some successful strategies for promoting mathematics in England

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&

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National Centre
for Excellence in the
Teaching of Mathematics

Goals of Government

1. to raise *standards* In mathematics:

    • internal performance tables from tests at 7, 11, (14)& 16

   • TIMSS, PISA, and adult numeracy AND more recently

2. to increase participation in mathematics post-16

to achieve BOTH need

• more success in mathematics *and*

• positive attitude to mathematics & appreciation of the point of mathematics

    • for itself

    • as a tool in other subjects

    • for its 'exchange value' for individual future careers and for the country

target for 2014 set in 2005/6

A level entries (specialist mathematics examination, 18years)
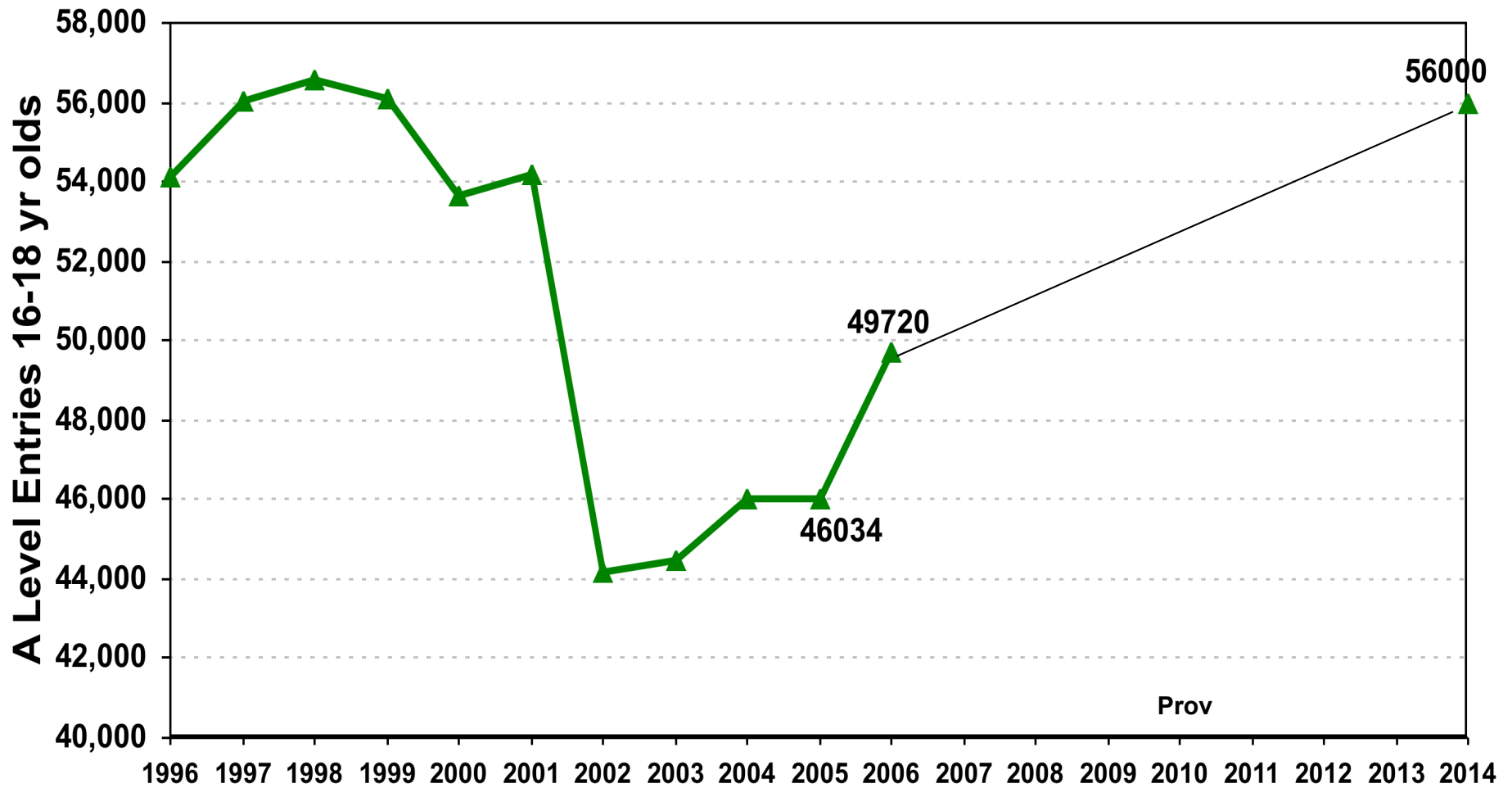
Some history: giving mathematics a policy voice ACME

