UNIVERSITY OF LIVERPOOL MATHS SCHOOL
EDUCATION FOR 16-19 YEAR OLDS

Newsletter

Spring Term, Issue 4 2022

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Headteacher's Message

January has been a busy month for everyone at ULMaS. We had 55 students sit the admissions aptitude test in mid January and we're now in the process of interviewing them all. Our aim is to ensure that as many students as possible have access to the education we offer but we also need to ensure that students are making the right choice in applying to us. We're delighted that word is getting around about the opportunities and the quality of the students' experience at ULMaS and hope to be able to welcome around 50 new students next September.

Our current students have been working very hard throughout January with exams for Year 13 and the Year 12 curriculum stepping up a gear and becoming increasingly abstract. Parents should be seeing students completing around 2 hours of homework most evenings, but if it is significantly more or less than that, or you are concerned about your child's wellbeing or progress, please do get in touch with us.

Our outreach team has been busy promoting and delivering a range of exciting new Outreach courses in maths, physics and computer science. If you know a young person who might benefit from these, please point them to our outreach page at: liverpoolmathsschool.org/outreach-reaching-your-potential/

I had the pleasure recently of meeting with our newest Trustee, Catherine McClennan. We're delighted to have the benefit of her skills and experience as our school develops. At the end of this newsletter there is a personal message from her, and her email address in case you ever want to get in touch with her.

Looking forward to the spring, we are planning a number of activities outside school including a visit to Cambridge and Oxford for Year 12, expeditions for Duke of Edinburgh participants and (if we can find a suitable venue) a revision residential for Year 13.
As always, the school is hive of activity and I'm in awe of the way our small team of staff manage to make everything happen so smoothly - they are working very hard and I'm very grateful to them for their commitment.

Important Dates

- Thursday 23rd of June 2022- Y12 Parents Evening

Holiday Dates 2021 - 2023

- Half Term Break: February 21st - 25th 2022
- Easter Break: April 11th - April 22nd 2022
- May day Holiday - May 2nd 2022
- Half Term Break: May 30th - June 3rd 2022
- Summer break up date: 1st July 2022
- Start of Autumn term: 5th September 2022
- Half term break: October 24th - 28th 2022
- Christmas break 2022: 22nd December - 3rd January 2023
- Spring term Starts: 4th January 2023
- February Half term: 13th - 17th February 2023
- Easter break: 3rd - 14th April 2023
- Summer term starts: 17th April 2023
- May Day: 1st May 2023
- Half Term: 29th May - 2nd June 2023
- Summer break up date: 30th June 2023

School Trips

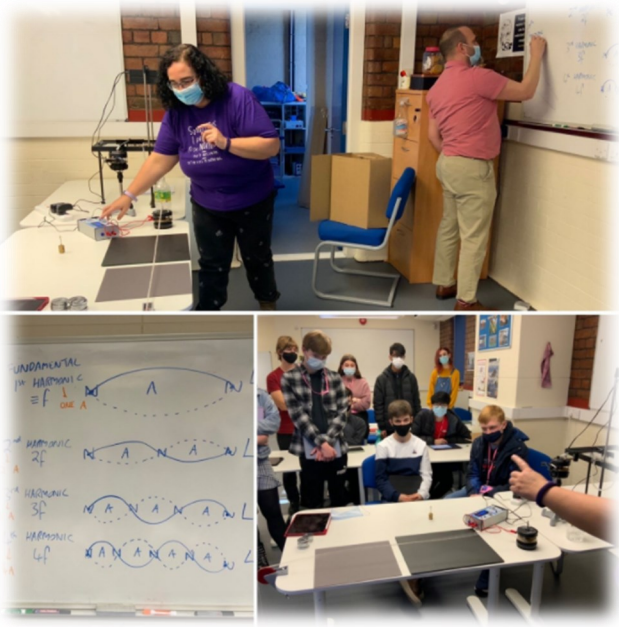
Oxford and Cambridge visit

We will be visiting colleges in Cambridge (Magdalene and St John's) and Oxford (St. Peters) and staying at a hostel in Oxford city centre. We hope to give students a snapshot of student life, including talks, and tours of the two universities. We aim to visit a Russell Group University as well as an Oxbridge college each year, alongside regular input from the excellent University of Liverpool.

