Further Mathematics Support Programme Wales
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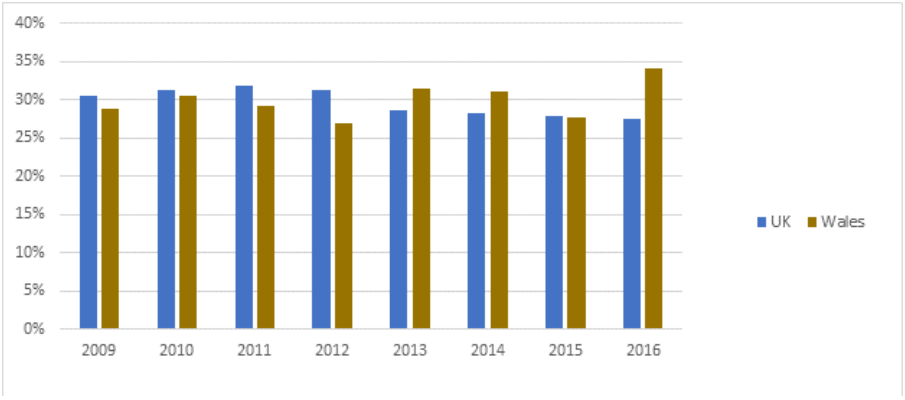
NEWS RELEASE TO SCHOOLS AND COLLEGES

August 2016

Increase in the number of girls taking Further Mathematics in Wales

Further Mathematics A-level results are again a cause for celebration in Wales and many Welsh students will use their Further Mathematics A-level to enable them to study for a STEM degree. This year saw an impressive 20% increase in the number of Welsh girls taking a full A-level in Further Mathematics in comparison with 2015. The proportion of girls with Further Mathematics qualifications historically remains low across the UK as illustrated in the graph below. This year's increase in Wales makes an impressive 34% of the whole cohort in comparison with 27.5% in the UK. The number of girls taking a full A-level Further Mathematics in Wales has increased by 86% since 2009. Professor Julie Williams CBE, Chief Scientific Advisor for Wales, commented "*I support more girls taking A-level Further Mathematics. There are many opportunities for interesting and rewarding careers using mathematics, in fact there is a shortage of people with this knowledge and skill. Maths is an excellent career choice.*"

Graph 1. Proportion of A-level Further Mathematics female students in Wales and the UK since 2009 (http://www.jcq.org.uk/examination-results/a-levels)



Jaina Patel from Ysgol Gyfun Aberaeron said: "*I am so happy I got an A* in Further Mathematics. Thank you so so much for all the help over the past two years, I'm so grateful for it!"* The subject was not available in Jaina's school and she had to study it off the timetable as a combination of online lessons and Saturday face-to-face support arranged through the Further Mathematics Support Programme (FMSP) Wales. The FMSP Wales will do all it can to bring about further increases in girl's participation in Further Mathematics.

Compared with 2010:

- A level Further Mathematics numbers are up from 240 to 502, an increase of 209%.
- AS Further Mathematics numbers are up from 275 to 458, an increase of 167%.
- Girls' participation in A-level Further Mathematics is up from 73 to 171, an increase of 234%. Boys' participation is up from 178 to 372, an increase of 209%.

The FMSP Wales Is managed by Rheolir FMSP Cymru gan
www.wimcs.ac.uk
in partnership with mewn partneriaeth â
MEI Innovators in Mathematics Education
funded by ac fe'i hariannir gan
Llywodraeth Cymru Welsh Government

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- Girls' participation in AS Further Mathematics is up from 77 to 131, an increase of 170%. Boys' participation is up from 115 to 327, an increase of 284%.

The attainment remains at a very high level in Wales with 40% achieving A* in Further Mathematics A-level and 61.2% in total achieving A*-A. This represents a slight drop from 45.5% and 63.8% achieved last year but remains higher than the overall UK results in the subject.

Further Mathematics qualifications allow students to enrich their mathematics experience and build a more solid foundation for pursuing careers in science, technology, economics, actuarial science and finance. The qualification is highly regarded by the Russell Group of Universities; this was highlighted in their guide to post-16 subject choices http://russellgroup.org/InformedChoices-latest.pdf

Until now the FMSP Wales, based in Swansea University and funded by the Welsh Government, has been operating in 8 counties in Wales. The Programme has had three strands, Tuition and Student Support, Teacher Professional Development and Enrichment underpinned by engagement with mathematics research. Dr Martin Crossley, the Deputy Head of the Mathematics Department in Swansea University said: *"We see how great an impact the programme has had on schools, teachers and students, inspiring much greater interest in the subject, by showing connections between topics on the FM curriculum and the ideas behind current research in Mathematics. Over recent years the proportion of students with Further Mathematics AS/A level qualifications admitted to study Mathematics degree programmes in Swansea has increased significantly and we are very pleased to see this growth."* Several other STEM departments in Wales also report that the proportion of Further Mathematics students increased. However, there is still a gap between the proportion of Welsh students admitted with Further Mathematics qualifications and the proportion of their English counterparts, and there is still more work to be done.

