



mathcymru

Newsletter Cylchlythyr

TECHNIQUEST

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New grants for Wales Maths Week

It's time to start planning for Wales Maths Week ...and teachers are being encouraged to think BIG this year! Ambitious ideas will be rewarded with larger grants than ever before, to encourage creativity in maths classes across the land.

In previous years the Welsh Assembly Government has funded grants of a couple of hundred pounds to many schools. Now it's changing the approach, giving grants of up to a thousand pounds to a limited number of schools.

The idea is to encourage ambitious thinking about how to engage pupils with maths, and the brightest ideas will be rewarded. Not only will the school receive the grant to realise the idea this year, but the idea will be refined by the experts at Techniquest and be rolled out across Wales in the future.

All school children will have the opportunity to have fun with maths during Wales Maths Week.

Techniquest is developing a range of resources for use in classrooms which will be available online in time for Wales Maths Week in October.

More information on

www.mathcymru.org

Oops! There goes my breakfast!

How often have you dropped a piece of toast during the breakfast rush, and thought "Why did it have to land butter-side down!" It's always when you are rushing to get out that you end up with the extra cleaning job of getting greasy butter off the floor. But does it have to be that way?

Schools across Wales are invited to get involved in solving the problem "Why does the toast seem to land butter-side down?" at the launch of Wales Maths Week. A mass experiment is being arranged by mathcymru and you can join in. All you need is a piece of buttered toast, somewhere to drop it from and a method of recording measurements and what happened. We can find out what percentage of toast dropped from a breakfast table lands face up and face down; what difference there is if the toast is dropped from a great height such as the ramparts of a castle; and what happens if it is dropped from a low height such as a chair.

If you'd like to get involved in this event, which will launch Wales Maths Week on Friday October 5 please contact mathcymru@techniquest.org as soon as possible. More details will be sent out, early in September, to those who have expressed an interest.

Maths goes arty in Wales Maths Week

A digital photography competition is to be held as part of Wales Maths Week. The theme of the competition is shapes, and judges will consider the number and range of shapes included in the composition, in addition to the general appeal of the photograph.

The competition will be launched in the autumn term with entries accepted from the start of Wales Maths Week.

Grantiau newydd ar gyfer Wythnos Fathemateg Cymru

Daeth yn bryd dechrau cynllunio ar gyfer Wythnos Fathemateg Cymru ... ac mae athrawon yn cael eu hannog i anelu'n UCHEL eleni! Y wobwr am syniadau uchelgeisiol fydd grantiau mwy hael nag erioed o'r blaen, er mwyn ysgogi gweithgaredd creadigol mewn dosbarthiadau mathemateg ar draws y wlad.

Yn y gorffennol mae Llywodraeth Cynulliad Cymru wedi cyllido grantiau o gwpl o gannoedd o bunnoedd i lawer o ysgolion. Nawr mae'n newid y drefn, gan gynnig grantiau o hyd at fil o bunnoedd i nifer cyfyngedig o ysgolion.

Y syniad yw annog meddwl yn uchelgeisiol sut i ennyn diddordeb disgyblion mewn mathemateg, a

gwobrwyo'r syniadau gorau. Nid yn unig bydd yr ysgol yn derbyn grant i wireddu ei syniad yn ystod eleni, ond caiff y syniad hefyd ei fireinio gan arbenigwyr yn Techniquest a'i ledaenu i bob cwr o Gymru yn y dyfodol.

Bydd cyfle i bob disgybl ysgol gael hwyl gyda mathemateg yn ystod Wythnos Fathemateg Cymru. Mae Techniquest yn datblygu amrywiaeth eang o adnoddau i'w defnyddio mewn ystafelloedd dosbarth a bydd y rhain ar gael ar lein mewn pryd ar gyfer Wythnos Fathemateg Cymru ym mis Hydref.

Mwy o wybodaeth ar

www.mathcymru.org



Wwps! Dyna gollu fy mrecwast!

Pa mor aml ydych chi wedi gollwng darn o dost ar y llawr yn eich brys amser brecwast a gofyn, "Pam mae'n glanio â'r menyn tuag i lawr bob tro?" Unrhyw bryd rydych chi'n rhuthro i adael am yr ysgol, dyna pryd y cewch chi'r gwaith ychwanegol o orfod sychu menyn seimllyd oddi ar y llawr. Ond oes rhaid i bethau fod felly?