The Advisory Committee on Mathematics Education (ACME) was established in **2002** to act as a single voice for the mathematical community, seeking to improve the quality of education in schools and colleges

Set up by the Joint Mathematical Council of the UK and the Royal Society (RS), with the explicit support of all major mathematics organisations

ACME advises Government on issues such as the curriculum, assessment and the supply and training of mathematics teacher

7 members including teachers: part time Chair, Fellow of RS

Some interventions: promoting Active Learning post-16

incorporating discussion & the need to explain and justify in nationwide initiative

statement evaluation cards

true, false, sometimes

Numbers with more digits are greater in value.	The square of a number is greater than the number.
When you cut a piece off a shape, you reduce its area and perimeter.	In a group of ten learners, the probability of two learners being born on the same day of the week is 1
$\sqrt{ab} > \dfrac{a+b}{2}$	Quadrilaterals tessellate.
In the National Lotto draw, the six numbers 3,12,26,37,44,45 are more likely to come up than the six numbers 1,2,3,4,5,6.	If you square a prime number, the answer is one more than a multiple of 24.
There are three possible outcomes to a football match: win, lose or draw. the probability of your team winning is therefore $\frac{1}{3}$	If you double the lengths of the sides, you double the area.

role for University mathematics departments: enrichment in & out of school

Student Ambassador Scheme

National competitions

Master Classes

and as partners with the National Centre see later
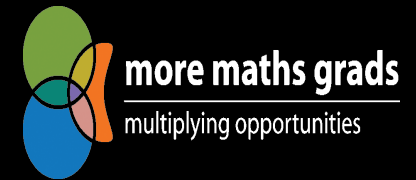
Beginning (January 2007)

Remit: A £3.3 million project to develop, trial and evaluate means of increasing the number of students studying mathematics and encouraging participation from groups of learners who have not traditionally been well represented in higher education.
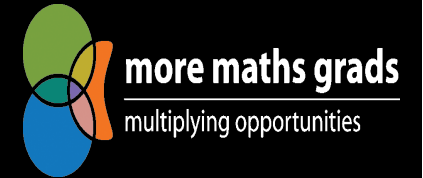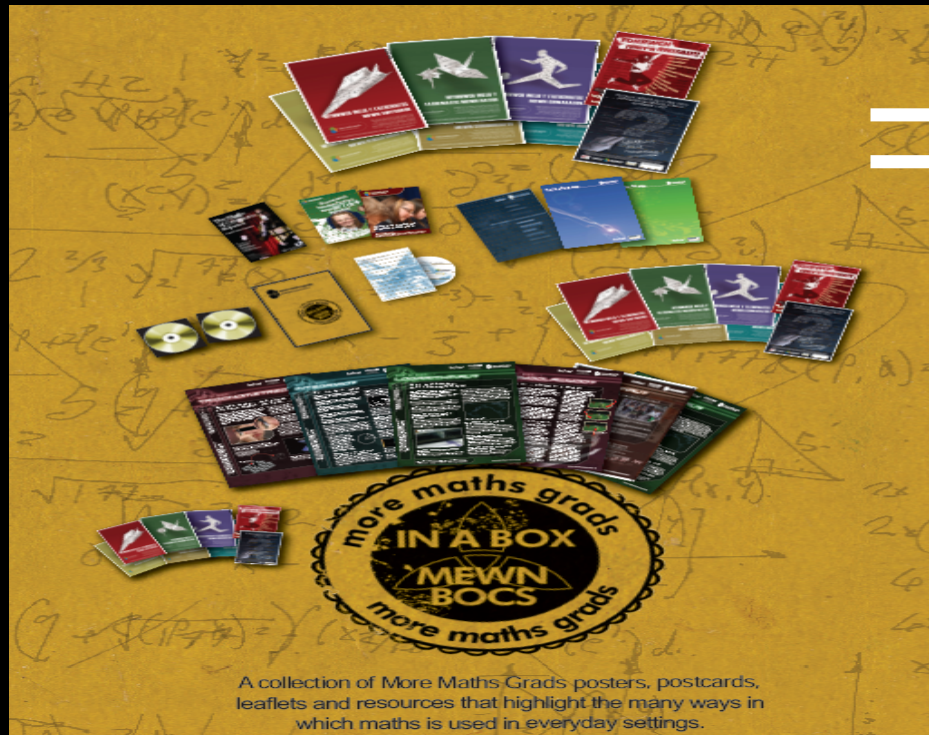
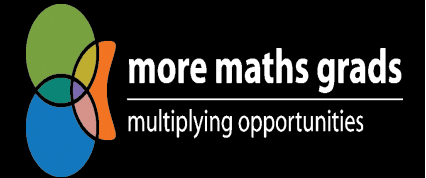The End (…or just the beginning?)