In August 2016 the Welsh Government granted further funding to expand the programme to all counties in Wales. Significant investment of £883,000 has been made available for the period Aug 2016 – March 2018. The expansion will build on the success of the programme which supports schools and colleges to increase teacher expertise and students' participation in AS/A-level Mathematics. Professor Hilary Lappin-Scott, Senior Pro-Vice Chancellor of Swansea University, commented: *"Swansea University has supported the FMSP Wales since its inception as a pilot project in South West Wales. I am very pleased with how impressively the programme has developed, especially with the newly added Women in Mathematics events and overall support to encourage girls' participation in Further Mathematics to redress a historic imbalance. Mathematics here in Swansea is part of the College of Science, which has already earned an Athena Swan Bronze Award for its work on diversity and among other things on encouraging girls to pursue scientific studies and careers. We are looking forward to working with other universities in Wales on expanding the programme to new areas."*

The FMSP Wales team look forward to establishing the programme in Mid, North and South Wales from September 2016. All state-funded secondary schools and colleges in Wales are invited to register with the Programme http://www.furthermaths.org.uk/?section=teachers&page=register and express their interest in tuition assistance by contacting the Programme Leader Sofya Lyakhova on 01792 602793.

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Notes for Editors

1. The FMSP Wales is managed by The Wales Institute of Mathematical and Computational Sciences (WIMCS) and is in partnership with Mathematics in Education and Industry (MEI, www.mei.org.uk). It is funded by the Welsh Government.

2. More information regarding the Further Maths support programme Wales can be found at: http://www.furthermaths.org.uk/centre/?centre=wales For case studies from students, parents and schools please visit http://www.furthermaths.org.uk/wales-case-studies

3. The Wales Institute of Mathematical and Computational Sciences (WIMCS) is a collaborative partnership of the universities of Aberystwyth, Bangor, Cardiff, South Wales and Swansea. It has been set up by the Welsh Government through the Higher Education Funding Council for Wales. WIMCS aims to enhance the standing of mathematics and computation in Wales, to foster links with industry, commerce and business, to generate substantial research funding and to provide a forum for education and public awareness of the Mathematical Sciences (www.wimcs.ac.uk).

4. For more information please contact the FMSP Wales Administrator on 01792 606609 or by email adminwales@furthermaths.org.uk

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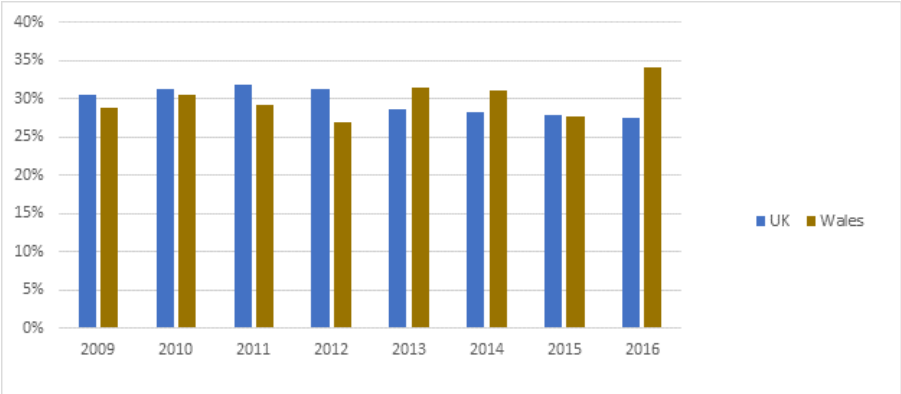
DATGANIAD NEWYDDION I YSGOLION A CHOLEGAU
Awst 2016

