to devote more lesson time to thinking skills and enquiry-based learning

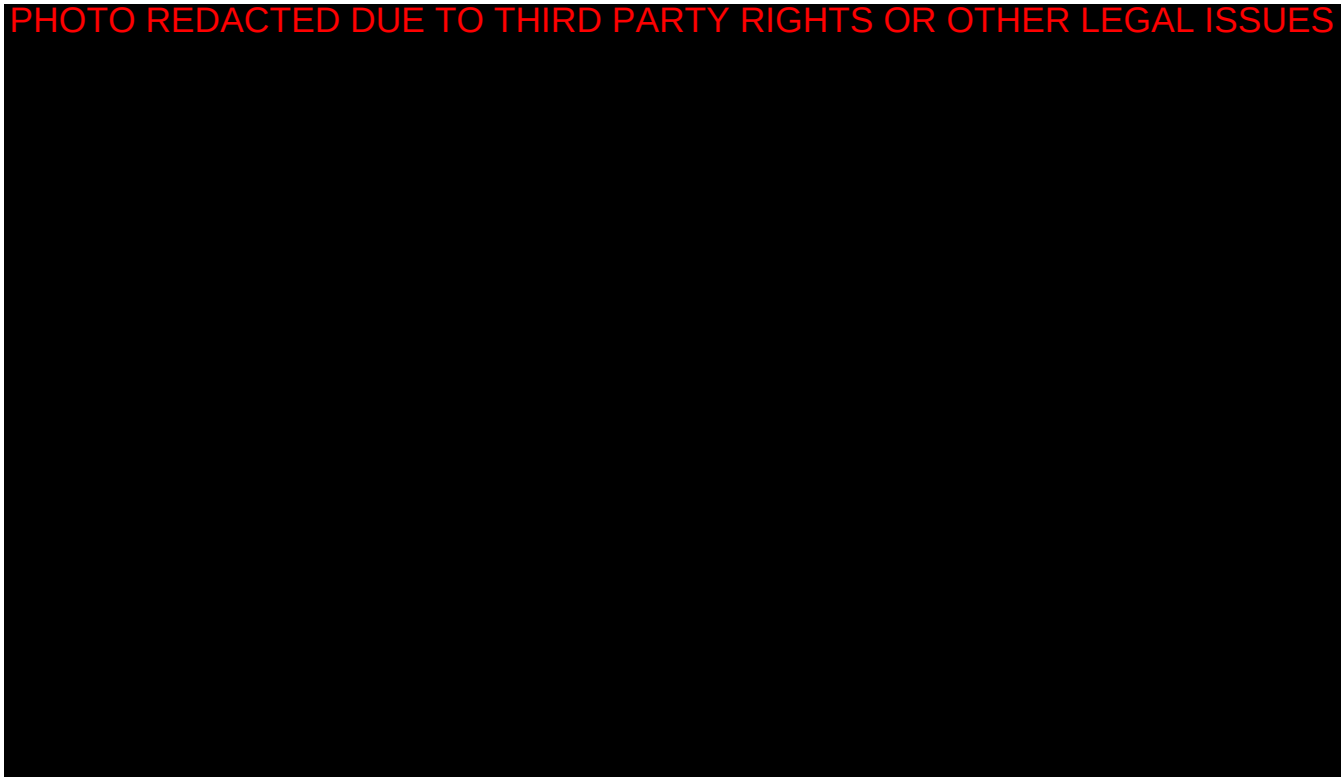
What support can English subject leaders provide?

- An agreed understanding of Level 7 criteria and the way they differ from the corresponding criteria for high Level 6 attainment
- Time to standardise and moderate borderline Level 6/7 work with a view to agreeing next steps for pupils working at Level 6
- Clear expectations and challenge for Level 5 pupils in Year 7
- Possible links with able pupils from other schools so that top set pupils can 'raise their game'

Issue 4:
Sustaining and developing wider, independent reading

Key concerns

- Most pupils read independently and talked enthusiastically about their choice of novels, although these did not always represent particularly challenging material. Most pupils also read magazines, newspapers and electronic communications, such as MSN messaging and text messages, although they did not regard these as valid reading. Some, however, seemed to have lost the reading habit even though they had enjoyed reading when they were younger.
- Most pupils enjoyed their class novels but not the classroom approaches deployed, such as reading round the class, and many felt frustrated at having to follow at the pace of other, slower readers in their group.



What do pupils need if they are to address this issue?

- Opportunities to validate their personal, independent reading through peer group discussion
- An understanding that all reading counts, including on-screen reading, magazines and newspapers, environmental reading, etc
- Opportunities to see their teachers as readers and to talk to them about their reading
- Recommendations, for example through discussion or reading lists, supported by imaginative tasks
- Easy access to a wide range of increasingly challenging texts
- Time to read in and out of class, including extended reading outside of English lessons
- An understanding of the benefits of wider reading
- An understanding of what able readers do, for example synthesising, hypothesising, etc.

