

School developmental Review (date)

Background and activities

- Improve Maths adviser and SL met to agree the focus of the developmental review
- Senior Leader captured pupil and teacher views and carried out a book scrutiny (see appendix 2: pupils prompts and teacher self-review sheet)
- Improve Maths adviser and SL carried out 7 joint lesson observations, reviewed senior leader's notes and agreed action points

Pupils' comments (pick out main features, follow through to priorities) indicated that relationships were strong and mainly positive in lessons. In general their responses support what we saw in the lessons and would match SL's perceptions. They offered the following insights:

- paired and group work was happening but not as much as they would like
- they are clear about the benefits of group work e.g. peer support, sharing ideas
- they could see obstacles to the success of group work e.g. pupil behaviour, the rationale for the groups, the organisation of the group and the task
- they are challenged to explain their reasoning and some teachers use this as a way of checking that the answers are not copied
- they did not think that interesting questions are asked in mathematics lessons
- they are happy to ask teachers for help, some thought help from peers more beneficial
- they disliked the amount of 'boring copying' they have to do in some lessons

Priority – Improve the structure and organisation of paired and group work

Action – SL to gather, from other faculty leads, group work strategies with which pupils will be familiar. SL and 2i/c to trial 2 or 3 such strategies, report back to the department and then pair up with another teacher to support planning, teaching and reviewing the strategies.

Teachers self-review (pick out main features, follow through to priorities) did not support what we saw in lessons and did not align with SL's view of the quality of teaching and learning in the department.

- A number of teachers rated themselves better than observations would indicate. This has helped to highlight the fact that teachers in the department would benefit from a clearer view of what good teaching and learning looks like.
- All teachers could identify one or two classes with which they would feel comfortable to develop new aspects of their practice
- Some common areas of development were identified as understanding and addressing misconceptions; developing more open ended tasks; developing pupils thinking and moving away from getting the 'right' answer.

Priority – Improve teachers' understanding of features of good teaching.

Action – Pairs of teachers to do joint observations in another subject. Choose a teacher who is consistently judged as good or better. The observing pairs to feedback to departmental meeting on 'what I have learnt....'

Book scrutiny showed emerging practice in written feedback. This is an on-going focus of development and needs to remain so. The evidence showed that practice is inconsistent and of varying regularity and quality.

Lesson observations involved all fulltime staff members and 7 different lessons. SL and I had no difficulty reaching agreement on the quality of the lessons. All teachers requested feedback.

Agreed judgements are as follows: (state number outstanding, good, satisfactory and inadequate)

In all of the seven observations, (pick out main features, follow through to priorities)

- teachers and pupils had a strong and positive relationship, with teachers showing a calm manner and good humour;
- behaviour was satisfactory or better and on no occasion did behaviour have a negative impact on learning;
- pupils worked effectively with guidance and in some cases pupils showed some independent learning skills;
- pupils were generally interested in their work and in some lessons learners showed interest and enthusiasm;
- pupils wanted to talk about their mathematics and were willing to support one another's learning

Pick out key factor affecting the overall quality of learning in the lessons observed e.g. the variability of teacher's explanations. In the satisfactory and inadequate lessons there were examples of inconsistent and confusing use of mathematical terminology, vague and inaccurate definitions and generally unclear explanations. For example:

- Referring to simplifying fractions as 'making them smaller'
- Describing the method of calculating $25.2 \div 0.03$ as 'multiply both sides by 100'
- Defining surds as 'the number under a square root sign'
- Writing on the board that the technique for calculating the mean is 'the total of the values divided by the total'

Given the proportion of pupils for whom English is an additional language, this makes the accuracy of teacher explanation and reasoning all the more important. I would highlight this aspect of teacher behaviour as a most significant priority for development.

Priority – Improve the accuracy and clarity of teacher explanations as a model for pupil dialogue and reasoning

Action – Include 'Refining explanations' as a regular item on departmental meetings:

- Teachers work as partners and take it in turns to explain mathematics to each other, for example:
 - o Small mathematical techniques e.g. how to multiply non integer decimal numbers (2.52×0.03)
 - o Mathematical definitions e.g. what is an average?
 - o Mathematical concepts e.g. what is a similarity?
- Partners offer constructive feedback to one another with a focus on clarity and accuracy; they jointly refine their explanation and then offer the improved version to the meeting.

Line manager (LM) support: SL will present and explain this joint report to the new LM and make clear and well-planned requests for practical facilitation of the above actions. In addition she will provide regular updates on developments so that future LM lesson observations can focus on progress of these priorities and be followed by constructive feedback to department meetings.

