



Durham  
University

Curriculum, Evaluation  
and Management Centre



Education Evaluation Group

# Evaluation of the MEI Further Mathematics Network

## Interim Report 2 Stage 2 of the Evaluation

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## **Scope of Stage 2 of the Evaluation**

The evaluation of the Further Mathematics Network (FMN) is being carried out in three stages.

Stage 1 took place during 2006 and was reported in Interim Report 1 (September 2006)

Stage 2 took place during 2007

Stage 3 will take place during 2008

Stage 2 of the evaluation focused on three aspects of the Further Mathematics Network

1. Tutor training
2. Regional meetings of FMN Centre Managers
3. Data analysis in take up and achievement in Further Mathematics

## **Scope of this interim report**

1. Introduction and historical background to the FMN
2. Review of the outcome of the points to consider in the future, raised in Interim Report 1 (September 2006)
3. Report on the Tutor Training Event held in the North East Region, March 2007
4. Report on the South West Regional Centre Managers' Meeting, March 2007
5. Data analysis for the six years 2002 to 2007 to assess the changes in take up and performance in AS Level and A Level Further Mathematics
6. Points to consider in assessing the role and impact of the FMN in the development of Further Mathematics in England

## Key findings of this interim report

1. The Gatsby Funded MEI initiative ‘Enabling Access to Further Mathematics’ preceded the creation of the national Further Mathematics Network, which was subsequently established following recommendations in the Smith Inquiry. Many key features of the MEI initiative were taken forward and built upon during the formation of the Further Mathematics Network.
2. From the responses given to ‘the points to consider in the future’ from Interim Report 1, it is clear that the FMN Central Management Team continues to be proactive in identifying, reviewing and providing solutions to problems and issues that arise in the ongoing development of the FMN.
3. The tutor training event was well received and seen to be of benefit by those who attended. As with any such event, there is potential to make it better and suggestions are made for how it could be improved.
4. 4.1) The regional meetings of FMN Centre Managers provide excellent opportunities for FMN Centre Managers to meet each other and have an informal, yet purposeful meeting. Useful ‘business’ between FMN Centre Managers, such as organising dates for revision days, can take place at such events and they facilitate the opportunity to share ideas, issues and solutions relating to the management of an FMN Centre.  
  
4.2) The regional meetings should take place on a regular basis and the feedback from these events should be made available to all FMN Centre Managers promptly through the managers’ area of the FMN website.
5. 5.1) In the last 5 years the number of students studying Mathematics has grown significantly. The uptake and availability of Further Mathematics has increased even more dramatically. The largest year-on-year increases, of 25% and 11% for A Level Further Mathematics took place in 2005-2006 and 2006-2007 respectively. This coincides with the inception of the FMN in 2004.  
  
5.2) The FMN is having a very significant impact in the state sector. The growth in entries for all schools and colleges in A Level Further Mathematics, between 2004 and 2007, was 1393 entries, i.e. a 27% increase, but 72% of that growth took place in the state sector. Similarly, for AS Level Further Mathematics 85% of the 1489 increase in entries occurred in the state sector.  
  
5.3) The vast majority of establishments entering candidates for the Further Mathematics qualifications had small entry numbers. In 2007, 89.1% of establishments had entries of 10 candidates or fewer for A Level Further Mathematics, (with 68.9% of establishments having entries of 5 candidates or fewer). Similarly, 92.7% of establishments had entries of 10 candidates or fewer for AS Level Further Mathematics, (with 79.9% of establishments having entries

of 5 candidates or fewer). However, the data indicate an increase in recent years in student entry size per establishment.

5.4) At the end of the academic year 2006/07 over 1300 schools and colleges had registered with the FMN. Of these about 750 had not made any examination entries through the FMN, but this illustrates the value that schools and colleges place on aspects of the FMN other than tuition, including access to the online mathematics resources and information about revision days and enrichment events. It is notable that some establishments that are registered with the FMN are 11-16 schools. The number of schools and colleges registered with the FMN has continued to grow rapidly and at the time of publication of this report stands at over 1600.

5.5) Comparisons of the performance of the students taught through the FMN with that of all students using the CEM Centre's ALIS project indicates that there is no significant difference in performance between the two.

6. A number of points have been proposed by the evaluators which should enable the FMN Central Management Team to continue to refine and improve the FMN's systems and future development.

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# 1. Introduction and Historical Background to the FMN

## 1.1 The Enabling Access to Further Mathematics Project

Since its formation by a group of Heads of Department of Mathematics from schools in North London in the 1960s, *Mathematics in Education and Industry* (MEI) has been active in initiating curriculum development in mathematics. In the late 1980s MEI developed its *Structured Mathematics* course, which was an innovative modular A Level course in which modules could be offered for both the Mathematics and Further Mathematics qualifications. The MEI course was among a number of possible ways that students could take A Level Mathematics, and in the early 1980s the number of students taking Further or 'double' Mathematics was about 15000. Despite efforts by MEI and other curriculum development organisations (SMP, Nuffield) numbers declined so that at the turn of the century entries to Further Mathematics had dropped to below 5000. This decline was attributed to many factors including the perceived difficulty of Mathematics by 16 year olds, a shortage of teachers able to teach Further Mathematics and the disinclination of head teachers and college principals to staff Further Mathematics due to its relatively small take up by students. Thus in many schools and colleges Further Mathematics disappeared from the curriculum. The introduction of Curriculum 2000 accentuated the problem as the philosophy behind Curriculum 2000 was one of broadening a sixth form student's curriculum whereas to take both Mathematics and Further Mathematics at A Level was seen as narrowing by many. However, there was a general growing concern at this time about the decline in numbers in students taking A Level Mathematics in general, and in 2002 The Royal Society and the Joint Mathematical Council of the UK initiated the formation of ACME, the Advisory Committee on Mathematics Education. ACME advises government on all aspects of mathematics education. Part of ACME's brief was to advise on ways of preventing further decline in the numbers of students taking A Level Mathematics and Further Mathematics and then to increase these numbers.

In this climate of a declining number of students studying Further Mathematics, MEI initiated its *Enabling Access to Further Mathematics Project*, which began work in 2000. This Project was funded by the Gatsby Charitable Foundation, and aimed to make Further Mathematics available to all sixth form students who could benefit from studying it, irrespective of whether their school or college offered it in its curriculum. The Project also aimed to raise the general awareness of Further Mathematics as an AS Level and A Level subject amongst sixth form students as many of them, particularly those in some state schools, might have been unaware even of its existence let alone the benefits it had to offer any student planning to study a mathematics-related course at university. The Project was based on the concept of supported self-study, in which students would take more responsibility for their own learning, supported by text books and web based resources provided by MEI. Participating students also had a personal tutor who was based at a Lead Centre. Students were expected to meet regularly with their tutor, and other students, at a suitable location, such as a school or university mathematics department. The Centres were managed by a Lead Centre Director, who often was also the personal tutor. In 2001/02 there were four Lead Centres, two at universities, one at a

FE college and one at a school, tutoring 47 students. The first cohort of students gained qualifications through the Project in 2002 and 2003.

These features of the *Enabling Access to Further Mathematics Project* would later develop to become distinctive features of the FMN.

## **1.2 Evaluation of the Enabling Access to Further Mathematics Project**

The evaluation was carried out by the Curriculum Evaluation and Management (CEM) Centre at Durham University in 2003. The evaluation identified a number of benefits brought about by the Project, namely

- providing students with the opportunity to study Further Mathematics and enabling mathematics departments to offer this to students.
- additional benefits to students in the knock-on improvement in their single AS/A Level Mathematics performance.
- a possible increase in students' ability to study independently as a result of the supported self-study nature of the MEI course.

This evaluation was based on the views of a sample of students (sample size 20) from the initial cohort and so it was a very small sample with which to compare achievement in and attitudes to Mathematics with those of students not taking part in the Project. In 2004, MEI planned to increase the number of schools and colleges taking part in the Project to around 50, anticipating 150 to 200 students to be studying Further Mathematics through the Project. MEI asked the CEM Centre to continue the evaluation, and in particular CEM would continue to focus on a comparison of achievement in and attitudes to Mathematics of students being taught through the Project with those who were not. However, this evaluation was not completed, as the Project developed to become the Further Mathematics Network (FMN), supported by funding from the DCSF (then known as the DfES).

Instrumental in bringing about this funding was the Smith Inquiry into post-14 Mathematics, published in 2004. Smith highlighted the problem of declining numbers of students studying Mathematics, and in particular Further Mathematics.

The following paragraph, 4.38 and associated recommendation 4.10 is taken from the report.

From *Making Mathematics Count*

the report by Professor Adrian Smith into post 14 Mathematics, 2004

Following the revision of the GCE criteria for Mathematics in response to the Curriculum 2000 debacle, many respondents are in no doubt that A Level Mathematics has been made easier for the very best candidates. In terms of the potentially most able mathematics students, the Inquiry believes that far too few able candidates are entered for AS or A Level Further Mathematics because their schools or colleges do not have sufficient resources to provide these courses. The same appears to be the case for the Advanced Extension Award (AEA) in Mathematics, although the original intention of AEAs was that they would not require additional teaching. There are many students who would benefit from studying Further Mathematics or the AEA in Mathematics, but who are currently

denied the opportunity. Candidates who have studied Further Mathematics or the AEA in Mathematics are likely to be much more confident with the inner workings of the subject. University departments in all subjects identified as vulnerable in the Roberts *SET for Success* report would benefit greatly if more candidates were qualified at this level. Further Mathematics and the Advanced Extension Award in Mathematics (redesigned if necessary) are the courses that could and should provide the extra stimulation for the top fifteen per cent or so of the A Level Mathematics cohort of students and the Inquiry is deeply concerned that the current system is not able to make adequate provision for this important cohort.

#### **Recommendation 4.10**

The Inquiry recommends that there should be an immediate review by the DfES, LSC and the relevant devolved authorities of measures that could be taken to support and encourage current GCE course provision for the most able mathematics students. In particular, we believe there is a need to ensure that there are no funding disincentives in schools and colleges for providing access to Further Mathematics and the Advanced Extension Award in Mathematics

In its response to the Smith Inquiry, on the issue of Further Mathematics the DfES stated:

To encourage the increased take up of Further Mathematics we will also develop proposals to replicate and expand the current Mathematics In Education and Industry Project with view to establishing a Further Mathematics centre in each of the 47 local Learning Skills Council (LSC) areas.  
(*Making Mathematics Count*; DfES, 2004; page 43).

### **1.3 Evaluation of the Further Mathematics Network**

On its website MEI described the setting up of the FMN as a major new programme that they were running, as follows:

"The Further Mathematics Network" is a DfES-funded initiative to establish 40-50 regional Further Mathematics Centres across England. The primary functions of these Centres are to set up and provide teaching and tutoring of Further Mathematics AS/A Level to students in schools and colleges that couldn't otherwise offer it and to support students and teachers in schools and colleges that do teach Further Mathematics. The collection of regional Further Mathematics Centres makes up the "Further Mathematics Network". The setting up of the national Further Mathematics Network is being managed by MEI, following the success of the Gatsby Charitable Foundation-funded MEI pilot project, "Enabling Access to Further Mathematics".

In 2005 MEI commissioned the CEM Centre to evaluate the setting up and development of the FMN. The evaluation was envisaged as being carried out in three stages, with Stage 1 in 2006. In 2006 as part of Stage 1 of the evaluation, the CEM Centre interviewed the managers of the first 24 FMN Centres to be set up.

This was essentially to gather their views on the FMN as a whole, to discuss any problems they had encountered in setting up their FMN Centre and how they envisaged developing the FMN concept in their locality and so encourage greater take up of Further Mathematics both at AS Level and A Level. Through these interviews it became clear that the FMN was doing far more than just providing tuition to students for the Further Mathematics qualifications. In particular most of the FMN Centre Managers interviewed had arranged revision days for AS Level and A Level (single) Mathematics students and enrichment activities for sixth form students and also younger students in years 10 and 11, studying GCSE Mathematics, often giving these school students opportunities to visit their local university. The report on Stage 1 of the evaluation was submitted to MEI in September 2006. The report gave rise to several points which the evaluators recommended the FMN Central Team (the national central management team, employed by MEI) consider in taking the FMN forward. These points are reiterated here, together with a response from the FMN Programme Leader as to actions taken in response to them.

## **2. Points to consider in the future**

The 10 points below were raised in the Interim Report on Stage 1 of the Evaluation of the setting up of the FMN; CEM Centre, Durham University, 2006.

These points were introduced in the report with the following paragraph:

Through examining the emerging issues and themes in the previous section, we conclude this report by raising points of consideration regarding the future of the Further Mathematics Network. We hope that examining and clarifying these points will provide the formative outcome which was the aim of this evaluation. We are aware that guidance on some of the issues and queries raised here is available to the Centre Managers through the MEI Further Mathematics Network website. All Managers have access to the Managers' area on the site. However, it appears to be the case that not all Managers are aware of this, or cannot find the time to look for the answer to their particular question or query on the website.

The points raised are taken in turn, followed by the response from the Programme Leader of the FMN.

### **2.1 Registration and enrolment**

The first point to clarify is what it means for a school to be registered and for a student to be enrolled at a FMN Centre. Are schools/colleges registered only if they have completed a document? Many send students to revision days and enrichment events without apparently being registered, and it needs to be clarified for FMN Centre Managers whether this is a problem. In addition, many students are taking one or two modules under the auspices of a Centre, rather than the three modules for AS Level or six modules for A Level. They may take one module with the Centre and two with their school or

college or various other combinations. Should these students be considered as enrolled, and what are the funding implications of whether they are or not?

*The definitions of registration and student status have been clarified and communicated to FMN Centre Managers:*

**Registration:** *In order to be registered, a school/college must complete and submit a registration form, which can be accessed and submitted online or completed and sent in hard copy. Schools/colleges register with their local FMN Centre and their details are recorded on their local FMN Centre's database.*

*Once registered, schools/colleges continue to be registered indefinitely; however, in order to receive continued access to the online resources, the school/college should update its details at the start of each academic year (online or paper-based).*

**Current Student:** *A student who is currently receiving regular tuition from the FMN Centre. This includes students who are only studying one or two modules.*

*The FMN Centre where a student is registered will charge fees for the student's tuition. Fees are charged per unit and there is a recommended national rate, but this may be varied by FMN Centres to allow for different circumstances. Where tuition of a unit is shared between a school/college and a FMN Centre, an appropriate fee will be agreed between the FMN Centre and the school/college on a case-by-case basis, depending on the detailed arrangements. This enables the FMN Centres to be as flexible as possible in how they offer support to schools.*

**Completed Student:** *A student who has completed regular tuition with the FMN Centre, even if he/she has not completed all associated exams and re-sits.*

## **2.2 Management Committee**

Is the composition, role and expected frequency of meetings of a management committee made clear to FMN Centre Managers? There seemed to be much variation in the make up and activities of the management committees.

*In December 2006 the Programme Leader sent a letter to members of FMN Centre management committees to clarify the role of the management committees including the requirement to meet three times per year and how they can support their FMN Centre Managers in developing and running their FMN Centres. The content of the letter was also made available to all FMN Centre Managers. In addition, the Managers' Guide provides guidance on the make-up of the committee, and terms of reference for the committee. The terms of reference are available to FMN Centre Managers from the FMN's website.*

### **2.3 Administrative support**

Lack of time was a common complaint by FMN Centre Managers, wanting more time to visit schools and colleges and time to teach. Administration was seen by many as a necessary burden. Many managers reported issues of financial control, when required to manage all financial matters through their fund holder. The question was therefore raised as to whether more assistance for administration could be funded. This issue seemed easier for FMN Centres that were university-based, but not universally so.

*Most FMN Centres have sufficient funding available to employ administrative support. Since September 2006 several FMN Centres have appointed administrative assistants, and to date sixteen administrators have been trained in the use of the FMN Centre database. The database used by FMN Centres is now accessible online and so can be shared more easily between FMN Centre Managers and administrators. The accessibility of the data has opened up opportunities for remote administrators to maintain other FMN Centres' databases. This is already happening for two FMN Centres. Other FMN Centres may benefit from similar arrangements and a possible model for the FMN, beyond 2010, could involve clusters of FMN Centres, each having its data maintained by one or more remote administrator(s).*

*The improved accessibility of the database used by FMN Centres has also provided new ways in which administrative procedures and data entry can be streamlined, and new features are being added to further reduce the administrative workload.*

*The FMN Central Team has introduced procedures to improve the quality of FMN Centre data. FMN Centre Managers now receive a report once each term on the quality of the data recorded in their database. To help FMN Centre Managers to appreciate the value of their data and to understand how it is used, management information gathered from the FMN Centre databases is shared at FMN Centre Managers' conferences. It is hoped that by employing these measures, FMN Centre Managers will be encouraged to keep better records, and that by doing so they will find that they benefit too.*

### **2.4 What is a Centre and what is a teaching group?**

In many regions there is a location for the FMN Centre Manager, but the region itself consists of any number of small groups. These were variously called consortia, hubs, satellites, clusters or sub-centres, and FMN Centre Managers referred to working with 'teaching groups' or 'tutorial groups'. An issue to consider, perhaps for FMN Centre Managers themselves, is whether there is a distinction between these? Also, is there a minimum number of students for a viable teaching group, say 10, or is there a maximum number of students for a tutorial group, say 5? Is it preferable to keep students in small numbers in their schools or encourage a social mix through meeting elsewhere? It will be interesting to see whether general guidance can be developed regarding these issues.

*FMN Centre Managers arrange tuition to suit the local circumstances. The nature of FMN Centres varies considerably, and even within an FMN Centre's region local factors*

*such as transport links and population density mean there can be variations in how tuition is organised. The Managers' Guide and Tutors' Guide provide guidance on this issue. In addition, managers are able to discuss possible models with their central team coordinator and other managers (e.g. at managers' conferences and regional meetings).*

*A FMN Centre has a regional identity, even though the FMN Centre Manager may be based at a school, college, university or local authority. 'FMN Centre' is perhaps an unfortunate choice of label, but it is probably too established to be changed now. A better name may have been 'Local Further Mathematics Network'.*

*Teaching groups can vary in size from 1 to 20, depending on what can work locally. Similarly, the amount of face-to-face tuition a student receives will depend on local circumstances and costs. The aim is for the structure to be as flexible as possible, to give as many students as possible the opportunity to study Further Mathematics. Ideal groups would have around 10 students, perhaps from 3 or 4 schools, meeting for two one-hour sessions each week. However, in practice, for many students this is simply not possible. It is up to the FMN Centre Managers to use their local expertise to achieve the best provision they can for students in their regions.*

## **2.5 Progress tracking and pastoral care**

Issues regarding the tracking of pupil/student progress were raised by FMN Centre Managers during the interviews. For example, who is responsible for tracking the progress of a student and reporting back to their personal tutor and parents? Who should take responsibility for non-attendance or failure to submit work? As a result, should each student enrolled at a FMN Centre have a named mentor at their school/college who adopts this role? The need for students to possess a certain maturity, responsibility and commitment to the course has been noted by many managers. Once again, who should counsel students in such matters?

*Detailed advice is given in the FMN Student Guide, the FMN Centre Managers' Guide and the Tutors' Guide. These guides are regularly updated and improved.*

*FMN Centre tutors are responsible for tracking students' progress and reporting back to their schools, and, if required, parents; tutors are asked to comply with each student's own school/college reporting systems. The Tutors' Guide provides detailed guidance on these issues and advice on encouraging students to develop good study skills and take responsibility for their learning. In addition, the Students' Guide advises students what to expect from their tutors.*

*The Managers' Guide provides the following advice to FMN Centre Managers: "... each school/college with students receiving tuition through the Further Mathematics Centre needs to nominate a member of staff who will be copied in to all e-mails sent between the Further Mathematics Centre and the school's/college's students (referred to here as the Main Contact). ... The Main Contact will also be responsible for passing on messages to the Further Mathematics students when necessary and will receive feedback on students'*

*progress. If a Further Mathematics Network tutor has concerns about any student then she/he should talk to both their Further Mathematics Centre Manager and the relevant Main Contact about an appropriate course of action.”*

## **2.6 Viability and self financing**

Many managers raised a concern about the possibility of their FMN Centre not becoming self-financing through an inability to attract sufficient students. Some have asked if this is a three-year project. A related concern is whether there will be situations where centres are competing for students across borders? Some reassurance as to likely longer-term development of centres seems to be required.

*Since this report was written the funding for the FMN has been extended to enable all FMN Centres to be funded for 5 years. MEI continues to work to assure longer-term funding of the programme.*

*The FMN’s ‘Looking Ahead’ document explores how the FMN might be funded in the long-term. We are seeking continued government funding for the period beyond the end of academic year 2009/10.*

*FMN Centres are certainly not competing across borders. Their function is to ensure the best provision for students and they cooperate with one another to do so.*

## **2.7 Role of the Independent Sector and of Further Education**

Most of the managers indicated that they had not considered the independent sector and any role that they might play in the development of their FMN Centre. Should this be an area that they do consider? Similarly, apart from sixth form colleges, most managers have focused on schools and not considered provision in further education colleges. Should this be another area that they consider?

