

Pathways and Options

Key Stage 3 to Key Stage 5

A professional development module

Overview



Children arrive in Year 7 with their highest Mathematics qualification from Key Stage 2 anything from Level 2 or lower, up to Level 5. When they eventually leave school their highest Mathematics qualification might be anything from a failure to a pass at Mathematics GCSE or other qualification up to great success in A Level Mathematics and Further Mathematics or AEA or STEP.

What possible pathways cover the intervening years?

What is the rationale for the availability of the options?

Using this module



It is expected that the Faculty Leader would complete Activity 1 using the attached pro forma or an equivalent in-house document for the same purpose.

Activity 2 is designed as the first brief activity of the session. Pair work is recommended.

Activities 3, 4 and 5 look at the respective Key Stages. They are independent so can be done in any order. Key Stage Coordinators could facilitate small focus groups for each of these.

The Concluding Activity can be done after any of Activities 3, 4 and 5

Activity 1 - Audit of Examinations and Qualifications



Make a list of all the Mathematics tests and exams taken by students at your institution from Year 7 through to Year 13, excluding in-house (e.g. end of year) examinations.

Examples:

- Progress tests
- Optional tests
- Key Stage 3 tests
- GCSE Mathematics / Statistics
- Vocational Qualifications
- AS / A2 Modules
- AEA

For each one, give as much detail as you can to create a reference file for that examination / course. A sample pro forma is provided for you to use or adapt for this.

This activity has several benefits:

- it gathers together all the essential information about the course;
- it makes it easier to pass responsibility for a course over to someone else;
- it provides a focus for the department when considering the relative merits of the course with available alternatives.

Two associated questions might also be considered:

- What is the department's results history for this course – past examination grades, raising standards, future targets etc.?
- Why is this course being run?

Activity 1 – Examinations and Qualifications Pro forma

Exam Title			
Awarding body		Exam Code	
Year Group(s) and Sets		Tier(s)	Approximate Number of Students
Member of Mathematics Department responsible for this course			
Staff teaching the course this year			
Coursework / Portfolio Requirements			
Key Dates	Course Starts		
	Course Ends		
	C/W Due		
	Examination		
Other Dates			
Course Website			
Other Relevant information			

Activity 1 – Examinations and Qualifications Pro forma (Example)

Exam Title	GCSE Statistics		
Awarding body	Edexcel	Course Code	1389
Year Group(s) and Sets	Tier(s)	Approximate Number of Students	
Set 1 Higher Tier in Year 10 Set 2 Higher Tier in Year 11 Sets 3 & 4 Foundation Tier in Year 11	F & H	70 x H 60 x F	
Member of Mathematics Department responsible for this course			AJG
Staff teaching the course this year			AJG, DF, LM
Coursework / Portfolio Requirements			
Each student completes one project worth 25% of the final grade			
Key Dates	Course Starts	4th Sept 2008	
	Course Ends	15th May 2009	
	C/W Due	21st April 2009	
	Examination	7th June 2009	
Other Dates	Year 10 Work Experience Year 11 Study Leave ...		
Course Website	http://www.edexcel.org.uk/quals/gcse/maths/gcse/1389/		
Other Relevant information	Text book used; Dept resources; VLE links etc.		

Activity 2 – Student Pathways Activity / Part 1



Part 1

Look at your current school leavers in either Year 11 or Year 13. Identify 10-12 students across the entire ability range, and reconstruct the progression they have made through the school. If they joined the school part way though, include as much information from their previous school as you know. For each student, try to present their 'Career Profile' using data such as the following:

- End of year grades / levels
- Exam results and tiers of entry for KS3 and KS4
- Optional courses taken
- Intervention / Learning Support received
- Able, Gifted & Talented or Special Needs register
- Years of greatest / least progress
- Evidence of enjoyment of mathematics
- Intended next steps (e.g. taking mathematics at university)

Part 2

Look at your current students in Year 7.

Repeat the above exercise for 10-12 of these students across the ability range, but this time looking forward to consider what pathways through the school you might expect them to take.

