

C/D Borderline Intervention

A professional development module

Overview



The intended outcome of this module is to directly support your plans to improve the standards of attainment of pupils at the borderline between two grades. It will be achieved through a planned focus on identified areas of the mathematics curriculum for the targeted group of pupils. Although this module is entitled “C/D borderline”, the process and strategies outlined can be adapted to KS2/3 between any 2 levels, from G/F right through to A/B at KS5.

Where are you now?



Identification of target groups of pupils

Have you already identified target groups of pupils for intervention work?

If you are identifying Year 11 pupils, analysis of the internal mock examination results would be a suggested starting point in conjunction with other performance indicators, such as predicted grades, FFT, pupil progress data and teacher assessment data from previous years if available. Another aspect useful to consider is similar data gathered by the English department. It could be that once the data is analysed, pupils who are identified as C/D borderline candidates by the mathematics department may also need some intervention through the English department, or vice versa.

If your department is working to identify Year 10 pupils, the key examination data to analyse would be the KS3 SATs papers.

What do you do with the identified target groups of pupils?

A very effective starting place would be to analyse pupils’ exam papers (SATs or mock exams) at the question level. This can be set up on a spreadsheet as basic or sophisticated as the one [here](http://www.mathsisfun.net/TeachingResources.htm) (from <http://www.mathsisfun.net/TeachingResources.htm>).

Once the results for each question have been entered into the spreadsheet, and the questions coded by topic, common areas of misconception, understanding and areas for improvement are easily identifiable. This can now initiate the setting of curricular targets for individuals, small groups or classes. At this point it is worth comparing the pupils’ responses to the guidance given in the Examiner’s Report for that particular exam paper. Here are some general comments from examination boards:

Examination Report

Some general comments from the reports

- Not all candidates had access to a ruler, protractor or pair of compasses. In fact it was more common to see the circle drawing question attempted freehand!

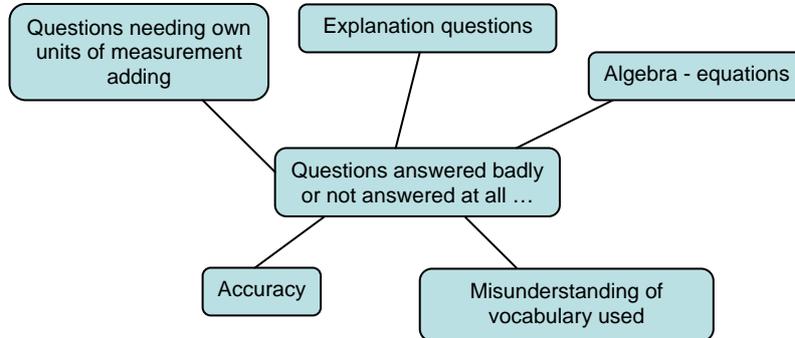
Examination Report

Some general comments from the reports

- Candidates should be reminded to read through each question carefully as they frequently lost marks through failing to give their answer in the form requested.

What areas of mathematics are likely to have cropped up?

Many of the areas of mathematics that usually crop up include the following:



Depending on the nature of the school or classes, these topics will invariably change and this diagram is only an example.

What next?

- How will you target these pupils?
 - Effective revision with the whole class?
 - Split teaching within the class as a result of question-by-question analysis?
 - Timetabled intervention lessons?
 - Extra curricular revision lessons?
 - Individual intervention sessions?
 - Study Plus? (a handbook can be found [here](#))
 - Engaging parents?
- How can the learning experiences for these pupils be made more innovative? Embed the deeper learning? A more open ended approach to problem solving?
- What strategies and resources are available for structured revision sessions?

Activity 1



Considering the set lists for Year 11 pupils (or whichever group of pupils you are targeting), previous data, and the professional judgement of individual teachers, arrive at realistic figure of students expected to achieve A*-C grades. Repeat this exercise to give a percentage of students expected to achieve A*-D.

Which students do not appear in the A*-C list that have the potential to do so? They may be predicted grade D or even much lower. Discuss why this is the case for individuals.

Using the professional judgement of individual teachers, make a list of individual students' names that fall in the category "at risk". Write the list of names. This is the intervention group.

What could the A*-C increase to if these "at risk" pupils achieved grade C?

Activity 2



As a group discussion, complete the following sentences:

- “When I ask my students to revise, I think that they will...”
- “When I ask my students to revise, I want them to...”
- “Revision is...”