*FMN Centres make their services available to both FE colleges and independent schools, as well as to state schools and sixth form colleges. Currently there are only 6 students from 3 independent schools being tutored by the FMN. However, the provision of Further Mathematics in the independent sector is much higher than in the state sector, so there is less of a need for support from the FMN. Similarly, there is relatively low demand from the FE sector because FE colleges tend to focus on vocational, rather than academic courses.*

## **2.8 Technology and solving the distance/time problem**

Many of the managers have considered video conferencing as a solution to being able to “meet” with a group of students, who are geographically diversely spread, at the same time. However, it seems that there is little actual experience of using video conferencing and difficulties are anticipated. Relatively fewer FMN Centre Managers have mentioned the audio conferencing facility, Elluminate. However, many managers have stressed the

advantages of working face to face with students. Some advice and guidelines on these matters would be helpful for managers. Given below are some comments from FMN Centre Managers:

*“I’d like to emphasise what an excellent resource the distance learning website is. A good number of students have their own access. Those that do use it speak highly of it.”*

*“E-mail support has rarely been taken up, but has anyone mentioned “Elluminate” audio conferencing? When we first looked at this we talked about video conferencing as a support system, but this piece of software has a facility whereby both tutor and student can concentrate on the written maths.”*

*“ I don’t really like video conferencing, but if numbers rise we may have to go down that route; we have dabbled with it but it needs more work to get it up and running smoothly; it is preferable to have one to one and face to face.”*

*“There is this idea to widen the scheme and yet it sits uneasily with the method in which we are delivering it. So that does worry us about using and expanding that kind of technology (video conferencing).”*

*“Next year I will have two groups of students 80 miles apart, both wanting to do FP2 and FP3. I will be delivering a 50 minute lesson to them without going anywhere using Elluminate. It gives the flexibility of doing it outside of school time and getting all the students together at once; we are going to be playing around with it and just see how it goes and what we make of it.”*

*Wherever practical, the FMN’s preferred mode of tuition is face-to-face. However, in order to ensure that tuition is available to all students who would benefit, some distance-tutoring is necessary.*

*The FMN is currently piloting tuition using the Elluminate software and this is progressing very well, with positive feedback from both tutors and students. We have set up a FMN ‘Remote Tuition Team’, which involves two of the FMN Centre Managers being seconded to work alongside central team members to develop remote teaching techniques and resources and to experiment with tutoring students using Elluminate. The team is currently providing tuition to about twenty students around the country. At recent FMN Centre Managers’ conferences there have been several sessions run by the Remote Tuition Team to demonstrate and discuss the use of Elluminate and some FMN Centre Managers are already using it to tutor students in their own FMN Centres.*

*Details of the FMN’s tuition using Elluminate can be accessed from the FMN’s website.*

## 2.9 Publicity and competitions/commendations

Although some FMN Centres issued a press release at the time of their launch, it seemed that there was little response in most cases. It seems that mathematics as such is not very newsworthy. However, young people winning competitions or being awarded a commendation for outstanding achievement is. How to incorporate such possibilities into enrichment or even revision events so that the local media pick these up should be given consideration.

*We encourage our FMN Centre Managers to seek local publicity for their FMN Centres and have provided 'Guidelines for getting the best from regional media'.*

*The FMN Centre Managers can issue FMN commendation certificates, which are signed by the FMN Programme Leader. At least one local news story has resulted from the presentation of one of these certificates.*

*This year, jointly with the United Kingdom Mathematics Trust, we have piloted a 'Senior Team Mathematics Challenge' competition for students from years 11, 12 and 13. This has proved very successful and will become a national competition from next year. We hope that this will be a good way of raising the profile of both the local FMN Centres and the national FMN.*

*To some extent the FMN tries to avoid focusing on outstanding students because we do not wish to reinforce the view that Further Mathematics is only suitable for the elite.*

## 2.10 Role of the local university

The involvement of a local university, even if it is in a neighbouring region, seems to be a vital factor in the success of a FMN Centre. It seems to be more important than having local authority advisors and consultants involved, although many FMN Centre Managers clearly regard them to be important as well. Universities not only have the kudos to impress school-based students, but they also generally have more time and administrative help to run a Centre. There also seems to be a lot of enthusiasm in the academic community to “knock down the ivory tower”, i.e. they want to be involved with schools. In the longer term, MEI could consider dropping the “Further” and develop Centres into mathematics support centres that are independent of local authorities and support, and enhance the mathematical experiences of children of all ages.

*We continue to do all we can to develop strong links with universities.*

*The Looking Ahead document considers the future development of the FMN and the possibility of it having a wider role as to support the teaching and learning of mathematics more generally, especially at KS4, as well as at sixth form level.*

As part of the Stage 3 of the evaluation, in 2008 the CEM Centre will again interview the FMN Centre Managers from the 24 FMN Centres who were interviewed in Stage 1 of the

evaluation. Through these interviews we will gain the perspective of the current FMN Centre Managers on the extent to which these 10 points for consideration have actually been addressed, and whether there are any remaining issues they would like to see addressed.

We will also use the *Looking Ahead* document (Charlie Stripp; FMN Programme Leader, 2007) in formulating questions to be put to the managers on how they perceive the FMN to be developing. As well as administrative and general matters of tuition and teaching and learning resources, we will seek views on the role of the FMN in Continuing Professional Development (CPD) of teachers. The results of these interviews will be reported in January 2009.

### **3. Tutor Training Event**

The evaluators visited a tutor training event held in the North East Region, at the City Learning Centre, Stockton on Tees, in March 2007

The trainer was a member of the FMN Central Team.

#### **3.1 Programme and feedback**

An outline programme for the event had been distributed in advance to participants. The programme comprised:

- **Introduction to the Further Maths Network**
  - Why it exists
  - Aims of the Network
  - The current National situation
  - Philosophy of Teaching Further Maths through the Network
  - Models for Teaching
  - Additional student support: revision days, e-mail, ask NRICH
- **Expectation of Tutors**
  - Promptness of responses to marking and e-mail correspondence.
  - Records of assessment for students
  - Schools liaison (attendance, progress monitoring, reports)
  - Attendance at termly tutor meetings
- **Teaching on limited contact time – general advice**
- **Overview of teaching FP1 – on limited contact time**
- **Introduction to the online resources**
  - Guide to what the resources contain
  - Log on and explore the FP1 resources
  - Take a test and see how the tutor monitoring works
- **Plenary and questions**

This outline programme did seem rather full for an afternoon session scheduled for a maximum of three and a half hours, and in terms of its delivery, we found that there seemed to be more emphasis on hands on experience of the MEI resources than on the role of a Further Mathematics Network tutor.

At the end of the training event the trainer invited feedback through an evaluation feedback questionnaire. This was completed by 11 participants with results as follows:

1 = poor      2 = adequate    3 = good      4 = excellent

	Statement	1	2	3	4
1	The information you received in advance of the course		1	7	2
2	Organisation during the course		0	7	4
3	The suitability of the training venue/equipment		0	4	7
4	Refreshments at the course venue		6	5	0
5	The course content		0	8	3
6	The standard of the delivery of the training		0	5	6
7	Appropriate use of training methods		0	7	4
8	Was there anything you would have liked to cover in more, or less, detail?				
9	Are there any areas that were not covered by the training with which you feel you need support, or any other comments you would like to make.				

There were two comments re statement 3; viz

There were problems but they were sorted once we got the computers reading *acrobat*

There were two responses to question 8; viz

More feedback from other tutors on their centres/teaching tips and hints etc.

More time to look at resources

There were no responses to question 9

There were no comments re any of the other statements.

From these responses we could conclude that with the exception of the quality of the refreshments, most participants found all aspects of “the course” to be good to excellent. However, despite the positive responses, we feel that there are areas where the training could be developed; we focus on these areas in the following paragraphs.

Some of the statements in the feedback sheet refer to a “course”. Whether a training event like this constitutes a “course” is a discussion point, but it does raise the issue as to what expectations the participants had of what they would get out of the event prior to attending. Although there were only two responses to Q8 in the feedback sheet, we feel they highlight a possible dilemma in an event such as this, which the FMN Management Team should consider for future events.

That is

1. the role of a FMN tutor;
2. the MEI web based resources; what is available and how best to use them

and is it possible to address both of these satisfactorily in one afternoon event?

### **3.2 The role of a FMN tutor**

We felt there should be opportunity for tutors to discuss their administrative and teaching duties and experiences of them in practice, both with other tutors and also with managers from FMN Centres other than their own. This might also include any concerns about contractual matters and status.

To facilitate this we would suggest:

- Participants are formally introduced to each other at the start of the session, so as others have some idea of who is who and why they are there.
- The session on background to the FMN, and the role of the tutor should take place in a room conducive to discussion. At the CLC, this part of the session took place in the IT room, where it was difficult to actually see everyone present. Although there was some discussion, a better seating arrangement in a room not cluttered with IT equipment and which was also somewhat cooler, may have facilitated this far more. As such, we felt a networking opportunity was lost.

During this discussion, the Trainer drew on his own experiences as a tutor and made recommendations about how best to use face-to-face contact time with the students. For example, he drew attention to the end of chapter summaries in the text-books and guidance on what is essential for class discussion, what is desirable or what could be done through electronic support. He also suggested that whereas students in year 12 were generally dependent on their teacher, by year 13 they should be becoming self-taught. These seemed to be useful 'examples' of information for tutors and we felt that more discussion amongst tutors about these and other examples of sharing good practice would have been beneficial.

### **3.3 The FMN web based resources**

The participants had opportunity to see and investigate for themselves the MEI online resources. Initial technical problems re access to the software distracted somewhat but all participants did seem to be active, although some were getting advice from others as to how to actually access the software and find their way around it.

We felt tutors would benefit more from this activity if it had more structure. It seemed to us that there were snippets of demonstration on the Inter Active Whiteboard (IWB) interspersed with try it yourself type activity. It was difficult to tell how successful this was, but we did observe people apparently getting a little lost and then just doing their own thing.

However, it is clear that the quality of the online material provided by MEI for students and tutors is really excellent and for any future event we would recommend:

- A complete demonstration is done on the IWB first. (i.e. clear start and end point)
- Let participants see examples of what is there and contribute to discussion of how it might be used.
- Then set a task, with say participants working in pairs so they get to work with someone else.... and prior to the event, set up username/passwords and instructions for access on paper, with what to do if it goes wrong. Some of this was on the IWB, but it was difficult to see.
- We did not see the point of unstructured investigation; that could be done elsewhere. The full scope of the resources could be covered in the handout.

Participants were introduced to administration, setting tests and interacting remotely with students. Although there was a useful looking handout on this, we wondered why tutors, as opposed to FMN Centre Managers, would be doing this and felt this would have benefited from further discussion in a plenary session.

It was a little rushed at the end due apparently to a misunderstanding with Stockton CLC about the finish time and as such there was no plenary. Although the Trainer did invite questions, there were none probably because the participants were then in the process of departing the venue. However, we couldn't tell whether there were no questions because participants felt confident in what they had done and had got what they wanted from the event.

### **3.4 Recommendation**

We would suggest at a future event, less time is actually spent exploring the material, and more time discussing its use in the light of the role of an FMN tutor. Exploration of the mathematics and other resources can be done elsewhere, as long as tutors can gain access to the software. We feel that in training sessions like these, the most valuable part of the training is participants sharing and discussing their experiences. More of this discussion could be purposely built into the training.

## **4. Regional Centre Managers' meeting**

In March 2007, one of the evaluators was present at the South West Regional Centre Managers' Meeting held at the MEI Office in Trowbridge.

Six of the seven South West FMN Centres were represented at the meeting. These were Cornwall; Devon; Dorset; Gloucestershire; Somerset and West of England. The Manager from Wiltshire was unable to attend. A tutor from the Isle of Wight representing The Hampshire & Isle of Wight FMN Centre was also present. This tutor noted a preference to attend this regional meeting rather than the South East meeting. The meeting was chaired by a member of the FMN Central Team

### **4.1 Report on the meeting of the South West Regional Managers 05/03/07**

- Arrival at the meeting

As the FMN Centre Managers were arriving it was clear they were pleased to see each other, and immediately started talking about their FMN Centres and aspects of what is happening or planned, amidst the usual social pleasantries. This set the scene for what the evaluator perceived to be a friendly, yet very purposeful, meeting.

- Feedback from the last meeting

Those present moved to the formal meeting room where the chair-person issued an agenda (which had been circulated prior to the meeting) and a document with points relating to feedback from the previous meeting, which she enlarged upon thus bringing the FMN Centre Managers up to date on the issues raised.

- Update from the FMN Centres

The managers each reported on their current activities and plans. There was considerable interaction and support for each other with some planning joint activities, such as a revision day. The discussion was interjected with positive comment from the chair-person.

It was interesting to hear that schools are beginning to contact FMN Centre Managers about school-based problems, such as covering for absent staff. This was noted as indicative of the rise of the profile of the FMN Centres in their locality, and that they are becoming better known to the school and college communities. It was agreed that FMN Centres are providing an important role in providing contacts, following initial enquiries to them.

Some pertinent issues arose from the discussion; for example, the question was raised as to whether some universities are now requiring Further Mathematics as a qualification for entry to their Mathematics degree courses. This was again thought to be a result of the FMN generally raising the profile of mathematics.

Other aspects of raising the profile of Mathematics education were brought to the meeting's attention. These included encouraging non-mathematics teachers into Mathematics teaching through *MEC* (mathematics enhancement courses) and enrichment activities for pupils of all ages through the *fun maths road show*, initiated by the Liverpool Mathematics Society.

- Employing tutors and tutor training course

There was a lot of sharing and discussion over issues that arose, not least the problem of finding suitably qualified and experienced tutors, who are actually available at the time and place they are required. Aspects of the personal status of tutors as employees, or possibly consultants, were discussed. The chair-person noted there are no clear solutions to such issues and urged FMN Centre Managers to be aware of potential problems. This would appear to be an area that MEI should seek to offer advice on.

- Student recruitment

Some FMN Centre Managers noted they had been approached about providing private tuition. It was agreed that this was not appropriate for the FMN but was considered to be another aspect resulting from the increase in the local profile of the FMN Centres. It was noted that parents, as well as schools and students are becoming aware of the FMN website. It was agreed it would be a good idea for the FMN to request a presence at year 11 open evenings, so that clarification and advice about the role of FMN Centres can be given. It was agreed that despite the rise in profile, the FMN does need to keep promoting itself to potential students; in particular it was felt year 13 students might wish to take AS Further Mathematics, having had their awareness of the potential benefits raised during year 12.

The evaluator noted that all the FMN Centre Managers were contributing to the discussion, and picking up points to take back to their own FMN Centres and reflect on them in the light of their particular local situation. It was good to hear the chair-person acknowledge that there were unresolved issues, but she did remind the managers that they can keep themselves informed and contribute to the discussion through the managers' area on the website.

- Updating the websites

Following the more formal business of the meeting, there was a demonstration by one of the managers of how to get pictures onto a FMN Centre's web page. The chair-person noted that there was considerable variation in the quality and quantity of information provided on the FMN Centres' web pages across the country; she encouraged the FMN Centre Managers to make their pages look attractive with appropriate pictures and also to remove any out of date notices from them as this is good public relations for the FMN.

The evaluator considered this Regional Coordinator's presentation to be very helpful, but subsequently the evaluator did note there didn't appear to be a great deal happening on the FMN Centres' web pages as a result.

## 4.2 Feedback from the FMN Centre Managers

Following the meeting, as part of the evaluation, a short survey questionnaire was circulated amongst the FMN Centre Managers who had been present. This questionnaire sought the views of the managers on the meeting and related matters. There were six responses. The questions, with an example of the responses, each from a different FMN Centre Manager, are below. Overall the view of the managers was that the regional meeting is very worthwhile and it is a positive experience for them to meet and share both their issues and success stories.

1. Did the meeting meet your expectations?

“Yes, it is really useful to have an informal yet purposeful meeting. I enjoy chatting to positive colleagues who share the vision of the FMN. The central team chair-person is very good at encouraging and refreshing us. I always come away with a realistic set of targets that I have set myself.”

2. What aspect(s) of the meeting were particularly useful/helpful?

“The biggest problem for me as a FMN Centre Manager is that I work alone. Therefore the regional meetings are a vital support mechanism for me. They also allow me to transact quite a bit of business. For example I was able to agree revision dates with colleagues from other FMN Centres, sort out a year 12 event, and collect materials from the MEI office and consult with the office staff. All this could have been done via e-mail or phone, but it would have taken days of ‘to and fro’ and I would have felt isolated doing it.”

3. Was there any aspect of the FMN or your work as a FMN Centre Manager that you wanted to discuss but didn’t have the opportunity?

“No. There is always opportunity at our meetings to discuss what we need.”

4. Overall, how would you assess the value of regional meetings?

“The SW Regional Meeting is always a valuable experience; in addition to the actual meeting, the informal discussions over coffee and lunch are a useful exchange of ideas.”

5. Do you have any comments or thoughts relating to the FMN that you would like to share?

“I enjoy the job of FMN Centre Manager enormously and gain great satisfaction from being able to provide teaching of a subject I love to pupils who are enthusiastic and who really value the opportunity provided by the FMN to study Further Mathematics, an opportunity which they otherwise would not have.”

In summarising the meeting for this aspect of the evaluation, it was clear that the enthusiasm of the FMN Centre Managers and their belief in what they are doing is very positive. Their commitment to making the FMN a success is very apparent, and they very much value the mutual support they receive from each other and also from both the MEI FMN Central Team and the office staff at Trowbridge.

### 4.3 Minutes of the meeting

Although this meeting of South West Regional Managers was of clear benefit to the FMN Centre Managers present, the minutes of the meeting did not go out to attendees until about three weeks after the event, before ultimately being put on the FMN website. Although this probably wasn't a problem for attendees who had made their own notes from the meeting, it did raise the question of what value reports on such meetings would be to FMN Centre Managers based elsewhere in the country. It is considered that potentially such reports are of considerable value but they would need to be posted soon after a meeting else some of the impetus might be lost. An assessment of the regional pages on the FMN website subsequent to this meeting did show that minutes of regional meetings were posted onto the appropriate part of the website. It is difficult to judge the nature of a meeting from its minutes, but it was clear that meetings are shared amongst all FMN Centre Managers through the website and that a lot of information is being exchanged and arising action points discussed. However, it was notable that the minutes from the various regions are not in the same format, and that perhaps if they were, it would facilitate reading by FMN Centre Managers from outside a region. The number of meetings recorded on the website also differs amongst the regions and some regions are considerably more up to date than others.

A further assessment of the regional meetings in February 2008, as indicated in the managers' area of the website, shows that there is a suggested meeting agenda format, as below:

1. Introductions and report from the Centres.
  2. Student recruitment: How is it going? What are the most effective ways to recruit students?
  3. Collaboration on regional borders.
  4. Models of delivery: What has worked for you and what would you like to find out from other Managers?
  5. Revision days and events: share your experiences and success and learn from others.
- lunch and time to chat**
6. Your database and your FMN Centre's web page.
  7. Feedback on the services provided by the central team and suggestions for further support you would like to receive from them.
  8. Date for next meeting and ideas for future agenda items.

However, judging from the posted minutes this agenda is only used as a very rough guide. There are currently (February 2008) seven regions identified as holding regional meetings, compared to the nine regions identified on the home page. This is because the North East and Yorkshire regions combine regional meetings, as do the East Midlands and West Midlands. FMN Centres located along the regional border may decide which regional meetings to attend, and may attend those of more than one region.

The Table below indicates the date of the last minutes posted and the date of the next proposed meeting, as recorded in the managers’ area of the FMN website.

<b>Region</b>	<b>Date of last minutes</b>	<b>Date of next meeting</b>
Eastern	15 October 2007	10 March 2008
North East / Yorkshire	30 October 2007	15 May 2008
South East	13 November 2007	TBA
North West	16 June 2006	11 March 2008
South West	12 June 2007	TBA
London	1 November 2006	TBA
Midlands	10 November 2006	10 March 2008

It is clearly apparent that either there are long gaps between meetings in some regions or minutes of meetings are not being circulated, or at least not being put on the website for all to share. This inconsistency is a matter that the FMN Central Team should address.

## **5. Data Analysis 2002 to 2007**

Achievement data in AS Level and A Level Mathematics and Further Mathematics has been analysed for the six years 2002 to 2007. The achievement data records the grade awarded to every candidate who entered for certification, and thus is also a measure of the number of entries to the qualifications. This data will be referred to as “graded entries” as not all students who studied Mathematics or Further Mathematics would necessarily be entered for examinations, although the number not entering is likely to be very small.

