Underground Mathematics newsletter

June 2016

underground mathematics

In this newsletter:

Introduction

Written by Lynne McClure, co-director of Underground Mathematics

The metrics for our new site are showing a very positive trend - there were 5,554 visitors in the last month and over 20,000 visitors since we went live. Interestingly the top 10 cities last month were London, Cambridge, Manchester, Hong Kong, Sydney, Cardiff, Melbourne, Birmingham, Brighton and Belfast, so we know our audience is gathering international momentum.

And all this following a very 'soft' launch whilst we eradicated any gremlins in the works. Starting this week, we are increasing our outreach efforts through print and social media. We want all maths A level teachers to know about our free resources. Please join us by spreading the word online and offline, and look out for newspaper and journal articles, and Twitter and Facebook domination. We encourage those with time and enthusiasm to apply to our new Champions Programme - details below!

Those of you who have been part of workshops here at Cambridge will know that designing new tasks can be a lengthy process. The team are currently grappling with enhancing the Calculus offer, and we expect to be publishing these in the next month - so do keep an eye on the home page which indicates new content.

And since this is the last newsletter before the end of term, the team join me in wishing you a restful holiday and a stimulating and enjoyable new academic year.

Apply to be an Underground Mathematics Champion

Underground Mathematics is looking for teachers and practitioners who are enthusiastic about using rich tasks at A level and who would like to support us in spreading the word about UM. We invite you to become an Underground Mathematics Champion – a year-long volunteer commitment to support UM and the use of rich tasks across maths teaching.

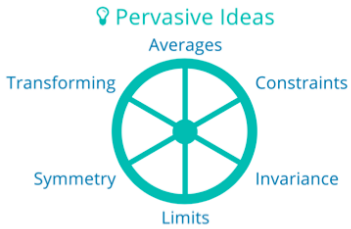
Being an Underground Mathematics Champion will allow you to have a chance to meaningfully contribute to the development and dissemination of high quality mathematics resources. We are excited to involve you in spreading the word about Underground Mathematics online and offline, at schools, Maths HUBs, conferences, and meetings. Additionally, we are seeking teachers who would be able to mentor new UM users, online and offline. Champions will also have a chance to review resources in development to ensure relevant, high quality resources from our team.

For more information, and to apply, please click here.
Application deadline is 2 August 2016.

In the spotlight: Pervasive Ideas

In each newsletter we will focus on an area of Underground Mathematics. This time we take a closer look at Pervasive Ideas.

In addition to the connections shown by our tubemap, there are many important ideas arising throughout mathematics that do not fit naturally at a station because they permeate mathematics at this level. We have chosen to highlight some of these in our pervasive ideas. We believe it is important and useful for students to be aware of these ideas as they are studying mathematics because this awareness can lead to insight and opportunities to make connections.



To help you draw attention to these ideas in the classroom, resources that encourage the use of one or more pervasive idea are highlighted at the station and resource level.

By promoting these ideas, we aim to encourage students to reflect on the connected nature of mathematics and allow them to make connections for themselves.

To look at an example of one of our pervasive ideas, click HERE for a journey through some of our Transforming resources.

Teacher perspective

Peter Grime, from The Sixth Form College in Solihull, shares his experience of integrating Underground Mathematics resources into his team's day to day teaching.

I am sure we have all attended a CPD event where we have become excited and enthused by the training offered and then vowed to change our practice back in the classroom.

Sometimes we start with good intentions but due to a busy schedule revert back to the daily routine in lessons and forget what we set out to do.
As the Curriculum Leader in Mathematics not only did I want to incorporate Underground Mathematics resources into my own teaching, but also to integrate the activities and the underlying philosophy behind them into the day to day teaching of the maths department.

We tried to do this at the College using:

1. Schemes of work – thinking about what resources could be used and when during the teaching year. We thought four really good examples were – Integral chasing, Scary sum (surds), Olympic rings and Teddy bear (circles and transformations). There was lots of discussion amongst the team around at what stage of a topic we could use a resource. Sometimes it is tempting to just use a resource as an extension at the end of the topic but we felt for example, Scary sum might be used earlier in surds as a motivation for studying the rationalisation of surds.

2. MEI training – all the staff in the department we given a resource to try on their own and then attended the two day MEI training event. Between the training days they trialled an Underground Mathematics activity with their class and then reflected and fed back to the group on their experiences.

3. Student voice – it is also important to see what students think about the resources and whether it helps them either understand a topic better or give them a different perspective. Early on some students find the problems hard but it is fantastic to see that students do not give up and all make some sort of progress.

4. Lesson observations – one teacher decided to use the Two-way functions activity with a class during a formal lesson observation and not only did students find this lesson rewarding but the teacher had a successful lesson appraisal.

5. Creating own resources - we have been inspired to create our own

Underground Mathematics-type resources. For example, a topical one at this time of the year is the Poisson Predictor which uses prior data and the Poisson distribution to predict the outcomes of Euro 2016 football matches.

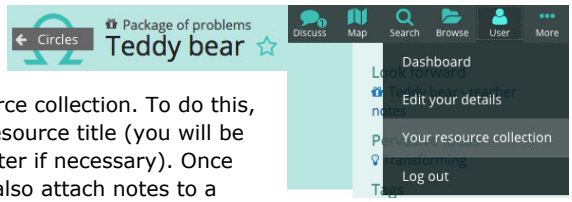
Free CPD: Upcoming webinar

Underground Mathematics will be running a free webinar on Wednesday 24th August at 16:00 (GMT+1).

The webinar will explore how you can use Underground Mathematics resources in your classroom. The chosen resources are ideal for developing students' mathematical behaviours, such as communication, collaboration and reflection. We will offer ideas for using these resources with your new A level (or equivalent) students, with our main focus being developing a mathematical classroom at the beginning of the school year.

Look out for more information, including a link to register for the webinar, in the coming weeks.

Website update – your resource collection



We have recently added the ability to save resources for later by adding them to your resource collection. To do this, click the star next to the resource title (you will be prompted to log in or register if necessary). Once you've done this, you can also attach notes to a resource. You can even create subcollections to organise resources and create custom PDFs containing multiple resources or questions. See the how-to guide for a full explanation.

We would like to thank everyone who took part in the survey to test this, which has hopefully resulted in a helpful new feature that's easy to use.

Underground Mathematics community

The Underground Mathematics site is accessible to all, and its design is rooted in teacher experience. So we would value any contribution you can make by sharing your experiences of using our resources with your students. You can join the conversation by creating a login for the site and using the 'Discuss' link that appears at the top of each page.

Our Twitter feed is @UndergroundMath, where we regularly tweet resource suggestions, events we are involved in and any interesting maths we come across. This replaces @CMEPMaths. You can also find Underground Mathematics on Facebook here.

Meet the team

Over the next few months you can find the team at the following conferences.

MEI Conference, University of Bath, 30th June – 2nd July
NQT inspiration day, Cambridge, 12th July
International Congress on Mathematical Education, Hamburg, 24th – 30th July
East Midlands KS5 Maths Conference, Nottingham, 9th August
European Conference on Educational Research, Dublin, 22-26th August
British Educational Research Association Conference, Leeds, 13-15th September
International Society for Design and Development in Education conference, Utrecht, 19-22 September

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