You may wish to track progression through a grid similar to the one below:

KS 2		< 2	2	3	4	5			
KS 3		< 2	2	3	4	5	6	7	8
KS 4	U	G	F	E	D	C	B	A	A*
AS		U	N	E	D	C	B	A	
A2		U	N	E	D	C	B	A	

It will probably also be helpful to state which courses, exams and tiers are taken along the way through the grid.

Questions for Discussion

- How many different pathways through the school Mathematics Curriculum were represented by the current cohorts of school leavers?
- How many different pathways through the school Mathematics Curriculum are possible for the current cohort of Year 7 students?
- How much choice do these students get along the way?
- What guidance does the school or Mathematics department offer to inform these choices?
- To what extent are the class teachers, form tutors and parents / carers involved in these choices?
- How do you advertise the different pathways available (e.g. assemblies, wall displays, open evenings, Mathematics department website, student handbooks etc.)
- When are students in your school expected to make choices and decisions about their personalised Mathematics pathway?
- Is the Mathematics department at your school currently investigating alternative pathways or new courses?
- To what extent do students engage in learning mathematics outside the classroom?

Activity 3 – Looking at Key Stage 3



Choices at KS3 include:

- Progress Tests in Year 7
- Optional Tests in Year 7 and 8

How do you justify the choices you have made in the interests of the students at your school?

Key Stage 3 Tests

Some choices are possible with the KS3 Tests themselves:

- Should the tests be taken at the end of Year 9 or Year 8?
- Which tier of entry is the best for borderline students? “Risky” or “Safe”?

Outline the pros and cons of different responses to these questions:

What evidence is there that keeping / changing your current practice represents the best long-term learning opportunity for your students?

Activity 4 – Looking at Key Stage 4 / Background



Choices at Key Stage 4 are often rich and varied.

- The timing of the main GCSE Mathematics course
 - Is it the same for all students, or do some start it earlier?
 - Start KS4 in Year 9 or Year 10?
 - GCSE Mathematics Exam
 - Summer of Year 10
 - Autumn of Year 11
 - Summer of Year 11
- The Tier of entry
 - Borderline Grade C/D students – Departmental Policy?
 - Is there evidence that this policy is effective?
- GCSE Statistics Course
 - Concurrent with GCSE Mathematics?
 - Before or after the GCSE Mathematics Exam?
 - Extra-curricular option?
 - Available to all students?
 - Selection procedures?
- Additional Mathematics (OCR FSMQ or CCEA GCSE)
 - Concurrent with Year 11 Mathematics GCSE?
 - Following early-entry GCSE in Year 10?
 - Extra-curricular option?
- FSMQs
- A Level Options
 - Early entry AS modules (e.g. C1)?
- Vocational Courses
 - Students identified in Year 9 / 10 / 11?
 - A.L.A.N. (NVQ Level 1 / 2 / 3)
 - Links with Literacy, ICT
 - Entry Level Certification (Entry 1 / 2 / 3)
 - Sits below NVQ Level 1
 - Adult Basic Skills
 - Work related learning options
 - Application of Number (NVQ Level 1 / 2 / 3)
 - Foundation Diploma (e.g. Engineering, Construction)
 - GCSE in Vocational Subjects
 - Double award available
- College Links
 - Students on part timetables
- Distance Learning Options
 - Video conferencing
 - Websites and online courses

Activity 4 – Looking at Key Stage 4 / Reviewing Choices



As a department, consider the following discussion points:

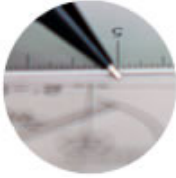
- What courses do you offer for 14-16 year olds at your school? What restrictions limit the scope of these choices?
- Think critically about GCSE options available for your students. Which awarding body(s) do you use? When are entry tiers decided? Departmental policies? Which students in your school take Linear or Modular options? Why?
- When are academic / vocational pathways decided? Is this a school level decision?
- What is the thinking behind the timing of exams, both mocks and final papers? Who makes these decisions? Are these the best solutions for all students?

What we do

What we would like to do

Implications

Activity 4 – Choices at Key Stage 5 and Sixth Form



There are commonly up to numerous pathways for students at Post-16:

- GCSE Re-sits (November / January or Summer entry)
- FSMQs
- AS Use of Mathematics
- Single Mathematics A Level (to AS or A2 Level)
- Mathematics with Further Mathematics (to A2 Mathematics and either AS or A2 Further)
- Vocational Options (Diplomas, NVQ Options etc.)

