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Report of the GCSE English and Mathematics Project



Codi Safonau Ysgolion
Raising School Standards

Report of the GCSE English and Mathematics Project

Audience Secondary schools in Wales.

Overview The Welsh Government's three priorities for improving educational outcomes for learners in Wales are to improve literacy, improve numeracy and reduce the impact of deprivation on educational outcomes.

As part of the Welsh Government's strategy to achieve these outcomes, it commissioned Education London (EL) to facilitate 11 workshops for all heads of English and mathematics. The workshops are part of the capacity-building element of improving schools in relation to current Year 11 learners for GCSE English and Year 10 and 11 learners for GCSE Mathematics.

The aim of the workshops was to provide an in-depth review of the changes to the GCSE syllabus specifications, explore literacy and numeracy issues with reference to PISA and GCSE outcomes, and facilitate the sharing of best practice.

Action required None – for information only.

Further information Enquiries about this document should be directed to:
School Standards Unit
School Standards and Delivery Division
Department for Education and Skills
Welsh Government
Cathays Park
Cardiff
CF10 3NQ
e-mail: SSDD@wales.gsi.gov.uk

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Executive summary

The workshops were attended by 84 per cent of the schools in Wales and 87 per cent of delegates' evaluations indicated that they found the workshops useful. Each of the 11 regionalised workshops comprised separate English and mathematics sessions followed by a joint session dealing with literacy and numeracy issues.

English workshops

As well as looking at short-term tactics to boost this year's cohort of Year 11 learners, delegates discussed longer term strategies particularly in the light of the recent increase in the percentage of examination marks given to spelling, punctuation and grammar.

Key successful tactics and strategies are given in the main report, with more ideas listed in Appendix 1 (see page 17).

Recommendations

1. Subject specialists should deliver these subjects if at all possible.
2. Key Stage 4 learners should have the opportunity to sit mock examinations, in an examination hall, and then receive detailed feedback about how to improve performance. A second set of mock examinations is desirable.
3. Subject leaders should be helped to make more effective use of tracking data to facilitate timely and effective intervention in order to deal with underperformance.

Mathematics workshops

In addition to discussing GCSE syllabus changes and their implications for effective learning and teaching, delegates shared ideas for short-term tactics and longer term strategies for raising attainment at GCSE, including the development of problem-solving skills.

Key successful tactics and strategies are given in the main report, with more ideas listed in Appendix 2 (see page 20).

Recommendations

1. Well-structured opportunities for learners to develop their problem-solving skills and clarity of mathematical expression should be a central part of mathematics teaching.
2. Schools need to address the issue of mathematical literacy through strategies such as 'Talking for learning' – see Appendix 3 (page 22).

3. Greater use should be made of item level analysis to ensure focused intervention addressing the needs of both individual learners' and teaching groups.

Recommendations for English and mathematics

1. Since achievement in English and mathematics is a priority in schools, this needs to be reflected in the amount of curriculum time given to these subjects, the arrangement of lessons to allow ease of movement between sets and the timing of Key Stage 4 lessons within the school day.
2. Full mock examinations should take place in Year 10 and before each actual GCSE examination. Learners should receive detailed feedback and outcomes should inform both the teaching and grouping of learners for the remainder of the course.

Literacy and numeracy workshops

The workshops provided a wide range of evidence about the progress of schools in developing literacy and numeracy across the curriculum and their preparedness to meet the aspirations for raising standards in these fundamental areas of learning embodied in the National Literacy and Numeracy Framework (LNF).

Recommendations

1. Governors, headteachers and senior leadership teams (SLT) need to commit sufficient resources to the implementation of the LNF to reflect its status as the chief priority for school improvement.
2. Coordinators need a broader and more comprehensive job description based on an understanding of the LNF and dedicated time to fulfil their roles.
3. The development of whole-school strategies for literacy and numeracy needs to begin with broader definitions of what these mean in terms of strategies to improve learners' learning in all subjects – and to link implementation of the LNF with existing policies for learning, teaching and assessment.
4. Support for the teaching of English/Welsh and mathematics needs to be better reflected in specialist staffing, class sizes, timetabling and resources available to support these subjects.

