

**Core Plus mathematics: Self-assessment tools**

<b>Element 1: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 1a Leading improvement and raising standards in mathematics through senior and subject leader partnership</b>	
A strategic approach will involve a school senior leader working in close partnership with the mathematics subject leader (SL), with appropriate support from a local authority (LA) consultant. Key elements will include working to:	
<ul style="list-style-type: none"> <li>• find creative solutions to overcome challenges, remove barriers, set high expectations for departmental improvement and raise standards for pupils</li> </ul>	
<ul style="list-style-type: none"> <li>• facilitate implementation of the Raising Attainment Plan (RAP) in mathematics and review progress</li> </ul>	
<ul style="list-style-type: none"> <li>• establish a climate for learning in the department so that teachers and teaching assistants feel supported to 'take risks' in the classroom to improve teaching and learning</li> </ul>	
<ul style="list-style-type: none"> <li>• focus on the professional development needs of teachers required to ensure the impact of the selected Core Plus elements</li> </ul>	
<ul style="list-style-type: none"> <li>• drive sustainable improvement through collaboration focused on planning and pedagogy.</li> </ul>	
<b>Element 1b Leading improvement and raising standards in the mathematics department: Pivotal pupils in Year 11</b>	
A tactical approach to teaching and learning for Year 11 requires the same planning and pedagogical principles as those described in Core Plus Elements 2 to 6. The features below represent additional elements or adjustments which are needed to build confidence in the run up to the final examination.	
<ul style="list-style-type: none"> <li>• 'Fine tuning' planning and teaching to focus more closely on the exact requirements of grade C. This will be evident by: <ul style="list-style-type: none"> <li>- teachers using strategies to support ongoing assessment against grade C criteria in everyday lessons to build pupils' confidence to achieve at that grade</li> <li>- teachers and SLs using the evidence generated from these strategies to pinpoint aspects of the curriculum that require further work</li> <li>- teachers planning sequences of lessons to address these aspects of the curriculum in ways that tackle misconceptions and address curriculum gaps, including through small-group work</li> <li>- SLs ensuring that well-informed, ongoing assessment drives strategic intervention.</li> </ul> </li> </ul>	

National Challenge

Core Plus mathematics: Self-assessment tools

<ul style="list-style-type: none"><li>• Rethinking teaching approaches to tackle misconceptions, using different activities and new teaching strategies, so that understanding is improved and the experience is memorable.</li></ul>	
<ul style="list-style-type: none"><li>• Developing varied and engaging approaches to examination preparation and revision. Modelling revision strategies so that pupils are able to use them independently beyond the classroom. Practising questions and examination techniques so that pupils are involved in discussions about the mathematics, the question structure, techniques for starting, solving and checking solutions and ways of maximising marks.</li></ul>	

<b>Element 2: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 2 Planning for progression in mathematics: Raising expectations by developing sequences of learning in Years 10 and 11</b>	
<p>The following principles have been drawn out from the research on the factors that underlie effective teaching. As teachers work together to plan units they should seek to include sequences of learning designed around these principles.</p>	
<ul style="list-style-type: none"> <li>• Build on the knowledge pupils bring to a sequence of lessons.</li> </ul>	
<ul style="list-style-type: none"> <li>• Expose and discuss common misconceptions.</li> </ul>	
<ul style="list-style-type: none"> <li>• Develop effective questioning.</li> </ul>	
<ul style="list-style-type: none"> <li>• Use cooperative small-group work.</li> </ul>	
<ul style="list-style-type: none"> <li>• Emphasise methods rather than answers.</li> </ul>	
<ul style="list-style-type: none"> <li>• Use rich collaborative tasks.</li> </ul>	
<ul style="list-style-type: none"> <li>• Create connections between mathematical topics.</li> </ul>	
<ul style="list-style-type: none"> <li>• Use technology in appropriate ways.</li> </ul>	
<p>Each unit plan will have a clear structure to show how the learning develops. It will provide strategies to help pupils and teachers identify when progress is made. Although the plan may take a number of formats and can include varying levels of detail, the basic ingredients are:</p>	
<ul style="list-style-type: none"> <li>• objectives</li> </ul>	
<ul style="list-style-type: none"> <li>• the sequencing and organisation of activities</li> </ul>	
<ul style="list-style-type: none"> <li>• teaching strategies that maximise pupils' engagement</li> </ul>	
<ul style="list-style-type: none"> <li>• assessment opportunities, including probing questions</li> </ul>	
<ul style="list-style-type: none"> <li>• resources and references.</li> </ul>	

<b>Element 3: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 3 Improving mathematics subject pedagogy and the climate for learning</b>	
<p>The following principles have been drawn out from the research on the factors that underlie effective teaching. As teachers work together to plan units they should seek to include sequences of learning designed around these principles.</p>	
<ul style="list-style-type: none"> <li>• Build on the knowledge pupils bring to a sequence of lessons.</li> </ul>	
<ul style="list-style-type: none"> <li>• Expose and discuss common misconceptions.</li> </ul>	
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<ul style="list-style-type: none"> <li>• Create connections between mathematical topics.</li> </ul>	
<ul style="list-style-type: none"> <li>• Use technology in appropriate ways.</li> </ul>	