The data that has been analysed originated from two sources.

1. The National Pupil Database (NPD) for the years 2002 to 2007 for AS Level and A Level qualifications completed in these years. This data was supplied by the DCSF.
2. Data supplied by MEI for the years 2004/05 to 2006/07 on registration of schools and colleges with the FMN Centres and the achievement of those students who were taught through the Centres.

The analysis consists of three principal strands.

1. Changes in uptake and performance in Mathematics and Further Mathematics in the years 2002 to 2007 using the AS Level and A Level results for these qualifications extracted from the NPD. This analysis includes take up of Further Mathematics by gender, by type of education establishment and by region. The regions are defined (below in 5.1.5) to be generally in accord with the nine regions of the FMN, which in turn are generally in accord with the nine regions of the Learning Skills Council.

2. A comparison of the results as held by the FMN database and those derived from the NPD and an analysis of the entry sizes in schools and colleges with those students who studied for the qualification through the FMN. This analysis is for the years 2005/06 and 2006/07.

3. A comparison of the performance of students who studied for their qualification through the FMN with the national performance using the CEM Centre's ALIS (A Level Information System) database. This analysis is restricted to 2005/06 and 2006/07 due to limitations of cohort size.

### **5.1 Take up and Performance in Further Mathematics 2002 to 2007.**

Firstly it should be noted that the DCSF data supplied for 2007 was the unamended version, which means it used performance grades as supplied by the examination awarding bodies, but schools and colleges had not had opportunity as yet to challenge these if they wished to. It is considered that any later amendments made to the 2007 results would have no effect on the generality of the analysis here.

Table 1(a) and Table 1(b) <sup>1</sup> show the grades achieved in both Mathematics and Further Mathematics in the academic years 2001/02 to 2006/07 for the A Level and AS Level qualifications respectively. The grades A to E are pass grades, grade U is a fail, grade X indicates the entered candidate did not attend for one or more of the examinations and grade Q indicates there is an unresolved query on the result. Grade N, which indicates that a GCSE grade had been awarded, was dropped in 2003. Tables 1(a) and 1(b) also show the percentage change year on year in the total entry for these subjects.

From Table 1(a) it is seen that the total graded entry in A Level mathematics was fairly static around 45000 up to 2005 and then increased by about 7% a year with the entry approaching 53000 in 2007. The proportion of the entry achieving the higher grades, particularly grade A, also increased between 2002 and 2007, this increase being about 8% for grade A. In Further Mathematics the outstanding notable increase in take up is seen in the results for 2005/06, where about an extra 1500 students were entered compared to the previous year. This represents a growth in number of entries of 24.8%. There was substantial growth again in 2006/07 with a further 10% increase in graded entry numbers. The period 2004 to 2007 coincides with the setting up of the FMN, and the more generally raised concern about the STEM (science, technology, engineering, mathematics) subjects, and it would seem that initiatives like the FMN are having a substantial impact. It is notable that the proportion achieving grade A in A Level Further Mathematics has dropped a little over these 6 years by about 6%, but the proportion has remained high at considerably more than half the entry.

From Table 1(b) it is seen that there was substantial growth in graded entries in AS Level Mathematics between 2005 and 2007. The apparent huge growth between 2004 and 2005

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<sup>1</sup> All Tables are shown in the Appendix to this report.

is anomalous, due to the DCSF reclassifying which qualifications counted within the umbrella called mathematics. The outstanding increase in graded entries in AS Level Further Mathematics is seen in the 2005 entry, a year earlier than for A Level. This is not surprising as many students would have taken AS Level before continuing to A Level the following year. Although the graded entries for AS Level are smaller than for A Level, the relative increase in entry numbers is greater, having approximately doubled between 2003 and 2007. This again reflects the impact of the various STEM initiatives and that of the FMN in particular.

The FMN has been encouraging the take up of AS Level Further Mathematics, because it is accessible to most students of Mathematics at this level and not just the most able. For a student studying A Level Mathematics and two other A Level subjects, an AS Level in Further Mathematics is an attractive extra subject, as it will benefit any student who goes on to take a mathematics-related course at university, through increasing and developing their knowledge of Mathematics.

### **5.1.1 Gender differences in graded entries in Further Mathematics**

Table 2 shows the breakdown of the entry and achievement for 2002 to 2007 by gender. It is seen that for A Level the ratio of males to females has remained steady at about 7:3 (or 70% male) over these years and this ratio is fairly consistent across the grades achieved. For AS Level Further Mathematics, the gender balance is closer to 50% but the ratio is around 6:4 (or about 60% male). This would suggest that more males than females continue to the A Level qualification. If the aim is for a 50:50 gender balance in the subject area then it would appear more should be done to encourage females to enter the qualification.

A more detailed analysis for 2007 is shown in Table 3. For both males and females, Table 3 shows the number of students who were entered for both Mathematics and Further Mathematics at A Level in the same year, and for Mathematics at A Level only and for Further Mathematics only. Those students who completed Further Mathematics on its own will have completed a Mathematics A Level qualification a year earlier. Similarly, it is likely that some students who have taken only A Level Mathematics will take AS Level or A Level Further Mathematics at a later date; in particular students following the Edexcel specification will have been very unlikely to start the Further Mathematics syllabus until they have completed the Mathematics syllabus. Out of the 6910 students who took both the A Level subjects in the same year, it can be seen again that about 70% of them are males, whereas for the 45879 who took Mathematics A Level only, about 59% of them are males. The number of students who completed both Mathematics A Level and Further Mathematics AS Level in the same year is relatively small, there being 3552 students of whom 62% are male. Of the 1049 students who completed both AS Level Mathematics and AS Level Further Mathematics in 2007, 64% of them were male. Thus there is a very large cohort of students taking Mathematics and not Further Mathematics, and so there is potential for further growth in student numbers. More so, it appears females in particular should be encouraged to take at least the AS Level in Further Mathematics.

The FMN aspires that the proportion of students studying Mathematics at A Level who also study Further Mathematics is 25% for A Level and 35% for AS Level. In 2007, for A Level Further Mathematics the proportions were 13.1% for all students, 15.4% for males and 9.6% for females. For AS Further Mathematics, in 2007, these proportions were 19.8% (6.7%) for all students, 22.3% (6.9%) for males and 16.1% (6.5%) for females. The calculations for AS Level include students who have taken either AS Level or A Level Further Mathematics as well as A Level Mathematics in 2007; the figures shown in brackets are for AS Level Further Mathematics only. Although there clearly is progress towards the proportions the FMN hopes to see, the figures support the above arguments that there is considerable scope to increase the take up of Further Mathematics, and again particularly by female students.

### **5.1.2 Distribution of the growth in entries in Further Mathematics**

In this section of the report, a comparison is made of the growth of graded entries in Further Mathematics between state schools and colleges and the independent sector and also between selective schools compared to non-selective schools in both these sectors.

Statistics on the growth in graded entries between 2004 and 2006 and between 2004 and 2007 are given in Tables 4(a) and 4(b) respectively. Both Tables also show the percentage increase in numbers taking Further Mathematics in 2005, 2006 and 2007 relative to 2004. It can be seen that the growth up to 2007 is 41% for the A Level qualification with about double that, at 82% for the AS Level qualification. So a question of interest is, whether this large increase in entries has taken place in any particular type of school? This question is investigated in these two tables, the only difference between them being one shows an analysis of data for 2004 to 2006, and the other from 2004 to 2007. All the growth calculations use the DCSF data as supplied.

The growth in entries for all schools and colleges for the A Level qualification between 2004 and 2006, is seen to be 1393 graded entries or about a 27% increase, but about 72% of that growth took place in the state sector. In the independent sector, the number of graded entries rose 396 from 1865 in 2004, compared to a rise of 997 graded entries in the state sector from 3264, so of the total growth in entries of 1393, 71.6% came from the state sector. The corresponding figures for the AS Level qualification are a rise of 1489 entries or about a 58% increase overall, with about 85% of that occurring in the state sector. In the independent sector, the number of graded entries for AS Level rose 229 from 540 in 2004, compared to a rise of 1260 graded entries in the state sector from 2046, so of the total growth in entries of 1489, 84.6% came from the state sector. These proportions of the growth in entry numbers can be seen in Table 4 (b) to have been maintained into 2007. This would indicate that the STEM initiatives and the FMN in particular, are having a very significant impact in the state sector.

The growth calculations have been repeated to compare selective schools with non selective schools. In the independent sector it is seen that selective schools account for virtually all the growth in A Level, this being 98% to 2006, and dropping to around 90%

up to 2007. In the state schools, about 70% of the growth in A Level in both 2004 to 2006 and 2004 to 2007 is attributable to the non selective sector. For the AS Level qualification the share of the growth in the non selective independent schools was higher at about 16% for 2004 to 2006, although this has dropped off to 6% over the period 2004 to 2007. The state schools and colleges account for about 83% of the growth in the take up of AS Level in both periods.

To give some perspective to these figures, there are 164 grammar (selective) schools in the state system out of a total of about 2000 schools which have post 16 education and about 400 colleges including both sixth form colleges and general further education colleges. (The numbers of schools and colleges are from 2006 data supplied by the DCSF but just what constitutes a secondary school that can offer Further Mathematics isn't clear, the figures given here are for mainstream schools). There were about 500 independent schools in 2006. The growth figures show that the most significant impact in the growth in graded entries to Further Mathematics is taking place in the state non-selective sector. Tables 4(a) and 4(b) also show the share of the entry between these sectors for the years 2004, 2006 and 2007, but these figures can be deceptive, in that the real impact of the FMN initiative is seen in where most of the growth is taking place, and that is in the state non-selective system

### **5.1.3 Types of educational establishments offering Further Mathematics**

Table 5 shows a breakdown of the number of schools and colleges in England that have offered Further Mathematics at AS Level and/or at A Level between 2002 and 2007. The classification of the schools is that as defined by the DCSF. Thus state schools are classified as community, foundation, voluntary aided or voluntary controlled schools, or as academies or city technology colleges. Post-16 establishments are classified as sixth form centres, sixth form colleges or further education colleges. Some types of establishment could not be identified from the available data, and are classified as not known/other.

It can be seen that the biggest increase in the type of establishment involved is in state sector schools which reconciles with the increases in graded entries seen in Tables 4(a) and 4(b). For A Level, the increase in state sector schools offering Further Mathematics increased by 232 schools between 2002 and 2007, compared with an increase of 14 colleges, and 55 independent schools. The largest increase was between 2005 and 2007, with relatively large increases right across the state school sector, and notably so in Community Schools; well over 100 more Community Schools offered A Level Further Mathematics in 2007 compared to 2002. A similar pattern is seen in the establishments offering AS Level Further Mathematics. The number of state schools offering the AS Level qualification increased by 275 schools between 2002 and 2007, compared with 23 colleges and 45 schools in the independent sector. The larger increases have occurred since 2004 and again notably in the Community Schools. These figures thus support the findings of Section 5.1.2, that the impact of the FMN is being seen significantly in the state sector.

However, large increases in all the types of school can be seen including the independent sector. In 2007 an increase of 282 schools or colleges (using the all establishments figures) were involved in delivering A Level Further Mathematics compared to 2002, with a corresponding figure of 331 schools or colleges for AS Level Further Mathematics. Classification of establishments isn't particularly clear in the post 16 sector. Sixth Form Centres, in particular, have come and gone within school and local authority reorganisations, and some former Sixth Form Colleges have amalgamated with Further Education Colleges. More generally the numbers of establishments in the unknown or other category is higher in the earlier years, due to schools subsequently closing and/or amalgamating, or Further Mathematics being offered in special schools or higher education establishments. All figures are again based on the type of establishment as defined by the DCSF, in the supplied data.

#### **5.1.4 Cohort sizes or number of entries at different establishments**

Table 5 shows that considerably more schools and colleges have been involved in offering Further Mathematics over the past five years, but it is informative to consider analysis of the number of graded entries in the establishments offering the A Level and AS Level qualification to their students.

The tables Table 6(a) and 6(b) show an analysis of the size of the entry cohort from all establishments entering students in the years 2002 to 2007 for the Further Mathematics A Level and AS Level qualifications respectively. The column headed *graded entries* is the cohort size and the column headed *school and colleges* is the number of establishments that entered that number of candidates. Thus, for example, in 2007 there were 255 establishments who entered one candidate for A Level, whereas 128 establishments entered 5 candidates for A Level. The number of establishments with 10 or more students entering for A Level falls off rapidly, with the large entries coming mostly from the independent sector or sixth form colleges. The column headed *cumulative percent of schools/colleges* confirms this and shows that the vast number of establishments entering candidates for the A Level qualification had small cohorts, with, for example, 68.9% of establishments with cohorts of 5 candidate or fewer, and 89.1% of establishments with cohorts of 10 candidates or fewer. This is seen more so for the AS Level qualification, where Table 6(b) shows that in 2007 there were 79.9% of establishments with cohorts of 5 candidates or fewer, and 92.7% of establishments with cohorts of 10 candidates or fewer.

The column headed *total graded entries*, is the number of graded entries in the national total attributed to that size of cohort. Thus for example, in 2007, 300 of the 7226 entries in A Level, were in a cohort of 10 candidates and this cohort size was found in 30 schools or colleges. The column headed *cumulative percent of graded entries* is of particular interest in this analysis. In 2007, it is seen that 34% of the total graded entries came from cohorts of 5 candidates or fewer and 75% of the entry from cohorts of 15 candidates or fewer. It is notable that in the highlighted cohorts of 5, 10, 15 and 20 candidates the cumulative percentage in the A Level entry has gradually been getting smaller. For

example, in 2002 about 75% of the entry was in cohorts of 10 students or fewer and by 2007 this had become about 63%. This reflects the general increase in the take up of A Level Further Mathematics, but it also illustrates that Further Mathematics is still very much a “minority subject” in that many establishments are clearly offering the subject with very small cohort sizes. Some of these very small entries will have been taught through one of the FMN Centres, and an attempt is made below to assess just how many, but there would still seem to be considerable scope for the FMN to support more small entry establishments, especially as a similar pattern is seen in the entry cohorts to the AS Level qualification.

### **5.1.5 Regional variation.**

The 46 FMN Centres are located in nine regions across England. These regions are geographically similar to those of the Learning Skills Council. Although it is appreciated that these regions do not have strict borders, the FMN Centres located in each of the regions is taken as follows (from the FMN website):

North East - 4 FMN Centres

Northumberland / Tyne & Wear / County Durham / Teesside

North West – 4 FMN Centres

Lancashire & Cumbria / Greater Manchester / Cheshire / Merseyside

Yorkshire – 3 FMN Centres

Hull and East Riding / West Yorkshire / South Yorkshire and North Nottinghamshire

West Midlands - 6 FMN Centres

Staffordshire and Shropshire / Keele and the Potteries / The Black Country / Birmingham / Coventry and Warwickshire / Herefordshire and Worcestershire

East Midlands - 5 FMN Centres

Lincolnshire / South Nottinghamshire / Derbyshire / North Leicestershire / South Leicestershire and Northamptonshire

Anglia - 5 FMN Centres

Norfolk / Suffolk / Essex / Hertfordshire / Cambridgeshire

South West - 7 FMN Centres

Cornwall and West Devon / Devon / Somerset / West of England / Gloucestershire / Wiltshire / Dorset

South East - 7 FMN Centres

Hampshire and the Isle of Wight / Berkshire / Oxfordshire / Buckinghamshire / Surrey / Sussex / Kent and Medway

London - 5 FMN Centres

Central and North / East / West / South East / South West

All the DCSF performance data from the NPD is associated with a particular school or college which in turn is located in a particular Local Authority (LA). Thus, in order to consider regional variation as defined by the FMN, the 150 local authorities in England needed to be identified as part of a region. Without discussing it here, the detail of how this has been done is given in Table 7, which also shows the number of each type of school in the LAs concerned.

With the FMN regions defined in terms of LAs as detailed in Table 7, Tables 8(a) and 8(b) show a summary of the schools and colleges in each of the nine regions, together with the number of graded entries in each region between 2002 and 2007 for A Level and AS Level Further Mathematics respectively. The percentage increase in number of graded entries relative to 2004 onwards is also shown, as this gives a measure of the impact of the STEM initiatives, and the impact of the FMN in particular in these regions.

Although when assessing the regional variation, the number of schools and colleges within a region that could offer Further Mathematics should be taken into account there is none the less notable variation between the regions. Considering the 2007 figures the largest growth in A Level entries has occurred in the Anglia Region, which has seen a 58% increase in entries since 2004, compared to 12% in the North East. All regions have shown an increase but the largest ones in A Level are in areas of the country usually regarded as the more affluent. However, there is a stark contrast when the AS Level entry is considered.

Although the biggest percentage increase in take up in AS Level is also in the Anglia Region, there is an increase of over 100% in both the North East and West Midlands with the smallest increase being about 43% in the North West.

These statistics should be helpful to FMN Centre Managers and the FMN in general, as to where to direct effort in striving to sustain or indeed increase the take up of Further Mathematics. In particular it would be gratifying to see areas where the increase in AS Level is large generally reflected in 2008, in an increase in A Level take up.

## **5.2 Comparison of DCSF data and FMN data**

In this section, a comparison is made of the Further Mathematics graded entry data derived from the data supplied by the DCSF and the results data as held by the FMN central office.

### 5.2.1 Comparison of the NPD with data supplied by the FMN

This comparison is limited to the years 2005/06 and 2006/07 as it required that students who had a graded entry be identified as having been entered for a Further Mathematics qualification through a particular school or college. Detailed data was not available from MEI for the first two cohorts of students taught through the Enabling Access to Further Mathematics pilot project in 2003/04 and 2004/05. Some data was supplied by MEI on the number of students completing a qualification in 2004 and in 2005 through the pilot project. In 2004 this was 15 at A Level and 27 at AS Level, with the corresponding numbers for 2005 being 20 at A Level and 54 at AS Level. The grades awarded for the 2005 cohorts are shown below.

2005 results as supplied by MEI

	Grade A	Grade B	Grade C	Grade D	Grade E	Grade U	Total
A Level	8	9	1	2			20
AS Level	23	5	10	6	7	3	54

The FMN was formally launched as a project in January 2005, with the first cohorts of students receiving certificated qualifications in 2006. For the analysis of the 2006 and 2007 data, the data supplied by the FMN (up to the end of the academic year 2006/07) was matched with the DCSF data, through the postcode of the school or college attended. The DCSF data does not permit the naming of individual students (the students are given a unique identification code) so results of individual students could not be matched to the FMN data, only the aggregated data for particular schools and colleges.

The result of this matching is shown in Tables 9(a) and 9(b) for 2006 and 2007 respectively and summarised here.

	Graded Entries	Schools / Colleges	FMN Centres
2006 A Level	31	18	6
2006 AS Level	65	36	11
2006 not known	1	1	1
2007 A Level	107	65	22
2007 AS Level	256	103	29
2007 not known	18	12	3

All the data in the Tables 9 is as supplied by the FMN<sup>2</sup> except that in the column headed DCSF d/b. The data shown in the column headed DCSF d/b is the aggregated grades for that school or college as derived from the DCSF database. Where there is a discrepancy

<sup>2</sup> In Tables 9 schools and colleges are simply referenced by a letter which has no significance other than to distinguish between them. There is no connection between these letters in the AS and A2 Tables nor the 2006 and 2007 Tables. Individual rows indicate individual students. The FMN Centre to which the school or college is assigned is coded by a number.

with the FMN data in terms of grades awarded these have been highlighted in italics. There are many discrepancies, varying from just a single disagreement over one grade, to a discrepancy of the number of students entered and thus the number of grades awarded, to FMN Centres where according to the FMN data, students were entered, but no such entry was found on the DCSF database.

The FMN Central Team has carried out an initial analysis of the inconsistencies, and has assigned a code to some of them, as to the reason for the discrepancy. These codes are in the column headed Reason Code; descriptions of these reason codes are available in the Appendix to this report following the tables. The analysis by the FMN Central Team has revealed many reasons contributing to the discrepancies observed. Their analysis is reported below.

### **The FMN Central Team's analysis of the discrepancies**

Several differences between the two sets of data arise because some schools and colleges teach Further Mathematics themselves, but also use their local FMN Centre to tutor some students who are not able to study through the school/college due to timetable restrictions and others needing to take modules that the school/college is not able to offer. In these cases the DCSF grades include results that do not appear in the FMN Centre results.