What do teachers need if they are to address this issue?

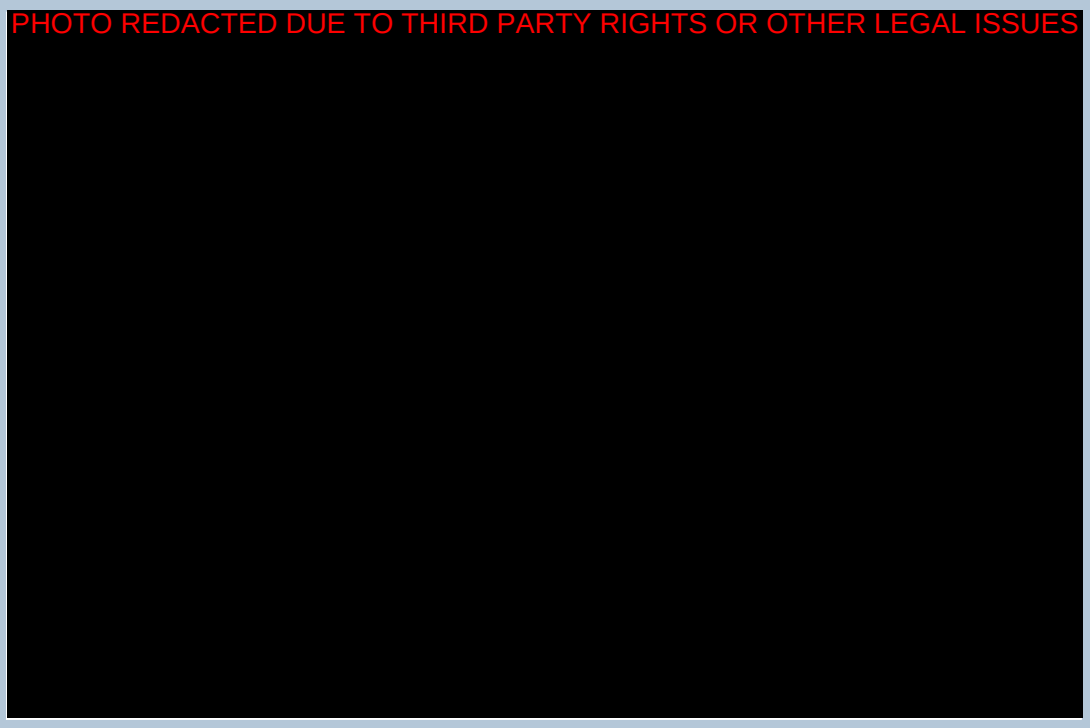
- To be a role model by reading for pleasure themselves
- To keep an up to date knowledge of good quality, challenging texts for young people
- To be prepared to share their own reading recommendations with pupils
- To develop guided reading in order to offer challenge and pace for more able readers
- To explore a range of texts in class, for example drama, film scripts, non-fiction, etc.
- To engage in a dialogue with pupils about their reading, perhaps through the use of reading journals

What support can English subject leaders provide?

- Reinstate a wider reading scheme, perhaps supported by certificates
- Ensure that there is a reading 'advocate' in the department
- Use the budget wisely to ensure a constant source of high quality and recent texts – consider smaller collections of texts as well as class sets
- Offer workshops for parents or parent reading groups
- Encourage teachers in other departments to read and discuss their reading with pupils, including texts related to their subjects
- Set up an online reading community

Chapter 7:

Taking action in mathematics



7 Taking action in mathematics

This chapter highlights possible action that can be taken to address some of the key issues in mathematics.

Issue 5: Improving the quality of paired work in mathematics lessons

Key concern

- Pupils said they rarely had opportunities to work in pairs or groups – they viewed mathematics as a subject where they worked on exercises mainly on their own. Even pupils who were encouraged to work in a pair did not seem to know how to discuss and explore the mathematics together. They tended to do the mathematics alone and then compare answers. Some pupils felt that seating plans, particularly when organised boy/girl, stopped them from working in pairs. Where pupils were given planned opportunities to work together on activities, like summarising the key points at the end of a topic or working on matching or sequencing activities, they found the experiences helpful and enjoyable.

What do pupils need if they are to address this issue?