Every Secondary School, College, University in England & Wales have the More Maths Grads Box – lots of resources!

DVD s
Posters
Booklets: career profiles, enrichment
The Maths inside

More Maths Grads – Mpegs!

All resources available at www.mathscareers.org.uk – for free!
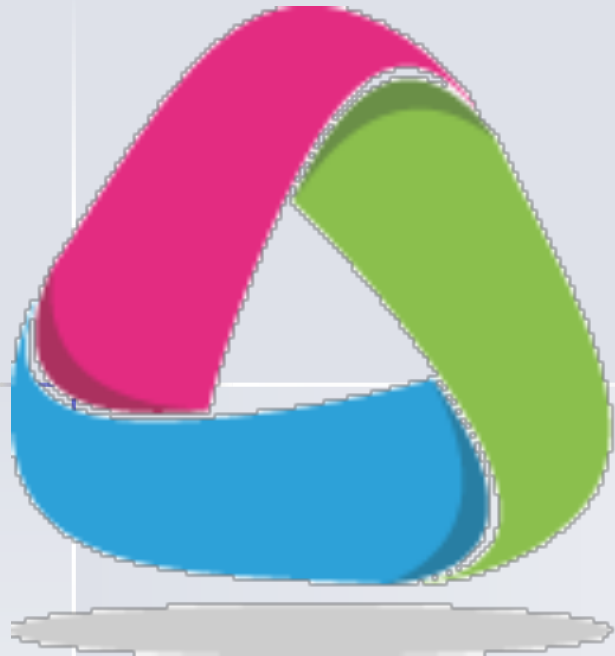
maths careers
ENDLESS OPPORTUNITIES

- Highlights the skills that studying maths develops

- Conveys the importance of maths to students of all abilities

- Shows how to keep options open by studying maths

- Addresses the misconceptions around studying maths

- Ensures that students have the correct information to hand to make informed decisions when choosing subject combinations

Seven Themes

Health and Society

Science and Technology

I Love Maths

Business and Money

Sport

Environment

Entertainment

maths
careers
.ORG.UK

Range of regularly changing topical articles

Integrated in STEM careers
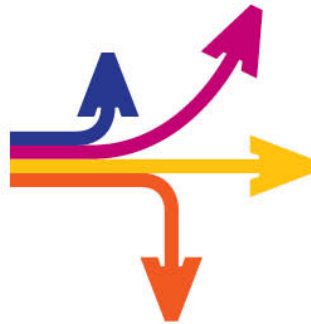
Further Mathematics network to enable every student who would benefit from it to have the opportunity to study