Main report

Attendance

The 11 Phase 1 workshops for secondary curriculum leaders of English and mathematics in Wales were attended by 185 secondary schools (approximately 84 per cent). At least two delegates, one from each subject area, were sent from 140 schools. The workshops were also attended by a number of key staff within the four regional consortia with lead responsibility for literacy and numeracy, as well as relevant WJEC subject officers for English language and mathematics.

Workshop sessions

Introduction

A short presentation about The London Challenge and Education London's (EL's) involvement in the programme was followed by separate workshops in mathematics and English in which strategies for raising attainment in GCSE, short-term and long-term, were shared. English specialists then looked at issues surrounding whole-school literacy and mathematics delegates considered numeracy in schools before the final session brought together leaders in both subjects to look at shared approaches in schools to literacy and numeracy.

Subject workshops

English

Delegates shared ideas for giving a last minute boost to this year's cohort of Year 11 learners and also longer term strategies which might raise attainment over time. This was thought to be particularly important in the light of the recent increase in the percentage of examination marks given to spelling, punctuation and grammar, which will affect the current Year 10 learners. Delegates then learned of strategies used in Education London's English and Mathematics Project, which in one year increased attainment in English by ten times the national rate for England.

The main good practice ideas from schools, shared by delegates, included the following.

Short-term tactics

- Implementing a 10 x 10 scheme – regular sessions of 10 minutes, practising 10-mark questions.
- Using teachers in a carousel, to share expertise around the year group.
- Using additional specialists to work with small groups of learners who are falling behind.
- Changing sets/changing teachers to maximise learning.
- Creating a tutor group from key C/D borderline learners, with an English teacher as the tutor, to facilitate additional support.
- Arranging days off timetable to run 'Raise a Grade Days'/mock examinations/revision workshops.

Longer term strategies

- Developing basic skills in all subjects as part of the whole-school literacy scheme, with particular focus on sentence structure, punctuation and spelling (SSPS).
- Focusing on a smooth transition from Key Stage 2 to Key Stage 3 – visiting and planning with feeder schools.
- Identifying, and addressing, underperformance in Key Stage 3 (particularly in Year 6/7 transition).
- Using specialist teachers in English throughout the school.
- Creating a culture of high aspiration and expectation by involving learners in the target-setting and tracking process.

- Ensuring the most able learners read more challenging texts.
- Ensuring that the best learners do not complete early, at the expense of achieving top grades (focus on learner rather than school targets).

For more ideas, see Appendix 1 (page 17).

Recommendations

1. Subject specialists should deliver these subjects if at all possible.
2. Key Stage 4 learners should have the opportunity to sit mock examinations, in an examination hall, and then receive detailed feedback about how to improve performance. A second set of mock examinations is desirable.
3. Subject leaders should be helped to make more effective use of tracking data to facilitate timely and effective intervention in order to deal with underperformance.

Mathematics

Delegates shared ideas for giving a last minute boost to this year's cohort of Year 11 learners and also longer term strategies which might raise attainment over time. Delegates were also presented with strategies used in Education London's English and Mathematics Project, which in one year increased attainment in mathematics by five times the national rate for England.

The main good practice ideas from schools, shared by delegates, included the following.

Short-term tactics

- Using additional mock examinations with clear item level analysis to guide learning and teaching as examinations approach.
- Moving teachers to ensure the best teaching for target groups.
- Resetting learners after early entry results.
- Providing support from Year 12 and Year 13 learners.
- Using non-core lessons for intervention groups.
- Using pre-examination cramming lessons, e.g. collapsing the timetable on the morning of an afternoon examination.

Longer term strategies

- Working closely with primary schools to ensure smoother cross-phase transition and better assessment of levels.
- Focusing on problem-solving activities from Year 7 and running extra numeracy lessons.
- Identifying intervention groups in all years.
- Developing a five-year scheme of work from Year 7 to Year 11.
- Employing a specialist teacher in mathematics to support less able learners from Year 7.
- Giving priority to Key Stage 4 mathematics in the timetable, e.g. mathematics only in the morning.
- Identifying and focusing on key concepts in Key Stage 3.