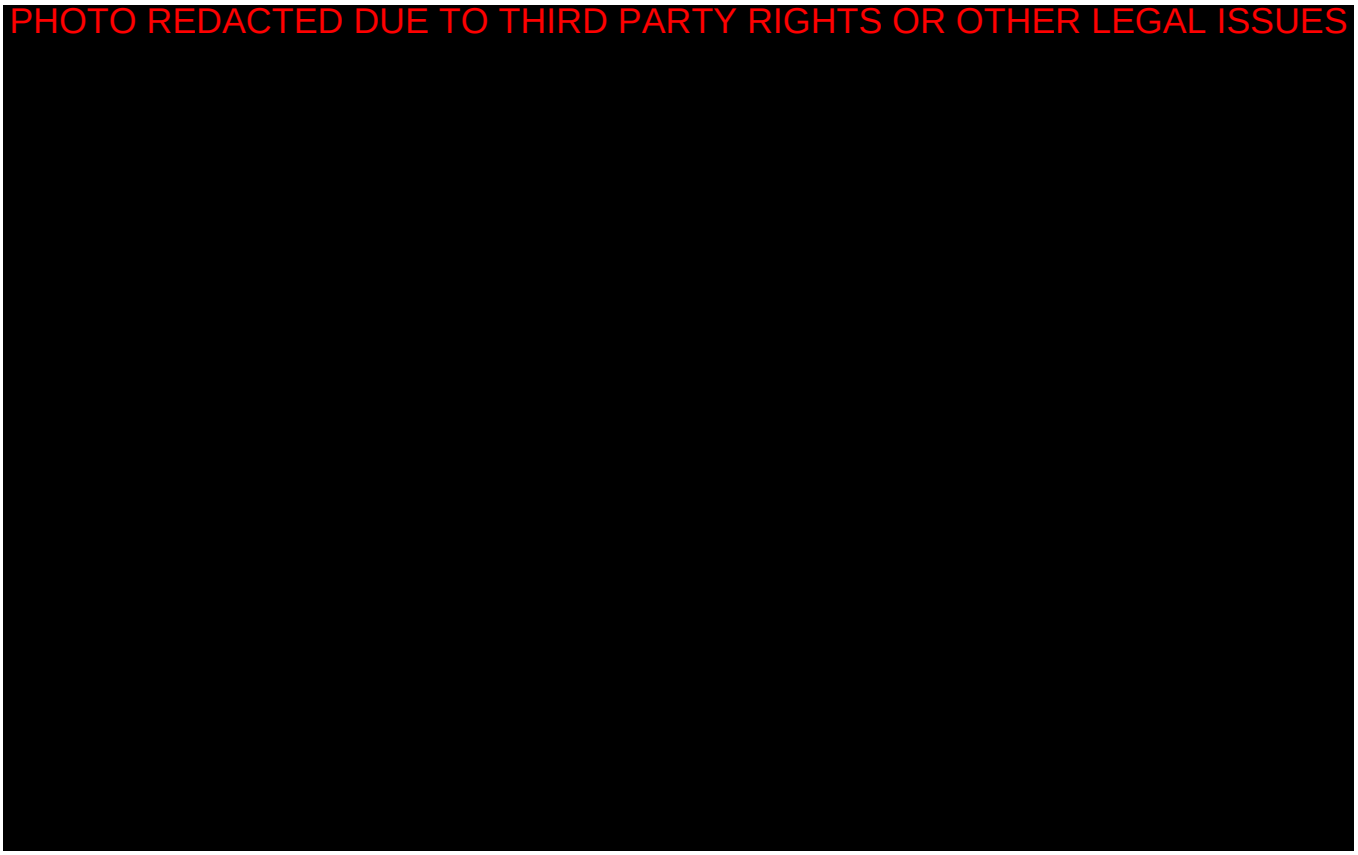
- Support in understanding their role and responsibility in paired work so they are not tempted to leave their partner to do all the thinking
- Explicit teaching on how to ask each other questions about the work when working in a pair
- Modelled examples of paired work, by observing and listening to other pupils or by working with someone who can coach them in effective paired work

What do teachers need if they are to address this issue?

- Ideas and strategies to use paired work to help these pupils engage with the mathematics alongside their learning partner, for example each using a different method to solve a problem then discussing why both work
- Ideas and strategies to agree and establish ground rules for working in pairs (or groups)
- Support in identifying good prompts that pupils can use to help them to talk about the mathematics together
- Flexibility in the way they pair or group pupils during a lesson
- Opportunities to work with colleagues both in planning and in lessons to explore and strengthen the use of paired work

What support can mathematics subject leaders provide?

- Professional dialogue on the potential benefits of paired work for these pupils and the strategies to avoid pitfalls, for example establishing ground rules
- Time in departmental meetings to share and develop approaches to paired work
- Encouragement for teachers to try out and feedback on ideas
- Time to talk about and experiment with ways to coach pupils to be effective in paired work – for teachers and pupils



Issue 6:
Maximising the use of exercise books as a valuable learning resource

Key concern

- Exercise books were mainly used to record notes copied from the board and to write answers to exercises. Pupils did not see their books as a valuable learning resource and boys in particular could not see the point of recording their method in their exercise books when they could work the answers out in their heads.

What do pupils need if they are to address this issue?

- Time and encouragement in lessons to reflect on their work and to develop individual notes, jottings and annotations in their exercise books
- Guidance on the use of different skills of recording such as spider diagrams, mind maps, mnemonics and highlighting
- Opportunities to share and discuss the work in each others' books and to consider how useful their notes are, for example through the use of 'open book assessments'

What do teachers need if they are to address this issue?