When reviewing the comparison it is important to be aware of inherent complexities in the awarding system, which makes it difficult to report students' award grades consistently. The majority of FMN students study towards AS Level Further Mathematics. Some of these students take the award over two years, and do not certificate until Year 13; most take it over one year, but are currently advised to delay certification until they certificate in A Level Mathematics, which is normally in the following year. Thus in many cases, AS Level results were not available until a year after examinations were sat. In addition, students may certificate an award, and then take additional modules and/or re-sit examinations, and then re-certificate the following year. Students may carry on to take the full A Level in Year 13, with or without certificating AS Level Further Mathematics in Year 12. DCSF data includes all awards certificated by the school/college for the given year, whereas FMN Centres have been encouraged to only record students' grades when they are confident that the result is unlikely to change in future. These different reporting approaches may be partially resolved in future by changes to the certification rules effective from 07/08. Although not finalised, it is understood that students will be encouraged to certificate AS Level Further Mathematics at the end of Year 12, even if they intend to re-certificate at a later date. This is likely to result in more cases where the same student awards appears in consecutive years' DCSF data sets; however provided FMN data is recorded and extracted on a similar basis, there should be a reduction in the number of anomalies due to certification/re-certification.

Several inconsistencies have arisen as a result of the difficulties FMN Centres experience in obtaining accurate and timely results from schools and colleges. In some cases schools/colleges certificated or re-certificated awards without advising the FMN Centre, so the FMN Centre was not aware that a result is available. In other cases students who had withdrawn from tuition with the FMN Centre were entered and certificated, or

students were withdrawn from examinations without informing the FMN Centre. Whilst grades can be derived from students' modules, this may not provide a reliable value. If the student has taken both a Mathematics and Further Mathematics award with the same specification, it is possible that modules taken towards Further Mathematics may be aggregated towards the Mathematics award in order to provide students with the best possible result in Mathematics. Some FMN Centres have attempted to derive grades when they have not been able to obtain grades from schools and colleges, and this has given rise to some inconsistencies. The FMN has developed agreement letters requesting schools/colleges to communicate results, but despite best efforts these communication issues continue. It is unfortunate that results cannot be obtained directly from the awarding bodies.

The FMN 2005-6 data extract was not prepared for comparison with DCSF data and excluded some results, which accounts for further inconsistencies. The FMN is continually reviewing its record keeping practices and in December 2007 the database used by FMN Centres was changed to enable more information about the certification of awards tutored by the FMN Centre to be recorded. This will enable the central team to extract data that aligns more closely to the equivalent DCSF data set in future years.

Several inconsistencies have arisen from inaccuracies in FMN Centre data, some due to simple data entry errors and others due to misunderstandings of how to use the database. The FMN continues to provide feedback and advice to FMN Centres to improve the standard of record keeping.

Finally, there remain many inconsistencies which have not yet been fully examined as there was only a short period for investigation before publication of this report.

### **5.2.2 Target potential for the FMN Centres - small cohorts of students**

In tables 6(a) and 6(b) an analysis is presented of the cohort sizes at the various establishments who enter students for AS Level and A Level qualifications in Further Mathematics, this cohort size varying from a single student upwards. The change in the number of establishments with different cohort sizes for the years 2002 to 2007 was given in these tables. Tables 10(a) 10(b) 10(c) and 10(d) are a development of tables 6(a) and 6(b) for the years 2006 and 2007. Tables 10(a) and 10(b) show data for A Level and AS Level Further Mathematics for 2006 respectively, with the corresponding data for 2007 shown in tables 10(c) and 10(d). The tables 10 have been created by combining the data from tables 6 with the data from the files supplied by the FMN of the registered schools and the current status of these schools as regards students enrolled at a FMN Centre.

The tables 10 show for each cohort size, the number of schools who are registered, or not registered, with the FMN. The data of most interest to the FMN is considered to be the small cohorts, say 5 students or fewer, where it is seen that about 40% to 50% of all schools or colleges are registered with the FMN. Those not registered, are teaching a small number of students without support from the FMN, and it would seem that the

FMN should be targeting these schools and colleges to register and for their students to become involved in their local FMN Centre.

The data analysis that led to the creation of tables 10 also indicated that there are many schools and colleges who are registered with the FMN who have no entries for AS Level or A Level. In 2006 this was 413 schools and colleges and in 2007 it was 757 schools and colleges. Analysis of the data up to the end of the academic year 2006/07 indicated that there were 1346 schools and colleges registered with the FMN. It is recognised that schools and colleges can gain far more from registering with the FMN than just access to tuition for Further Mathematics modules. Registration brings access to the online teaching and learning resources for Further Mathematics which are accessible through the FMN website. Schools and colleges, and not just those with post 16 students, are also kept aware of events that may be of interest to them, particularly revision days for both Mathematics and Further Mathematics modules and courses, and also enrichment events for a variety of pupils. Registering with the FMN also provides a way of staying in touch with the current news and issues in mathematics education and contributing to discussion. Ultimately the FMN would like all schools to register, and this is a worthy target in the development of mathematics education in England.

### **5.3 Comparison of the performance of FM Centre taught students with that of all students, using the CEM Centre's Alis Project**

The Advanced Level Information System (Alis) provides performance indicators for post-16 students across all sectors of education and includes analysis of A Level, AS Level, Applied A Levels, BTEC National and International Baccalaureate qualifications. Alis is the original member of the family of value-added monitoring systems developed at the Curriculum Evaluation and Management Centre (CEM Centre), which is based at Durham University. Alis started from twelve schools in the North East of England in 1983 but now covers over a third of all A Level entries in England, the UK as whole and international schools.

Alis uses a value-added approach to comparing student performance in any subject area. The value-added approach provides fair comparisons between the progress made by a particular group of students and all other students in a subject area that are participating in the Alis project. In order to make these value-added comparisons, all students need to be measured against a common baseline that represents their ability before starting their post-16 courses. The average GCSE score, across all GCSE subjects taken by a student, is the baseline for Alis. This has repeatedly been found to be the best single indicator of post-16 performance. For students with no GCSE results, the CEM Centre provides two alternative baselines, the Test of Developed Ability (TDA) and the Adaptive Test.

The principle of the value-added approach is to compare a student's actual performance in a subject, with that predicted using his or her baseline score. If the student has done better than predicted then value has been added as a result of taking the course.

The value-added comparisons made here are for the years 2005/06 and 2006/07; prior to that no analysis was done. Not all students who studied through a FMN Centre had an average GCSE score recorded, so such students couldn't be included in the analysis. However, the number of students with known GCSE baseline scores is considered large enough for a comparison to be made sensibly. In Further Mathematics over half the national entry were involved in the Alis project in 2005/06 and 2006/07. The number of students for A Level was 3761 in 2007 and 3865 in 2006, with the corresponding figures being 3815 and 3379 for AS Level Further Mathematics. Although these figures are greater than 50% of the graded entries shown in Tables 1(a) and 1(b) these figures are for England and it should be noted that the Alis figures includes all students anywhere who have completed the qualifications and are part of the Alis project.

In the comparisons shown here, students who studied Further Mathematics through a FMN Centre are regarded as one group of students for comparison with the whole cohort. The comparisons with all students in the Alis project are best shown graphically

Figure 1: A Level Further Mathematics

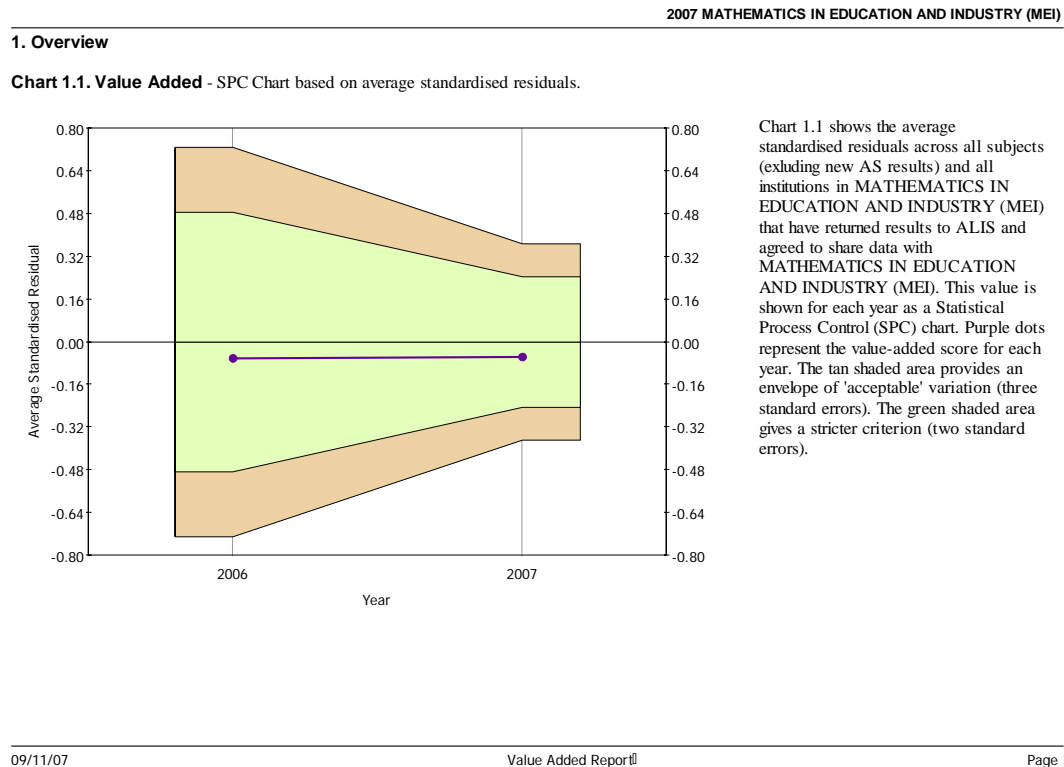
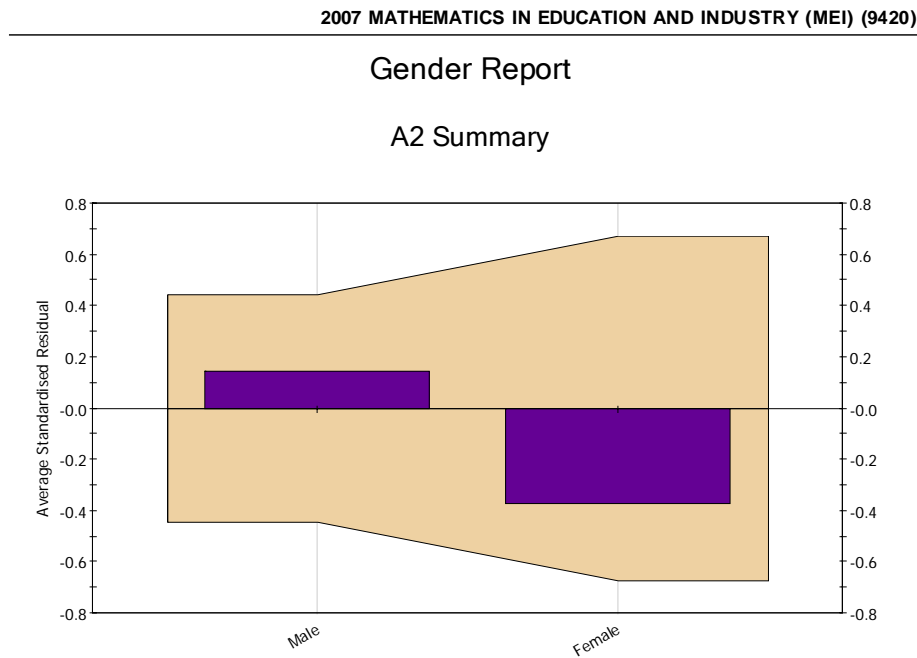


Figure 1, above, is a statistical process control (SPC) chart, shown here for A Level Further Mathematics for the two years 2006 and 2007. The SPC chart would normally develop over many years and show how progress of a particular cohort of students has changed against the whole of the cohort. In Figure 1 it is seen that the line representing

the FMN Centre taught students is just below the zero line. This means they are slightly underperforming compared with all students, but this is not statistically significant. The spread is narrower in 2007 due to the larger sample of FMN Centre taught students.

Figure 2, below, shows a comparison for A Level Further Mathematics for 2007 by gender. Here it is seen that male students are performing relatively better than the male cohort as a whole whereas the females taught through FMN Centres are underperforming. However, both male and female FMN Centre cohorts lie within the shaded region, so neither represents an outstandingly good or poor performance. It should also be noted, particularly for the females, that the sample size is small, so care should be taken in interpreting the results; the error limits are relatively high.

Figure 2: Gender Report; A Level Summary, 2007



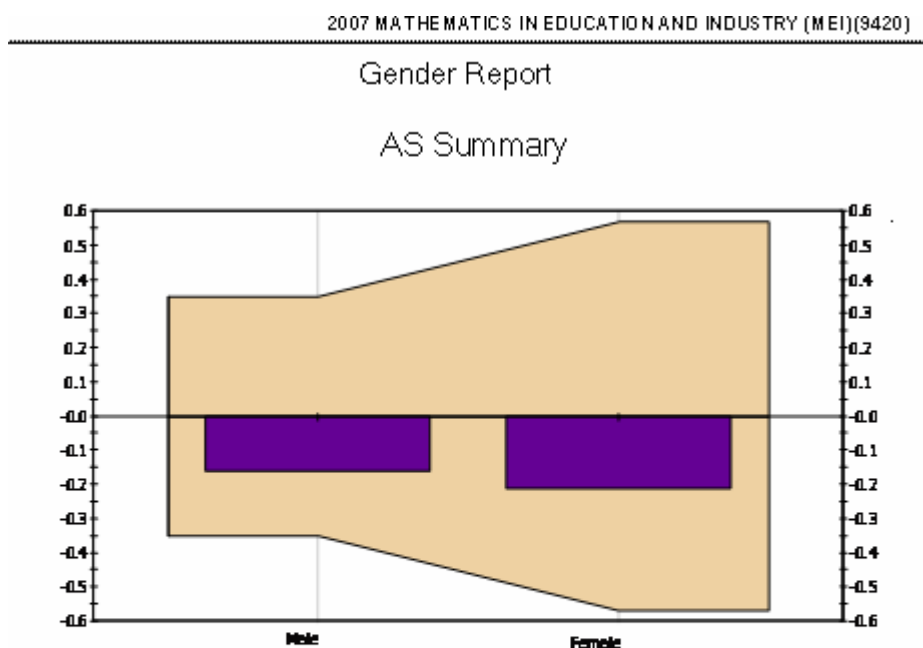
Gender	Number of Students	Average GCSE Score	Value-Added (Average Std Residual)	Error (99% Confidence)
Unknown	1	7.1	-2.99	3.00
Male	46	6.9	0.15	0.44
Female	20	7.0	-0.37	0.67

Figure 3, below, shows the corresponding gender graph for AS Level Further Mathematics.

Figure 3 shows both gender cohorts from the FMN Centres to be underperforming compared with all students in the cohort, but again it is not a notably bad performance for either males or females

Whilst not a cause for concern, it would of course be preferable if all the value-added results were positive, so FMN Centre Managers with their tutors should review the management of their students learning and discuss and plan for how results might be improved.

Figure 3: Gender Report; AS Level Summary, 2007



Gender	Number of Students	Average GCSE Score	Value-Added (Average Std Residual)	Error (99% Confidence)
Male	74	6.7	-0.16	0.35
Female	28	6.9	-0.21	0.57

In conclusion, there is no statistically significant evidence from the Alis analysis that FMN taught students either under-perform or over-perform relative to the cohort as a whole.

## **6 Points to consider**

### **• Tutor Training Event**

It is suggested that an afternoon event of 3 to 4 hours duration is not sufficient time to cover both the role of a tutor, and tuition in the use of the FMN web based resources. A tutor training event should offer tutors the opportunity to meet with each other and share experiences and problems, together with more experienced FMN Centre Managers. Suitable accommodation would facilitate such discussion.

Tutors could have some pre meeting experience of the web based resources, by being prepared to spend time exploring these. This could be done constructively if there was a handout guide to the resources available. Tutors could bring any problems concerning their personal use of the resources to the meeting and there could be discussion of how the resources might best be used with students.

If it is felt that hands on experience in the use of the resources under the guidance of a trainer is beneficial to tutors, then this could be scheduled to take place in the morning of an all day training event, or on another occasion.

### **• Centre Managers' Regional Meetings**

At the observed meeting it was clear that FMN Centre Managers very much valued the opportunity to meet with each other, and with members of the FMN Central Team.

It is anticipated that this is the case in all regional meetings and they should therefore continue to take place on a regular basis.

The FMN as a whole would benefit more from these meetings if there was greater consistency. It is recommended that meetings adhere rather more closely to the suggested agenda format, and that minutes of all meetings are posted in the managers' area of the FMN website, in a timely fashion.

FMN Centre Managers should use NPD data about the schools and colleges in their region, particularly those with small cohorts of Further Mathematics students, and target those not yet in the FMN; strategies for doing so could be discussed at regional meetings. Similarly managers should be aware of the Alis data for their FMN Centre, and they should discuss how the teaching and management of students' learning might be improved so that performance is enhanced.

### **• FMN Central Team Targets**

The FMN central team should make available to FMN Centre Managers information from the NPD about schools and colleges in their area, so that they might select targets for involvement in the FMN. Schools and colleges who have student cohorts of say 5 or fewer students, and are not members of the FMN, would seem to be prime targets. The FMN Central Team should consider strategies with which they might advise managers, and more generally should consider how to increase the number of female students who take a Further Mathematics qualification.

- **Record keeping**

It is recommended that data collection and record keeping be reviewed by the FMN Central Team and then with FMN Centre Managers. The FMN Central Team is already aware that record keeping by FMN Centre Managers should be improved, now that the FMN is fully established. Changes to record keeping tools and processes have already been effected for 2007/8, and further changes are planned for 2008/9. The inconsistencies between the DCSF and FMN Centre results data have been partially investigated by the FMN Central Team and many have been explained, as detailed in the Appendix following the Tables in this report.

## Appendix

## Report Tables

Table 1(a) : graded entries in Mathematics and Further Mathematics A Level 2002-2007

Table 1(b) : graded entries in Mathematics and Further Mathematics AS Level 2002-2007

Table 2 : graded entries in Further Mathematics by gender 2002-2007

Table 3 : Mathematics and Further Mathematics entry combinations in 2007

Table 4(a) : growth in graded entries in Further Mathematics 2004-2006

Table 4(b) : growth in graded entries in Further Mathematics 2004-2007

Table 5 : number of establishments offering Further Mathematics

Table 6(a) : graded entry cohorts; all establishments entering candidates for  
Further Mathematics A Level

Table 6(b) : graded entry cohorts; all establishments entering candidates for  
Further Mathematics AS Level

Table 7 : Further Mathematics Network regions defined by Local Authorities

Table 8(a) : summary of schools and colleges and graded entries in the FMN regions  
for Further Mathematics A Level

Table 8(b) : summary of schools and colleges and graded entries in the FMN regions  
for Further Mathematics AS Level

Table 9(a) : the matching of DCSF results data with that of the FMN; 2006

Table 9(b) : the matching of DCSF results data with that of the FMN; 2007

Table 10(a) : cohort size and schools and colleges that are registered with the FMN  
A Level 2006

Table 10(b) : cohort size and schools and colleges that are registered with the FMN  
AS Level 2006

Table 10(c) : cohort size and schools and colleges that are registered with the FMN  
A Level 2007

Table 10(d) : cohort size and schools and colleges that are registered with the FMN  
AS Level 2007

Reason Codes for tables 9(a) and 9(b)

**Note: Throughout these tables, 'AS' refers to AS Level and 'A2' refers to A Level.**



Table 1(b) : graded entries in Mathematics AS and Further Mathematics AS 2002-2007																	
	2002	maths		2003	maths		2004	maths		2005	maths		2006	maths		2007	maths
A	4633	21.5%	A	4265	21.3%	A	3974	21.9%	A	13005	25.4%	A	14123	25.5%	A	14980	24.9%
B	2790	12.9%	B	2699	13.5%	B	2593	14.3%	B	7706	15.0%	B	8549	15.5%	B	9190	15.3%
C	2969	13.8%	C	2822	14.1%	C	2539	14.0%	C	7299	14.2%	C	8257	14.9%	C	8923	14.8%
D	2997	13.9%	D	2697	13.5%	D	2651	14.6%	D	6771	13.2%	D	7391	13.4%	D	8403	14.0%
E	2883	13.4%	E	2727	13.6%	E	2468	13.6%	E	6104	11.9%	E	6640	12.0%	E	7461	12.4%
N	11	0.1%															
Q	13	0.1%	Q	13	0.1%	Q	19	0.1%	Q	9	0.0%	Q	1	0.0%	Q	1	0.0%
U	4636	21.5%	U	4126	20.6%	U	3618	19.9%	U	10047	19.6%	U	10369	18.7%	U	11188	18.6%
X	637	3.0%	X	678	3.4%	X	310	1.7%	X	316	0.6%	X		0.0%	X		
<b>Total</b>	<b>21569</b>		<b>Total</b>	<b>20027</b>		<b>Total</b>	<b>18172</b>		<b>Total</b>	<b>51257</b>		<b>Total</b>	<b>55330</b>		<b>Total</b>	<b>60146</b>	
year on year & increase				-7.1%			-9.3%			182.1%			7.9%			8.7%	
<b>2002 further</b>	<b>maths</b>		<b>2003 further</b>	<b>maths</b>		<b>2004 further</b>	<b>maths</b>		<b>2005 further</b>	<b>maths</b>		<b>2006 further</b>	<b>maths</b>		<b>2007 further</b>	<b>maths</b>	
A	1048	44.8%	A	910	39.6%	A	852	32.9%	A	1340	39.3%	A	1560	38.3%	A	1894	40.2%
B	420	18.0%	B	451	19.6%	B	488	18.9%	B	632	18.5%	B	817	20.0%	B	937	19.9%
C	353	15.1%	C	362	15.8%	C	459	17.7%	C	499	14.6%	C	692	17.0%	C	775	16.4%
D	229	9.8%	D	271	11.8%	D	345	13.3%	D	411	12.0%	D	462	11.3%	D	502	10.6%
E	129	5.5%	E	145	6.3%	E	220	8.5%	E	258	7.6%	E	311	7.6%	E	355	7.5%
N														0.0%			
Q													Q	1	0.0%	Q	
U	93	4.0%	U	103	4.5%	U	157	6.1%	U	233	6.8%	U	232	5.7%	U	251	5.3%
X	67	2.9%	X	56	2.4%	X	65	2.5%	X	39	1.1%	X	0	0.0%	X		
<b>Total</b>	<b>2339</b>		<b>Total</b>	<b>2298</b>		<b>Total</b>	<b>2586</b>		<b>Total</b>	<b>3412</b>		<b>Total</b>	<b>4075</b>		<b>Total</b>	<b>4714</b>	
year on year % increase				-1.8%			12.5%			31.9%			19.4%			15.7%	