distance learning & mentoring

National network of Further Mathematics Centres

Further mathematics (optional post 16 study) a 'dying subject'
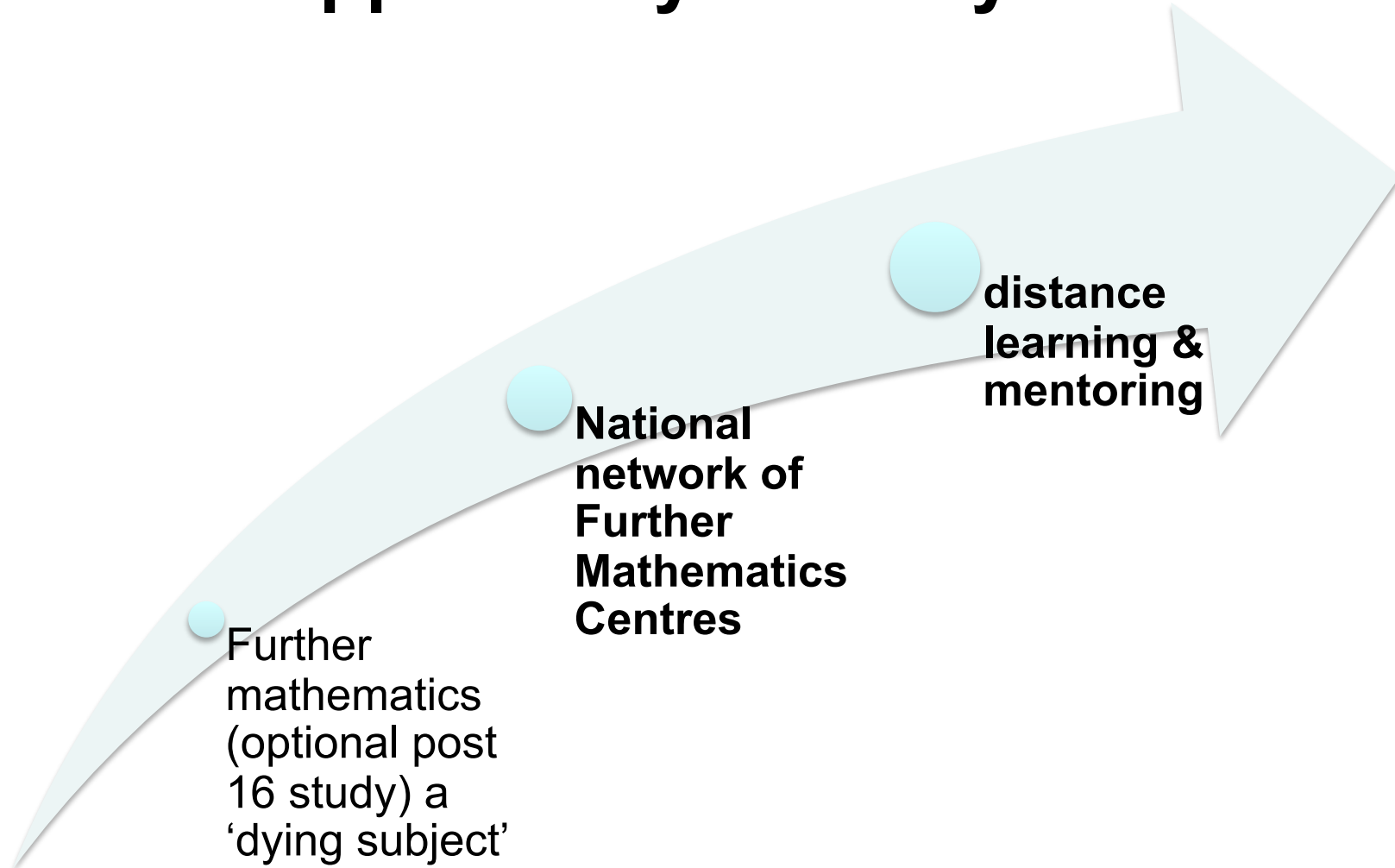
Reports drive the agenda: some examples

SET for success: Sir Gareth Roberts's Review of SET (April 2002)

Making Mathematics Count: Post-14 Mathematics Inquiry (February 2004)

The Science and Innovation Investment Framework 2004 -2014 (2004).

14-19 Education and Skills White Paper (2005)

STEM Programme Report (2006)

Sainsbury Review of Science (2007)

Review of teaching in Early Years Settings & primary Education (June, 2008)

specifically for mathematics

Government accepted most of the recommendations of Post-14 Mathematics Inquiry, **Making Mathematics Count, 2004**

- Strategy and focus
- Supply of specialist teachers
- 14-19 mathematics pathways
- Support of teaching and learning
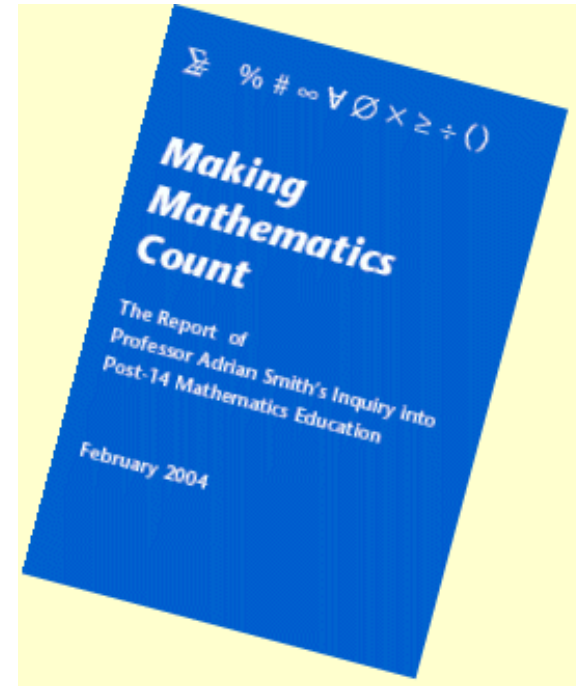
mathematics is recognised as important - core skill, subject in its own right, needed in more & more subjects, **& STEM**

