The

"Every now and then, Step aWay from your circle, take a look back and be grateful for what you've got."

### Issue 29 | Spring 2021

Showcasing exceptional work by pupils from Princethorpe College, Crackley Hall School and Crescent School.



Princethorpe College



# **LETTER FROM THE EDITOR** ISSUE 29



I write this letter during another period of national lockdown in the battle against Covid-19. It's not something I imagined I'd be doing twice, but here we are. The students are doing brilliantly with their home learning and whilst I'm sure we'd all rather be back in school together, there are aspects of home learning that we will miss when things get back to normal. For me, the extra time with my family has been very precious indeed.

On the recommendation of Dr Reddish, I have been reading *High Performance Learning: How to Become a World Class School* by Deborah Eyre. As I read, I feel with absolute certainty that Princethorpe College is well and truly already on this path. We are consistently effective in securing excellent academic results for our students, yet at the same time, we produce young people who can think for themselves, are socially confident and benefit from a rich diet of educational opportunities. Despite the challenges of lockdown, teachers and senior leaders are pressing on with new and exciting initiatives to ensure Princethorpe pupils are intellectually and socially confident as well as workplace-ready and life-ready with a global outlook and a concern for others. These are the aims of world-class schools and it is clear that our excellent staff body, the rich extra-curricular diet we provide, our wrap-around pastoral care and aspirational vision generates a palpable sense of purpose and excitement among Princethorpe staff and students alike.

Princethorpe is a scholarly place but we also focus on a more creative, rounded view of learning, emphasising the rewards of innovation, creativity, mastery and practice. Our successes do not occur by accident. We are proactive in maximising learning opportunities and fostering in our pupils a love of learning, autonomy and confidence. Whether we stand at the front of a class in the school building or sit with our laptops open in front of us to deliver home learning, you can be sure that Princethorpe teachers are proactively tinkering with our practice in order to get better, we are working collaboratively, we are solving problems and we are working hard to produce the types of students that the workplace and society need.

The front cover for this issue is a painting of my father, Peter Pascoe, painted by my son, Madoc, for his GCSE Art. He has certainly captured my father's spirit - you can imagine how proud I am! His teacher, Mr Hubball, is delighted with the way he has executed the style of South African artist Lionel Smit.

Thanks go to: staff at Princethorpe College; staff at Crackley Hall School (co-ordinated by Cat Hardwick); staff at The Crescent (co-ordinated by Sarah Webb); the Marketing Team; photography by Helen Stephenson; and Debbie McLaughlin at Dam Design Creative.

### SEE YOU NEXT ISSUE! HELEN PASCOE-WILLIAMS

EDITOR & CO-ORDINATOR OF THE DAVINCI PROGRAMME



## 21<sup>ST</sup> CENTURY STEAM INNOVATORS ESSAY COMPETITION

To celebrate UK Science Week, we are offering you a chance to win lots of house points and earn a da Vinci merit! We would like you to write a 300-500 word essay about a STEAM innovator who you find inspirational. These can include: scientists, engineers, artists, mathematicians, designers, computer scientists, and more!

## WHEN CHOOSING YOUR INNOVATOR, THINK ABOUT:

- Diversity: search online for innovators from all over the world.
- How current they are: we are looking for interesting people who are having an impact on their field right now, not somebody you are likely to find in a textbook.
- Perhaps you or someone in your family even know someone you can write about?

#### IN YOUR ESSAY, MAKE SURE YOU INCLUDE:

- What your innovator's job is
- · What they are currently researching or working on
- Why you admire them
- A bibliography of any resources you use

The competition is open to all students, and judging will be

in two separate categories of KS3 and KS4/5. Prizes will be 10 house points for every entry, with a first prize of 100 house points! 2nd prize 75 house points and 3rd prize 50 house points.

> All entries to be in by Friday 5 March. Send your essay to laurenmason14@princethorpe.co.uk. Good luck!

> > LAUREN MASON, U6 STEAM AMBASSADOR

Year 8 scholar, Anna Johnson, demonstrated complete mastery in her November History exam with these formidable responses to the questions: ................