<b>Element 4: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 4 Tracking pupils' progress using Assessing Pupils' Progress and the underpinning principles of Assessment for Learning</b>	
SLs who track progress effectively in mathematics will establish a manageable yet robust approach to ongoing teacher assessment by:	
<ul style="list-style-type: none"> <li>• integrating ongoing teacher assessment within everyday mathematics teaching and learning</li> </ul>	
<ul style="list-style-type: none"> <li>• assessing strategically a selected subset of objectives in each unit – those that are the key to progress towards a grade C</li> </ul>	
<ul style="list-style-type: none"> <li>• focusing on those pupils about whose progress they are not sure, using rich tasks and probing questions to initiate dialogue. Involving pupils in the tracking process so they can see for themselves that they are making progress</li> </ul>	
<ul style="list-style-type: none"> <li>• reviewing progress regularly and capturing this using simple recording systems. <ul style="list-style-type: none"> <li>- In a broadly successful unit it is sufficient to take note of those pupils who have not made progress at the end of a unit. These pupils would then be identified for Wave 2 intervention to support an identified curricular target.</li> <li>- In a unit where a large number of pupils have significant problems then the next relevant unit of work needs to be reviewed and developed to address the issues.</li> </ul> </li> </ul>	
Teachers who use formative assessment effectively in the classroom will:	
<ul style="list-style-type: none"> <li>• watch and listen before intervening</li> </ul>	
<ul style="list-style-type: none"> <li>• assess groups as well as individual learners</li> </ul>	
<ul style="list-style-type: none"> <li>• use open questions and rich collaborative tasks</li> </ul>	
<ul style="list-style-type: none"> <li>• share objectives and encourage self-assessment and peer assessment</li> </ul>	
<ul style="list-style-type: none"> <li>• give useful and constructive feedback</li> </ul>	
<ul style="list-style-type: none"> <li>• change teaching to take account of assessment</li> </ul>	
<ul style="list-style-type: none"> <li>• create opportunities for regular reviews of progress on curricular targets.</li> </ul>	

<b>Element 5: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 5 Intervention and personalisation</b>	
Effective intervention is a whole-school approach, with identified roles and responsibilities, which ensures that:	
<ul style="list-style-type: none"> <li>• all pupils in Years 7 to 11 who are working below expectations and have the potential to achieve more are identified and appropriately provided for; the barriers to their learning are appropriately addressed, and these pupils' progress is tracked</li> </ul>	
<ul style="list-style-type: none"> <li>• identified pupils make good progress in the key areas of literacy and mathematics, close learning gaps and meet or exceed expectations; that is, there is a significant increase in the percentage of pupils making two levels of progress, particularly those moving from level 3 to level 5 in English and mathematics at Key Stage 3, and in those moving from level 5 and level 6 in English and mathematics to GCSE grade C and above at Key Stage 4</li> </ul>	
<ul style="list-style-type: none"> <li>• well-focused and targeted additional support for pupils is linked to their main learning and teachers direct the work of additional adults to support the identified needs of learners. These adults address pupils' particular weaknesses and equip them to work more effectively in lessons</li> </ul>	
<ul style="list-style-type: none"> <li>• pupils know their own learning needs and what to do in order to improve. Where available, necessary and appropriate, pupils with particularly intransigent barriers to learning or who have much ground to make up receive personal tuition.</li> </ul>	

<b>Element 6: Quality standards</b>	<b>Current evaluation:</b> <ul style="list-style-type: none"> <li>• <b>Strength</b></li> <li>• <b>Partly in place</b></li> <li>• <b>Needs development</b></li> </ul>
<b>Element 6 Securing consistent pupil performance across core subjects (addressing factors influencing in-school variation) by developing Personal Learning and Thinking Skills (PLTS) in mathematics</b>	
The approach is flexible so that provision can be designed by teachers to meet the needs of particular groups of pupils in their own school context. In the best cases this will include:	
<ul style="list-style-type: none"> <li>• joint planning across subjects, using cycles of lessons in mathematics and at least one other subject. For the occasional lesson, teachers are invited, not to abandon their subject, but to set subject content in a context where the objective is to develop a selected thinking skill and how it might be used in other subjects or in real life</li> </ul>	
<ul style="list-style-type: none"> <li>• in each of the lessons, connections are made by focusing on a particular thinking skill through the use of a common teaching strategy (ten are described and exemplified in a range of subjects)</li> </ul>	
<ul style="list-style-type: none"> <li>• the common strategy is chosen so that it is effective in developing the selected thinking skill and provides a suitable context for each lesson</li> </ul>	
<ul style="list-style-type: none"> <li>• identification of the social and emotional skills best suited to jointly cover the agreed subject areas.</li> </ul>	