<b>Table 2 : graded entries in Further Mathematics by gender 2002-2007</b>									
<b>A2 2007</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2007</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2917	1211	4128	70.7%	A	1150	744	1894	60.7%
B	1001	463	1464	68.4%	B	565	372	937	60.3%
C	601	235	836	71.9%	C	502	273	775	64.8%
D	352	131	483	72.9%	D	322	180	502	64.1%
E	178	68	246	72.4%	E	239	116	355	67.3%
U	50	19	69	72.5%	U	169	82	251	67.3%
X/Q					X/Q				
<b>total</b>	<b>5099</b>	<b>2127</b>	<b>7226</b>	<b>70.6%</b>	<b>total</b>	<b>2947</b>	<b>1767</b>	<b>4714</b>	<b>62.5%</b>
<b>A2 2006</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2006</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2645	1120	3765	70.3%	A	917	643	1560	58.8%
B	881	387	1268	69.5%	B	496	321	817	60.7%
C	537	229	766	70.1%	C	436	256	692	63.0%
D	320	105	425	75.3%	D	310	152	462	67.1%
E	160	69	229	69.9%	E	211	100	311	67.8%
U	55	14	69	79.7%	U	162	70	232	69.8%
X/Q					X/Q	1			
<b>total</b>	<b>4598</b>	<b>1924</b>	<b>6522</b>	<b>70.5%</b>	<b>total</b>	<b>2533</b>	<b>1542</b>	<b>4075</b>	<b>62.2%</b>
<b>A2 2005</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2005</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2179	902	3081	70.7%	A	855	485	1340	63.8%
B	663	257	920	72.1%	B	374	258	632	59.2%
C	408	169	577	70.7%	C	325	174	499	65.1%
D	289	68	357	81.0%	D	290	121	411	70.6%
E	143	50	193	74.1%	E	173	85	258	67.1%
U	65	19	84	77.4%	U	164	69	233	70.4%
X/Q	10	3			X/Q	26	13		
<b>total</b>	<b>3757</b>	<b>1468</b>	<b>5225</b>	<b>71.9%</b>	<b>total</b>	<b>2207</b>	<b>1205</b>	<b>3412</b>	<b>64.7%</b>
<b>A2 2004</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2004</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2183	861	3044	71.7%	A	517	335	852	60.7%
B	626	236	862	72.6%	B	309	179	488	63.3%
C	402	144	546	73.6%	C	301	158	459	65.6%
D	255	91	346	73.7%	D	243	102	345	70.4%
E	161	64	225	71.6%	E	165	55	220	75.0%
U	57	15	72	79.2%	U	110	47	157	70.1%
X/Q	27	7			X/Q	44	21		
<b>total</b>	<b>3711</b>	<b>1418</b>	<b>5129</b>	<b>72.4%</b>	<b>total</b>	<b>1689</b>	<b>897</b>	<b>2586</b>	<b>65.3%</b>
<b>A2 2003</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2003</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2077	848	2925	71.0%	A	532	378	910	58.5%
B	552	236	788	70.1%	B	294	157	451	65.2%
C	365	114	479	76.2%	C	259	103	362	71.5%
D	233	85	318	73.3%	D	202	69	271	74.5%
E	186	37	223	83.4%	E	111	34	145	76.6%
U	65	14	79	82.3%	U	76	27	103	73.8%
X/Q	9	1			X/Q	38	18		
<b>total</b>	<b>3487</b>	<b>1335</b>	<b>4822</b>	<b>72.3%</b>	<b>total</b>	<b>1512</b>	<b>786</b>	<b>2298</b>	<b>65.8%</b>
<b>A2 2002</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>	<b>AS 2002</b>	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2041	839	2880	70.9%	A	627	421	1048	59.8%
B	542	206	748	72.5%	B	259	161	420	61.7%
C	322	109	431	74.7%	C	232	121	353	65.7%
D	203	58	261	77.8%	D	163	66	229	71.2%
E	113	33	146	77.4%	E	105	24	129	81.4%
U	67	12	79	84.8%	U	68	25	93	73.1%
X/Q	17	10			X/Q	45	22		
N	2		2	100.0%				0	
<b>total</b>	<b>3307</b>	<b>1267</b>	<b>4574</b>	<b>72.7%</b>	<b>total</b>	<b>1499</b>	<b>840</b>	<b>2339</b>	<b>64.1%</b>

<b>Table 3 : Mathematics and Further Mathematics entry combinations in 2007</b>									
<b>Both Mathematics A2 and Further Mathematics A2</b>									
<b>Mathematics A2</b>					<b>Further Mathematics A2</b>				
	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>		<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	4336	1815	6151	70.5%	A	2797	1150	3947	70.9%
B	388	159	547	70.9%	B	948	439	1387	68.3%
C	124	36	160	77.5%	C	581	225	806	72.1%
D	31	11	42	73.8%	D	339	125	464	73.1%
E	7	2	9	77.8%	E	173	66	239	72.4%
U	1	0	1	100.0%	U	49	18	67	73.1%
<b>total</b>	<b>4887</b>	<b>2023</b>	<b>6910</b>	<b>70.7%</b>	<b>total</b>	<b>4887</b>	<b>2023</b>	<b>6910</b>	<b>70.7%</b>
<b>Mathematics A2 only</b>					<b>Further Mathematics A2 only</b>				
	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>		<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	9358	7705	17063	54.8%	A	120	61	181	66.3%
B	6293	4575	10868	57.9%	B	53	24	77	68.8%
C	4982	3112	8094	61.6%	C	20	10	30	66.7%
D	3450	2100	5550	62.2%	D	13	6	19	68.4%
E	2036	1092	3128	65.1%	E	5	2	7	71.4%
U	816	360	1176	69.4%	U	2	1	3	66.7%
<b>total</b>	<b>26935</b>	<b>18944</b>	<b>45879</b>	<b>58.7%</b>	<b>total</b>	<b>213</b>	<b>104</b>	<b>317</b>	<b>67.2%</b>
<b>Both Mathematics A2 and Further Mathematics AS</b>									
<b>Mathematics A2</b>					<b>Further Mathematics AS</b>				
	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>		<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	1514	939	2453	61.7%	A	840	570	1410	59.6%
B	377	264	641	58.8%	B	455	292	747	60.9%
C	193	93	286	67.5%	C	396	208	604	65.6%
D	91	42	133	68.4%	D	228	148	376	60.6%
E	22	15	37	59.5%	E	169	85	254	66.5%
U	1	1	2	50.0%	U	110	51	161	68.3%
<b>total</b>	<b>2198</b>	<b>1354</b>	<b>3552</b>	<b>61.9%</b>	<b>total</b>	<b>2198</b>	<b>1354</b>	<b>3552</b>	<b>61.9%</b>
<b>Both Mathematics AS and Further Mathematics AS</b>									
<b>Mathematics AS</b>					<b>Further Mathematics AS</b>				
	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>		<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	445	271	716	62.2%	A	283	165	448	63.2%
B	110	49	159	69.2%	B	98	70	168	58.3%
C	60	31	91	65.9%	C	92	58	150	61.3%
D	33	15	48	68.8%	D	84	29	113	74.3%
E	16	5	21	76.2%	E	61	26	87	70.1%
U	9	5	14	64.3%	U	55	28	83	66.3%
<b>total</b>	<b>673</b>	<b>376</b>	<b>1049</b>	<b>64.2%</b>	<b>total</b>	<b>673</b>	<b>376</b>	<b>1049</b>	<b>64.2%</b>
<b>Further Mathematics Total Entry</b>									
<b>Further Mathematics A2</b>					<b>Further Mathematics AS</b>				
	<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>		<b>male</b>	<b>female</b>	<b>total</b>	<b>% male</b>
A	2917	1211	4128	70.7%	A	1150	744	1894	60.7%
B	1001	463	1464	68.4%	B	565	372	937	60.3%
C	601	235	836	71.9%	C	502	273	775	64.8%
D	352	131	483	72.9%	D	322	180	502	64.1%
E	178	68	246	72.4%	E	239	116	355	67.3%
U	50	19	69	72.5%	U	169	82	251	67.3%
<b>total</b>	<b>5099</b>	<b>2127</b>	<b>7226</b>	<b>70.6%</b>	<b>total</b>	<b>2947</b>	<b>1767</b>	<b>4714</b>	<b>62.5%</b>

<b>Table 4(a) : growth in graded entries in Further Mathematics 2004 - 2006</b>					
<b>DCSF data</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	
A2 FM graded entries	5129	5225	6522	7226	
percent increase relative to 2004		1.9%	27.2%	40.9%	
AS FM graded entries	2586	3412	4075	4714	
percent increase relative to 2004		31.9%	57.6%	82.3%	
<b>growth calculations</b>					
	<b>2004</b>	<b>2006</b>	<b>difference</b>	<b>growth</b>	<b>% of growth</b>
<b>all schools and colleges</b>					
independent schools A2 FM	1865	2261	396	21.2%	28.4%
state schools A2 FM	3264	4261	997	30.5%	71.6%
total	5129	6522	1393	27.2%	
independent schools AS FM	540	769	229	42.4%	15.4%
state schools AS FM	2046	3306	1260	61.6%	84.6%
total	2586	4075	1489	57.6%	
<b>schools by entry policy</b>					
independent non selective A2 FM	172	181	9	5.2%	2.3%
independent selective A2 FM	1693	2080	387	22.9%	97.7%
total	1865	2261	396	21.2%	
state comprehensive A2 FM	1445	1923	478	33.1%	67.1%
state selective A2 FM	719	953	234	32.5%	32.9%
total	2164	2876	712	32.9%	
independent non selective AS FM	44	80	36	81.8%	15.7%
independent selective AS FM	496	689	193	38.9%	84.3%
total	540	769	229	42.4%	
state comprehensive AS FM	1064	1764	700	65.8%	83.6%
state selective AS FM	302	439	137	45.4%	16.4%
total	1366	2203	837	61.3%	
<b>share of entries</b>	<b>2004</b>		<b>2006</b>		
<b>all schools and colleges</b>					
independent schools A2 FM	1865	36.4%	2261	34.7%	
state schools A2 FM	3264	63.6%	4261	65.3%	
total	5129		6522		
independent schools AS FM	540	20.9%	769	18.9%	
state schools AS FM	2046	79.1%	3306	81.1%	
total	2586		4075		
<b>schools by entry policy</b>					
independent non selective A2 FM	172	9.2%	181	8.0%	
independent selective A2 FM	1693	90.8%	2080	92.0%	
total	1865		2261		
state comprehensive A2 FM	1445	66.8%	1923	66.9%	
state selective A2 FM	719	33.2%	953	33.1%	
total	2164		2876		
independent non selective AS FM	44	8.1%	80	10.4%	
independent selective AS FM	496	91.9%	689	89.6%	
total	540		769		
state comprehensive AS FM	1064	77.9%	1764	80.1%	
state selective AS FM	302	22.1%	439	19.9%	
total	1366		2203		

<b>Table 4(b) : growth in graded entries in Further Mathematics 2004 - 2007</b>					
<b>DCSF data</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	
A2 FM	5129	5225	6522	7226	
percent increase relative to 2004		1.9%	27.2%	40.9%	
AS FM	2586	3412	4075	4714	
percent increase relative to 2004		31.9%	57.6%	82.3%	
<b>growth calculations</b>					
	<b>2004</b>	<b>2007</b>	<b>difference</b>	<b>growth</b>	<b>% of growth</b>
<b>all schools and colleges</b>					
independent schools A2 FM	1865	2440	575	30.8%	27.4%
state schools A2 FM	3264	4786	1522	46.6%	72.6%
total	5129	7226	2097	40.9%	
independent schools AS FM	540	815	275	50.9%	12.9%
state schools AS FM	2046	3899	1853	90.6%	87.1%
total	2586	4714	2128	82.3%	
<b>schools by entry policy</b>					
independent non selective A2 FM	172	234	62	36.0%	10.8%
independent selective A2 FM	1693	2206	513	30.3%	89.2%
total	1865	2440	575	30.8%	
state comprehensive A2 FM	1445	2191	746	51.6%	69.7%
state selective A2 FM	719	1044	325	45.2%	30.3%
total	2164	3235	1071	49.5%	
independent non selective AS FM	44	60	16	36.4%	5.8%
independent selective AS FM	496	755	259	52.2%	94.2%
total	540	815	275	50.9%	
state comprehensive AS FM	1064	2048	984	92.5%	83.2%
state selective AS FM	302	501	199	65.9%	16.8%
total	1366	2549	1183	86.6%	
<b>share of entries</b>					
<b>all schools and colleges</b>	<b>2004</b>		<b>2007</b>		
independent schools AS FM	540	20.9%	815	17.3%	
state schools AS FM	2046	79.1%	3899	82.7%	
total	2586		4714		
independent schools A2 FM	1865	36.4%	2440	33.8%	
state schools A2 FM	3264	63.6%	4786	66.2%	
total	5129		7226		
<b>schools by entry policy</b>					
independent non selective A2 FM	172	9.2%	234	9.6%	
independent selective A2 FM	1693	90.8%	2206	90.4%	
total	1865		2440		
state comprehensive A2 FM	1445	66.8%	2191	67.7%	
state selective A2 FM	719	33.2%	1044	32.3%	
total	2164		3235		
independent non selective AS FM	44	8.1%	60	7.4%	
independent selective AS FM	496	91.9%	755	92.6%	
total	540		815		
state comprehensive AS FM	1064	77.9%	2048	80.3%	
state selective AS FM	302	22.1%	501	19.7%	
total	1366		2549		

Table 5 : number of establishments offering Further Mathematics															
A2	aggregated			total	state establishments by school and college type								unknown other	all estab'ts	
	state schools	state colleges	Indept		Comm'y	Found'n	Vol'y Aided	Vol'y Control	Acad'y	CTC	SF Centre	SF College			F E College
2002	578	147	332	1057	272	139	126	37	1	3	17	82	48	19	1076
2003	586	147	338	1071	271	147	122	40	1	5	13	84	50	23	1094
2004	598	144	346	1088	283	144	124	39	1	7	2	84	58	0	1088
2005	604	148	368	1120	276	148	132	42	2	6	4	86	58	1	1121
2006	732	156	377	1265	346	185	147	47	2	5	88	88	68	1	1266
2007	810	161	387	1358	383	194	171	51	6	5	90	90	71		1358
Year on year absolute change															
02 03	8	0	6	14	-1	8	-4	3	0	2	-4	2	2		18
03 04	12	-3	8	17	12	-3	2	-1	0	2	-11	0	8		-6
04 05	6	4	22	32	-7	4	8	3	-1	-1	2	2	0		33
05 06	128	8	9	145	70	37	15	5	2	-1	-4	2	10		145
06 07	78	5	10	93	37	9	24	4	4	0	0	2	3		92
Year on year percentage change															
02 03	1.4%	0.0%	1.8%	3.2%	-0.4%	5.8%	-3.2%	8.1%			-23.5%	2.4%	4.2%		1.7%
03 04	2.0%	-2.0%	2.4%	2.4%	4.4%	-2.0%	1.6%	-2.5%			-84.6%	0.0%	16.0%		-0.5%
04 05	1.0%	2.8%	6.4%	10.1%	-2.5%	2.8%	6.5%	7.7%			100.0%	2.4%	0.0%		3.0%
05 06	21.2%	5.4%	2.4%	29.0%	25.4%	25.0%	11.4%	11.9%			-100.0%	2.3%	17.2%		12.9%
06 07	10.7%	3.2%	2.7%	16.5%	10.7%	4.9%	16.3%	8.5%				2.3%	4.4%		7.3%
AS															
2002	510	146	214	870	264	118	92	34	0	2	14	77	55	12	882
2003	509	132	217	858	265	109	102	31	0	2	14	66	52	10	868
2004	547	146	232	925	264	124	119	35	1	4	5	82	59	8	933
2005	623	147	230	1000	324	137	116	41	1	4	5	85	57	8	1008
2006	710	158	241	1109	366	161	136	37	5	5	1	87	70		1109
2007	785	169	259	1213	391	178	164	43	6	3		90	79		1213
Year on year absolute change															
02 03	-1	-14	3	-12	1	-9	10	-3	0	0	0	-11	-3		-14
03 04	38	14	15	67	-1	15	17	4	1	2	-9	16	7		65
04 05	76	1	-2	75	60	13	-3	6	0	0	0	3	-2		75
05 06	87	11	11	109	42	24	20	-4	4	1	-4	2	13		101
06 07	75	11	18	104	25	17	28	6	1	-2	-1	3	9		104
Year on year percentage change															
02 03	-0.2%	-9.6%	1.4%	-8.4%	0.4%	-7.6%	10.9%	-8.8%			0.0%	-14.3%	-5.5%		-1.6%
03 04	7.5%	10.6%	6.9%	25.0%	-0.4%	13.8%	16.7%	12.9%			-64.3%	24.2%	13.5%		7.5%
04 05	13.9%	0.7%	-0.9%	13.7%	22.7%	10.5%	-2.5%	17.1%			0.0%	3.7%	-3.4%		8.0%
05 06	14.0%	7.5%	4.8%	26.2%	13.0%	17.5%	17.2%	-9.8%			-80.0%	2.4%	22.8%		10.0%
06 07	10.6%	7.0%	7.5%		6.8%	10.6%	20.6%	16.2%			-100.0%	3.4%	12.9%		9.4%

**Table 6(a) : graded entry cohort sizes; all establishments entering candidates for Further Mathematics A2**

2007	2007	2007	2007	2007		2006	2006	2006	2006	2006
graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries		graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries
1	255	18.8%	255	3.5%		1	257	20.3%	257	3.9%
2	235	36.1%	470	10.0%		2	192	35.4%	384	9.8%
3	189	50.0%	567	17.9%		3	176	49.3%	528	17.9%
4	128	59.4%	512	25.0%		4	157	61.7%	628	27.6%
5	128	68.9%	640	33.8%		5	97	69.4%	485	35.0%
6	71	74.1%	426	39.7%		6	87	76.2%	522	43.0%
7	73	79.5%	511	46.8%		7	65	81.4%	455	50.0%
8	58	83.7%	464	53.2%		8	43	84.8%	344	55.2%
9	43	86.9%	387	58.6%		9	45	88.3%	405	61.5%
10	30	89.1%	300	62.7%		10	15	89.5%	150	63.8%
11	26	91.0%	286	66.7%		11	24	91.4%	264	67.8%
12	17	92.3%	204	69.5%		12	14	92.5%	168	70.4%
13	10	93.0%	130	71.3%		13	15	93.7%	195	73.4%
14	9	93.7%	126	73.0%		14	9	94.4%	126	75.3%
15	10	94.4%	150	75.1%		15	8	95.0%	120	77.1%
16	8	95.0%	128	76.9%		16	6	95.5%	96	78.6%
17	7	95.5%	119	78.5%		17	11	96.4%	187	81.5%
18	9	96.2%	162	80.8%		18	9	97.1%	162	84.0%
19	7	96.7%	133	82.6%		19	2	97.2%	38	84.5%
20	3	96.9%	60	83.4%		20	6	97.7%	120	86.4%
21	11	97.7%	231	86.6%		21	3	97.9%	63	87.4%
22	2	97.9%	44	87.3%		22	2	98.1%	44	88.0%
23	4	98.2%	92	88.5%		23	3	98.3%	69	89.1%
24	1	98.2%	24	88.9%		24	1	98.4%	24	89.5%
25	1	98.3%	25	89.2%		25	2	98.6%	50	90.2%
27	4	98.6%	108	90.7%		26	1	98.7%	26	90.6%
28	3	98.8%	84	91.9%		27	1	98.7%	27	91.0%
29	2	99.0%	58	92.7%		28	1	98.8%	28	91.5%
31	1	99.0%	31	93.1%		29	3	99.1%	87	92.8%
32	3	99.3%	96	94.4%		30	1	99.1%	30	93.3%
33	2	99.4%	66	95.3%		31	1	99.2%	31	93.7%
34	1	99.5%	34	95.8%		32	3	99.4%	96	95.2%
37	1	99.6%	37	96.3%		35	1	99.5%	35	95.7%
39	1	99.6%	39	96.9%		36	1	99.6%	36	96.3%
40	1	99.7%	40	97.4%		42	1	99.7%	42	96.9%
41	2	99.9%	82	98.5%		46	1	99.8%	46	97.6%
43	1	99.9%	43	99.1%		48	1	99.8%	48	98.4%
62	1	100.0%	62	100.0%		51	1	99.9%	51	99.2%
						55	1	100.0%	55	100.0%
<b>Total</b>	<b>1358</b>		<b>7226</b>			<b>Total</b>	<b>1267</b>		<b>6522</b>	