Year S Hissery Examplation, Neversker 2020 Time Allowed – 35 Minutes Part I - Knowledge and Understanding QL Descripe two features of Yeang Henry VIII. (4 micros) You are equised to spend 5 minutes on this ouesties Honoy was fit and history and a a source spritting within the section of the regulated events presents and turning love level Sourcessing events in the test of the excellent as another sources in the test or condent as another and the more strateging Easterdard in painting and a got uperted (1) Here we can have and party and apple per house and party and antiphased and yours the costs in another of about the same man but proved a second yours be gonited and barners from of meny to draw your of another the second to draw your of another the two courses of another the

Foat & History Examination, Newamber 2020 Time A lowed - 35 Minutes Part 3: extended writing

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#### Fou any advised to speed 20 minutes on this question

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Year 8 clisive Examination Neverther 2020 The Allowed - 35 Minutes Part 2 - Evoluation of Source Material (8 Torrise) strated to sound 10 giveness on tyle outselous uns published in John School Back of Mariyas, in 1968 (during come and the same posterior in which the same and the same decision in the hereing of objand Finder In T. John Form any a provening of the decised incharging of The devial archestanta , arigar are  $\bar{K}$  effect on the the "signet" Mary  $\Gamma$ Q2. Here useful is this source to historians studying the treatment of protestants during Mary's reign? You must use your own knowledge to support your asswer. Make stre you refer to: · The content of the source The Provenance (who wrote it and write's) and Purpose (why the Vertilitary running, Norador 2000 Time Normal & Manua 2005 Japoel of Luce Wanters Anne Bolern 2005 generge Jewell and Herry was evid the related found her brister tradition And Rolling with the derived program Year 81F doty locar ination, Nos carbor 2020 while moving while so it he was ading they will be added in the second of the second of the second of wide of the second of the seco

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Year 8 History Examination, November 2020 Time Allowed - 35 Minutes

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## Vase & History assumination, November 2020 Furst Allowed - 55 Minutes

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1315 CREAT KN Santer points nod replacing San que's years ded of which point are not Year 9 MFL student. Amelia Row, has been awarded a da Vinci for a piece of writing

that went above and beyond what her teacher, Mme Galano, was expecting: she used vocabulary from different sentence builders, not just the one the class was working on. She also used verbs in the future tense using different verb forms. Super work, Amelia!



Bonjour, à mon avis pour être en forme il ne faut pas manger de la nourriture grasse comme des bonbons et des hamburgers. Aussi, à midi je vais prendre des produits laitiers comme du lait. Pour vivre une vie saine il faut manger des fruits et des légumes et boire beaucoup d'eau. Dans le futur je vais manger équilibré et faire du sport régulièrement. Il est évident que il ne faut pas fumer pour vivre une vie saine. Selon moi pour le petit-déjeuner nous allons manger des céréales et aussi nous allons prendre une pomme pour être en forme. Dès que possible je voudrais dormir huit heures par nult.

Ability Creativity

Task

da Vinci Student Commitment



# **CONNECTED CREATIVES**

Connected Creatives is an online, cross-media, safe self-publishing platform, which enables young people to share their creative writing and outputs with their teachers, family members, peer groups and the wider Connected Creatives online community.



On this platform, youngest Nobel Peace Prize Winner and Education Activist, Malala Yousafzai, launched a 500-word competition and we are delighted to announce that Princethorpe's very own Year 7 pupil, Alexa Holland, achieved 'Highly Commended'. Here is her wonderfully thoughtful piece of work:



### connectedcreatives.co.uk

## WHO AM I?

There are many mysteries to this world and one of them is me. I was found or they say rescued (I say conscripted) at a train station by the brutal and draconian workhouse called Bell House for workers. Although I didn't have a choice to go there as I was abandoned by my parents or whoever had custody of me at the time, I don't remember them. I was told the Workhouse had no record of who I was or where I came from, but I learnt to cope without my parents and without a kind word or regard.