- A range of note taking strategies that they can model to the pupils in lessons
- Planned opportunities during a sequence of lessons for pupils to work individually and in pairs on creating mind maps and posters to summarise what they know about a topic
- Planned opportunities for pupils to discuss and reflect on their own written work and the work of their peers

What support can mathematics subject leaders provide?

- Engage staff in work sampling activities to audit the use of exercise books and to discuss and agree ideas for recording notes that will strengthen understanding of different topics
- Clarity on what should be recorded in exercise books and when it is acceptable to record answers only
- Identified opportunities in the scheme of work for pupils to work on activities that will develop skills of recording and summarising and that will encourage pupils to make use of their own notes
- A bank of appropriate resources for staff to carry out these actions

Issue 7:
Extending the use of visual images and practical activities

Key concerns

- Knowledge of the appropriate vocabulary was a particular weakness for these pupils. They could remember words from recent lessons such as *product, factor, simultaneous equation* and *nth term* but they had difficulty explaining the meaning and concepts behind them. They did not see learning vocabulary as part of learning a topic. Many said they found the words used on test papers very confusing.
- Visual images and practical activities seemed particularly important to these pupils in developing their understanding of mathematics. Some pupils could talk with understanding about examples of activities that used visual and practical approaches such as seeing the area of a triangle as half the area of a parallelogram, and exploring loci using pupils to represent the points on the path. Exercise books contained few visual images and many pupils said they did not use visual images often. Nearly all pupils said they enjoyed the use of interactive whiteboards in mathematics lessons because the explanations were made clearer with realistic diagrams. They liked using an interactive whiteboard.

What do pupils need if they are to address this issue?

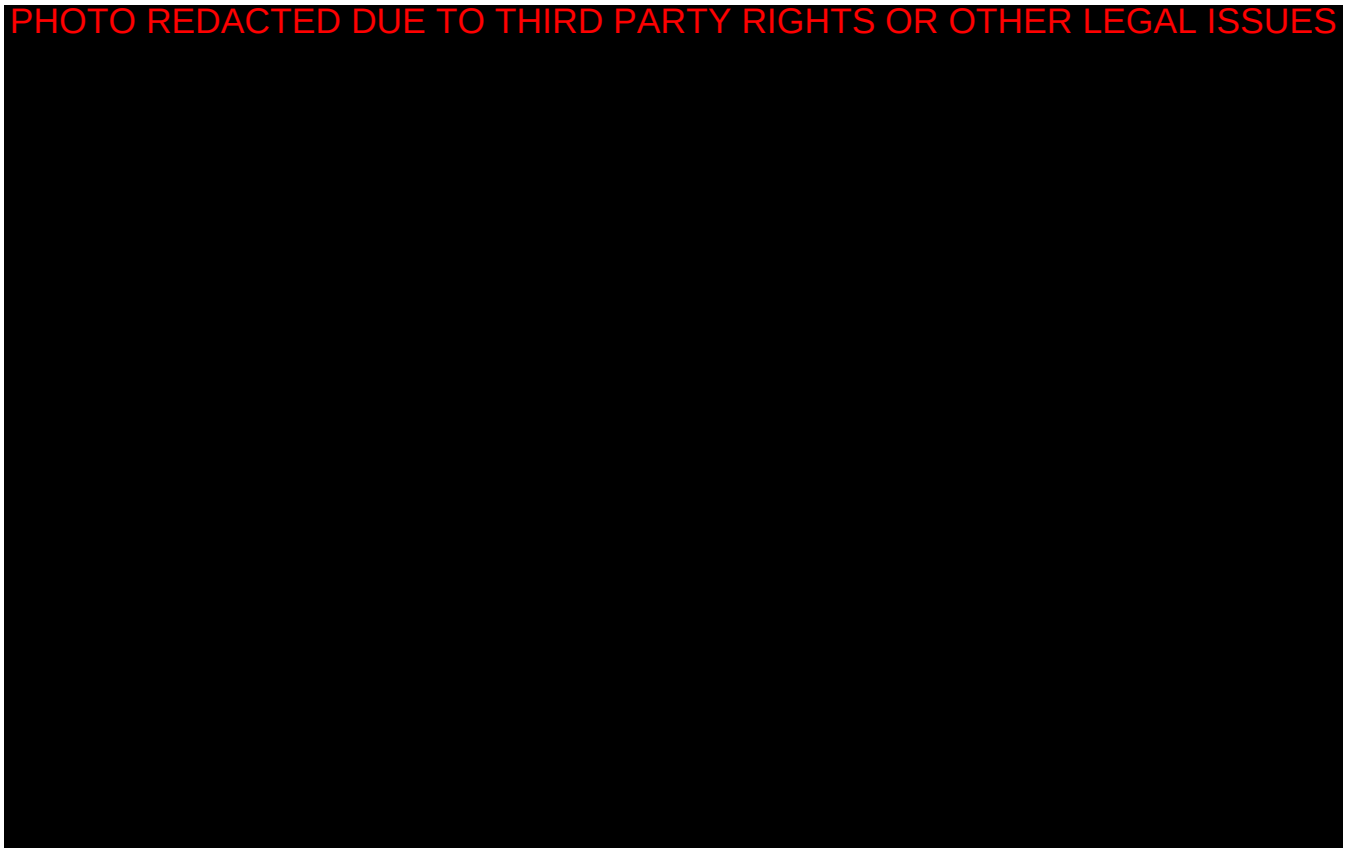
- More opportunities to explore and interact with mathematics through visual and practical approaches
- Opportunities to engage in conversations where mathematical words and their meanings are discussed in context
- Encouragement to use mathematical vocabulary and visual images when describing and recording their findings