Discuss the strategies in **Appendix A**

Activity 3



Having identified areas of common weakness through analysis of mock exam data, design a series of short activities or lessons for use with the targeted intervention group. For example:

- Solving equations
- Expanding brackets
- Factorising
- Plotting quadratic graphs
- Trial and improvement
- Decimal places
- Significant figures
- A topic of your choice

What are the really key facts that the students need to know about the topic?
How can you provide resources that the students can access independently (For example, [websites such as emaths](#))?

What might the assessment of these topics look like in the exam?

How can the student gain a deeper understanding of the topic (For example: split the intervention group in two teaching one half one topic and the other half a different topic. Then use the rest of the session to pair the students up with each teaching the other their topic.)

How can you make parents aware of these important knowledge gaps and enlist their help (For example, give students questions to complete at home that you have provided the parents worked solutions and guidance on).

Give a five-minute presentation to the group about your chosen prepared session. These can all be put together and used by the department as part of the intervention process.

Reflection



At the end of the session, spend time recording some actions. What do you need to do:

- Next day?
- Next week?
- Next year?

Implementing and continuing to learn



Give some thought as to how these pupils will be monitored and mentored. If the intervention is to be successful, you need to ensure that these pupils are closely monitored over time.

Many schools now assign a group of pupils to a mentor and schedule regular meetings. The mentor will discuss appropriate targets with the pupils and discuss these on parents' evenings/ mentoring meetings/ mentoring days.

Are the parents/carers of the targeted pupils on board? Would it be appropriate in your school to host a "Maths and parents evening" to inform them of the schools plans around intervention and seek their support? What other channels of communication could you use between home and school?

Resources and Weblinks



Teachers TV (easy registration form if you are not already registered):
www.teachers.tv/video/5467

Synopsis

This programme explores what personalised learning means in the GCSE years at one large comprehensive.

Winchmore School in north London reveals some of the ways it is working to ensure all Year 10 and 11 pupils are engaged in their learning by meeting the diverse needs, interests and aptitudes of individuals.

The programme includes a look at the school's work with an African/Caribbean boys group, its mentoring programme for C/D borderline pupils and the special provision it makes for gifted and talented mathematics pupils.

Weblinks

'Make the Grade' Tests & Grade Descriptors

http://www.kangaroomaths.com/free_resources/assessment/ks4.htm#mg

Strategies for getting GCSE D's to C's. These ideas are in note form, though hopefully they will make sense!

http://www.kangaroomaths.com/free_resources/hod/index.html

The teacherzone section

<http://www.mathsisfun.net/>

E maths

<http://www.emaths.co.uk/learn.htm>

Mathswatch

<http://www.mathswatch.co.uk/>

My maths

www.mymaths.co.uk (C/D pack)

30-4-10 revision pack

Appendix A

Strategy 1

Decide upon three or four specific topic areas, preferably connected in some way for students to work on over the course of a lesson. The idea is to organise students to work in groups of three, so how many areas will partly depend upon the number of students in a class.

This organisation might take place in the last few minutes of a lesson with the intention that students might carry out some research on the web (for homework) between this and the following mathematics lesson

If, for example, we decided upon three topic areas such as: expanding brackets, factorising a quadratic, graphing quadratics, the idea is to turn small groups of students into 'experts' at one of these areas of mathematics, to ask them to work together and to share their collective knowledge.

Supposing we have a class of between 26 and 30 students, the plan would be to split these into (as near as possible) 9 groups of three.

Each group would be given one of the topic areas to research and find out how to teach to two other people. Research, in this instance, means finding out how to carry out a specific mathematical procedure; to do this they might draw upon:

- Existing personal knowledge
- Internet resources and the World Wide Web
- Textbooks
- Each other

This would mean students in each group taking responsibility for collaborating in order to be able to take their collective knowledge to other students, later in the lesson.

For the first 20 or 30 minutes students work together in their groups to develop and share their knowledge.

In the final 30 minutes, student reform into different groups of threes (or even groups of sixes), so there is one (or two) student(s) from each different topic area. The idea is for each student (or students) to explain to the others what they have learnt about their specific topic area. This is repeated within the same, newly formed groups, so everyone has an opportunity to do some peer teaching and everyone has an opportunity to learn from their peers.

Strategy 2

Choose three questions from past papers, again which focus on similar areas of the mathematics syllabus. Give students these three questions in test conditions, indicating they have 20 minutes to answer them as fully as possible.

The next part of the strategy is to go through the solutions, asking students to mark each other's questions.

The next part of the lesson is to ask students to talk through how they tackled each of the questions, both successfully and the kind of mistakes they made.

By the end of the lesson students should have access to 'model' solutions as well as being aware of the kind of mistakes commonly made.