Visit to Ocean and Climate Science Department

We had the pleasure of visiting this department at the University of Liverpool this week. Students had a talk about the excellent courses available from Prof Jonathan Sharples, a demonstration about ocean currents from Prof Chris Hughes and Prof George Wolff showed the impact of carbon dioxide level increases in a range of situations. A thoroughly interesting and enjoyable visit. It was great

School Curriculum



Physics

In Physics, Michelle, Mark, Justin and Timothy presented their project on Researching a Compound Pendulum to the Institute of Physics for the Experimental Project Competition run by the Physics Olympiad organiser. We wish them luck!

Year 12 students are currently studying Waves and Optics. They're out finding out about the wonders of light polarisation. In March, we will hopefully attend a Particle Physics Masterclass in the University of Manchester.

Year 13 students are on the last two topics of the course, radioactivity and astrophysics. The hardest ones are over and just need extra practice. A huge thank you to all of them for the hard work they've put on their mocks. They are doing so much better now than they were last year.

Mathematics

In Mathematics, Year 13 students are getting to the end of the mechanics module with Damian, learning about centres of mass and then moving on to dimensional analysis. They are returning to statistics with Colin, and studying matrices with Niall. Year 12 are deepening their understanding of integration whilst also beginning the Further Maths curriculum, with complex numbers soon to be introduced. We also received the results from the follow on rounds of the UKMT Senior Maths Challenge

Computer Science

In computer science this month Year 12 have been looking at the various software development methodologies. They have been working in groups to produce a presentation on their selected method and then during our Monday lecture the teams have presented their research and information to the rest of the year group in the lecture theatre.

Year 13 had their first full A2 mock exam and have had feedback on how they did with it. Lots of hard work to do for all, and intervention activities are now in place Wednesday lunchtime for improving pseudocode and review of topic knowledge through personalised Seneca assignments.

UCAS Update

We're very pleased to announce that all 27 Year 13 students have applied for university degree courses through UCAS, and several are also looking at degree apprenticeships as another option. The University of Liverpool was the most popular choice, but students have applied to 28 different institutions. The most popular course choice was engineering, closely followed by maths, computer science and physics. Almost all courses applied for were strongly mathematical in nature, as expected.

Leo Chamberlain and Louis Melvin have been given conditional offers to study at Cambridge University next year (Natural Sciences at Trinity and Mathematics at St John's, respectively).

Here are the universities applied to, in order of the number of applications:

Row Labels	Count of Personal Id
University of Liverpool	17%
University of Cambridge	13%
University of Manchester	8%
University of York	6%
Durham University	5%
University of Birmingham	5%
University of Leeds	4%
University of Exeter	4%
University of Bath	4%
Loughborough University	4%
University of Warwick	4%
Lancaster University	3%
University of St Andrews	3%
University of Bristol	3%
The University of Edinburgh	2%
University of Oxford	2%
Imperial College London	2%
University of Sheffield	2%
Liverpool John Moores University	2%
Heriot-Watt University	1%
University of Kent	1%
Manchester Metropolitan Universit	1%
University of Strathclyde	1%
University of Surrey	1%
University of Nottingham	1%
Newcastle University	1%
Liverpool Hope University	1%
University of Central Lancashire	1%
Grand Total	**100%**

Exam Results

Exam results from Dec and Jan

Students in Year 12 completed their winter exams in December and Year 13 took exams in January. In both cases we have designed the examination process to try to achieve a number of things:

1. An accurate measure of students' learning so far.
2. A basis for making reliable predictions about what grades they might achieve in future A-Level exams.
3. A rehearsal for the "real thing" including any factors which might prompt undue stress, so that students can start to learn how to manage their response to this.
4. An opportunity for students to learn how to respond positively to the challenge of exams and then reflect productively on how effectively they prepared for them.
5. After each round of exams we meet with students individually to help them to interpret their results, and formulate a suitable response in terms of an action plan to address gaps in knowledge, strategies to manage their emotional response to the exams and any follow up we need to do in terms of ensuring they have fair access to the assessments and can demonstrate their learning fully. For both of our current cohorts of students this process is particularly important because they have not been through the process of sitting GCSE examinations, so will have their first experience of major external exams when they take their A-Levels.

Extracurricular activities

D of E

As the first journey to the outside world comes ever closer (18th February!) we have finished covering the theory of walking about and camping and are moving onto the practicalities. This month we have harnessed the power of fire with our new gas trangias without incident, and started practising quick and effective map reading and compass use. All students will be expected to lead a leg of the day walk, and to communicate DDTT - distance, direction, time, terrain - to the rest of their group. Lastly we have looked at efficient and sensible rucksack packing, where in my experience less is certainly more. Can't wait for the proper expedition season to start!

Upcoming DofE Events:

- **Friday 18th February:** Day Walk around Moel Famau
- **Thursday 21st - Saturday 23rd April:** Practice Expedition in the Lake District
- **Saturday 2nd - Wednesday 6th July:** Qualifying Expedition in Snowdonia

PPEP – Sleep & Habits

PPEP has focused on the interconnected topics of sleep, changing habits, and analysing research. We've looked at the processes that govern your internal rhythms, the hormones that affect them, and the pernicious ability of caffeine to replace one of them. We've talked about the physical and mental effects of long-term poor sleep, and the many, many benefits of the two broad phases that make up your sleep cycle - REM and NREM. We also found out a guinea pig needs 9.4 hours of sleep per day and migrating birds can take power naps of a few seconds per time while flying, but I admit that knowledge is less applicable to everyday life.

A lot of students had identified poor sleep (and a lack of work routine) as a habit that bothered them, so we looked at different ways that you can effect change in yourself, and giving yourself the best chance to succeed in doing so. These included such things as Temptation Bundling, Ulysses Contracts, Present Me vs Future Me, the Power of Defaults, and loads of other research-based techniques that would also be excellent band names.

Lastly, as we'd been referring to it, we looked at the tricky task of interpreting research, comparing studies to the popular science writing that resulted from them, and asking the question "can you trust what you read?". The answer, as always, is "it depends".

Michael Prescott

Assembly on Exam stress

With so many ongoing exams, House Popplewell was in charge of organising an assembly on strategies to identify and control stress. Stressful as that was for the presenters, they did a sterling job and collected experiences from both teachers and students to help us in times of anxiety. Thanks to Sophie, Lucy, Rob and Matthew!

Assembly on Neurodiversity

Popplewell's second assembly was on Neurodiversity. Conditions such as Autism or ADHD are often badly understood and there are many misconceptions. Thomas, Bella, Maisie and Vivienne explain to us how the idea of “normal” is just unhelpful and how there are many differences and positive qualities to be celebrated among neurodiverse people. As Thomas put it, “If you’ve met one individual with autism, you’ve met one individual with autism” (Dr Shore). They proposed an interesting activity for the day, maybe to try to consciously notice background noises, any physical contact, or any other sensory stimulation to see how much there is in everyday life. They can make a neurodiverse person become overwhelmed.

Students Thomas and Vivienne wrote the following about their experience of neurodiversity at ULMaS:

Recently, we worked with some other students to produce and deliver an assembly about neurodiversity. This was aimed at improving awareness as well as eliminating common misconceptions and explaining how to support neurodiverse students. This covered many topics such as the diagnosis process, the fact that vaccines absolutely do not cause autism, and what sensory overload/becoming overwhelmed is and how to help to prevent it from happening.