For more ideas, see Appendix 2 (page 20).

In addition, delegates discussed a range of mathematics questions, which reflected the greater weight given to 'Selecting and Applying Mathematical Methods' and 'Interpreting and Analysing Mathematical Problems' (GCSE Assessment Objectives 2 and 3). PISA-style questions were also included.

Different strategies for improving learners' ability to tackle such questions were discussed; and in every workshop, delegates identified the literacy skills required to succeed in these questions as a significant issue.

Recommendations

1. Schools should provide well-structured opportunities for learners to develop their problem-solving skills and clarity of mathematical expression must be a central part of mathematics teaching.
2. Schools need to address the issue of mathematical literacy through strategies such as 'Talking for learning' – see Appendix 3 (page 22).
3. Greater use should be made of item level analysis to ensure focused intervention addressing the needs of both individual learners and teaching groups.

General issues arising from the subject workshops

- Key lessons from The London Challenge included the use of additional mock examinations, with opportunities to feedback personally to learners, and the need to ensure that every lesson is used effectively to develop learners' ability to perform well in examinations – such as in English starter activities of 10 minutes to develop speed and focus. At several of the workshops, subject leaders reported that they were no longer allowed to have mock examinations (these had to be done in lesson time, which means that learners do not have the full amount of time or the experience of sitting in an unfamiliar large hall).
- Delegates reported that timetabling was sometimes unhelpful, with lessons at the end of Friday afternoon, or no blocking, making it impossible for learners to change teaching groups should their needs require this.
- Some delegates reported that learners achieving C+, or target grades, were not given the opportunity to raise their standard further.
- Curriculum time also varied considerably, with some schools having three lessons a week and others seven lessons a fortnight; some lessons last 50 minutes and others 60.
- Data appeared to be available in all schools, though effective use of data to modify plans in the light of learners' needs was reported to be variable.
- In English workshops, some delegates reported that in their schools, including some following an integrated curriculum, learners were not taught by subject specialists in Key Stage 3, which has the potential to impact on attainment.

Recommendations

1. Since achievement in English and mathematics is a priority in schools, this needs to be reflected in the amount of curriculum time given to these subjects, the arrangement of lessons to allow ease of movement between sets and the timing of Key Stage 4 lessons within the school day.
2. Full mock examinations should take place in Year 10 and before each actual GCSE examinations. Learners should receive detailed feedback and outcomes should inform both the teaching and grouping of learners for the remainder of the course.

Literacy and numeracy workshops

The workshops provided a wide range of evidence about the progress of schools in developing literacy and numeracy across the curriculum and their preparedness to meet the aspirations for raising standards in these fundamental areas of learning embodied in the LNF.

In a large majority of cases (almost always in numeracy), it is heads of department, or another member of the English and mathematics department, who have the designated role as coordinator for literacy and numeracy. It was therefore possible to gain at first hand a good understanding of their role, the strategies being adopted by their schools, and an assessment of the impact of these on learners' achievements and progress.

Dedicated sessions in each workshop were devoted to sharing best practice in whole-school literacy and numeracy, evaluating progress made so far and identifying common barriers and obstacles to implementing the LNF.

The great majority of staff who attended the workshops are committed to the aims of the LNF. They report that headteachers and their senior leadership teams have re-enforced the message that literacy and numeracy are the key priorities for school improvement.

The dialogue within schools about the best approaches to improving standards is proving productive and there is evidence of 'green shoots' in many schools. However, there are often wide variations in what is being achieved from school to school, both in terms of the approaches being adopted and impact on learners' skills.

Evidence from the workshops supports the finding of Her Majesty's Chief Inspector (HMCI), Ann Keane, that schools have made more progress in literacy and that strategies for cross-curricular numeracy are, in the great majority of schools, still at 'a relatively early stage'.