What do teachers need if they are to address this issue?

- Ideas and resources for taking more practical and visual approaches to some topics
- Encouragement and support from colleagues to try more practical approaches in the classroom
- Ideas for activities that will engage the pupils in using mathematical vocabulary themselves, for example describing a shape to a partner or discussing a diagram taken from a test question
- A relentless focus on the importance of the use of mathematical vocabulary

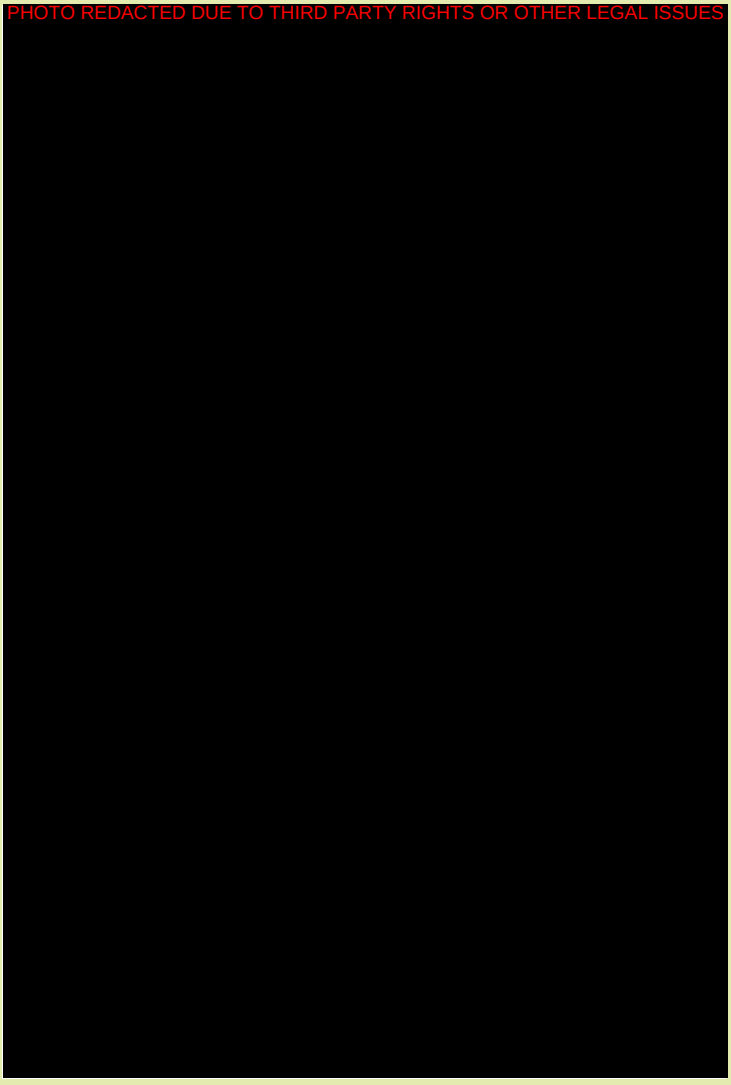
What support can mathematics subject leaders provide?

- Time in department meetings to discuss and explore practical approaches to identified topics within the scheme of work
- Support for staff, perhaps through collaborative planning and teaching to try practical approaches in their own classrooms
- A departmental focus on the development of mathematical talk and the use of subject specific vocabulary



Chapter 8:

Taking action in science



8 Taking action in science

This chapter highlights possible action that can be taken to address some of the key issues in science.