Students learned that many common misconceptions about neurodiversity are incorrect and how harmful they can be, as well as learning about how the diagnosis process works for ASD, ADHD, and Dyslexia. The students were then given an optional task of trying to actively notice small sensory inputs to help them understand what a neurodiverse person’s daily experience may be like. The students also learned about the purpose of some things they may frequently see in school, such as noise cancelling headphones or other supporting objects/processes that some neurodiverse students may use, such as what self stimulatory behaviour is (stimming) and what that behaviour may be. Many students also recognised some of the symptoms of neurodivergence within themselves, increasing general understanding and consciousness of the things that may cause a neurodiverse student to become overwhelmed.

Student #1
From a neurodiverse student point of view, I have been supported amazingly by school during and since my diagnosis. The students have also been very accommodating of my issues with certain sensory inputs. Because of this the reason for the assembly could be more focussed on what neurodiversity is and how to support neurodiverse students, rather than what not to do or say. One thing I have experienced is that the staff are really good at noticing when I am utilising the strategies I have in place for support, and making sure I’m ok and managing well. They are also very supportive and understanding if I become overwhelmed and have to step outside of a lesson for a few minutes, and will come to check on me if I miss the first few minutes of a lesson as that means I will have become overwhelmed.

Student #2
I have always found communication and recognising social cues to be rather challenging, which has made integration into school quite difficult. After approximately one month since starting here, I have been (metaphorically speaking) throwing myself into social situations of varying degrees of complexity, and working diligently to develop my “slightly insufficient people skills”. Presenting this assembly posed a tremendous challenge, but it allowed me to share some information about neurodiversity with a large group of people - something I did not initially think was possible. Despite the fact that I still struggle with certain tasks, I could not imagine a better environment for myself than this school. Developing a strong network of people I can trust has been the main thing that has helped me to settle in. I am happy.

We would both like to express our sincere gratitude towards all staff members and students for taking the time to understand and accommodate us. You have helped turn this school into an incredible environment where neurodiverse students can thrive.

Written by Thomas Year 13 & Vivienne Year 12.

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Our Mission

We exist to enable children with a strong interest and high potential in the mathematical sciences to achieve global impact through careers in the mathematical sciences. By preparing them thoroughly and comprehensively for STEM degrees and significant roles both within local communities and the global community of science, technology, engineering and mathematics, our students will be equipped to become tomorrow's industrial and academic researchers, innovators who will address the world's greatest challenges, teachers who will inspire the next generation, wealth creators, entrepreneurs and problem solvers.

Message from new Parent Trustee, Catherine McClennan:

I just wanted to thank you for electing me as your Parent Trustee in the recent election.
I have attended my first meeting and had an induction into the role and am really looking forward to getting more involved in the oversight and development of ULMaS.

I would like to ensure that your views and those of the students are heard by the Board of Trustees so please get in touch if you want to discuss anything with me or want me to raise with the Trustees.
You can contact me at catherine.mcclennan@liverpoolmathsschool.org

Best wishes

Catherine

Eating Disorders

We have recently arranged training for our staff through the eating disorder charity, BEAT. For the age of students that we support, eating disorders are relatively common. We aim to ensure that all our staff are well prepared to support children with the mental health challenges that they face, so that students can ask any of us for support. Eating disorders are extremely worrying for the sufferers and their families and friends. If you or your family need support then the BEAT helpline details are here; early intervention can make a big difference, so if you're unsure it's worth asking for help.

Covid Update

As of Thursday 27th January there is no requirement to have masks worn in school. Given a recent surge in numbers of positive cases in our school we have decided to introduce a few contingency measures to help minimise the potential spread. This includes recommending students wear masks in communal areas, corridors and classrooms. Students are reminded to do 7 days testing if a close contact. We ask students to join the lesson as normal on Zoom if positive but not feeling unwell.