The schools that have made the most progress have a firm foundation in cross-curricular development work. In addition, many of them are using resources such as the School Effectiveness Grant (SEG), Pupil Deprivation Grant (PDG) and/or additional Band 4/5 grants to address the poverty agenda and linking this with raising standards in English/Welsh and mathematics.

General findings and issues concerning whole-school literacy and numeracy

1. There is considerable diversity in the way that schools are approaching the development of cross-curricular literacy and numeracy and in the progress made so far. This partly reflects differences of interpretation and emphasis but, crucially, it also reflects differences in the level of resources committed to building capacity to deliver the LNF.
2. In the best cases, schools have a sound foundation on which to build, reflecting valuable activity over a number of years. In some cases, staff training and approaches have made good use of Welsh Government-produced support materials, for example, the suite of publications on 'Developing higher-order literacy skills' in Key Stages 2 and 3. Numeracy coordinators identify a need for more such materials incorporating exemplar work in numeracy in subjects across the curriculum.
3. Also in the best cases, schools have given additional, substantial non-teaching time to coordinators to carry out their role.
4. Coordinators do not always have sufficient status to influence practice across departments. In a few cases, a new and senior role has been created or designated responsibility for literacy and numeracy has been given to a member of the senior leadership team.
5. A small number of schools have taken a radical approach to supporting English and mathematics by increasing timetable allocations (e.g. from six to seven hours per fortnight).
6. An increasing number of schools are raising staffing capacity for Key Stage 4 English and mathematics in order to increase the number of teaching groups and reduce class sizes.
7. One school has entirely reorganised its Year 7 curriculum creating a cross-disciplinary literacy programme for 25 per cent of the week, incorporating work in English and humanities.
8. In many cases, there are some common elements to the coordinator role (e.g. developing whole-school strategy, auditing schemes of work, mapping learning opportunities, staff training, identifying target groups for intervention, etc.). However,

few schools have so far adopted a systematic approach based on a comprehensive strategy incorporating all the elements contained in the LNF.

9. In Welsh-medium and bilingual schools, the focus of literacy work is often firmly focused on raising standards in Welsh. However, there is good practice where English and Welsh departments work together to identify aspects of dual literacy and to embed language in cross-curricular teaching.

Issues specific to literacy

1. In literacy, most schools have focused on writing skills in an attempt to increase opportunities for extended writing and to improve accuracy in spelling, punctuation and grammar. More work needs to be done to ensure that writing tasks are purposeful, subject-related and planned so that learners can improve on their first efforts and complete their writing to the best standard of which they are capable.
2. Very few schools have addressed literacy in the widest sense of planning coherently for oracy, reading and writing.
3. With one or two exceptions (e.g. Bishop of Llandaff High School), schools have not addressed the issue of wider reading. There is widespread concern about the limited investment in school libraries, lack of qualified librarians and general paucity of materials for wider reading within departments.
4. The most stark finding is that very few schools have a policy of providing learners with reading books that they are able to take home. Both of these constraints (under-investment in libraries and lack of attractive books for borrowing) are in marked contrast to the level of annual investment in ICT. This suggests a need for senior staff to re-assess their priorities to achieve a better balance between spending on books to motivate learners (especially boys) and for upgrading ICT.
5. Language teachers are agreed that the role of oracy is fundamental in improving literacy and that it needs to be an important part of the preparation for writing. This aspect of the LNF needs to have higher profile in terms of staff training and support.

Issues specific to numeracy

1. Increasingly, leaders in mathematics departments are coming to see the importance of improving learners' ability to use and apply their skills in a wide variety of contexts as key to improving outcomes in mathematics examinations and in numeracy assessments. The emphasis given to applying numeracy skills in varied contexts in GCSE examinations, PISA tests and plans for future numeracy assessments is influential in this respect.
2. During the workshops, leaders in mathematics departments that were successfully improving learners' ability to solve problems in mathematics, and to apply their skills in unfamiliar situations, often referred to the key importance of aspects of literacy in mathematics lessons. This included the need to develop particular kinds of reading skills for mathematics and for learners to have increased opportunities to discuss ideas and approaches to problems.
3. In a few schools where numeracy is best developed, numeracy coordinators have helped deliver aspects of numeracy in lessons in other subjects in order to raise awareness of the connection between numeracy and effective subject teaching.