Table 6(a) : graded entry cohort sizes; all establishments entering candidates for Further Mathematics A2										
2005	2005	2005	2005	2005		2004	2004	2004	2004	2004
graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries		graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries
1	250	22.3%	250	4.8%		1	232	21.3%	232	4.5%
2	188	39.1%	376	12.0%		2	175	37.4%	350	11.3%
3	152	52.6%	456	20.7%		3	153	51.5%	459	20.3%
4	132	64.4%	528	30.8%		4	135	63.9%	540	30.8%
5	105	73.8%	525	40.9%		5	110	74.0%	550	41.5%
6	63	79.4%	378	48.1%		6	65	80.0%	390	49.2%
7	39	82.9%	273	53.3%		7	43	83.9%	301	55.0%
8	43	86.7%	344	59.9%		8	31	86.8%	248	59.9%
9	32	89.6%	288	65.4%		9	21	88.7%	189	63.5%
10	19	91.3%	190	69.1%		10	30	91.5%	300	69.4%
11	20	93.0%	220	73.3%		11	13	92.6%	143	72.2%
12	13	94.2%	156	76.2%		12	16	94.1%	192	75.9%
13	8	94.9%	104	78.2%		13	7	94.8%	91	77.7%
14	14	96.2%	196	82.0%		14	13	96.0%	182	81.2%
15	4	96.5%	60	83.1%		15	7	96.6%	105	83.3%
16	7	97.1%	112	85.3%		16	5	97.1%	80	84.9%
17	9	97.9%	153	88.2%		17	4	97.4%	68	86.2%
18	1	98.0%	18	88.6%		18	4	97.8%	72	87.6%
19	4	98.4%	76	90.0%		19	3	98.1%	57	88.7%
20	1	98.5%	20	90.4%		20	2	98.3%	40	89.5%
21	1	98.6%	21	90.8%		21	3	98.5%	63	90.7%
22	1	98.7%	22	91.2%		23	2	98.7%	46	91.6%
23	2	98.8%	46	92.1%		24	2	98.9%	48	92.5%
25	1	98.9%	25	92.6%		27	2	99.1%	54	93.6%
26	3	99.2%	78	94.1%		28	3	99.4%	84	95.2%
27	1	99.3%	27	94.6%		29	3	99.6%	87	96.9%
28	1	99.4%	28	95.1%		30	1	99.7%	30	97.5%
29	1	99.5%	29	95.7%		33	1	99.8%	33	98.1%
31	1	99.6%	31	96.3%		40	1	99.9%	40	98.9%
32	1	99.6%	32	96.9%		55	1	100.0%	55	100.0%
34	1	99.7%	34	97.5%						
36	1	99.8%	36	98.2%		<b>Total</b>	<b>1088</b>		<b>5129</b>	
41	1	99.9%	41	99.0%						
52	1	100.0%	52	100.0%						
<b>Total</b>	<b>1121</b>		<b>5225</b>							

2003	2003	2003	2003	2003		2002	2002	2002	2002	2002
graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries		graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries
1	231	21.1%	231	4.8%		1	231	21.5%	231	5.1%
2	207	40.0%	414	13.4%		2	203	40.3%	406	13.9%
3	183	56.8%	549	24.8%		3	170	56.1%	510	25.1%
4	115	67.3%	460	34.3%		4	119	67.2%	476	35.5%
5	86	75.1%	430	43.2%		5	88	75.4%	440	45.1%
6	65	81.1%	390	51.3%		6	71	82.0%	426	54.4%
7	49	85.6%	343	58.4%		7	46	86.2%	322	61.5%
8	33	88.6%	264	63.9%		8	39	89.9%	312	68.3%
9	23	90.7%	207	68.2%		9	26	92.3%	234	73.4%
10	14	92.0%	140	71.1%		10	15	93.7%	150	76.7%
11	20	93.8%	220	75.7%		11	11	94.7%	121	79.3%
12	17	95.3%	204	79.9%		12	12	95.8%	144	82.5%
13	14	96.6%	182	83.7%		13	8	96.6%	104	84.7%
14	6	97.2%	84	85.4%		14	8	97.3%	112	87.2%
15	2	97.3%	30	86.0%		15	5	97.8%	75	88.8%
16	2	97.5%	32	86.7%		16	6	98.3%	96	90.9%
17	3	97.8%	51	87.7%		17	3	98.6%	51	92.0%
18	3	98.1%	54	88.9%		18	2	98.8%	36	92.8%
19	5	98.5%	95	90.8%		19	4	99.2%	76	94.5%
20	2	98.7%	40	91.7%		21	2	99.3%	42	95.4%
21	1	98.8%	21	92.1%		25	1	99.4%	25	96.0%
22	1	98.9%	22	92.6%		26	2	99.6%	52	97.1%
23	1	99.0%	23	93.0%		27	1	99.7%	27	97.7%
24	1	99.1%	24	93.5%		32	2	99.9%	64	99.1%
25	1	99.2%	25	94.0%		42	1	100.0%	42	100.0%
26	1	99.3%	26	94.6%						
27	2	99.5%	54	95.7%		<b>Total</b>	<b>1076</b>		<b>4574</b>	
28	1	99.5%	28	96.3%						
29	2	99.7%	58	97.5%						
36	1	99.8%	36	98.2%						
42	1	99.9%	42	99.1%						
43	1	100.0%	43	100.0%						
<b>Total</b>	<b>1094</b>		<b>4822</b>							

2007	2007	2007	2007	2007		2006	2006	2006	2006	2006
graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries		graded entries	schools and colleges	cumulative percent of schools / colleges	total graded entries	cumulative percent of graded entries
1	414	34.1%	414	8.8%		1	381	34.4%	381	9.3%
2	243	54.2%	486	19.1%		2	220	54.2%	440	20.1%
3	157	67.1%	471	29.1%		3	151	67.8%	453	31.3%
4	88	74.4%	352	36.6%		4	104	77.2%	416	41.5%
5	67	79.9%	335	43.7%		5	60	82.6%	300	48.8%
6	51	84.1%	306	50.1%		6	45	86.7%	270	55.5%
7	43	87.6%	301	56.5%		7	25	88.9%	175	59.8%
8	22	89.4%	176	60.3%		8	22	90.9%	176	64.1%
9	19	91.0%	171	63.9%		9	18	92.5%	162	68.0%
10	21	92.7%	210	68.3%		10	10	93.4%	100	70.5%
11	19	94.3%	209	72.8%		11	18	95.0%	198	75.4%
12	9	95.1%	108	75.1%		12	7	95.7%	84	77.4%
13	7	95.6%	91	77.0%		13	7	96.3%	91	79.7%
14	6	96.1%	84	78.8%		14	9	97.1%	126	82.7%
15	13	97.2%	195	82.9%		15	7	97.7%	105	85.3%
16	9	97.9%	144	86.0%		16	3	98.0%	48	86.5%
17	4	98.3%	68	87.4%		17	4	98.4%	68	88.2%
18	1	98.4%	18	87.8%		18	4	98.7%	72	89.9%
19	2	98.5%	38	88.6%		19	2	98.9%	38	90.9%
20	3	98.8%	60	89.9%		20	2	99.1%	40	91.9%
21	3	99.0%	63	91.2%		21	2	99.3%	42	92.9%
22	1	99.1%	22	91.7%		26	2	99.5%	52	94.2%
24	2	99.3%	48	92.7%		27	1	99.5%	27	94.8%
25	2	99.4%	50	93.8%		28	1	99.6%	28	95.5%
26	1	99.5%	26	94.3%		39	1	99.7%	39	96.5%
30	1	99.6%	30	95.0%		41	1	99.8%	41	97.5%
33	1	99.7%	33	95.7%		44	1	99.9%	44	98.6%
36	1	99.8%	36	96.4%		59	1	100.0%	59	100.0%
41	1	99.8%	41	97.3%						
48	1	99.9%	48	98.3%		<b>Total</b>	<b>1109</b>		<b>4075</b>	
80	1	100.0%	80	100.0%						
<b>Total</b>	<b>1213</b>		<b>4714</b>							

<b>Table 6(b) : graded entry cohort sizes; all establishments entering candidates for Further Mathematics AS</b>										
<b>2005</b>	<b>2005</b>	<b>2005</b>	<b>2005</b>	<b>2005</b>		<b>2004</b>	<b>2004</b>	<b>2004</b>	<b>2004</b>	<b>2004</b>
<b>graded entries</b>	<b>schools and colleges</b>	<b>cumulative percent of schools / colleges</b>	<b>total graded entries</b>	<b>cumulative percent of graded entries</b>		<b>graded entries</b>	<b>schools and colleges</b>	<b>cumulative percent of schools / colleges</b>	<b>total graded entries</b>	<b>cumulative percent of graded entries</b>
1	363	36.0%	363	10.6%		1	418	44.8%	418	16.2%
2	219	57.7%	438	23.5%		2	190	65.2%	380	30.9%
3	129	70.5%	387	34.8%		3	105	76.4%	315	43.0%
4	84	78.9%	336	44.7%		4	61	83.0%	244	52.5%
5	51	83.9%	255	52.1%		5	52	88.5%	260	62.5%
6	34	87.3%	204	58.1%		6	34	92.2%	204	70.4%
7	32	90.5%	224	64.7%		7	17	94.0%	119	75.0%
8	16	92.1%	128	68.4%		8	13	95.4%	104	79.0%
9	17	93.8%	153	72.9%		9	10	96.5%	90	82.5%
10	15	95.2%	150	77.3%		10	12	97.7%	120	87.2%
11	9	96.1%	99	80.2%		11	6	98.4%	66	89.7%
12	6	96.7%	72	82.3%		12	2	98.6%	24	90.6%
13	6	97.3%	78	84.6%		14	3	98.9%	42	92.3%
14	6	97.9%	84	87.1%		15	1	99.0%	15	92.8%
15	4	98.3%	60	88.8%		16	3	99.4%	48	94.7%
16	1	98.4%	16	89.3%		17	1	99.5%	17	95.4%
17	9	99.3%	153	93.8%		18	1	99.6%	18	96.1%
21	2	99.5%	42	95.0%		20	1	99.7%	20	96.8%
23	1	99.6%	23	95.7%		22	1	99.8%	22	97.7%
28	1	99.7%	28	96.5%		29	1	99.9%	29	98.8%
34	1	99.8%	34	97.5%		31	1	100.0%	31	100.0%
36	1	99.9%	36	98.6%						
49	1	100.0%	49	100.0%		<b>Total</b>	<b>933</b>		<b>2586</b>	
<b>Total</b>	<b>1008</b>		<b>3412</b>							

<b>Table 6(b) : graded entry cohort sizes; all establishments entering candidates for Further Mathematics AS</b>										
<b>2003</b>	<b>2003</b>	<b>2003</b>	<b>2003</b>	<b>2003</b>		<b>2002</b>	<b>2002</b>	<b>2002</b>	<b>2002</b>	<b>2002</b>
<b>graded entries</b>	<b>schools and colleges</b>	<b>cumulative percent of schools / colleges</b>	<b>total graded entries</b>	<b>cumulative percent of graded entries</b>		<b>graded entries</b>	<b>schools and colleges</b>	<b>cumulative percent of schools / colleges</b>	<b>total graded entries</b>	<b>cumulative percent of graded entries</b>
1	371	42.7%	371	16.1%		1	339	38.4%	339	14.5%
2	183	63.8%	366	32.1%		2	222	63.6%	444	33.5%
3	135	79.4%	405	49.7%		3	113	76.4%	339	48.0%
4	61	86.4%	244	60.3%		4	80	85.5%	320	61.7%
5	41	91.1%	205	69.2%		5	52	91.4%	260	72.8%
6	21	93.5%	126	74.7%		6	23	94.0%	138	78.7%
7	15	95.3%	105	79.3%		7	12	95.4%	84	82.3%
8	8	96.2%	64	82.1%		8	12	96.7%	96	86.4%
9	10	97.4%	90	86.0%		9	8	97.6%	72	89.4%
10	3	97.7%	30	87.3%		10	6	98.3%	60	92.0%
11	2	97.9%	22	88.3%		11	6	99.0%	66	94.8%
12	4	98.4%	48	90.3%		12	2	99.2%	24	95.9%
13	3	98.7%	39	92.0%		13	3	99.5%	39	97.5%
14	4	99.2%	56	94.5%		14	3	99.9%	42	99.3%
15	2	99.4%	30	95.8%		16	1	100.0%	16	100.0%
16	2	99.7%	32	97.2%						
19	1	99.8%	19	98.0%		<b>Total</b>	<b>882</b>		<b>2339</b>	
22	1	99.9%	22	99.0%						
24	1	100.0%	24	100.0%						
<b>Total</b>	<b>868</b>		<b>2298</b>							

**Table 7 : Further Mathematics Network regions defined by Local Authorities.**

LA	LA Name	location	schools	indep't	state	Ac'y CTC	FE	SFC	special
<b>North East</b>									
390	Gateshead	Tyne and Wear	11		8	1	1		1
391	Newcastle upon Tyne	Tyne and Wear	23	5	12		1		5
392	North Tyneside	Tyne and Wear	13		8			1	4
393	South Tyneside	Tyne and Wear	6		1		1		4
394	Sunderland	Tyne and Wear	12	3	3		1		5
805	Hartlepool	Teesside	4		1		1	1	1
806	Middlesbrough	Teesside	7			2	2	1	2
807	Redcar and Cleveland	Teesside	4				1	1	2
808	Stockton on Tees	Teesside	7		2		1	2	2
840	Durham	County Durham	26	1	17		4		4
841	Darlington	County Durham	5	1	1		1	1	1
929	Northumberland	Northumberland	22	1	15		2		4
			<b>140</b>	<b>11</b>	<b>68</b>	<b>3</b>	<b>16</b>	<b>7</b>	<b>35</b>
<b>North West</b>									
340	Knowsley	Merseyside	5		2		1		2
341	Liverpool	Merseyside	42	4	30	1	1		6
342	Saint Helens	Merseyside	11	2	5		1	1	2
343	Sefton	Merseyside	23	3	12		3	1	4
344	Wirral	Merseyside	26	3	17		1	1	4
350	Bolton	Lancashire	11	1	5		1	1	3
351	Bury	Lancashire	5	1			1	1	2
352	Manchester	Manchester	18	5	3		3	2	5
353	Oldham	Lancashire	8	1	4		1	1	1
354	Rochdale	Lancashire	28	20	4		1		3
355	Salford	Manchester	8	2			1	2	3
356	Stockport	Cheshire	7	1			1	3	2
357	Thameside	Cheshire	6	1	2		1	1	1
358	Trafford	Cheshire	13	1	8		2		2
359	Wigan	Lancashire	10		2		1	2	5
875	Cheshire	Cheshire	55	8	31		5	1	10
876	Halton	Cheshire	5		2		1		2
877	Warrington	Cheshire	11		7		1	1	2
888	Lancashire	Lancashire	57	13	16		10	1	17
889	Blackburn	Lancashire	5	1	1		1	1	1
890	Blackpool	Lancashire	8	3	1		1	1	2
909	Cumbria	Cumbria	47	7	28		4	1	7
			<b>409</b>	<b>77</b>	<b>180</b>	<b>1</b>	<b>43</b>	<b>22</b>	<b>86</b>
<b>Yorkshire</b>									
370	Barnsley	South Yorkshire	5		1	1	2		1
371	Doncaster	South Yorkshire	23	2	13	1	2		5
372	Rotherham	South Yorkshire	14		8		2	1	3
373	Sheffield	South Yorkshire	18	2	7	2	2		5
380	Bradford	West Yorkshire	44	4	29	1	3		7
381	Calderdale	West Yorkshire	15		13		1		1
382	Kirklees	West Yorkshire	18	3	6		2	2	5
383	Leeds	West Yorkshire	55	4	35	1	7	1	7
384	Wakefield	West Yorkshire	15	4	5		1	1	4
810	Kingston upon Hull	Hull	8	1	1		1	2	3
811	East Riding Yorkshire	Hull	21	1	18		2		0
815	North Yorkshire	North Yorkshire	45	6	25		6	1	7
816	York	North Yorkshire	9	2	4		2		1
			<b>290</b>	<b>29</b>	<b>165</b>	<b>6</b>	<b>33</b>	<b>8</b>	<b>49</b>

**Table 7 : Further Mathematics Network regions defined by Local Authorities.**

LA	LA name	location	schools	indep't	state	Ac'y CTC	FE	SFC	special
<b>West Midlands</b>									
330	Birmingham	West Midlands	72	10	40		6	2	14
331	Coventry	West Midlands	30	3	19		3		5
332	Dudley	West Midlands	11	1	3		3	1	3
333	Sandwell	West Midlands	14		10	1	1		2
334	Solihul	West Midlands	12	2	4	2	1	1	2
335	Walsall	West Midlands	24	1	18	1	1		3
336	Wolverhampton	West Midlands	23		19		1		3
860	Staffordshire	Staffordshire	76	8	50		7		11
861	Stoke on Trent	Staffordshire	11	1	3		1	1	5
884	Herefordshire	Herefordshire	15	4	4		2	1	4
885	Worcestershire	Worcestershire	50	8	27		5	1	9
893	Shropshire	Shropshire	24	8	8		2	2	4
894	Telford and Wrekin	Shropshire	9	2	3	1	1	1	1
937	Warwickshire	West Midlands	34	5	19		3	1	6
			<b>405</b>	<b>53</b>	<b>227</b>	<b>5</b>	<b>37</b>	<b>11</b>	<b>72</b>
<b>East Midlands</b>									
812	North East Lincolnshire	NE Lincolnshire	11		6		1	1	3
813	North Lincolnshire	Scunthorpe	10	1	4		1	1	3
820	Bedfordshire	Bedfordshire	28	3	18		2		5
821	Luton	Bedfordshire	4		1		1	1	1
830	Derbyshire	Nottinghamshire	38	5	26		2		5
831	Derby	Derbyshire	14	2	8	1	1		2
855	Leicestershire	Leicestershire	33	3	18		4		8
856	Leicester	Leicestershire	14	2	4		1	3	4
857	Rutland	Lincolnshire	1	1					0
891	Nottinghamshire	Nottinghamshire	69	6	48		5		10
892	Nottingham	Nottinghamshire	11	1	3	1	2	1	3
925	Lincolnshire	Lincolnshire	56	8	35		4		9
928	Northampton	Northamptonshire	47	4	36	2	3		2
			<b>336</b>	<b>36</b>	<b>207</b>	<b>4</b>	<b>27</b>	<b>7</b>	<b>55</b>
<b>South West</b>									
800	Bath & NE Somerset	Bath	17	3	10		2		2
801	Bristol	Bristol	29	12	11	1	1	1	3
802	North Somerset	Bristol	9		6		1		2
803	South Gloucestershire	Bristol	19	1	14	1	1		2
835	Dorset	Dorset	31	7	17		2		5
836	Poole	Dorset	10		7		1		2
837	Bournemouth	Dorset	6	1	4				1
865	Wiltshire	Wiltshire	33	6	19		3		5
866	Swindon	Wiltshire	6	1	2		2		1
878	Devon	Devon	50	13	20		4		13
879	Plymouth	Devon	23	2	15		2		4
880	Torbay	Devon	9	1	6		1		1
908	Cornwall	Cornwall	23	1	15		4		3
916	Gloucestershire	Gloucestershire	52	11	28		6		7
933	Somerset	Somerset	31	9	9		5	1	7
			<b>348</b>	<b>68</b>	<b>183</b>	<b>2</b>	<b>35</b>	<b>2</b>	<b>58</b>