At first, I enjoyed being around people and working, we were working in a bottle factory, my hands were small enough to put the corks in, until I knocked a bottle over and had to wear THE BOX a heavy burden, this was the punishment for dropping a bottle, a painful measure to ensure I never did it again. I was subjected to torment like this for years.

To escape, I would ponder about who or what I could have been? I had dream after dream, fantasies about me being a Prince in a royal family or even a King, but I knew they were dreams but I came to believe them. One was so vivid, like a hologram of my imagined life, Parents who were wealthy, food, clothes, an inheritance of a large house and fortune. I had a dog; he slept on my bed and went for walks with me. I was loved. When I woke, I almost grieved for the loss.

The life I imagined was the antithesis of the life I had. That night, I decided I had had enough, I arose from my scraps of sheets and snook into the Workhouse Managers office where he kept all the files of the poor unfortunates like me unlucky to be there. I knew there was more to me than the nothing I was told I was. There must be, surely. I descended the vast staircase, tried to open the office door, it was locked, I knew where the Manager kept the key, having located it, I opened the filing cabinet, found my file and shook it, nothing was inside, no records, no correspondence, no details of my parents, no life beyond the depths of the hell I was living. I shuffled through all the other files but nothing. I was nothing! I stumbled down the stairs in a pit of despair, not caring if I woke anyone, what did it matter, nothing mattered anymore.

Sat here now, years later, with my family, eating a comfortable dinner, clothed, contented; I realise that it is not where we are from that defines us but who we are and what we choose to do with our life. The start in life I had helped me make better choices when I became an adult and for that I will be eternally grateful, may be not for the Box.

# Outstanding pieces of coursework

Upper Sixth English Literature students, Grace McGrory and James Gallagher, have written outstanding pieces of coursework in which they were required to read material from an anthology of critical readings and apply one of the readings to published poetry. Grace explored the poetry of Wendell Berry and James explored the poetry of William Butler Yeats. Here are their first-class responses:

### **By Grace McGrory**

The poetry of Wendell Berry is more concerned with agrarian and ecological conceptions of nature than religious and mystical ones.

Wendell Berry's poetry has, in the main, traditionally been associated with agrarian and ecological conceptions of nature. Berry himself is from Kentucky in America, where he has maintained a farm for over 40 years; taking a rather traditional approach, he is mistrustful of modern technology and holds a deep reverence for the land and traditional methods of farming. C. Glotfelty encourages eco-critics to question "how is nature represented?" (Glotfetly, 2014) in the poems we encounter and to some extent it is arguable that Berry's poetry presents nature as intimately connected to humans, particularly through the means of farming. However, in a number of his poems Berry alludes to the holiness of life and nature, celebrating the miracle of creation; this certainly reinforces his beliefs about the sacredness of nature. Although he is not widely acknowledged as a religious poet, the moral underpinnings of his poetry are rooted in the Christian tradition, articulating that faith and stewardship of the land are compatible. It is, therefore, debatable whether Berry's poetry is primarily concerned with agrarian and ecological conceptions of nature or, alternatively, whether it is concerned with religious and mystical ones.

"The Man Born to Farming", as the title suggests, illustrates the work of a farmer, described as "the grower of trees, the gardener," as he cultivates the land. The metaphor likening the work of a farmer to a gardener suggests that there is more than mere pragmatism to his work, instead he is at one with nature, awakening its beauty. In his works Berry often criticises the development of agriculture towards mass production and industrialization stressing the necessity for humans, particularly farmers to "live in harmony with the natural rhythms if the earth or perish."



### **By James Gallagher**

"William Butler Yeats was a nationalist poet" Using ideas from the critical anthology, to what extent do you agree with this view?