General issues arising from the literacy and numeracy workshops

In rolling out the support programme for the LNF (both nationally, in regional consortia and local authorities, and in individual schools), it is essential to make the connection between literacy and numeracy and effective subject teaching.

Where curriculum leaders report resistance or reluctance by staff to take responsibility for literacy and numeracy, this is invariably because they perceive these areas to be distinct from their focus on subject-specific achievement. Where this is the case, teachers tend to adopt a superficial approach and bolt-on activities which have limited relevance to their main subject aims. The message needs to be 'literacy and numeracy for learning' in order to counteract the still relatively common assumption that subject teachers are being 'press-ganged' into supporting the work of English and mathematics departments at the cost of time to teach their own subjects.

Recommendations

1. Governors, headteachers and senior leadership teams (SLT) need to commit sufficient resources to the implementation of the LNF to reflect its status as the chief priority for school improvement.
2. Coordinators need a broader and more comprehensive job description based on an understanding of the LNF and dedicated time to fulfil their roles.
3. The development of whole-school strategies for literacy and numeracy needs to begin with broader definitions of what these mean in terms of strategies to improve learners' learning in all subjects – and to link implementation of the LNF with existing policies for learning, teaching and assessment.
4. Support for the teaching of English/Welsh and mathematics needs to be better reflected in specialist staffing, class sizes, timetabling and resources available to support these subjects.

Summary of delegates' evaluation forms (see Appendix 4 for example of evaluation form)

Eighty-seven per cent of delegates evaluated the workshops positively and a large number said so at the end of the sessions or requested participation in pilots.

1. Venues

Comments on all venues range from good to excellent facilities. Some small issues were mentioned, such as insufficient parking at one venue and a cool temperature in rooms at another.

2. Introduction

Overall the presentation was thought to be good and informative. A few delegates were not sure if the experience of London was relevant to Wales.

3. Workshops

Here are a selection of comments.

- Good advice and enjoyed sharing ideas and good practice.
- Excellent key points and good to bounce ideas off each other.
- On the whole useful with some interesting ideas and discussions.
- Excellent practical suggestions, refreshing hands-on approach.
- Eye-opening different approaches.

- Very useful to discuss problems.
- Excellent key points but would have liked to see more examples of strategies.
- Would have liked less 'talked to' and more 'workshop'.
- Didn't learn anything new.
- No handouts to take away.
- Didn't find workshops helpful and it's worrying that the Welsh Government thinks schools aren't already doing the things mentioned today.
- Would have liked more specific guidance/advice/strategies.
- All were enjoyable, although they were centred around existing practice rather than suggesting new ideas.

4. Overall

Here are a selection of comments.

- Helpful to discuss and share ideas with colleagues.
- Useful ideas and strategies.
- Useful, some helpful ideas to take back to school.
- Whole day very helpful, good overview of literacy across the curriculum.
- Lots of ideas and strategies to help mathematics in literacy.
- Good platform to exchange ideas, excellent day.
- Good to meet colleagues, useful sharing ideas.
- We would love to be part of the pilot.
- Needs to be a long-term project, with everybody on board. Maybe the senior leadership team should attend.
- This will feed into my department planning.
- Reassuring that the school's overall thinking and drive to improve standards are moving in the right direction.
- Most useful input from workshop leaders and excellent opportunity to network with colleagues.
- Lots of practical ideas that I can take back to my department.
- I would have liked more detail about the actual actions and interventions that were used that had impact on standards during The London Challenge.

Acknowledgements

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- Patricia Taylor (EL Lead English Consultant)
- John Davies (EL Lead Mathematics Consultant)
- Mike Haines (EL Lead Literacy Consultant, Wales)
- Alan Lowndes (EL Lead Numeracy Consultant, Wales).