Appendix 1 Agreeing the review focus

Teachers – SL will email the timetable of discussions to you. You are seeing each teacher for a maximum of 30 minutes (you should probably only need about 20 minutes)

- Please use the attached prompt sheet which is a section from Ofsted’s subject evaluations ‘Mathematics - Understanding the Score’. The section we have chosen is ‘Understanding concepts and explaining reasoning’. The columns are features of satisfactory and features of good teaching. We would like you to use the document as a discussion prompt with each teacher. You will need 5 copies. Ask them
 - To put their name of the sheet then read the table, thinking about their own practice ‘on a good day’ with a class of their choice
 - To highlight which aspects of satisfactory they think they meet and which of good. You might want to mention that the features in satisfactory are not poor practice, often elements described here are things we would encourage e.g. accurate vocabulary, but these features require an additional action to turn them into good e.g. encouraging pupil fluent use of vocabulary as well as teacher
 - In another colour to identify one or two features of good practice that they feel they are close to and could develop with some support – ask them to note which class they would choose to try out new practice (note this on their sheet)

Pupils – SL will email the timetable of discussions to you and is identifying the groups (You will have 2 groups each for 30 minutes in groups of about 5 or 6 and one from each set in a year group. Please ask the pupils to talk clearly about their experience without identifying the teacher. In addition to my own jottings I have sometimes used one pupil to scribe and said – ‘Please only write down the most important things that are said – not everything.’ This often gives some good pupil quotes.

Work scrutiny – SL is asking each member of the department to collect about 6 or 8 books which represents their best examples of written feedback ‘wwwbi’
‘what is working well and even better if’

Report – Please keep the teacher sheets and any of your notes and let SL have them when you are done. We would like a short summary from each of the 3 sources of evidence – perhaps 250 words e.g. 4 bullet points. What is good and what could be acted upon next to improve teaching and learning

Appendix 2: Pupil prompts questions

Tell me about some mathematical tasks which meant you needed to work together in pairs or groups?

What was it about the task which made you work in a group or pair?

When you work as part of a group or in a pair:

- How do you work on the task together e.g. do you each do different parts?
- What types of decisions do you make?
- Are you able to learn from others in the group - how/give an example?

Does the chance to talk and think together help you to learn? Give examples

Tell me about how your recent mathematics lessons have helped you to get better at reasoning and explaining your reasoning.

When and where do you think you will use this skill? In mathematics, in other subjects, in daily life?

Do you get opportunities to hear how others in your class worked out a problem or reached a solution?

How does this help you if you've already got the problem right?

If you get an answer to a mathematics question wrong, do you get the chance to show your teacher or partner how you worked it out?

What is more important, the method or the answer?

Tell me about an interesting question you have been asked in a mathematics lesson?

Tell me about the kinds of question that make you think a lot. Can you remember an example?

When a question is difficult, what do you do?

What happens in the class when someone is finding a question hard?

How long do you get to think about your answers? Does this vary?

Does just one person give an answer to a question or are a range of answers taken?

Teacher self-review Understanding concepts and explaining reasoning		
	Lesson objectives involve understanding.	Lesson objectives are procedural, such as descriptions of work to be completed, or are general, such as broad topic areas.
	Lesson activities are structured around key concepts and misconceptions, so that carrying out the activities enhances understanding; for example, involving pupils in developing suitable methods to solve problems, selecting questions carefully from exercises. Pupils can explain why a method works and solve again a problem they solved a few weeks earlier.	There is a successful focus on developing skills and obtaining correct answers rather than enhancing understanding; such as providing examples which do not illustrate why the method works, or doing questions identical to worked examples, too many of which are similar and are not carefully selected. These skills may be short-lived so pupils cannot answer questions which they have completed correctly a few weeks earlier.
	Work requires thinking and reasoning and enables pupils to compare approaches.	Methods are clearly conveyed by teachers and used accurately by pupils; pupils rely on referring to examples, formulae or rules rather than understanding or remembering them.
	Practical, discussion and ICT work enhance understanding, for example, using demonstration and mental visualisation of shapes being rotated, with pairs deciding which method gives the correct answer and why.	Practical, discussion and ICT work is motivating and enables pupils to reach correct answers but is superficial and not structured well enough to enhance their understanding, such as unfocused pair work on a book exercise, group tasks where the highest attainer does all the work or free choice of hands-on ICT.
	Pupils give explanations of their reasoning as well as their methods.	Questioning is clear and accurate but does not require explanation or reasoning; pupils describe the steps in their method accurately but do not explain why it works; for example, discussion activities enable pupils to share approaches but do not ensure they explain their reasoning.

	Pupils spend enough time working to develop their understanding.	Teachers give effective exposition that enables pupils to complete work correctly but restricts the time they have to develop their understanding through their own work; for example, teachers talk for too long, pupils spend too long copying examples, notes or questions, or drawing diagrams.	
	Good use of subject knowledge capitalises on opportunities to extend understanding, such as through links to other subjects, more complex situations or more advanced mathematics.	Any small slips or vagueness in use of subject knowledge do not prevent pupils from making progress.	
	Teachers introduce new terms and symbols meaningfully, they expect and encourage correct use; pupils and teachers use mathematical vocabulary and notation fluently.	Teachers introduce new terms and symbols accurately and demonstrate correct spelling.	
	Lesson forms clear part of a developmental sequence and pupils recognise links with earlier work, different parts of mathematics or contexts for its use.	Lesson stands alone adequately but links are superficial, for example, pupils know it is lesson two of five on a topic but not how it builds on lesson one. Contexts or applications are mentioned without indicating how the mathematics may be used in a way the pupils can understand.	
	Non-routine problems, open-ended tasks and investigations are used often by all pupils to develop the broader mathematical skills of problem solving, reasoning and generalising.	Typical lessons consist of routine exercises that develop skills and techniques adequately but pupils have few opportunities to develop reasoning, problem solving and investigatory skills, or only the higher attainers are given such opportunities.	