William Butler Yeats is widely regarded as one of Ireland's greatest poets, awarded the Nobel Prize for Literature in 1921. Writing predominantly in the early 20th century, his work is believed to have encapsulated an uncompromising feeling of Irish nationalism that continued to grip the nation as separatists challenged ongoing British colonial rule. However, various examples of observable ambivalence in his poetry lead one to question whether he was truly, unequivocally committed to achieving Irish independence. He was indeed determined to revalorise Irish identity through the rediscovery of historical folklore, but the sincerity of his attempts is undermined by his indecisive attitude towards rebel groups and his seeming refusal to de-Anglicize his work. By applying a postcolonial lens to the poetry of Yeats, it is evident that his relationship with Irish nationalism was a complex one that he himself struggled to navigate, and thus, it is perhaps inappropriate to simplistically categorise him as a 'nationalist poet'.

It could be contended that Yeats was a nationalist poet due to his exploration of Irish folklore and mythology in his earliest works. According to C.J Ruffner Grieneisen, an inherent aspect of postcolonial criticism is examining the way writers "articulate and even celebrate their cultural identities and reclaim them from their colonisers" (Grieneisen, 2008). In his poem 'The Lake Isle of Innisfree', Yeats recalls the beautiful Irish landscape from his childhood and considers the somewhat spiritual connection between him and his homeland. Stood on Fleet Street in London, he contrasts the "pavements grey" with sounds of the "lake water lapping" in Innisfree (Yeats, 1956). The juxtaposition of idyllic auditory imagery with the bleakness of city life emphasises the natural magnificence of Ireland and Yeats' unquestionable preference for such picturesque scenery.

READ MORE

# **Mia's Crime Novel**

Year 7 pupil, Mia Petrucci, made excellent use of Lockdown #1 by starting to write her own crime novel. Taking inspiration from Sherlock Holmes, she then went on to finish it last half-term. Here is an extract. Read on for more!

Chapter One

### **The Letters**

Detective Ernest Doyle and Dr William Worthington are the One August morning Ernest Doyle sat in his flat in London, greatest detectives I have ever met and I have met quite a reading the 'The Times'. It was a perfectly ordinary morning few. I enjoy playing games with them, not that they know until two letters came in the post, he opened the first one they are playing.

Dr William, a short portly man he wears a well-loved navy-blue wool suit where only the top button is able to be fastened. His kindly face, which no one can help but trust, is complimented by his sparkling periwinkle blue eyes which are framed with laughter line. His bottle brush moustache doesn't quite hide the rosy completion, and a double chin, that wobbles while he laughs. Never one for much personal grooming, his salt and pepper hair, is clean but only guickly brushed to the side.

Detective Ernest on the other hand was tall with dark hair and brown eyes who never went anywhere without a notebook and pen. A precise man who believes everything should have a logical conclusion, is ironically excited by the improbable, and will not rest until he finds the solution. An impeccable, starched silk black bowtie was his identifying feature; he took great care to tie it perfectly. A matching waist coat and trench coat finishes his look. Tight brown curls, that will never be flattened by a hat, softens his long oval shaped face, which would be rather guite handsome were it not for his broken nose, a souvenir from a past escapade.

> Mr and Mrs Milton Detective Quest Doyle to Dinner at Darlington Mailor on August 25th do join us for the week us of your train

and much to his surprise it was an invitation. The card, which was gilt edged, had a family crest featuring a majestic rearing horse, he would recognise this crest anywhere. It took him back to one of his most puzzling cases.

#### Mr and Mrs Milton cordially invite Detective Ernest Doyle, to Dinner at Darlington Manor on August 25th Please do join us for the weekend, and advise us of vour train times.

the second only said 5 words Darlington Manor. Come please Danger

Far from alarming him, these words intrigued him, and his day was about to get a lot more interesting.

READ MORE

Darlington Manor. Come please Danger.

# **VIRTUAL COOK-A-LONCS**

Teacher of Food and Nutrition, Jacqui Scott, was delighted with the standard of cooking demonstrated by pupils in her virtual cook-alongs. Pupils who excelled were awarded da Vinci merits. Here is a sample of the Christmas cakes made in the run-up to Christmas.

da Vinci Commitment Student

EUAN NELSON, Y7

david ikuomola, y9

SOPHIE HENRY, Y7

# : Stan Brocklebank : Awarded : Prestigious Arkwright : Scholarship

Princethorpe Lower Sixth Former, Stan Brocklebank has been awarded an Arkwright Engineering Scholarship. The accolade, which comes from The Smallpeice Trust, the UK's leading STEM Education Charity, is the most prestigious scholarship of its type in the UK. The scholarships support high calibre students while they study for their A-levels, inspiring and encouraging them to pursue careers in the fields of engineering, computing and technical design.