Recommendation for post of Chief Adviser for Mathematics to UK Government: I was selected to take up that position 2004-7

Subject you train in and go on to teach	Golden hello amount
Mathematics	£5,000
Science	£5,000
Applied science	£5,000
Information and communications technology (ICT)	£2,500
Applied ICT	£2,500
Design and technology	£2,500
Modern languages	£2,500
Music	£2,500
Religious education	£2,500
Any other subjects	£0

Review of teaching in Early Years Settings & primary education June 2008

Independent Review of Mathematics Teaching in Early Years Settings and Primary Schools

Final Report – Sir Peter Williams June 2008
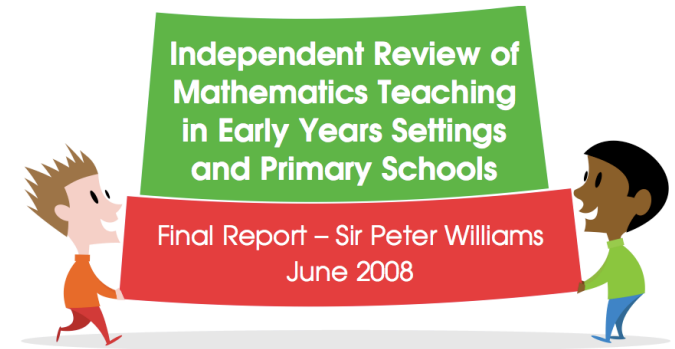
main recommendation was that every primary school should have one mathematics specialist who had

- received university training
- supported to embed training in practice

huge programme

- pilot last year
- first cohort to begin in January 2010
- to be put in place by 2019

effective teaching of mathematics main findings from Inspectors in England & many research studies

unsurprisingly………

the quality of teaching is the key factor influencing students' achievement

¶

Ofsted
raising standards
improving lives

Mathematics: understanding the score¶
Messages from inspection evidence¶

where teaching contributed positively to high achievement

it focused on understanding, underpinned by good subject knowledge

Teachers

- had high expectations of students – what they might achieve and the contributions they would make – providing structure, pace and challenge
- asked probing questions that checked and pursued students' understanding
- built on responses, identified and resolved misconceptions
- gave students confidence; encouraged collaboration
- used assessment effectively to promote learning
- drew on good resources including ICT

teachers - the key to change

National Centre
for Excellence in the
Teaching of Mathematics

NCETM vision

to develop a sustainable national infrastructure for subject-specific professional development of teachers of mathematics

Vision

The NCETM aims to

- meet the professional aspirations and needs of **all** teachers of mathematics

- realise the potential of learners

Objectives 2009-2011

To stimulate **demand** for mathematics-specific CPD, contributing to the strengthening of the mathematical knowledge of teachers.

To lead and improve the **coordination**, **accessibility** and **availability** of mathematics-specific CPD.

To enable all teachers of mathematics to identify and **access high quality** CPD that will best meet their needs and aspirations

My Personal Vision as Director

My vision is that the NCETM will provide opportunities **for all teachers of mathematics** to embark on **their own personalised mathematical** CPD journeys *supported by the whole community*

Some key characteristics of the NCETM's offer

- Unerring focus on **mathematics**

- Developing excellence in teaching mathematics **across all phases** of education by sharing knowledge and practice

- Commitment to **placing teachers' needs and goals at its core**

- Commitment to **working in partnership** to influence policy & practice

National Centre
for Excellence in the
Teaching of Mathematics

NCETM activities…
…blended for success

- **face-to-face** events & network meetings

- **personal interactions** with the NCETM portal www.ncetm.org.uk

http://www.ncetm.org.uk/

Convert ▾ | Select

Home Page - NCETM | NCETM Logs - NCETM | Reports - NCETM | Home Page - NCETM ✕

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powered by Google™

National Centre
for Excellence in the
Teaching of Mathematics

Working collaboratively to enhance mathematics teaching

| NCETM | News | Resources | Courses & Training | Teacher Enquiry | Community | Mathemapedia | Personal Learning |