Cynnydd yn nifer y merched sy'n astudio Mathemateg Bellach yng Nghymru

Mae canlyniadau Safon Uwch Mathemateg Bellach yng Nghymru unwaith eto'n achos dathlu a bydd llawer o fyfyrwyr Cymru'n gallu defnyddio eu llwyddiant yn yr arholiadau i'w galluogi i astudio am radd yn un o'r pynciau STEM. Eleni, gwelwyd cynnydd trawiadol o 20% yn nifer y merched yng Nghymru sy'n sefyll arholiad Safon Uwch Llawn mewn Mathemateg Bellach o'i gymharu â ffigur 2015. Mae canran y merched sydd wedi ennill cymwysterau Mathemateg Bellach yn hanesyddol yn parhau'n isel ledled y DU, fel y dangosir yn y graff isod. Mae'r cynnydd eleni yng Nghymru yn cyfrif am 34% o'r garfan gyfan, sy'n ganran drawiadol o'i chymharu â 27.5% yn y DU. Mae nifer y merched sy'n sefyll Safon Uwch Llawn mewn Mathemateg Bellach yng Nghymru wedi cynyddu 86% ers 2009. Dywedodd yr Athro Julie Williams CBE, Prif Gynghorydd Gwyddonol Cymru: *"Rwy'n gefnogol o'r ffaith fod mwy o ferched yn gwneud lefela mewn Mathemateg Bellach. Mae llawer o gyfleoedd ar gyfer gyrfaoedd diddorol a gwerth chweil sy'n defnyddio mathemateg, mewn gwirionedd mae prinder o bobl â gwybodaeth a'r sgil hwn. Mae mathemateg yn ddewis gyrfa gwych."*

Graff 1. Canran y myfyrwyr benywaidd yng Nghymru a'r DU sy'n sefyll Safon Uwch mewn Mathemateg Bellach ers 2009 (http://www.jcq.org.uk/examination-results/a-levels)



Meddai Jaina Patel o Ysgol Gyfun Aberaeron: *"Rwyf wrth fy modd mod i wedi ennill A* mewn Mathemateg Bellach. Diolch o galon am yr holl gymorth dros y ddwy flynedd diwethaf, dwi mor ddiolchgar amdano!"* Nid oedd y pwnc ar gael yn ysgol Jaina a bu'n rhaid iddi ei astudio y tu allan i'r amserlen, fel cyfuniad o wersi ar-lein a chymorth wyneb yn wyneb ar ddydd Sadwrn a drefnwyd drwy Raglen Gymorth Mathemateg Bellach Cymru. Bydd y Rhaglen yn gwneud popeth o fewn ei gallu i sicrhau bod cyfranogiad merched mewn Mathemateg Bellach yn cynyddu eto.

O'u cymharu â 2010:

- Mae niferoedd Mathemateg Bellach Safon Uwch i fyny o 240 i 502, cynnydd o 209%.
- Mae niferoedd Mathemateg Bellach lefel UG i fyny o 275 i 458, cynnydd o 167%.
- Mae cyfranogiad merched mewn Mathemateg Bellach Safon Uwch i fyny o 73 i 171, cynnydd o 234%. Mae cyfranogiad bechgyn i fyny o 178 i 372, cynnydd o 209%.
- Mae cyfranogiad merched mewn Mathemateg Bellach Lefel UG i fyny o 77 i 131, cynnydd o 170%. Mae cyfranogiad bechgyn i fyny o 115 i 327, cynnydd o 284%.

Mae'r cyrhaeddiad yn parhau'n uchel iawn yng Nghymru, gyda 40% yn ennill A* mewn Mathemateg Bellach Safon Uwch a chyfanswm o 61.2% yn ennill A*-A. Mae hyn yn cynrychioli gostyngiad bach o

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45.5% a 63.8% a gyflawnwyd y llynedd ond mae'n parhau'n uwch na chanlyniadau'r DU yn gyffredinol yn y pwnc.

Mae cymwysterau Mathemateg Bellach yn caniatáu i fyfyrwyr gyfoethogi eu profiad mathemateg a chreu sylfaen gadarnach ar gyfer datblygu gyrfa ym meysydd gwyddoniaeth, technoleg, economeg, gwyddoniaeth actwaraidd a chyllid. Mae Grŵp Prifysgolion Russell yn gosod gwerth mawr ar y cymhwyster, fel yr amlygwyd yn eu canllaw i ddewisiadau pwnc ôl- 16 http://russellgroup.org/InformedChoices-latest.pdf

Hyd yma mae Rhaglen Gymorth Mathemateg Bellach (FMSP) Cymru, a leolir ym Mhrifysgol Abertawe ac a ariennir gan Lywodraeth Cymru, wedi bod yn gweithredu mewn 8 sir yng Nghymru. Roedd gan y Rhaglen dri maes, Tiwtora a Chymorth i Fyfyrwyr, Datblygiad Proffesiynol Athrawon a Chyfoethogi drwy ymgysylltu ag ymchwil mathemateg. Dywedodd Dr Martin Crossley, Dirprwy Bennaeth yr Adran Fathemateg ym Mhrifysgol Abertawe: *"Rydym yn gweld effaith fawr y rhaglen ar ysgolion, athrawon a myfyrwyr, gan ysbrydoli llawer mwy o ddiddordeb yn y pwnc, trwy ddangos cysylltiadau rhwng pynciau ar gwricwlwm Mathemateg Bellach a'r syniadau y tu ôl I ymchwil cyfredol mewn Mathemateg. Dros y blynyddoedd diweddar, mae cyfran y myfyrwyr sydd â chymwysterau Mathemateg Bellach Safon Uwch / UG sy'n cael eu derbyn i astudio rhaglenni gradd Mathemateg wedi cynyddu'n sylweddol yn Abertawe sydd i'w groesawu'n fawr."* Mae nifer o adrannau STEM eraill yng Nghymru hefyd yn nodi y gyfran o fyfyrwyr Mathemateg Bellach wedi cynyddu. Fodd bynnag, mae bwlch o hyd rhwng y gyfran o fyfyrwyr o Gymru a Lloegr sy'n cael eu derbyn â chymwysterau Mathemateg Bellach ac mae rhagor o waith i'w wneud o hyd.