The scholarships are awarded to students through a rigorous selection process, Head of Design and Technology, Paul Scopes, explains, "The Arkwright Scholarship is for talented Year 11 pupils who are interested in a career in Engineering. Pupils are nominated by their teachers, and submit an application focused on their engineering activities, interests and future plans. Applicants then take a two-hour examination where their problem-solving skills and engineering potential are put to the test and, if successful, they attend a rigorous interview at University. Pupils must be studying Design Technology and must plan to take Maths at A-level. Last year the College nominated five pupils, and Stan and former Year 11 pupil, Carys Burchell, were both successful and awarded scholarships. This was

the first time the College had participated in the scheme and as these scholarships are really tough to get, we are very pleased to have two awarded in the first year."

Paul continues, "Stan is currently studying A-level DT, Maths and Physics. He has always stood out as a focused and talented engineer. He has been a member of the College's Robotics team, competing in Holland and Italy where he took a leading role as well as mentoring younger pupils. He was appointed DT Subject Leader in Year 10. His GCSE

DT project was a new suspension set up for Autograss race cars and he completed it to an excellent standard. He has a bright future ahead of him

> in engineering and it really is a pleasure to teach him."

# bright future ahead of him

"He has a

On receiving the news, Stan said, "These scholarships are one of a kind for people who are young and aspiring engineers, there is nothing to lose going for one of these awards and the rewards are incredible."

Stan plans to go on to study Automotive Engineering at university and is hoping to then work in the Automotive industry, he would like to work for a World Rallycross team.

He continued, "The most challenging part of the application was the online part where you described yourself and your out of school interests in engineering. I had so much to talk about and I needed to be succinct. I felt really pleased and proud when I heard the news that I had received an award."

Head of Sixth Form, Ben Collie, comments, "Arkwright Scholarships are highly sought after as they provide exceptional support. Pupils who successfully obtain an award have access to unparalleled opportunities. Arkwright Engineering Scholars achieve excellent academic success and are known to make enviable career progress. Stan has done incredibly well to receive this accolade and we congratulate him on his success." More information on the Arkwright Scholarship is available at www.arkwright.org.uk

#### Here, Stan explains one of his recent designs:

Tensegrity mechanisms are a type of machine that use tension between cords to hold an object in the air and make it look like it is floating. In A-level product design one of the modules is Computer Aided Design and this year we were tasked with making tensegrity machines. My mechanism is made out of an upcycled aluminium restaurant sign and has been TIG welded together. For the cords I used old orange fishing line and basic knots for easy adjustment.

Those lucky enough to be awarded a scholarship, receive a financial award and the support of a mentor who works with them throughout their time in Sixth Form. They are also given the opportunity to take part in courses and events for Arkwright Scholars. They benefit from networking opportunities with like-minded students, gain confidence and knowledge in their subjects and often relevant work experience. They are ideally positioned to pursue Engineering, Computing or Technical Design at university or a higherlevel apprenticeship before moving into

industry to progress their career.

in engineering and it really is a pleasure to teach him."





# ADVENTURES IN ONLINE MUSICAL COLLABORATION

Seize The Day

SEIZE THE DAY



RINCETHOREE COLLEGE DECHESTER

EARTH

SOMEWHERE IN YOUR

SILENT NIGHT 2020

After the shutdown of all live events last term, the future of Princethorpe's performing arts looked bleak. Then, at the end of the lightless tunnel into which we were cast, a glimmer of hope: the fabled "virtual concert".