Gwahoddir ysgolion ledled Cymru i gydweithio er mwyn datrys y broblem "Pam mae tost yn tueddu i lanio â'r menyn tuag i lawr?" pan fydd Wythnos Fathemateg Cymru yn cael ei lansio. Mae mathcymru yn trefnu arbrawf torfol a gallwch chi gymryd rhan ynddo. Y cyfan sydd raid i chi ei wneud ydy taenu menyn ar ddarn o dost, dewis rhywle addas i'w ollwng ar y llawr a dull o gofnodi mesuriadau a beth ddigwyddodd. Byddwn yn gallu darganfod pa ganran o dost wedi'i ollwng o fyrddau brecwast sy'n glanio â'i ben i fyny ac â'i ben i lawr; oes gwahaniaeth os ydy'r tost wedi'i ollwng o fwy o uchder, er enghraifft o gopa waliau castell; a beth sy'n digwydd os yw'n cael ei ollwng o uchder isel fel oddi ar gadair.

Os hoffech chi fod yn rhan o'r digwyddiad yma, fydd yn lansio Wythnos Fathemateg Cymru ddydd Gwener, 5 Hydref, yna cysylltwch â mathcymru@techniquest.org cyn gynted â phosibl os gwelwch yn dda. Bydd mwy o fanylion yn cael eu hanfon yn gynnar ym mis Medi at bawb fydd wedi nodi eu diddordeb.

Mathemateg yn gelfyddyd yn ystod Wythnos Fathemateg Cymru

Bwriedir cynnal cystadleuaeth dynnu lluniau digidol yn rhan o Wythnos Fathemateg Cymru. Thema'r gystadleuaeth ydy siapiau a bydd y beirniaid yn ystyried y nifer ac amrywiaeth y siapiau fydd wedi eu cynnwys yn y llun, yn ogystal â pha mor ddeniadol fydd y ffotograff yn ei gyfanrwydd.

Bydd y gystadleuaeth hon yn cael ei lansio yn yr hydref a chynigion yn cael eu derbyn o ddechrau Wythnos Fathemateg Cymru ymlaen.

Pupils Puzzle over Maths

There's a new look to maths lessons at six schools in Wales this year. For a start there's been an extra teacher, and she's approached the lessons armed with games and amusing problems to solve.

It's all to do with NRICH, part of the Cambridge University Millennium Mathematics Project, which is developing resources to support maths teaching in schools. Wales is leading the way in this work and has its own NRICH officer to work with classes, initially for two terms. Sara Longbottom has been visiting five schools in Powys and one in Monmouthshire introducing staff and pupils to the maths materials available on the NRICH website, which aim to encourage an appetite for problem solving. If the scheme is successful this could form the template for a longer term project in further schools.

During her first visits, Sara led the sessions. But over a period of time the teachers have taken charge of using these new resources to help with algebra, shape and space, number and data handling.

Sara says: "The response both from pupils and teachers has been fantastic. The problems from the NRICH website really stretch the pupils and make them use different approaches to finding the answers.

"We expect pupils will begin to use the website themselves, ultimately sending in solutions".

Linda Bebb has been teaching maths at King Henry VIII School in Abergavenny for 15 years. She says the problems and games encourage logical thinking, even in children who find it difficult to cope with traditional number work.

She says: "I think they respond well to these resources because they're fun...it's different, and they're using their maths skills in a different way"

"The NRICH site gives me ideas...such as using spatial arrangements in work on fractions - it engages the pupils".

"I work with years 7 and 8 in school...KS3...and I've already started building NRICH resources into my Scheme of Work. Sara has been a big help in pointing me to relevant games and problems, as there are so many to choose from!"

Charlie Gilderdale from the Millennium Mathematics Project says they're delighted that Sara is spreading the word that problem solving is at the heart of doing mathematics: "With her help we hope that more and more teachers will get to know about the free mathematics resources available on the NRICH website.

"And it won't just be half a dozen schools in South Wales which will benefit from Sara's work; we are delighted she is developing plans for spreading the word further afield."

While the NRICH problems and games may be new to children in Wales, they're quite familiar to maths learners across the world. The website regularly attracts contributions from other countries. Pupils from such places as Turkey, Japan, Hong Kong and Singapore have contributed solutions to some of the problems.