About the Centre / About the Portal / Meet the team / NCETM in my Region / Benefits of registering / Partners and Stakeholders

You are here: NCETM

Personal Learning

NCETM_administrator

📅 PLS Timeline

⭐ My Favourites & Notes

🌐 My Public Items

📝 Learning Journal

📊 Self-evaluation

📁 Career Portfolio

👥 Sharing & Contacts

📂 My Files & Folders

👥 My Communities

👤 My Details

📁 Logout

Contact Management

Edubase Data Download

Administration

CPD List (inc. Archived)

Inactive News

Merge Organisations

New Member Confirmation

Welcome

The NCETM aims to support and encourage mathematics-specific continuing professional development, for all teachers of mathematics across all phases.

On the NCETM portal you will find a wealth of resources and tools to help you realise your own – and your learners' – potential. To exploit the full range of what is on offer, register on the portal now and enjoy your professional development journey.

What's on the NCETM portal for Primary and Early Years Teachers ▾

What's on the NCETM portal for Secondary Teachers of Mathematics ▾

What's on the NCETM portal for Teachers of Mathematics and Numeracy in FE ▾

Mathematics Knowledge Networks
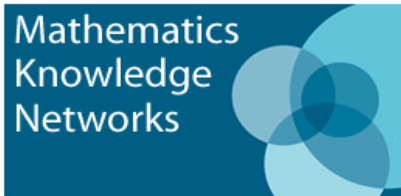
Mathematics Knowledge Networks Funding Summer 2009
The NCETM Funded Projects Scheme is divided into two areas: Teacher Enquiry Funded Projects (TEFP) and Mathematics Knowledge Networks (MKN). We are now inviting applications for the Summer 2009 round of MKN funding.

National Centre stresses CPD key to reach the raised A Level mathematics entries target
The NCETM has welcomed the new target set for entries to A Level mathematics – 80 000 by 2014 – as a result of the original target of 56 000 being reached early.

Primary Magazine
Averages, modes and ranges - with talent!

Secondary Magazine
Make the most of summer evenings

FE Magazine
Taking adult numeracy forward

LSIS

edit

Internet | 🔍 100% ▾

NCETM and proof

National Centre
for Excellence in the

over 130 different computers logged on
questions emailed in before, during and after the event

video available online, with further discussion through
on-line community   www.ncetm.org.uk/proofcommunity

See also

'Understanding Mathematics Learning'
In *Better: Evidence based Education* 2009, pp 12-13

Paper available on NCETM portal as well as link to whole edition on 'effective mathematics teaching'

http://www.ncetm.org.uk/news/21170

NCETM and proof

The Secondary Forum community has a lively discussion on your favourite

Always, **Sometimes**, **Never** questions

a question?

n^2 + n + 11 is a prime number for n a natural number

Is this always, sometimes or never true?

NCETM funded projects

National Centre
for Excellence in the
Teaching of Mathematics

- Awarded on basis of proposals from **collaborative** groups

- have to report on portal and at NCETM events with reporting supported by NCETM

- Over 90 awards to date

- 15 awarded for 2009/10… more to come

Face-to-face meetings: 3 national conferences per year including our Annual Conference

2006

2008

2007

Regional Events

National Centre
for Excellence in the
Teaching of Mathematics

Major challenges of recruitment and retention of good mathematics teachers

Headteacher networks and events where headteachers talk about creating and sustaining excellent mathematics departments

The Headteachers Microsite can be found at
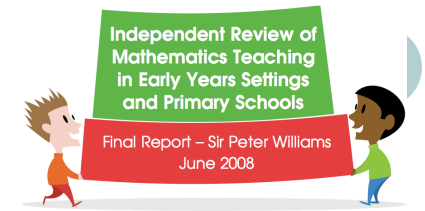**www.ncetm.org.uk/londonheadteachers**

Working in partnership

National Centre
for Excellence in the
Teaching of Mathematics

Primary Mathematics Specialist

The NCETM will provide national perspective & a communications package for the Programme

The NC co

but recession & an election in 2010.........

Statistics

National Centre
for Excellence in the
Teaching of Mathematics

| Sector	DATA on registrations (As of 13th Feb)
Primary:17 504 schools Teacher Population of 223 600	14 280
Secondary: 3367 schools Teacher Population of 29 500	13 390
FE 386 institutions	4621
Teachers of adult learners not in FE Institutions: 250 000 in sector	Unavailable
Total	35 817 (inc non-specified)
Target	

how many countries have not visited the portal?