Issue 8: Improving the quality of written explanations and arguments

Key concerns

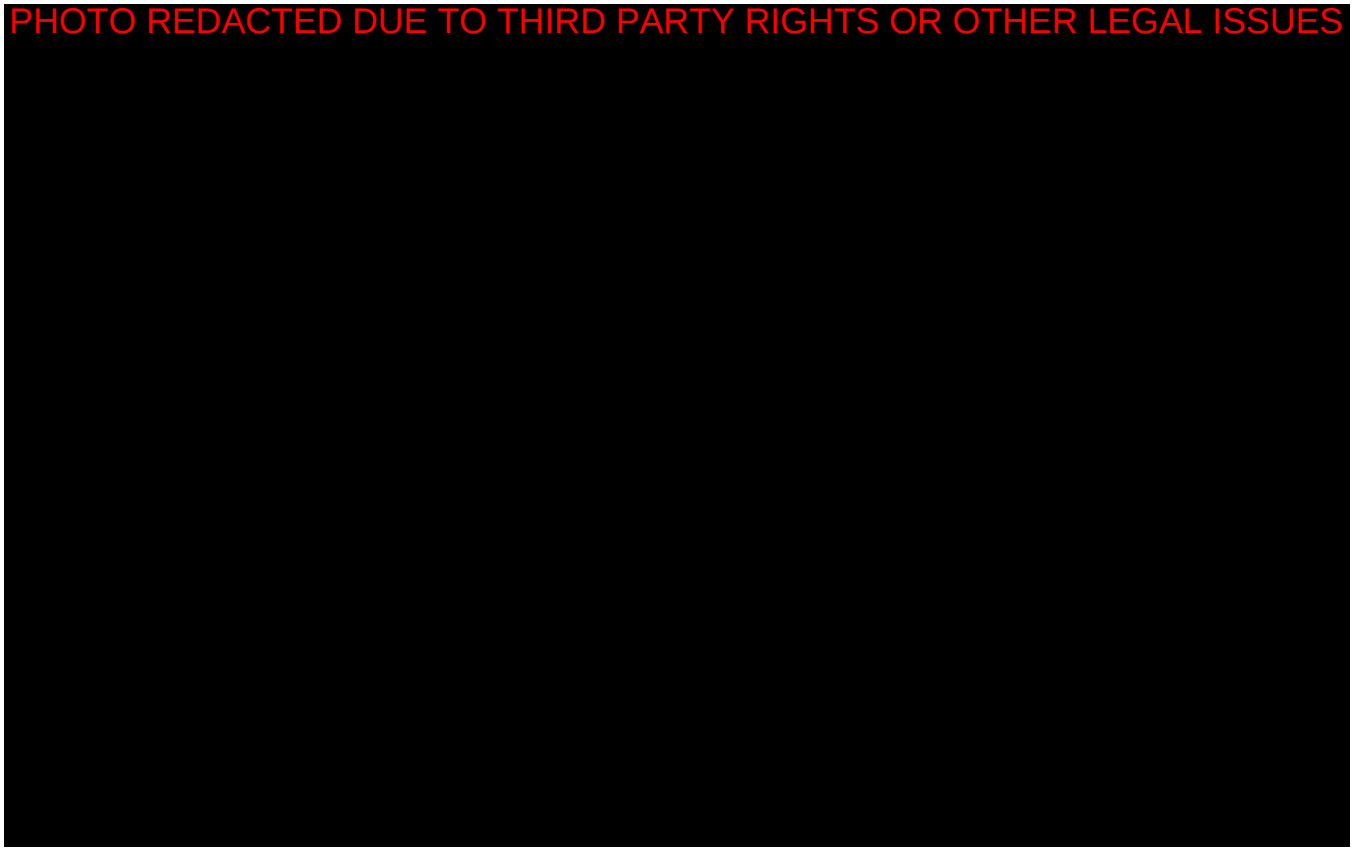
- The pupils rarely produced extended pieces of writing (even up to a third of a page) in order to develop explanations, justifications or arguments. Typically conclusions and evaluations were one or two sentences only. Whilst teachers clearly aimed to develop these skills through oral work in class, there was little evidence of the outcomes of this work in the pupils' books. Equally, developing this skill was a focus of 'booster' and revision sessions in Year 9 but evidence of systematic development over the key stage, or of drawing on effective modelling of extended writing used in English lessons, was very limited.
- The worksheets used by the pupils typically required short answer responses for the most part and the more extended writing tasks often featured at the end of the worksheet. Where worksheets were left unfinished, often these later parts were left unanswered. More generally, the pupils' books indicated that the higher demand requirements of making and explaining conclusions and writing evaluations were often set as homework tasks and did not always receive the detailed attention they merited. In addition, some of the pupils avoided responding to extension tasks (which often required more extended answers) unless they were specifically asked to do so.

What do pupils need if they are to address this issue?

- Acceptance that they do need to write in science and awareness of the importance of being able to write explanations
- To be fully aware of teacher expectations in relation to extended writing
- Opportunities to improve their literacy skills, drawing on techniques and approaches they have used in English lessons
- Opportunities to work in small groups to structure written responses
- Teacher modelling of writing for a purpose and the need to use precise scientific terminology
- Exercises that build their confidence and time to carry out these exercises

What do teachers need if they are to address this issue?