Disgyblion yn Datrys eu Mathemateg

Mae newydd wedd ar wersi mathemateg mewn chwech o ysgolion Cymru eleni. Yn gyntaf, mae athrawes ychwanegol wedi bod yno, ac mae hi wedi dod â gemau a phosau hwyliog i'w datrys yn y gwersi.

Daeth hyn i fod trwy NRICH, rhan o Broject Mathemateg y Mileniwm ym Mhrifysgol Caergrawnt, sy'n datblygu adnoddau i gefnogi addysgu mathemateg yn yr ysgolion. Mae Cymru ar flaen y gad yn y gwaith yma ac mae gennym ein swyddog NRICH ein hunain yn gweithio gyda dosbarthiadau, am ddau dymor i ddechrau. Bu Sara Longbottom yn ymweld â phump o ysgolion ym Mhowys ac un yn Sir Fynwy, gan gyflwyno'r staff a'r disgyblion i'r deunyddiau mathemateg sydd i'w cael ar wefan NRICH. Nod y rhain yw ysgogi disgyblion i gael blas ar ddatrys problemau. Os bydd y cynllun yn llwyddiant, gallai hyn fod yn batrwm i'w efelychu gan broiect dros gyfnod hwy ac mewn rhagor o ysgolion.

Yn ystod ei hymweliadau cyntaf, Sara oedd yn arwain y sesiynau. Ond cyn hir roedd yr athrawon yn cymryd at ddefnyddio'r adnoddau newydd i'w helpu gydag algebra, siâp a gofod, rhif a thrin data.

Meddai Sara: "Mae ymateb y disgyblion a'r athrawon fel ei gilydd wedi bod yn ardderchog. Mae'r problemau sydd ar wefan NRICH yn gwirioneddol estyn y disgyblion a gwneud iddyn nhw ddefnyddio gwahanol ddulliau o ddod o hyd i'r atebion.

"Yn fuan disgwyliwn weld y disgyblion eu hunain yn dechrau defnyddio'r wefan ac, yn y pen draw, yn anfon eu datrysiadau yno".

Mae Linda Bebb wedi bod yn addysgu mathemateg yn Ysgol Brenin Harri'r Wythfed yn y Fenni am 15 mlynedd. Dywed fod y problemau a'r gemau yn ysgogi meddwl yn rhesymegol, hyd yn oed gan blant sy'n cael anhawster ymdopi â gwaith rhif traddodiadol.

Meddai: "Dw i'n meddwl eu bod yn ymateb yn dda i'r adnoddau yma oherwydd eu bod

yn hwyl ... mae'n wahanol ac maen nhw'n defnyddio eu mathemateg mewn ffordd wahanol.

"Mae gwefan NRICH yn rhoi syniadau i mi ... er enghraifft, gallaf ddefnyddio trefniadau gofodol wrth weithio ar ffracsiynau - mae hynny'n enyn diddordeb y disgyblion.

"Dw i'n gweithio gyda blynyddoedd 7 ac 8 yn yr ysgol ... CA3 ... ac eisoes dw i wedi dechrau cynnwys adnoddau NRICH yn fy Nghynllun Gwaith. Bu Sara yn help mawr wrth fy nghyfeirio at gemau a phroblemau perthnasol, gan fod cymaint o ddewis ar y wefan!"

Dywed Charlie Gilderdale ar ran Project Mathemateg y Mileniwm eu bod wrth eu bodd fod Sara yn lledaenu'r neges fod datrys problemau'n ganolog i wneud mathemateg: "Gyda'i help hi, rydyn ni'n gobeithio y bydd mwy a mwy o athrawon yn dod i wybod am yr adnoddau mathemateg hyn sydd ar gael yn rhad ac am ddim ar wefan NRICH.

"Ac nid yn unig hanner dwsin o ysgolion yn Ne Cymru fydd yn cael budd o waith Sara; rydyn ni'n falch dros ben ei bod hi'n datblygu cynlluniau i estyn y ffiniau'n ehangach."

Efallai fod problemau a gemau NRICH yn newydd i blant Cymru, ond mae dysgwyr mathemateg yn gyfarwydd â nhw ar draws y byd. Yn aml mae'r wefan yn denu cyfraniadau o wledydd eraill, gyda disgyblion o leoedd fel Twrci, Japan, Hong Kong a Singapore wedi cyfrannu datrysiadau i rai o'r problemau.