Only 8

- French Guiana
- Western Sahara
- Mauritania
- Chad
- Congo Brazzaville
- Guinea
- North Korea
- Turkmenistan

National Centre for Excellence in the Teaching of Mathematics
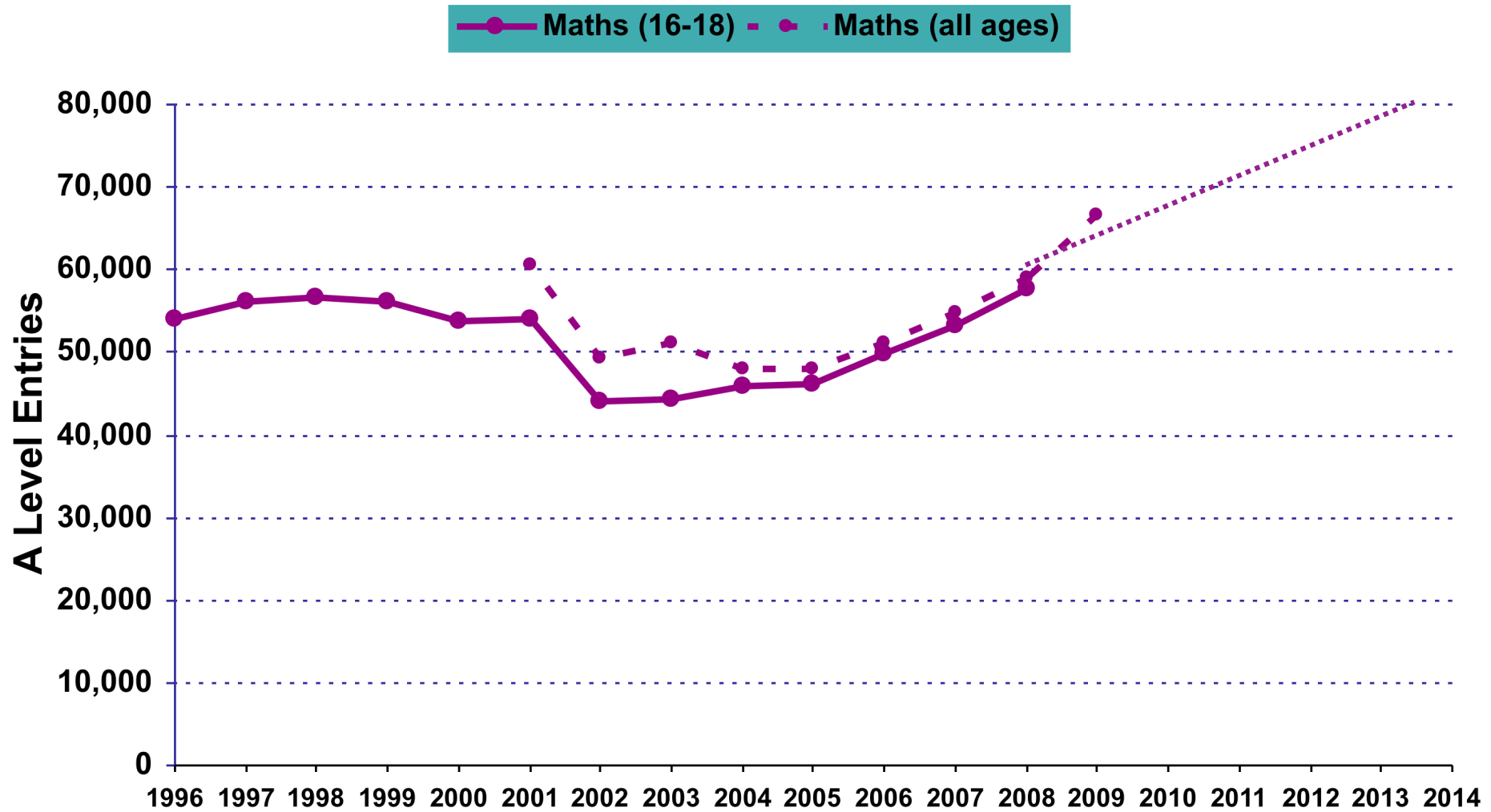
What about attainment & participation?