- Knowledge of the strategies used in English lessons (sharing good practice)
- Model examples of argument and explanation for the pupils
- Provide quality time for pupils to carry out extended writing, i.e. in lesson time and not just as homework tasks
- Provide opportunities for pupils to think and discuss their ideas and to develop well written explanations, justifications and arguments
- Confidence to set aside time for extended writing – balancing the pace of lessons with the pace of learning and accepting that the pace may appear to drop during such an activity
- Make effective use of available resources and ensure that the worksheets used do provide opportunities to develop this skill



What support can science subject leaders provide?

- Liaise with the English department to understand the approaches used to model and develop high quality extended writing
- Review the scheme of work to ensure that quality time is available to develop high quality extended writing and that small group work is promoted in this context
- Raise staff awareness of the need for extended writing, review the suitability of current worksheets and provide exemplification of explanations and arguments from a range of different contexts
- Ensure that opportunities and expectations do not depend on individual teachers
- Support staff in lessons with this work as a particular focus

Issue 9: Securing a coherent science curriculum and related assessment procedures

Key concerns

- The extent of the content of the scheme of work in Key Stage 3 science provided potential obstacles to progress for pupils. For schools still basing their scheme of work on the '30+ unit model' the content was presented in relatively short units with very frequent transitions to new units. In these circumstances, there was a tendency for pupils' misconceptions and difficulties to be identified at the end of the unit when, in many cases, it was difficult to adequately address them. In this situation, setting short term curricular targets to focus on aspects needing development was problematic. To overcome this difficulty, the majority of schools were combining some of the 'traditional' Key Stage 3 units of work into larger units, often covering a half-term's work. This, together with the use of a range of assessment approaches, did lead to greater coherence and continuity of learning for the pupils.
- Many of the schools were developing broader assessment approaches and moving away from judging pupil attainment solely on the basis of their performance on end of unit tests. The use of assessment tasks was being incorporated in a number of schools, together with the assessment of investigative work. This broader evidence base was enabling teachers to pin-point more precisely areas of difficulty faced by the pupils. In addition, the assessment tasks allowed difficulties to be identified part way through a unit and acted upon in a way that can't be done with end of unit tests

What do pupils need if they are to address this issue?

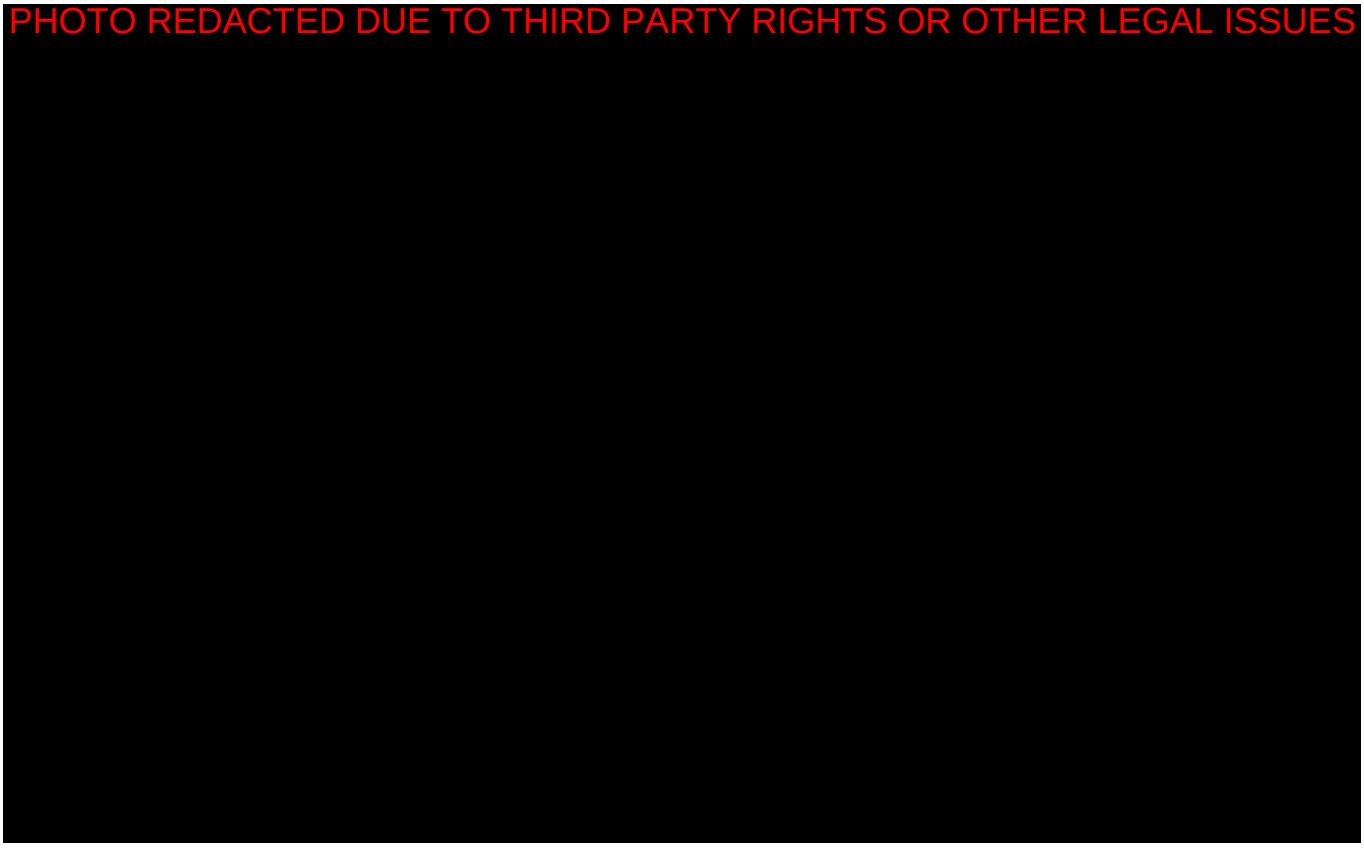
- Opportunities to see how individual units link together to provide a coherent picture of the science they are experiencing
- Opportunities at an early stage in their work to identify and explore misconceptions
- Regular feedback on the progress they are making and the specific aspects (curricular targets) they need to concentrate on