Appendix 1: English – short-term tactics and longer term strategies

English

Short-term tactics

- Create target groups for learners working at all grades.
- Encourage learners to self-assess, working from examiners' mark schemes.
- Run a booster session just before the examination.
- Organise after school controlled assessment catch up/skills practice.
- Do new controlled assessment tasks to improve grades.
- Use red, amber and green colour codes on the tracking database to identify learners' problem areas.
- Involve parents/carers – letters/meetings.
- Issue a revision advice document – involve learners in creating this.
- Run extra classes in the examination period – no study leave.
- Arrange days off timetable to run 'Raise a Grade Day'/mock examinations/revision workshops.
- Have some additional revision sessions for all levels of ability.
- Invite targeted learners to attend extra revision days in half-term, Easter holidays, etc.
- Use teachers in a carousel, so learners benefit from each teacher's area of expertise.
- Use tutor time to boost skills.
- Create a tutor group from key C/D borderline learners, with an English teacher as the tutor, to facilitate additional support.
- Introduce a 10 x 10 scheme – regular 10 minute sessions working on 10-mark questions.
- Have an additional mock examination, in full examination conditions.
- Create a portfolio of exemplar materials to share with learners.
- Create all-boy and all-girl groups.
- Use quizzes/games/interactive worksheets/GCSEPod.
- Change sets/change teachers to maximise learning.

- Create an additional class to give more focused support.
- Employ subject specialists to work with small groups/provide additional/support wherever needed.
- Give learners rewards for attending extra sessions.
- Celebrate success with schemes such as 'Achiever of the Week' – with a prize, e.g. cinema tickets.

Longer term strategies

- Develop basic skills in all subjects as part of the whole-school literacy scheme, with particular focus on spelling, sentence structure and punctuation.
- Introduce the early monitoring of specific target groups – free school meals, A/A*, C/D.
- Identify, and address, underperformance in Key Stage 3.
- Ensure the timetable supports English.
- Continually modify the Key Stage 4 schemes of work to respond to underperformance/difficulties.
- Review Key Stage 3 schemes of work to ensure key skills dealt with explicitly.
- Focus on a smooth transition from Key Stage 2 to Key Stage 3 – visit and plan with feeder schools.
- Organise regular standardisation sessions to ensure accurate marking.
- Encourage parental involvement from Year 7.
- Emphasise vocabulary, connectives, openers and punctuation (VCOP).
- Provide literacy/reading/writing mats.
- Use specialist teachers in English throughout the school.
- Work on English literature in Year 10 and then, when skills have developed, English language in Year 11.
- Allow learners two attempts at Units 1 and 2 (January and June, Year 11).
- Only enter 'at risk' learners in Year 10 – those unlikely to attend well in Year 11.

- Don't let the best learners complete early, at the expense of achieving top grades.
- Timetable against mathematics so each subject can 'lend' learners to the other at key times.
- Work on skills in lesson starters from Year 7.
- Allow learners to practise writing controlled assessments and sitting examinations from Key Stage 3, to develop their ability to do well in formal, timed conditions.
- Create a culture of high aspiration and expectation by involving learners in the target-setting and tracking process.
- Ensure the most able learners read more challenging texts.
- Make book scrutiny an expectation of all teachers.
- Give due attention to speaking and listening activities and talking for learning.
- Regularly share good practice.
- Encourage at least one teacher in the department to become a WJEC marker.
- Bring back former learners to motivate and advise learners.

Appendix 2: Mathematics – short-term tactics and longer term strategies

Mathematics

Short-term tactics

- Do not have study leave – use timetable creatively during the examination period.
- Have individual learning programmes based on item level analysis.
- Use tutor time to support targeted learners.
- Hold additional mock examinations with clear item level analysis to guide learning and teaching as examinations approach.
- Enter targeted groups early.
- Reset Year 11 after early entry results.
- Move teachers to ensure best teaching for target groups.
- Create an extra set to support targeted learners in smaller groups.
- Provide all learners with MathsWatch DVD or similar resource.
- Hold holiday/weekend revision sessions.
- Organise support from sixth form learners.
- Use non-core lessons for intervention groups.
- Run pre-examination cramming lessons, e.g. collapsing the timetable on the morning of an afternoon examination.
- Provide one-to-one support from sixth form/retired teachers, etc.
- Run offsite revision days.
- Help parents/carers to help.
- Introduce breakfast/early morning clubs, particularly for the more able.
- Have lots of past paper practice.
- Text parents/carers regularly, particularly for learners not working.