Maths on wheels

More children in Wales than ever before will have the chance of a Techniqest maths experience this autumn. The science education charity has made a substantial investment in new Maths Challenge kits to take interactive games and problems out to schools across the North and much of South Wales.

Maths Challenge Kits have already proved popular at schools in the north east of Wales. Each kit, suitable for KS2 pupils, is a collection of hands-on problem solving activities. Each is designed to motivate and interest pupils of all abilities and covers important areas of the curriculum, encouraging pupils to explore, discover and test.

Each kit is accompanied by comprehensive pre- and post-extension materials and teacher support notes. They support several curriculum topics: Numbers, shape, space and measures, and handling data. The kits are easy to transport and schools are encouraged to work together to share the resource.

Other Challenge Kits are available for schools dealing with Forces, and Materials, again suitable for KS2.

Techniqest staff are also offering an exciting and memorable presenter-led maths show to visit schools. The show, designed for KS2 pupils, can be adapted to cater for KS1, or year 7 children on request.

Other shows dealing with science topics are also available to visit schools.

Techniqest is developing its outreach programme, in order to meet the needs of more children and young people across Wales. Techniqest Chief Executive Peter Trevitt says: "Techniqest's mission to stimulate interest in maths and science has never been more important. Jobs and livelihoods are at risk if young people are

not interested in science and cannot judge new discoveries for themselves.

"It can be difficult for some schools to bring classes to our main base, so one solution is for us to go to them. Children shouldn't miss out on a Techniqest science experience because of where they live."



Mathemateg ar y Lôn



Yn yr hydref eleni, bydd mwy nag erioed o blant Cymru'n gallu blasu rhai o brofiadau mathemateg Techniqest. Mae'r elusen addysg wyddoniaeth wedi wneud buddsoddiad sylweddol mewn Citiau Her Fathemateg fydd yn mynd â gemau a phroblemau rhyngweithiol i ysgolion ar draws gogledd Cymru a rhannau helaeth o'r de.

Eisoes mae Citiau Her Fathemateg wedi bod yn bethau poblogaidd mewn ysgolion yng ngogledd ddwyrain Cymru. Mae pob cit, sy'n addas ar gyfer disgyblion CA2, yn gasgliad o weithgareddau ymarferol mewn

datrys problemau. Cynlluniwyd pob un i ysgogi a diddori disgyblion o bob ystod gallu ac maen nhw'n cwmpasu meysydd pwysig o fewn y cwricwlwm, gan annog disgyblion i archwilio, darganfod a rhoi gwybodaeth ar brawf.

Yn cyd-fynd â phob cit mae deunyddiau estynedig cynhwysfawr i'w defnyddio cyn ac ar ôl rhoi cynnig ar y gweithgareddau, ynghyd â nodiadau cefnogi i athrawon. Maen nhw'n ymwneud â sawl pwnc yn y cwricwlwm: rhif, siâp, gofod a mesurau, a thrin data. Mae'r citiau yn hwylus i'w cludo o le i le ac anogir ysgolion i weithio gyda'i gilydd a rhannu'r adnoddau.

Mae Citiau Her eraill ar gael i ysgolion yn ymwneud â Grymoedd, a Defnyddiau, y rhain eto'n addas ar gyfer CA2.

Hefyd, mae staff Techniqest yn cynnig sioe fathemateg gyffrous a chofiadwy, dan arweiniad cyflwynydd, i ymweld ag ysgolion. Paratowyd y sioe ar gyfer disgyblion CA2 ond gellir gwneud cais iddi gael ei haddasu i ddiwallu anghenion plant CA1 neu Flwyddyn 7.

Mae sioeau eraill, yn trin pynciau gwyddonol, ar gael i ymweld ag ysgolion hefyd.

Mae Techniqest wrthi'n datblygu ei raglen allanol er mwyn ateb gofynion mwy o blant a phobl ifanc ledled Cymru. Dywed Prif Weithredwr Techniqest, Peter Trevitt: "Ni fu cenhadaeth Techniqest i ennyn diddordeb mewn mathemateg a gwyddoniaeth erioed mor bwysig. Mae swyddi a bywoliaeth yn y fantol pan fo pobl ifanc heb ddiddordeb mewn gwyddoniaeth ac yn methu barnu darganfyddiadau newydd drostynt eu hunain.