Yn Awst 2016, rhoddodd Llywodraeth Cymru arian pellach i ehangu'r rhaglen i bob sir yng Nghymru. Darparwyd buddsoddiad sylweddol o £883,000 ar gyfer y cyfnod rhwng mis Awst 2016 a mis Mawrth 2018. Bydd yr ehangu yn adeiladu ar lwyddiant y rhaglen sy'n cefnogi ysgolion a cholegau i gynyddu arbenigedd athrawon a chyfranogiad myfyrwyr mewn Mathemateg Safon Uwch/UG. Dywedodd yr Athro Hilary Lappin-Scott, Uwch Ddirprwy Is-ganghellor Prifysgol Abertawe: *"Mae Prifysgol Abertawe wedi cefnogi FMSP Cymru ers ei sefydlu fel prosiect peilot yn Ne-orllewin Cymru. Rwy'n falch iawn gyda'r ffordd drawiadol mae'r rhaglen wedi datblygu, yn enwedig y digwyddiadau Merched mewn Mathemateg diweddar a'r gefnogaeth gyffredinol i annog cyfranogiad merched mewn Mathemateg Bellach i unioni'r anghydbwysedd hanesyddol. Mae Mathemateg yma yn Abertawe yn rhan o'r Coleg Gwyddoniaeth sydd eisoes wedi ennill Gwobr Efydd Athena Swan am ei waith ar amrywiaeth ac ymysg pethau eraill ar annog merched i ddilyn astudiaethau a gyrfaoedd gwyddonol. Rydym yn edrych ymlaen at weithio gyda phrifysgolion eraill yng Nghymru ar ehangu'r rhaglen i ardaloedd newydd."*

Mae tîm FMSP Cymru yn edrych ymlaen at sefydlu'r rhaglen yn y Canolbarth, Gogledd a De Cymru o fis Medi 2016. Gwahoddir holl ysgolion uwchradd a cholegau a ariennir gan y wladwriaeth yng Nghymru i gofrestru gyda'r Rhaglen http://www.furthermaths.org.uk/?section=teachers&page=register a mynegi eu diddordeb mewn cymorth tiwtora trwy gysylltu â chydlynydd y Rhaglen, Sofya Lyakhova, ar 01792 602793.

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Nodiadau i Olygyddion

1. Rheolir FMSP Cymru gan Sefydliad Gwyddorau Mathemategol a Chyfrifiadurol Cymru (WIMCS), mewn partneriaeth â Mathemateg mewn Addysg a Diwydiant (MEI, www.mei.org.uk). Caiff ei hariannu gan Lywodraeth Cymru.

2. Mae rhagor o wybodaeth ynghylch Rhaglen Gymorth Mathemateg Bellach Cymru ar gael yn http://www.furthermaths.org.uk/wales#cymraeg. Am astudiaethau achos gan fyfyrwyr, rhieni ac ysgolion, ewch i http://www.furthermaths.org.uk/wales-case-studies#cymraeg

3. Partneriaeth gydweithredol yw Sefydliad Gwyddorau Mathemategol a Chyfrifiadurol Cymru (WIMCS) rhwng prifysgolion Aberystwyth, Bangor, Caerdydd, De Cymru ac Abertawe. Fe'i sefydlwyd gan Lywodraeth Cymru trwy Gyngor Cyllido Addysg Uwch Cymru. Nod WIMCS yw gwella statws mathemateg a chyfrifiadura yng Nghymru, meithrin cysylltiadau â diwydiant, masnach a busnes, cynhyrchu cyllid ymchwil sylweddol a darparu fforwm ar gyfer addysg ac ymwybyddiaeth gyhoeddus o'r Gwyddorau Mathemategol (www.wimcs.ac.uk).

4. I gael rhagor o wybodaeth, cysylltwch â Gweinyddwr FMSP Cymru drwy ffonio 01792 606609 neu e-bostio adminwales@furthermaths.org.uk