Longer-term strategies

- Attach appropriate mentors to learner needs.
- Identify intervention groups in all years.
- Provide extra numeracy lessons in Year 7.
- Give priority to Key Stage 4 mathematics in the timetable, e.g. mathematics only in the morning.

- Develop a five-year scheme of work from Years 7 to 11.
- Employ a specialist teacher in mathematics to support less able learners.
- Identify and focus on core competencies.
- Have curriculum time equivalent to English.
- Fast track most able learners with a view to early GCSE entry and higher studies to follow, e.g. Advanced Subsidiary GCE (AS).
- Have an extra mathematics 'option' at Key Stage 4 for those who need further support.
- Embed use of school's virtual learning environment (with additional links) to support/enrich the curriculum.
- Use regular peer- and self-assessment at the end of topics.
- Work closely with primary schools to ensure smoother cross-phase transition and better assessment of levels.
- Focus on problem-solving activities from Year 7.
- Run mathematics master classes for more able learners.
- Focus on the effective use of calculators.
- Present mathematics certificates in assemblies to raise profile.
- Use a specific nurture group to support the least able.
- Use skills ladders, e.g. how to move from a D to a C, etc.

Appendix 3: Talking for learning

Talking for learning includes the following elements.

- Exploratory talk – pondering, speculation, thinking aloud.
- Clarification – formulating and refining ideas.
- Hypothesising – suggesting solutions to problems.
- Collaborative talk – discussing ideas and hypotheses with others.
- Disputational talk – discussing disagreements, different ideas and differences of opinion.

Effective talking for learning is:

- purposeful – teachers plan talk with clear educational goals in mind
- collective – learners address tasks together in groups and with the teacher
- reciprocal – learners and teachers listen, share ideas and consider alternatives
- supportive – learners articulate ideas freely without fear of ‘wrong’ answers
- cumulative – learners build on one another’s ideas.

In all mathematics classes, and especially in relation to applying mathematics in different contexts and to solving mathematical problems, talking for learning means providing ample opportunities for all learners to:

- explain their ideas for tackling a problem or the method they have used to solve a problem
- listen to others explain their ideas and methods
- respond critically but constructively to the ideas and methods suggested by other learners and the teacher
- listen and respond constructively to comments about their ideas made by other learners and the teacher
- explain why they think their ideas did or didn’t work
- explain why they think another learner’s ideas, or those of the teacher, will or won’t work.

Key requirements are:

- high-quality teacher questioning that elicits extended responses from learners in plenary sessions and in pair and group work
- frequent and regular opportunities for learners to discuss ideas in pairs and small groups
- planning by the teacher that takes account of how talking for learning will contribute to the learning objectives for the lesson
- departmental planning and schemes of work that provide clear advice and guidelines on the use of oral work in lessons
- the need for planned continuous professional development for teachers to share effective practice in talking for learning within and between departments.

Appendix 4: Evaluation form

GCSE Mathematics and English workshops

University of Wrexham – Friday 1 February 2013

Evaluation form

Name: (optional)

School/local authority/consortium:(optional)

1. Please comment on the venue – directions/workshop reception/rooms/food and drink.

.....
.....

2. What were your objectives in attending this workshop?

.....
.....

3. Please comment on each session as follows in terms of content and presentation.

10.15 – Presentation

.....

10.45 – Workshop 1

.....

11.45 and 13.15 – Workshop 2

.....

14.15 – Workshop 3

.....

15.00 – Plenary

.....

4. Overall, how useful has this workshop been? What action do you now intend to take in your school/local authority/consortium as a result of it?

.....
.....

Thank you for taking the time to complete this evaluation which will assist our planning of future workshops.