**Table 7 : Further Mathematics Network regions defined by Local Authorities.**

LA	LA name	location	schools	indep't	state	Ac'y CTC	FE	SFC	special
	<b>Anglia</b>								
873	Cambridge	Cambridgeshire	33	7	12		3	2	9
874	Peterborough	Cambridgeshire	18		14		1		3
881	Essex	Essex	70	7	45		5	2	11
882	Southend on Sea	Essex	19	4	12		1		2
883	Thurrock	Essex	4			1	1	1	1
919	Hertfordshire	Hertfordshire	107	17	77		4		9
926	Norfolk	Norfolk	52	6	29		4	2	11
935	Suffolk	Suffolk	47	7	30		5		5
			<b>350</b>	<b>48</b>	<b>219</b>	<b>1</b>	<b>24</b>	<b>7</b>	<b>51</b>
	<b>South East</b>								
825	Buckinghamshire	Buckinghamshire	50	5	34		3		8
826	Milton Keynes	Buckinghamshire	17	1	12		1		3
845	East Sussex	East Sussex	33	10	12		3	1	7
846	Brighton & Hove	East Sussex	15	3	4		1	2	5
850	Hampshire	Hampshire	51	14	10		9	8	10
851	Portsmouth	Hampshire	5				1	1	3
852	Southampton	Hampshire	8	2	1		1	2	2
867	Bracknell Forest	Berkshire	9	1	6		1		1
868	Windsor & Maidenhead	Berkshire	15	3	9		1		2
869	West Berkshire	Berkshire	18	4	10		1		3
870	Reading	Berkshire	11	2	7	1			1
871	Slough	Berkshire	9		7		1		1
872	Wokingham	Berkshire	11	1	9				1
886	Kent	Kent	149	27	93	2	8		19
887	Medway	Kent	23		19		2		2
921	Isle of Wight	Isle of Wight	10	2	5		1		2
931	Oxfordshire	Oxfordshire	48	8	28		8		4
936	Surrey	Surrey	78	17	32		5	7	17
938	West Sussex	West Sussex	44	9	23		3	3	6
			<b>604</b>	<b>109</b>	<b>321</b>	<b>3</b>	<b>50</b>	<b>24</b>	<b>97</b>

**Table 7 : Further Mathematics Network regions defined by Local Authorities.**

LA	LA name	location	schools	indep't	state	Ac'y CTC	FE	SFC	special
	<b>London</b>								
201	City of London	London	0						
202	Camden	London	17	2	10		3		2
203	Greenwich	London	13	3	8		1		1
204	Hackney	London	11	3	3	2	1	1	1
205	Hammersmith & Fulham	London	10	4	3	1	1		1
206	Islington	London	6		3		1		2
207	Kingston and Chelsea	London	9	3	2		1	1	2
208	Lambeth	London	13		8	1	3		1
209	Lewisham	London	13		6	2	1	1	3
210	Southwark	London	15		3	5	3		4
211	Tower Hamlets	London	11	1	6		2		2
212	Wandsworth	London	21	4	8	1	2	1	5
213	Westminster	London	18	6	7	2	2		1
301	Barking & Dagenham	Essex	11		9		1		1
302	Barnet	London	32	9	17	1	1	1	3
303	Bexley	Kent	16		13	1	1		1
304	Brent	London	19		14	1	1		3
305	Bromley	Kent	28	4	18		2		4
306	Croydon	Surrey	15	5	4	2	1	2	1
307	Ealing	London	16	4	7	1			4
308	Enfield	London	27	3	17		3		4
309	Haringey	London	17	2	9	1	1		4
310	Harrow	Middlesex	7	2			2	1	2
311	Havering	Essex	9	1	5		1	1	1
312	Hillingdon	Middlesex	29	4	17	2	2		4
313	Hounslow	London	18	2	14		1		1
314	Kingston upon Thames	Surrey	14	1	10		1		2
315	Merton	Surrey	9	2	2	2	2		1
316	Newham	London	6		2		1	1	2
317	Redbridge	Essex	20	1	17		1		1
318	Richmond upon Thames	London	10	7			2		1
319	Sutton	Surrey	18		14		2		2
320	Waltham Forest	London	10		4	1	1	2	2
			<b>488</b>	<b>73</b>	<b>260</b>	<b>26</b>	<b>48</b>	<b>12</b>	<b>69</b>
	<b>Summary</b>								
	<b>FMN Region</b>		<b>schools</b>	<b>indep't</b>	<b>state</b>	<b>Ac'y CTC</b>	<b>FE</b>	<b>SFC</b>	<b>special</b>
	North East		140	11	68	3	16	7	35
	North West		409	77	180	1	43	22	86
	Yorkshire		290	29	165	6	33	8	49
	West Midlands		405	53	227	5	37	11	72
	East Midlands		336	36	207	4	27	7	55
	Anglia		350	48	219	1	24	7	51
	South West		348	68	183	2	35	2	58
	South East		604	109	321	3	50	24	97
	London		488	73	260	26	48	12	69
			<b>3370</b>	<b>504</b>	<b>1830</b>	<b>51</b>	<b>313</b>	<b>100</b>	<b>572</b>

Table 8(a) : summary of schools and colleges and graded entries in the FMN regions for Further Mathematics A2																										
Region	2002		A2		2003		A2		2004		A2		2005		A2		2006		A2		2007		A2		percent increase on 2004	
	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries
North East	39	162	43	152	38	180	37	137	-23.9%	42	181	0.6%	47	202	12.2%											
North West	125	519	130	568	122	527	126	561	6.5%	143	643	22.0%	144	759	44.0%											
Yorkshire	93	330	84	330	99	396	103	388	-2.0%	104	501	26.5%	119	563	42.2%											
West Midlands	92	389	93	416	97	449	108	474	5.6%	122	615	37.0%	128	628	39.9%											
East Midlands	119	478	121	521	115	551	115	511	-7.3%	129	565	2.5%	145	686	24.5%											
Anglia	21	54	19	51	21	66	20	66	0.0%	25	92	39.4%	27	104	57.6%											
South West	128	503	133	519	129	567	133	608	7.2%	149	747	31.7%	170	812	43.2%											
South East	228	1111	230	1129	237	1247	231	1254	0.6%	267	1599	28.2%	281	1723	38.2%											
London	127	595	140	703	130	663	141	728	9.8%	161	935	41.0%	170	1001	51.0%											
Total	972	4141	993	4389	988	4646	1014	4727	1.7%	1142	5878	26.5%	1231	6478	39.4%											

Table 8(b) : summary of schools and colleges and graded entries in the FMN regions for Further Mathematics AS																										
Region	2002		AS		2003		AS		2004		AS		2005		AS		2006		AS		2007		AS		percent increase on 2004	
	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries	schools colleges	graded entries
North East	40	86	33	68	30	77	37	107	39.0%	45	153	98.7%	45	155	101.3%											
North West	99	295	97	299	107	340	111	391	15.0%	114	415	22.1%	119	485	42.6%											
Yorkshire	81	194	73	185	83	219	91	302	37.9%	100	352	60.7%	94	380	73.5%											
West Midlands	89	284	78	201	100	272	110	354	30.1%	127	401	47.4%	150	547	101.1%											
East Midlands	87	254	113	268	104	311	111	380	22.2%	119	437	40.5%	136	505	62.4%											
Anglia	103	265	94	218	102	266	123	373	40.2%	133	490	84.2%	146	591	122.2%											
South West	116	281	107	309	106	271	111	403	48.7%	136	495	82.7%	135	511	88.6%											
South East	160	422	175	444	182	458	188	628	37.1%	190	670	46.3%	229	895	95.4%											
London	107	258	98	306	113	362	126	474	30.9%	145	662	82.9%	159	645	78.2%											
Total	882	2339	868	2298	927	2576	1008	3412	32.5%	1109	4075	58.2%	1213	4714	83.0%											

Table 9(a) : the matching of DCSF results data with that of the FMN; 2006								
FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
3	A	F	>13	C	A2	6	C	
6	A	M	13	B	A2	6	BBC	
6	A	M	13	B	A2	6		
6	A	M	13	C	A2	6		
6	B	F	13	B	A2	6	BC	
6	B	M	13	C	A2	6		
6	C	F	13	A	A2	6	AABBB	
6	C	F	13	A	A2	6		
6	C	M	13	B	A2	6		
6	C	M	13	B	A2	6		
6	C	M	13	B	A2	6		
6	D	M	13	B	A2	6	B	
6	E	M	13	A	A2	12	AD	E
12	A	F	13	B	A2	6	ACD	A3,E
26	A		13	C	A2	6	C	
26	B		13	A	A2	6	ACC	
26	B		13	C	A2	6		
26	B		13	C	A2	6		
26	C	F	13	A	A2	6	A	
26	D		13	A	A2	6	AB	
26	D		13	B	A2	6		
26	E		13	B	A2	6	B	
42	A	F	>13	A	A2	1	not on d/b	
46	A	M	13	A	A2	6	AD	C1
46	B	M	13	A	A2	6	AAC	
46	B	M	13	A	A2	6		
46	B	M	13	C	A2	6		
46	C	F	13	B	A2	6	B	
46	D	M	13	A	A2	6	AB	
46	D	M	13	B	A2	6		
46	E	F	13	B	A2	6	B	
6	A	M	13	A	n / k	12		

The abbreviation n / k that appears in the AS/A2 column here indicates that the level of the qualification was not known for this candidate.

Where n / k appears elsewhere in Tables 9, it indicates that the relevant piece of data was not known.

**Table 9(a) : the matching of DCSF results data with that of the FMN; 2006**

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
3	A	M	13	C	AS	3	ADU	E
3	B	F	>13	C	AS	6	BBCC	E
6	A	M	12	C	AS	3	<i>not on d/b</i>	
6	A	M	12	C	AS	3		
6	A	F	13	E	AS	3		
6	A	M	12	U	AS	3		
6	A	M	12	U	AS	3		
6	B	M	13	A	AS	3	AA	E
6	B	M	13	A	AS	3		
6	B	F	12	D	AS	3		
6	B	M	12	U	AS	3		
6	C	F	12	C	AS	3	BCCDE	E
6	C	F	12	D	AS	3		
6	C	F	12	E	AS	3		
6	D	F	12	B	AS	3	<i>not on d/b</i>	
6	E	F	12	A	AS	3	AAA	E
6	E	F	12	A	AS	3	BB	
6	E	F	12	D	AS	3	DDD	
6	F	M	13	A	AS	3	A	
6	G	F	13	B	AS	2	ABCC DEU	
6	H	F	12	A	AS	2	AAA BCU	E
6	I	M	13	C	AS	3	C	
6	J	F	13	B	AS	3	AAB	E
7	n/k	M	13	A	AS	2		F
7	A	M	13	A	AS	2	A	
12	n/k	M	13	B	AS	3		D7
12	A	M	13		AS	3	<i>not on d/b</i>	
22	A	M	13	A	AS	3	AA	C1
23	A	F	12	D	AS	1	<i>not on d/b</i>	
23	A	M	12	E	AS	1		
26	A		13	C	AS	3	C	
26	B	M	12	U	AS	3	<i>not on d/b</i>	
26	C	F	13	A	AS	3	AD	
26	C	M	13	D	AS	3		
26	D		13		AS	3	AD	
26	D	F	12	A	AS	3		
26	D	M	12	C	AS	3		
26	D		13	D	AS	3		
26	E	M	12	C	AS	3	AAAC	
26	E	M	13	C	AS	3		
26	F		13	A	AS	3	A	
33	A	M	13	C	AS	3	ABCU	E
33	B	F	13	A	AS	3	AAAAAA	E
33	B	M	13	A	AS	3		

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
37	A	F	12	A	AS		AB	D5
37	A	M	12	C	AS		CCCU	
37	A	M	12	C	AS			
37	A	M	12	U	AS			
37	B	M	13	A	AS		AB	
37	B	M	13	B	AS			
42	A	M	>13		AS	3	U	B4
42	A	M	13	U	AS	3		
46	A	M		A	AS	3	A	
46	B	F	13	B	AS	3	ABC	E
46	B	M	13	C	AS	3		
46	C	F	13	A	AS	3	A	
46	D	F	12	C	AS	3	ACD	
46	E	M	13	A	AS	3	AA	
46	E	M	13	A	AS	3		
46	F	M	13		AS	3	BCU	D6
46	F	F	13	B	AS	3		
46	F	M	13	C	AS	3		
46	G	M	12	B	AS	3	B	
46	G		12	C	AS	3		
46	G	M	13	C	AS	3		
48	A	F	12	C	AS	3	not on d/b	

**Table 9(b) : the matching of DCSF results data with that of the FMN; 2007**

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
1	A	M	13	C	A2	2	C	
2	A	M	13	D	A2	6	D	
2	B	M	12	A	A2	9	A	
2	C	M	12	C	A2	3	CD	
2	C	M	12	D	A2	3		
2	D	M	13		A2	3	C	
3	A	M	13	A	A2	6	AC	
3	A	M	13	C	A2	6		
5	A	F	13	D	A2	3	<i>not on d/b</i>	
5	A	F	13	E	A2	3		
5	A	M	13	A	A2	6		
5	B	M	12	B	A2	7	ABBC	D2
6	A	M	13	A	A2	6	AA	
6	A	M	13	A	A2	6		
6	B	F	13	D	A2	6	D	
6	C	F	13	A	A2	6	A	
6	D	M	13	A	A2	6	AAD	
6	D	M	13	A	A2	6		
6	D	M	13	D	A2	6		
6	E	F	12		A2	3	AA	E
6	E	F	13		A2	9		
6	E	M	13	A	A2	6		
6	F	F	13	B	A2	6	BB	
6	F	M	13	B	A2	6		
6	G	M	13	A	A2	6	AAAAB	E
6	H	M	13	A	A2	6	A	
6	I	M	13	D	A2	6	D	
6	J	F	13	B	A2	6	AAAA	
6	K	M	13	A	A2	3	CCE	
6	K	M	13	C	A2	6		
6	K	M	13	E	A2	6		
6	L	F	13	B	A2	6	BDE	
6	L	M	12		A2	3		
6	M	F	13	A	A2	6	A	
12	A	F	13	B	A2	6	BB	A3
12	A	F	13	E	A2	3		
14	A	F	11	A	A2	7	<i>not on d/b</i>	
14	B	F	13	A	A2	1	AABCDD	D5
15	A	M	13	D	A2	3	D	
19	A	M	>13		A2	3	AAC	
19	A	M	>13		A2	3		
22	A	M	13	A	A2	3	<i>not on d/b</i>	
22	B	F	12		A2	3	<i>not on d/b</i>	
22	C	M	13		A2	2	AAB	B1,D2
22	C	M	13		A2	2		
22	D	M	13	A	A2	3	CE	D1,A3
22	E	F	13	A	A2	2	AABB	
22	E	F	13	B	A2	2		
22	E	M	13	A	A2	2		
22	E	M	13	B	A2	2		
23	A	F	13	A	A2	3	<i>not on d/b</i>	

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
24	A	F	13	B	A2	3	B	
24	B	M	13	A	A2	6	AB	
24	B	M	13	B	A2	6		
24	C	M	13	A	A2	6	A	
24	D	M	13	A	A2	5	<i>not on d/b</i>	
26	A	M	13	A	A2	6	ABD	D1
26	A	M	13	D	A2	6		
26	B		13	E	A2	5	E	
26	C	M	13	A	A2	6	AA	
26	C	M	13	A	A2	6		
26	D	M	13	C	A2	6	C	
26	E	M	>13	A	A2	6	A	
26	F	M	13	C	A2	6	CCCD	D2
26	F	M	13	C	A2	6		
26	F	M	13	E	A2	6		
27	G	M	13	A	A2	6	A	
27	H	M	13	A	A2	6	A	
29	A	F	13	A	A2	6	AA	
29	A	M	13	A	A2	6		
32	A	F	13	A	A2	1	BC	D5
32	A	F	13	B	A2	1		
32	B	F	>13	A	A2	2	D	D4
33	A	F	12	A	A2	6	AAAAAA	
33	A	M	12	A	A2	6	BB	
36	A	M	13	A	A2	1	A	
41	A	M	12	A	A2	6	AABC	A2,D4
41	B	M	12	A	A2	7	AA	
41	B	M	12	A	A2	7		
41	C	F	12	D	A2	6	DD	
41	C	F	12	D	A2	6		
44	A	M	13	A	A2	2	A	
44	B	M	13	A	A2	2	ABD	A2,E
44	B	M	13	C	A2	2		
45	A	M	13	A	A2	1	AA	
45	A	M	13	A	A2	1		
46	A	M	13	A	A2	6	B	E
46	B	F	13	A	A2	6		
46	B	F	13	B	A2	6	AB	
46	C	F	12	A	A2	3	AABBC	E
46	C	F	12	B	A2	3		
46	C	M	12	A	A2	3		
46	C	M	12	A	A2	3		
46	C	M	12	B	A2	3		
46	C	M	12	C	A2	3		
46	D	F	13	B	A2	1	BC	D5
46	E	F	13	C	A2	1		
46	E	M	12		A2	1		
46	F	M	13		A2	1	A	
46	G	M	13	A	A2	6	A	
46	H	M	13	A	A2	6	A	
46	I	F	13	B	A2	6	BD	
46	I	F	13	D	A2	6		
46	J	M	11		A2	3	<i>not on d/b</i>	
46	K	M	13	A	A2	6	ABE	
46	K	M	13	B	A2	6		
46	L	M	13	A	A2	6	<i>not on d/b</i>	

**Table 9(b) : the matching of DCSF results data with that of the FMN; 2007**

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
1	A	M	13	A	AS	2	<i>not on d/b</i>	
2	A	M	12	A	AS	3	<i>ABB</i>	
2	A	M	12	B	AS	3		
2	B	M	12	E	AS	2	<i>not on d/b</i>	
2	B	M	12	U	AS	2		
3	A	M	13	A	AS	3	<i>AAB</i>	
3	A	M	13	A	AS	3		
3	A	M	13	B	AS	3		
3	B	M	13	A	AS	6	<i>B</i>	
3	B	M	13	D	AS	6		
3	C	M	>13		AS	2	<i>ACC</i>	
3	C	M	13	A	AS	2		
3	C	M	13	C	AS	2		
3	D	F	12	C	AS	1	<i>AC</i>	
3	D	F	12	C	AS	1		
3	D	M	13	A	AS	1		
3	D	M	12	A	AS	1		
3	D	M	13	C	AS	1		
5	n / k	M	>13	B	AS	3		<i>D7</i>
5	A	F	13	D	AS	3	<i>not on d/b</i>	
5	A	F	13	E	AS	3		
5	A	M	13	A	AS	6		
5	B	M	13	A	AS	6	<i>AAB</i>	
5	B	M	12	A	AS	7	<i>CCDD</i>	
5	B	M	12	D	AS	3		
5	C	F	13	A	AS	3	<i>ABBBCC</i>	<i>B2,D2</i>
6	A	M	13	B	AS	3	<i>D</i>	
6	A	M	13	D	AS	3		
6	B	F	12	E	AS	3	<i>E</i>	
6	C	M	12	D	AS	3	<i>not on d/b</i>	
6	D	F	13	B	AS	3	<i>AAA</i>	
6	D	F	12	C	AS	3	<i>BC</i>	
6	D	M	13	A	AS	3		
6	E	F	12	D	AS	3	<i>C</i>	
6	E	M	12	C	AS	3		
6	E	M	13	C	AS	3		
6	E	M	12	D	AS	3		
6	E	M	12	D	AS	3		
6	E	M	12	U	AS	3		
6	F	M	n / k	E	AS	4	<i>EEU</i>	
6	G	M	13	U	AS	3	<i>U</i>	
6	H	F	12	C	AS	3	<i>ABCDDE</i>	
6	H	M	13	D	AS	3		
6	I	F	13	A	AS	3	<i>AABCE</i>	
6	I	F	13	C	AS	3	<i>UUUUU</i>	
6	I	F	13	E	AS	3	<i>UU</i>	
6	I	M	13	B	AS	3		
6	J	M	12	D	AS	3	<i>not on d/b</i>	
6	K	M	13	A	AS	3	<i>AAAA</i>	
6	K	M	13	A	AS	3	<i>BB</i>	
6	K	M	13	A	AS	3		
6	L	M	13	A	AS	3	<i>A</i>	
6	M	M	13	A	AS	3	<i>AABBCU</i>	
6	M	M	13	B	AS	3		
6	M	M	13	C	AS	3		
6	M	M	12	U	AS	3		
6	N	M	13	B	AS	3	<i>ABCEU</i>	