The first was the virtual Prizegiving. This included individual home performances, and recorded performances by both the choir and the orchestra. The defining feature of these pieces was that each part was recorded separately by individuals at home. This required a lot of hard work and dedication from all those involved, but particularly our friendly neighbourhood music maestro, Mr Cowlishaw. He, using his tech-savvy wisdom, collated and mixed all of the recordings we sent in, and the results were spectacular. The choir produced a marvellous rendition of Seize the Day from Newsies, and the orchestra played the beautiful *Earth* by Hans Zimmer. To watch any of the performances go to Princethorpe College on Vimeo. (https://vimeo. com/princethorpefoundation)

After this first success, Christmas came rushing around the corner. Just like previous years, we planned to create both a traditional carol service, and a more relaxed soiree. For the soiree, the orchestra recorded a fun version of All I Want for Christmas is You, which featured tinsel and Christmas trees-a-plenty. For the carol concert, a more ambitious piece was accomplished. It was Somewhere in Your Silent Night, featuring soloists, recordings of all of the choir bubbles socially distanced, and string and woodwind parts recorded by the orchestra at home. It turned out to be a brilliant piece of music, a perfect distraction from the chaotic Christmas that was 2020. See it on vimeo.com/ princethorpefoundation.

In order to rehearse for these concerts, our large Choir and Orchestra teams were split up into smaller groups, or 'Bubbles' as we called them. The bubbles were organised by year group: 7-8 in one, 9-10 in the next, and 11-Sixth Form in the last. Because of the separated rehearsals, we were able to learn and rehearse many more pieces than normal, as well as being able to record our choral Christmas pieces in the College Chapel, group by group (without the usual limitation of space in regard to social distancing). Overall, it was a new and interesting approach to performing as a school, one that neither of us are opposed to taking with our next event - *Jesus Christ Superstar* our current school musical.

Another thing that the pandemic disrupted this year was music exams. Exam boards were instead offering online exams, where the candidates record their pieces etc. and send them in to be assessed. As Princethorpe's music department often has examiners come into the school to examine a group of students in one day, it seemed sensible to continue that, just with recordings instead. This was no technological walk in the park, but Mr Cowlishaw, along with organisational help from other music staff, managed it anyway. Although it was a stressful couple of days for many people, recorded exams were then sent off to exam boards (including my own grade 8 piano exam!).

This term has been different, to say the least. However, one thing is for certain. Whatever is thrown at this music department, we will always find a way to keep music happening, the passion and dedication alone is what drives us. I know I can speak for both Greg and I when I say, the adaptability, innovativeness, and willingness to do whatever it takes to carry on doing what we love, is truly humbling. I am so grateful to be a part of this beautiful community. And it's not over yet! Watch this space for more online musical shenanigans!

By Mary Lomas and Greg Burford, Lower Sixth Music students.

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# Pupils rise to the Senior Mathematics Challenge

Back in November pupils from Princethorpe College took part in the 2020 UK Mathematics Trust (UKMT) Senior Challenge, a prestigious national problemsolving competition that recognises the best young mathematicians in the country. The Challenge involves answering multiple choice questions and is sat under normal school exam conditions. The papers are then sent away to be marked by UKMT and the best pupils in the country are awarded Bronze, Silver or Gold Certificates.

The competition is aimed at students in the Sixth Form and Princethorpe selected 18 able mathematicians from both Lower and Upper Sixth to participate in this year's Challenge. It is a demanding exercise designed to stretch and test pupils' mathematical skills, so the College is delighted that this year, Princethorpe's mathematicians achieved exceptional results.

Congratulations to Upper Sixth Former, Lauren Mason who was awarded a Gold certificate. and took the award for best performing student in school, and to Lower Sixth Former, Ben Scares, who was awarded a Silver certificate, and took the award for best performing student in the Lower Sixth. Lauren performed so well that she has also qualified for the follow-on round, the British Mathematical Olympiad.

Well done all and many thanks to all the pupils who took part, we hope you enjoyed the challenge.

By Theo Scoutas

Post 16 Mathematics Co-ordinator.