A level entries (specialist mathematics examination, 18years)   target for 2014 set in 2005/6

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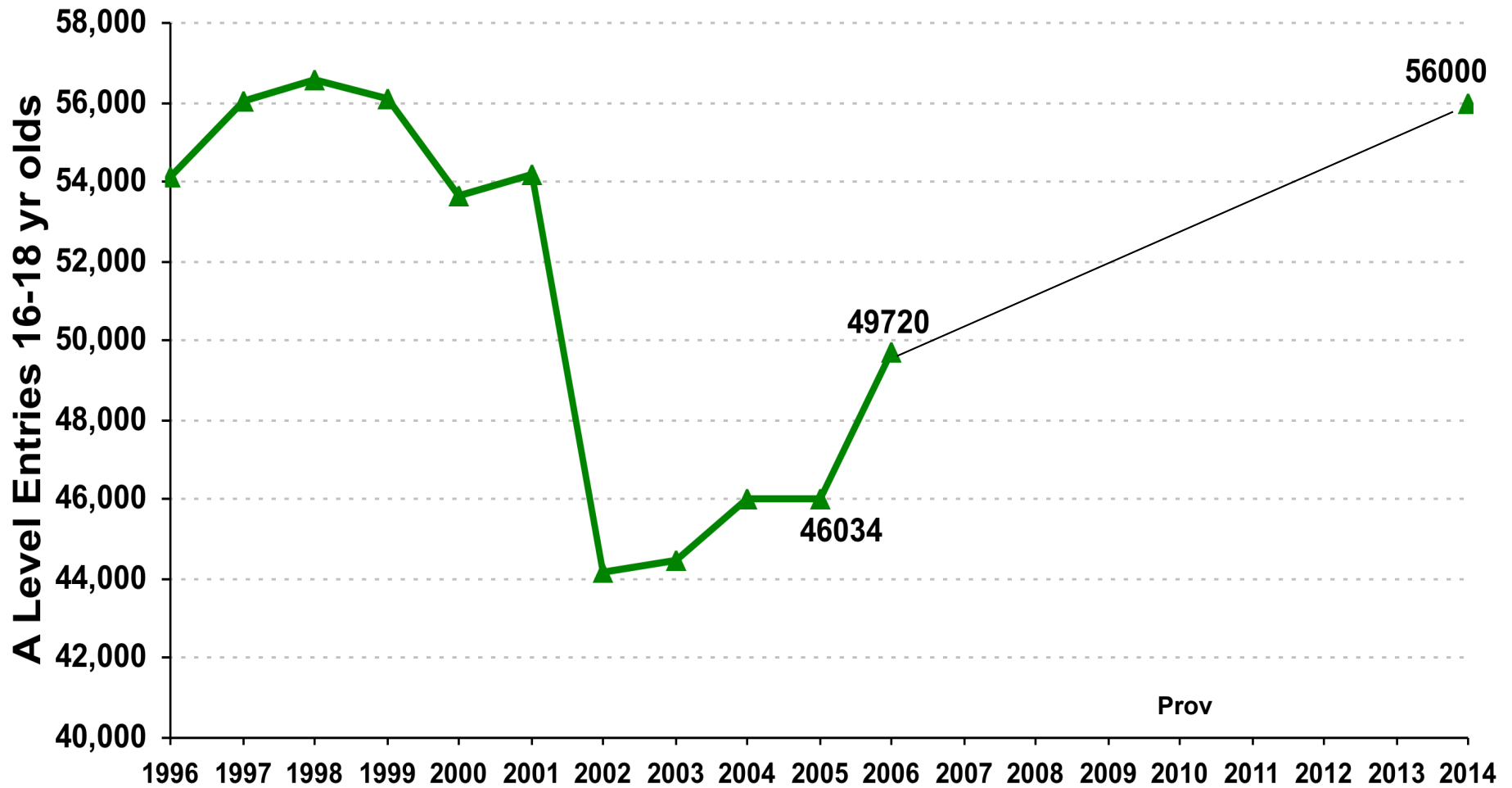
Latest figures
large increase in A Level Maths entries between 2008 and 2009

National Centre
for Excellence in the
Teaching of Mathematics

40

BUT for A level Mathematics proportion of to cohort size

A vibrant & growing mathematics teacher community is the only way to go with network of partners from different parts of the mathematics community

the remit of the NCETM

The NCETM website is invaluable for maths teachers. It's always my first port of call for resources, advice and ideas

 Head of Mathematics in school