"Gall fod yn anodd i rai ysgolion ddod â dosbarthiadau o ddisgyblion i'n prif ganolfan, ac felly un ateb yw i ni fynd atyn nhw. Ddylai plant ddim cael eu hamddifadu o'r profiad gwyddoniaeth Techniqest oherwydd ble maen nhw'n byw."

Creative thinking

Author and creative thinker Rob Eastaway will be inspiring young mathematicians in Newport this autumn as part of a series of talks to celebrate Wales Maths Week.

Rob, who's probably best known for his books "Why do buses come in threes?" and "What is a Googly?" is in great demand as a speaker on creative thinking, and all sorts of maths topics.

He says many people mistakenly think maths and creativity are poles apart. "In fact," he says "there are some surprising ways the subjects overlap... particularly in the type of lateral thinking needed to tackle many puzzles and everyday problems".

Rob, will be at the Caerleon campus of Newport School of Education on October 12.

Talks by other eminent mathematicians take place during the week in Aberystwyth, Bangor, Swansea and Wrexham. Places at all events are limited - to reserve your seat please contact johnohp@techniquet.org or telephone **029 20 475 475**.

Meddwl creadigol

Bydd yr awdur a meddyliwr creadigol Rob Eastaway yn ysbrydoli mathemategwyr ifanc yng Nghasnewydd yn yr hydref fel rhan o rhaglen o darlithoedd i ddatlu Wythnos Fathemateg Cymru.

Mae Rob, sy'n enwog am ei llyfrau "Why do buses come in threes?" a "What is a Googly" yn boblogaidd fel siaradwr ar feddwl creadigol, a llawer o bynciau mathemategol eraill.

Fe ddywed fod llawer o pobol yn credu ar gam fod mathemateg a chreadigedd yn wahanol iawn. "There are some surprising ways the subjects overlap - particularly in the type of lateral thinking needed to tackle many puzzles and everyday problems", meddai.

Bydd Rob yng Nghampws Caerleon, Ysgol Addysg Casnewydd, Hydref 12. Yn ystod yr wythnos, buddarlithoed am fathemategwyr amlwg yn Abertawe, Aberystwyth, Bangor, a Wrexham. Mae lleodd am y digwyddiadau yn gyfyngedig - i cadw lle cysylltwch â johnohp@techniquet.org neu ffoniwch **029 20 475 475**

NRICH favourites

Have you discovered the NRICH website yet?

<http://rich.maths.org>

Ffefrynnau NRICH

Ydych chi wedi darganfod gwefan NRICH erbyn hyn?

<http://rich.maths.org>

Sara's suggestions

Here are some suggestions from the NRICH site which Sara Longbottom, NRICH officer, recommends. To find them type the name into the top right search box and press go!

Algebra:

What are they worth?

Number pyramids.

Letter land.

Number:

Make 37.

Take Three from Five.

Not a polite question.

Shape and space:

Lost.

Nine colours.

Isosceles triangles.

Data handling:

The Pet Graph.

Odds and Evens.

How Big are classes 5, 6 and 7?

Awgrymiadau Sara

Dyma rai awgrymiadau sydd ar wefan NRICH mae Sara Longbottom, swyddog NRICH, yn eu hargymhell. I ddod o hyd iddyn nhw, teipiwch yr enw yn y blwch chwilio yn y top ar y dde a gwasgu "go"!

Algebra:

What are they worth?

Number pyramids.

Letter land.

Rhif:

Make 37.

Take Three from Five.

Not a polite question.

Siâp a Gofod:

Lost.

Nine colours.

Isosceles triangles.

Trin data:

The Pet Graph.

Odds and Evens.

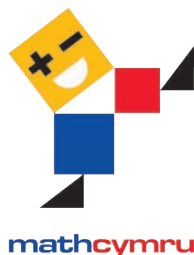
How Big are classes 5, 6 and 7?

Do you have a favourite problem or game?
Send it in to Sara: sara@techniquet.org

Oes gennych chi hoff broblem neu gêm?
Anfonwch hi at Sara: sara@techniquet.org

For more information contact:

mathcymru,
Techniquet,
Stuart Street,
Cardiff CF10 5BW
T 029 20 475 475
F 029 20 482 517
E info@techniquet.org



Am fwy o wybodaeth cysylltwch â:

mathcymru,
Techniquet,
Stryd Stuart,
Caerdydd CF10 5BW
T 029 20 475 475
Ff 029 20 482 517
E info@techniquet.org

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