**GOLD CERTIFICATE** LAUREN MASON SILVER CERTIFICATE **BEN SCARES** ROWAN TANKARD ZACK AHMED **CIARAN SMITH** PABLO SCOPES **BRONZE CERTIFICATE** ANTHONY CONVEY JOSHUA RAWLINGS DAISY WALKER JACK FLETCHER CAITLIN MASON THOMAS CLEAVER CAVALIER

# **OUR OWN UNIQUE GREATNESS**

Upper Sixth student, Elsa Isaacs, has written a brilliant essay exploring feminist theology, earning herself full marks and a da Vinci. We cannot expect better than this from an A-level student. Well done, Elsa!

ELUA Isaac

TERVIDING

ł×

Task Commitment

Ability

To what extent are onen and women equal in Chinabania

o the same Equality's defined as giving men and women against opposituties and treatment in the work place, in the ham and social spheres Equality is not the same as equity which banslates as sameness's Calhours would aroue that men and women are equal but not the site RSHJohn Paul II write to his lottor to women i men and worken have their own unique Greatness given to them in God! This is not to say that the role of nonun is any less then that of men, in face the great Rose writes that women have been given the gift of being able to freely give of themselves especially is prayer, so they are able to alles a special part of Gods beau that men night struggle to spen up to

Some of the most radical forminist theologians were raised in the catholic Church, in particular Banu. Rodford Rucher and Mary Daley. These the Women varied in their Kheology, Ruether being a refermist and Daley believing that wemen must "Go Beyond God" The holy and reject the Church. They both agreed that Christian has been a major contribution of faction to Encouraging. sexist beliegs and actually corrying out discriminate towards wohien in boaching and practices.

Rosemany Rodford Ruether hould must areanly conclude that there is a great lack of equality letwo with men and women in the Church, in ideology, The Unin language, teaching, practices and throughout its. in the history. She uses the example of God the Father, Jeen h this is how Christian are taught to see and advers God. Ruether believes that not only does this = ha Bate

READ MORE

da Vinci

Student

Creativity

PAGE 9

## TWO TALENTED HOCKEY PLAYERS TRIAL FOR ENGLAND U16 HOCKEY TEAMS

Princethorpe College Year 10 pupil, James Robinson, and Year 11 pupil, Lara Tripp-Smith, trialled for the England U16 Hockey Teams last term.



This year England Hockey invited nominations from school, club and performance centres for the England age group trials and the two pupils were nominated to take part.

Both joined 25 talented young hockey players from across the North and Midlands in the selection process for the England U16 boys and girls teams at the Lilleshall National Sports Centre in Shropshire.

Over three days coaches drawn from England U16 and Regional Performance Centres observed the players, looking at technical, tactical, physical and mental



development qualities, considering their current performance and future potential.

James said, "It was an amazing experience to trial with such talented hockey players. I was really pushed to perform at my best. I received a lot of support from my school coaches, Mr Whitehead and Miss Mack, and also from Rugby and East Warwickshire Hockey Club who helped me to prepare."

Lara added, "The trial was a fantastic opportunity, sadly an injury limited my ability to perform but I have been offered the chance to retrial at the next selection event."

Congratulations to James and Lara, we are very proud of you both, it must have been a great experience.

# **Fighting Back**

Princethorpe College Art students have a track record of doing well in ISA Art Competitions and 2020 was no exception.

Former Sixth Form students, Dominic Turner-Burr, came first with his piece entitled Fighting Back and Sebastian Lloyd-Thomas came second with his painting with 3D elements entitled Interpreting the Signs. Head of Department, Paul Hubball, was only allowed to enter one piece per category, due to Covid-19 streamlining, but at least the competition still ran. Huge congratulations to Dom and Seb.





# Oxbridge Success

We are delighted that some of our top A-level scholars have successfully gained places to study at Oxford and Cambridge in September 2021. They are most deserving of their places and we wish them all the very best. Here are some words of encouragement to our younger scholars who may aspire to follow in their footsteps.







## I'm Lauren

**Mason** and I have received an offer to read Natural Sciences at Selwyn College, Cambridge. I can't wait to immerse myself in the Cambridge culture and learn from world-class academics.