What do teachers need if they are to address this issue?

- A structured pattern of work which places each unit in a broader context and emphasises the links between units
- Assessments which identify where pupils are and the next steps in their learning
- Concentrate on identifying and tackling misconceptions
- Use a range of assessment techniques to tailor assessments so that the information gained can support future learning
- Provide regular feedback to pupils on the progress they are making and what they need to concentrate on if they are to improve

What support can science subject leaders provide?

- Review the programme of study to ensure that the work is coherent and that there is time to reflect on progress and address misconceptions
- Include common misconceptions in the scheme of work
- Ensure that important links are clearly signalled in the scheme of work, including those with the Key Stage 2 programme of study
- Review the range of assessment methodologies to ensure that the information they provide is used to improve the focus of future work
- Provide continuing professional development to support staff in broadening their use of a range of assessment instruments and to improve the quality of the feedback they provide to pupils



Issue 10:
Raising expectations that pupils can progress from Level 5 to Level 7

Key concerns

- Many of the pupils had achieved a higher level in science at the end of Key Stage 2 than in English or mathematics. Whilst L5, profiles were common, many of the pupils had achieved a Level 4 in English and a small number had achieved a Level 3. These relative weaknesses in literacy were evident in the pupils' books in terms of the inaccuracy of their spelling and their inability to express ideas coherently in writing which extended beyond one or two sentences. In comparison, relative weaknesses in mathematics appeared to have less impact on the pupils' progress in science.
- Very few departments had really focused on the transition from Level 5 to Level 7 during the key stage. All were focusing on the 'threshold' performance at Level 5 and increasingly on performance at Level 6 and above. In some departments transition matrices were used more generally and these had been used to focus on 'non-movers' or 'slow movers', but in the latter case this rarely included consideration of Level 5-7 conversion. In other departments, level conversions were not really considered explicitly, although they were implicit in the contextual value added (CVA) predictive approach used in the school. In a minority of schools the CVA approach rarely, if ever, predicted conversion from Level 5 to Level 7. Unsurprisingly in these schools, where end of key stage targets for the pupils starting the key stage at Level 5 were set at Level 6, teacher expectations were in line with the targets.

What do pupils need if they are to address this issue?

- Clear expectations and targets, possibly including an additional 'aspirational target'
- Awareness of the progress they are making towards their targets and the specific differences between the requirements of Levels 5, 6 and 7
- Opportunities to address relative weaknesses in literacy
- Greater self-confidence that they can achieve their targets if they focus on aspects that are limiting their progress
- Greater responsibility for their own learning and willingness to undertake independent work

What do teachers need if they are to address this issue?

- Adopt high expectations and a positive approach which engenders pupil confidence
- Focus on the key knowledge and understanding required for Level 7
- Recognise and address obstacles to progress resulting from relatively weak literacy skills
- Focus on extended tasks and emphasise the need for precision and greater depth in answers
- Track and monitor pupils' progress regularly across the key stage, making good use of teacher assessment from previous years
- Provide intervention quickly where progress is slowing down or stalling

What support can science subject leaders provide?

- Ensure that expectations are high enough and that sufficient pupils with a Level 5 in science at Key Stage 2 are set Level 7 targets
- Liaise with the English department to ensure that coherent support is provided for those with relatively low literacy skills
- Work collaboratively within the department to identify the specific requirements of Level 7 and the opportunities within the scheme of work to focus on these aspects
- Maintain an overview of pupil progress and pay attention to those pupils who making slow progress towards Level 7

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