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
6	O	F	12		AS	2	<i>not on d/b</i>	
6	O	M	13	A	AS	6		
6	P	F	13	A	AS	3	AAABB	E
6	P	F	13	C	AS	3		
6	P	M	13	A	AS	3		
6	P	M	13	A	AS	3		
6	P	M	13	B	AS	3		
6	Q	M	13	A	AS	3	AU	E
6	Q	M	13	U	AS	3		
6	R	F	13	A	AS	6	C	E
6	S	F	13	C	AS	3		
6	T	F	12	U	AS	3	<i>not on d/b</i>	
6	T	F	12	U	AS	3		
8	A	M	13	C	AS	3	CE	
8	A	M	13	E	AS	3		
8	B	M	13	B	AS	3	BU	
8	B	M	13	U	AS	3		
12	A	M	13	A	AS	3	A	
12	B	M	13	A	AS	3	AE	A3
12	B	M	13	A	AS	3		
14	A	F	13	C	AS	1	C	
14	B	F	13	A	AS	3	AAABU	E
14	B	M	13	A	AS	3		
14	B	M	13	A	AS	3		
14	B	M	13	B	AS	3		
14	B	M	13	D	AS	3		
17	A	M	13	E	AS	2	E	
19	A	M	>13	B	AS	3	B	
19	B	F	>13	B	AS	3	BCE	
19	B	M	>13	C	AS	3		
19	B	M	>13	E	AS	3		
19	C	M	>13		AS	3	A	D9
19	C	M	>13		AS	3		
19	D	F	>13	B	AS	3	AAB	
19	D	M	>13	A	AS	3		
19	D	M	>13	A	AS	3		
21	A	M	12	U	AS	3	BB	B2,D9
21	A	M	12	U	AS	3	CCCC	
21	A	M	12	U	AS	3	EUUU	
21	B	F	12		AS	1	<i>not on d/b</i>	
21	B	F	12		AS	1		
21	B	M	12		AS	1		
21	B	M	12		AS	1		
21	B	M	12		AS	1		
21	B	M	12		AS	1		
21	B	M	12		AS	1		
21	A	F	13	A	AS	3	A	
21	B		12		AS	3	A	E
21	B	F	12		AS	3		
21	B	M	12		AS	3		
21	B	M	12		AS	3		
21	B	M	12		AS	3		
21	B	M	12		AS	3		
21	B	M	12		AS	3		
21	C	F	12	C	AS	3	CD	
21	C	F	13	D	AS	3		

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
22	A	M	13	A	AS	3	AABBD	
22	A	M	13	A	AS	3		
22	A	M	13	B	AS	3		
22	A	M	13	B	AS	3		
22	A	M	13	D	AS	3		
22	B	M	13		AS	2	AB	B1
22	B	M	13		AS	2		
22	C	F	13		AS	1	AAU	B1,D1
22	C	M	12		AS	1		
22	D	F	12	B	AS	3	AABB	
22	D	F	12	B	AS	3		
22	E	M	13	A	AS	1	AE	
22	E	M	13	E	AS	1		
23	A	M	12		AS	3	EUU	D6
23	A	M	12	E	AS	3		
23	B	M	13	B	AS	3	not on d/b	
23	C	F	12	B	AS	3	DE	D4,A4
24	A	M	13		AS	6	BDE	
24	A	M	13		AS	6		
24	A	M	12	E	AS	6		
24	B	M	13		AS	6	not on d/b	
24	C	M	13		AS	5	not on d/b	
25	A	F	12		AS	3	BBD	B1,D1
25	A	F	12	D	AS	3		
25	B	M	12		AS	3	EUU	B1
25	B	M	13		AS	3		
25	B	M	13		AS	3		
25	C	F	13		AS	3	not on d/b	
25	C	F	13		AS	3		
25	C	F	13		AS	3		
26	A	F	13	A	AS	3	ABUU	D6
26	A	M	13		AS	3		
26	A	M	13		AS	3		
26	A	M	13	B	AS	3		
26	B		13	B	AS	3	BBCE	
26	B	F	13	C	AS	3		
26	B	M	13	B	AS	3		
26	B	M	13	E	AS	3		
26	C	F	12		AS	1	not on d/b	
26	C	M	12		AS	1		
26	C	M	12		AS	3		
26	C	M	12		AS	3		
26	D	M	12		AS	3	BB	E
26	D	M	13	C	AS	3		
26	E	F	13	A	AS	2	AU	
26	E	M	13	U	AS	3		
27	A	F	13	A	AS	3	AAA	
27	A	M	13	A	AS	3		
27	A	M	13	A	AS	3		
27	B	M	12	E	AS	3	ADE	
29	A	M	12	A	AS	3	AAC	E
29	A	F	12	A	AS	3	B	
29	A	F	13	B	AS	3		
29	B	F	12		AS	3	BBUU	E
29	B	F	13	B	AS	3		
29	B	M	12	U	AS	3		
29	B	M	12	U	AS	3		

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
29	C	F	13	U	AS	3	CUU	
29	C	M	13	C	AS	3		
29	C	M	13	U	AS	3		
32	A	F	13	B	AS	1	AABCE	A2,D5
32	B	M	13		AS	1	BC	D5
32	B	M	13		AS	1		
33	A	M	13	B	AS	3	AAAAB CCDD	A2
33	B	F	12	A	AS	6	AAAC	A2
33	B	M	12	A	AS	6		
34	A	F	12	B	AS	3	ACD	
34	A	M	13	A	AS	3		
34	A	M	12	A	AS	3		
34	A	M	12	B	AS	3		
34	A	M	12	C	AS	3		
34	A	M	13	C	AS	3		
34	A	M	12	D	AS	3		
34	A	M	13	D	AS	3		
36	A	M	13		AS	1	ACU	D8
36	A	M	13	A	AS	3		
36	A	M	13	C	AS	3		
36	B	F	13	A	AS	1	AAAA	A2,D5
36	B	M	12	A	AS	2	EU	
36	B	M	12	A	AS	1		
36	C	F	13	B	AS	3	not on d/b	
36	C	F	13	D	AS	3		
36	C	M	13	C	AS	3		
40	A	F	13		AS	1	not on d/b	
40	A	M	13		AS	1		
41	A		13	D	AS	6	D	
41	B	F	12	B	AS	3	BC	
41	B	F	12	C	AS	3		
41	C		13	C	AS	3	CCCU	A3
41	C	M	12	C	AS	4		
41	C	M	12	C	AS	3		
41	C	M	12	E	AS	4		
42	A	F	13	C	AS	3	AABB	E
42	A	F	13	C	AS	3	CCC	
42	A	M	13	A	AS	3		
42	A	M	13	A	AS	3		
42	A	M	13	B	AS	3		
42	A	M	13	B	AS	3		
42	B	F	13	A	AS	3	not on d/b	
43	A	M	13	B	AS	1	BCD	
43	A	M	13	C	AS	2		
43	B	M	13		AS	3	CU	
44	A	F	12	A	AS	3	not on d/b	
44	B	M	13	B	AS	2	DU	D9,E
46	A	M	13	C	AS	3	C	
46	B	M	13	E	AS	3	E	
46	C	F	12	B	AS	3	not on d/b	
46	C	F	12	C	AS	3		
46	C	F	12	C	AS	3		
46	D	M	12	A	AS	1	AE	D5
46	D	M	12	D	AS	1		

FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
46	E	F	13	A	AS	1	AAAA	D5
46	E	F	12	D	AS	1		
46	E	F	12	E	AS	1	BBB	
46	E	M	12	A	AS	1		
46	E	M	13	A	AS	1	CCC	
46	E	M	12	B	AS	1		
46	E	M	12	B	AS	1	DDDD	
46	E	M	12	B	AS	1		
46	E	M	12	C	AS	1	EE	
46	E	M	12	C	AS	1		
46	E	M	13	C	AS	1		
46	E	M	12	D	AS	1		
46	E	M	12	D	AS	1		
46	E	M	12	D	AS	1		
46	E	M	12	E	AS	1		
46	E	M	13	E	AS	1		
46	F	M	13	A	AS	1	AE	D5
46	F	M	13	A	AS	1		
46	G	F	13	A	AS	3	AABB	
46	G	F	12	B	AS	3		
46	G	F	12	B	AS	3		
46	H	F	13	D	AS	6	not on d/b	
46	I	M	13	B	AS	2	BBC	E
46	I	M	n/k	U	AS	2		
46	J	M	13	A	AS	1	AAAA	D5
46	J	M	13	A	AS	1	BCD	
46	J	M	12	D	AS	1	U	
46	K	F	12		AS	3	not on d/b	
46	L	F	13	D	AS	6	not on d/b	
46	M	M	13		AS	4	not on d/b	
47	A	F	12	B	AS	2	AAABBB	B2,D1,D6
47							CU	
FMN Centre	School/College	M/F	Yr Gp	Grade	AS/A2	FMC Modules	DCSF d/b	Reason Code
3	A	M	13	A	n/k	6		
6	A	M	12	U	n/k	1		
6	B	F	13		n/k	9		
6	C	M	11	U	n/k	1		
7	A	F	10		n/k			
7	A	F	11		n/k			
7	A	F	11		n/k			
7	B	M	11		n/k			
7	B	M	11		n/k			
19	A	M	>13		n/k	3		
19	A	M	>13		n/k	3		
21	A	F	12	C	n/k	3		
21	A	M	12	E	n/k	3		
21	A	M	12	C	n/k	3		
21	A	F	12	C	n/k	3		
23	A	M	11	A	n/k	1		
41	A	M	12	B	n/k	6		
45	A	M	13	A	n/k	5		

**Table 10(a) : cohort size and schools and colleges that are registered with the FMN; A2 2006**

graded entries	schools and colleges	total graded entries	registered with FMN	not registered with FMN	percent registered with FMN	with current students	no current students	FMN s / c A2	FMN g / e A2
1	257	257	67	190	26.1%	23	44	11	11
2	192	384	47	145	24.5%	14	33	3	6
3	176	528	50	126	28.4%	10	40	3	9
4	157	628	33	124	21.0%	7	26	0	0
5	97	485	19	78	19.6%	9	10	1	5
6	87	522	19	68	21.8%	2	17		
7	65	455	22	43	33.8%	6	16		
8	43	344	8	35	18.6%	3	5		
9	45	405	8	37	17.8%	1	7		
10	15	150	6	9	40.0%	2	4		
11	24	264	4	20	16.7%	1	3		
12	14	168	2	12	14.3%	0	2		
13	15	195	2	13	13.3%	0	2		
14	9	126	2	7	22.2%	0	2		
15	8	120	1	7	12.5%	0	1		
16	6	96	0	6	0.0%	0	0		
17	11	187	0	11	0.0%	0	0		
18	9	162	1	8	11.1%	0	1		
19	2	38	0	2	0.0%	0	0		
20	6	120	3	3	50.0%	0	3		
21	3	63	0	3	0.0%	0	0		
22	2	44	0	2	0.0%	0	0		
23	3	69	0	3	0.0%	0	0		
24	1	24	0	1	0.0%	0	0		
25	2	50	0	2	0.0%	0	0		
26	1	26	0	1	0.0%	0	0		
27	1	27	0	1	0.0%	0	0		
28	1	28	0	1	0.0%	0	0		
29	3	87	1	2	33.3%	0	1		
30	1	30	0	1	0.0%	0	0		
31	1	31	1	0	100.0%	0	1		
32	3	96	1	2	33.3%	0	1		
35	1	35	0	1	0.0%	0	0		
36	1	36	0	1	0.0%	0	0		
42	1	42	0	1	0.0%	0	0		
46	1	46	1	0	100.0%	0	1		
48	1	48	0	1	0.0%	0	0		
51	1	51	0	1	0.0%	0	0		
55	1	55	0	1	0.0%	0	0		
<b>Total</b>	<b>1267</b>	<b>6522</b>	<b>298</b>	<b>969</b>		<b>78</b>	<b>220</b>		<b>31</b>

<b>graded entries</b>	<b>schools and colleges</b>	<b>total graded entries</b>	<b>registered with FMN</b>	<b>not registered with FMN</b>	<b>percent registered with FMN</b>	<b>with current students</b>	<b>no current students</b>	<b>FMN s / c AS</b>	<b>FMN g / e AS</b>
1	381	381	99	282	26.0%	39	60	20	20
2	220	440	64	156	29.1%	20	44	8	16
3	151	453	40	111	26.5%	11	29	4	12
4	104	416	25	79	24.0%	8	17	3	12
5	60	300	16	44	26.7%	5	11	1	5
6	45	270	15	30	33.3%	3	12		
7	25	175	7	18	28.0%	3	4		
8	22	176	7	15	31.8%	5	2		
9	18	162	0	18	0.0%	0	0		
10	10	100	5	5	50.0%	0	5		
11	18	198	6	12	33.3%	0	6		
12	7	84	4	3	57.1%	0	4		
13	7	91	1	6	14.3%	0	1		
14	9	126	1	8	11.1%	0	1		
15	7	105	2	5	28.6%	0	2		
16	3	48	1	2	33.3%	0	1		
17	4	68	1	3	25.0%	0	1		
18	4	72	1	3	25.0%	0	1		
19	2	38	0	2	0.0%	0	0		
20	2	40	1	1	50.0%	0	1		
21	2	42	0	2	0.0%	0	0		
26	2	52	0	2	0.0%	0	0		
27	1	27	1	0	100.0%	0	1		
28	1	28	0	1	0.0%	0	0		
39	1	39	1	0	100.0%	0	1		
41	1	41	0	1	0.0%	0	0		
44	1	44	0	1	0.0%	0	0		
59	1	59	0	1	0.0%	0	0		
						0	0		
<b>Total</b>	<b>1109</b>	<b>4075</b>	<b>298</b>	<b>811</b>		<b>94</b>	<b>204</b>		<b>65</b>

<b>graded entries</b>	<b>schools and colleges</b>	<b>total graded entries</b>	<b>registered with FMN</b>	<b>not registered with FMN</b>	<b>percent registered with FMN</b>	<b>with current students</b>	<b>no current students</b>	<b>FMN s / c A2</b>	<b>FMN g / e A2</b>
1	255	255	121	134	47.5%	45	76	36	36
2	235	470	119	116	50.6%	31	88	21	42
3	189	567	91	98	48.1%	21	70	5	15
4	128	512	66	62	51.6%	10	56	2	8
5	128	640	47	81	36.7%	6	41	0	0
6	71	426	34	37	47.9%	6	28	1	6
7	73	511	27	46	37.0%	5	22		
8	58	464	20	38	34.5%	4	16		
9	43	387	18	25	41.9%	4	14		
10	30	300	11	19	36.7%	2	9		
11	26	286	17	9	65.4%	3	14		
12	17	204	9	8	52.9%	3	6		
13	10	130	3	7	30.0%	0	3		
14	9	126	2	7	22.2%	0	2		
15	10	150	5	5	50.0%	0	5		
16	8	128	4	4	50.0%	0	4		
17	7	119	3	4	42.9%	1	2		
18	9	162	2	7	22.2%	0	2		
19	7	133	1	6	14.3%	0	1		
20	3	60	1	2	33.3%	0	1		
21	11	231	1	10	9.1%	0	1		
22	2	44	0	2	0.0%	0	0		
23	4	92	2	2	50.0%	0	2		
24	1	24	0	1	0.0%	0	0		
25	1	25	0	1	0.0%	0	0		
27	4	108	1	3	25.0%	0	1		
28	3	84	1	2	33.3%	0	1		
29	2	58	1	1	50.0%	0	1		
31	1	31	0	1	0.0%	0	0		
32	3	96	1	2	33.3%	0	1		
33	2	66	1	1	50.0%	0	1		
34	1	34	1	0	100.0%	0	1		
37	1	37	1	0	100.0%	0	1		
39	1	39	0	1	0.0%	0	0		
40	1	40	1	0	100.0%	0	1		
41	2	82	1	1	50.0%	0	1		
43	1	43	0	1	0.0%	0	0		
62	1	62	0	1	0.0%	0	0		
<b>Total</b>	<b>1358</b>	<b>7226</b>	<b>613</b>	<b>745</b>		<b>141</b>	<b>472</b>		<b>107</b>

<b>graded entries</b>	<b>schools and colleges</b>	<b>total graded entries</b>	<b>registered with FMN</b>	<b>not registered with FMN</b>	<b>percent registered with FMN</b>	<b>with current students</b>	<b>no current students</b>	<b>FMN s / c AS</b>	<b>FMN g / e AS</b>
1	414	414	181	233	43.7%	53	128	33	33
2	243	486	125	118	51.4%	37	88	32	64
3	157	471	78	79	49.7%	29	49	20	60
4	88	352	50	38	56.8%	16	34	7	28
5	67	335	31	36	46.3%	9	22	3	15
6	51	306	22	29	43.1%	8	14	3	18
7	43	301	25	18	58.1%	6	19	2	14
8	22	176	12	10	54.5%	3	9	1	8
9	19	171	7	12	36.8%	4	3		
10	21	210	12	9	57.1%	3	9		
11	19	209	12	7	63.2%	1	11		
12	9	108	5	4	55.6%	2	3		
13	7	91	5	2	71.4%	0	5		
14	6	84	2	4	33.3%	1	1		
15	13	195	4	9	30.8%	0	4		
16	9	144	3	6	33.3%	1	2	1	16
17	4	68	2	2	50.0%	0	2		
18	1	18	0	1	0.0%	0	0		
19	2	38	1	1	50.0%	0	1		
20	3	60	3	0	100.0%	1	2		
21	3	63	2	1	66.7%	0	2		
22	1	22	0	1	0.0%	0	0		
24	2	48	1	1	50.0%	0	1		
25	2	50	1	1	50.0%	0	1		
26	1	26	0	1	0.0%	0	0		
30	1	30	0	1	0.0%	0	0		
33	1	33	1	0	100.0%	0	1		
36	1	36	1	0	100.0%	0	1		
41	1	41	1	0	100.0%	0	1		
48	1	48	0	1	0.0%	0	0		
80	1	80	1	0	100.0%		1		
<b>Total</b>	<b>1213</b>	<b>4714</b>	<b>588</b>	<b>625</b>		<b>174</b>	<b>414</b>		<b>256</b>

## Reasons for inconsistencies between FMN and DCSF data

### A - DCSF Data Issues

1. DCSF data includes each occasion on which an award was certificated. If, for example, a student certificated in 05/06 and achieved a grade B, and then re-sat modules and achieved a grade A the following year, then the 05/06 data includes the grade B result and the 06/07 data includes the grade A result. It has not been possible to confirm this for specific cases, but this could account for some of the inconsistencies that have not been resolved.
2. The DCSF data reports all of the FM awards certificated in that year. Some schools/colleges teach FM 'in house' and also arrange for an FMN Centre to tutor some of their students (e.g. due to timetabling or limitation in modules offered). This includes cases where the FMN Centre taught less than half of the content of the award.
3. Results have been confirmed with the school/college and it appears that there is an error in the DCSF data.
4. DCSF data included students who sat exams in the previous year, but delayed certification due to the 'least-best' rule.

### B - School/College – FMN Centre Communication Issues

1. Result not supplied by school/college, despite best efforts of FMN Centre.
2. Student continuing to A Level was certificated for AS Level by their school/college without the knowledge of the FMN Centre. Such inconsistencies are less likely in future. The certification rules are to change and the standard FMN advice will be to certificate AS Level Further Mathematics even if student is continuing to study A Level Mathematics/Further Mathematics.
3. Students re-sat exams and re-certificated their award without informing the FMN Centre.
4. School/college did not inform the FMN Centre that the student had withdrawn from their examinations.

### C - FMN Data Extract Issues

1. The 2005/6 data extract had been prepared for the purposes of ALIS analysis and did not include students for whom we were not able to provide average GCSE score, thus some results not included.

### D - FMN Centre Data Issues

1. Award was not included in the FMN extract because the student's status was incorrect (e.g. *Current*, instead of *Completed*, or *Completed* instead of *Withdrawn*) and/or *Date Left* was not entered.
2. *Date Left* was set to September when should have been June, so the award was excluded from the FMN extract.
3. Students' *Date Left* set to Jan 06, so likely that student certificated in June 05. June 05 results not included in DCSF 2005/6 results. In future *Certification Status* will enable final certification year to be captured.

4. FMN Centre calculated AS Level grade based on module results and entered it into their database as if it was a certificated grade, even though the student had not certificated at that point in time. From 07/08 most students will automatically certificate at AS Level, because there is no advantage in delaying certification so this problem should not often occur in future.
5. School was receiving support from the FMN Centre and student was entered into database as if they had been taught by the FMN Centre; however the FMN Centre had taught less than half the award. The new *Certification Status* field will enable such cases to be excluded from the extract.
6. U grade not entered onto database because it was thought student had withdrawn from course and so had not sat all exams.
7. Student's school had not been entered onto the FMN database.
8. *Grade Achieved* not entered as student intending to re-sit examinations at later date.
9. *Award Type* was missing or incorrect, or not relevant to analysis.

**E – It is not clear why there is a difference**

**F – Possibly an error in the CEM analysis**