For each of these pathways offered at your school, consider:

What is the title of the course?

Which board is being used for this qualification? Why? What alternative providers might be considered?

What options or modules are available within this qualification?

How are these delivered?

Does this raise any staffing implications or CPD training needs in your school?

How do you manage the balance between timetable / staffing restrictions and student choice?

Delivering Modules for GCSE and Vocational Mathematics



The Mathematics Department at your school may well be involved in provision of courses for students not following AS and A2 options. Courses offered may be delivered in conjunction with other departments such as English, Science, ICT and Technology. There may also be links with other schools and providers in your local area.

What courses, modules and examinations other than A Level do you consider to be part of the provision for Post-16 students in your department?

Would you like to offer more choice to vocational students within Mathematics and Numeracy for work related learning? If so, what needs to be done?

Delivering Modules for Single Mathematics



Currently six units are required for a full A Level in Mathematics, although there is a wide choice amongst the Applied Mathematics options.

- Are students expected to sit some modular examinations in January?
- Statistics? Mechanics? Decision Mathematics?
 - Two out of three (e.g. S1 and M1)?
 - Two modules on the same topic (e.g. D1 and D2)?
 - Year 12 choices? Year 13 choices?
- Awarding body?
- Text books, in-house resources, online learning?

Outline the current structure of the A Level Mathematics provision at your school (timing of exams, delivery of modules etc.)

Why was this model adopted in favour of the alternatives? (Timetable restrictions, staffing implications, preference of text book / awarding body etc.)

Delivering Modules for Further Mathematics



Currently six modules are required for a full A Level in Further Mathematics, although there is a wide choice, especially amongst the Applied Mathematics options. Sometimes Further Mathematics is available at AS Level for students in Year 12, and it is possible for A Level Mathematics and A Level Further Mathematics to be taken under two different awarding bodies, although this can be to the detriment of optimizing grades.

Discussion prompts:

- Are students expected to sit some modular examinations in January?
- Is a full A Level Further Mathematics available, or just AS Level?
- What links have been made with the Further Mathematics Network?
- Is there the desire for coursework options to be considered?
- Which awarding body do you use? What others have you considered?
- Specialisms of current departmental staff balanced with the needs and interests of the student cohort.
- Text books, in-house resources, online learning?

Outline the current structure of the A Level Further Mathematics provision at your school (timing of exams, delivery of modules etc.):

Why was this model adopted in favour of the alternatives? (Timetable restrictions, staffing implications, preference of text book / awarding body etc.)

Concluding Activity



With the 14 -19 curriculum currently undergoing a period of significant change nationally, it is important that all schools keep up to date with what is available. This module may have prompted your department to reflect upon its current provision for students and to consider adaptations, or at least to research some of the alternatives.

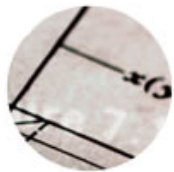
A suggested concluding activity is therefore, to complete a departmental action plan.

In the short term, your action points may simply be to visit some of the information sites listed under 'Weblinks'. In the medium term, you may wish to revise one or more of your schemes of work. In the long term, you may have a wish to introduce new courses, text books or awarding bodies, and the implications of cost and timing will need careful thought. Write down these thoughts and share them with your area advisor, local Mathematics consultant, school line manager or senior leadership team.

Important Note

There are changes being made to the possible pathways for students. This activity is a good way to reflect on current practice and initiate debate and planning. This should help to give an informed approach to the provision that your school offers in the light of pathways developments and opportunities.

Recommended Weblinks



Unitary Awarding Body Home Pages

[AQA](#)
[Edexcel](#)
[OCR](#)
[WJEC](#)
[CCEA](#)

Curriculum Developments

[QCA 14-19](#)
[Diploma](#)
[A.L.A.N. \(Edexcel\)](#)
[Application of Number \(Edexcel\)](#)
[Basic Skills Agency](#)
[Functional Skills](#)
[The Further Mathematics Network](#)