I applied to Cambridge because the Natural Sciences course there is unique in the UK in that you can study several different science subjects to a great depth before deciding what to specialise in later on. This is exciting for me as it means I can continue all of my A-level subjects and take up a new one such as Materials Science or Earth Science.

For anyone who is thinking about applying to Oxbridge, I would firstly say do it - you have nothing to lose and will only grow through the process, as I feel I have. Secondly, I would recommend beginning to read around the subject you are interested in, and engaging with other people, especially your teachers, about what you learn. Getting involved in school activities to do with your subject. such as clubs and da Vinci projects, will also develop your creativity and expand your knowledge. It all helps you put together a really compelling application.

I am excited to see what the future will hold for me after completing my initial degree – I would like to become an active researcher in the scientific community. In the meantime, I'll be in great company, as Selwyn boasts amazing alumni such as Tom Hollander and Hugh Laurie!



### I'm James Gallagher and I have been

offered a place at the University of Oxford, and I will be reading Law at the Queen's College. The most famous Queen's alumni include no other than Mr Bean (Rowan Atkinson) and the inventor of the internet, Tim Berners-Lee.

the idea of studying at Oxford, but it perhaps wasn't until seeing the city and its remarkable architecture on a school trip in Year 11 that I realised how much I wanted to apply. It still feels incredibly surreal to have received an offer, but I cannot wait to be spending the next three years of my life at one of the world's most prestigious universities. I'm obviously looking forward to furthering my academic education. but I'm also keen to immerse myself in the various aspects of Oxford life - whether that be enjoying one of the several colleges 'bops' or involving myself in the football team.

If anyone is considering applying to Oxbridge, all I would advise is that you trust in your own ability and don't be intimidated by the size of the task. If you work hard and believe in yourself enough, there is absolutely no reason why you shouldn't be successful in your application.



### I'm Grace McGrory and I have recently

received an offer to read Law at the University of Oxford. I have gained a place at Pembroke College which has strong traditions for the study of Law dating back to the 12th Century and has many notable alumni such as Lord Ian Burnett, current Lord Chief Justice of England and Wales. I decided to apply to Oxford because of its prestigious academic reputation and as it is such as beautiful city full of amazing history. In addition, the law course at Oxford is unique in the way it is taught and its focus on the philosophical side of the law. When I attended an Open Day pre-COVID I fell in love with Pembroke: it is such a friendly environment and the tutors were very modern in their thinking and approach, which really inspired me. I look forward to being taught by these world-renowned tutors and I am excited for the challenge of learning a brand-new subject which I have never studied before, whilst meeting new people from all around the world.

I always knew it would be a challenge applying to such a prestigious university, but I am extremely glad that I was encouraged to do so by my teachers at Princethorpe. Initially, the prospect of being interviewed and taking an admissions test seemed daunting, however, I really enjoyed the whole application process. I found my interview very thought provoking, and whilst it was certainly challenging, it was enjoyable to work through the different scenarios I was given and to discuss the subject that I am so interested in. My advice to anyone thinking about applying to Oxbridge would be to definitely apply!

You should always believe that you have a chance and you should not allow anybody to ever tell you that it's out of your reach; the number of places offered to students of Princethorpe College this year shows that it is certainly possible if you work hard and stay dedicated throughout the process!



Former student,

### Hannah Porter, has

also recently received news of her successful application to read History at Trinity College, Oxford. Hannah has wanted to apply since she visited her great grand-father's college, Jesus College, when she was just 12 years old. He also studied Modern History. so it had to be Oxford! Hannah is excited about having access to the Bodleian library and an unbelievably world class wealth of knowledge and resources. Of course, Trinity College has a number of famous Alumni including Jacob Reece-Mogg, John Henry Newham and Norris McWhirter (co-founder of the Guinness book of records). Hannah's advice is to simply adore your subject to saturation point and beyond. This is the only motivation you will need.

#### Huge congratulations everyone, we are very proud of you all.

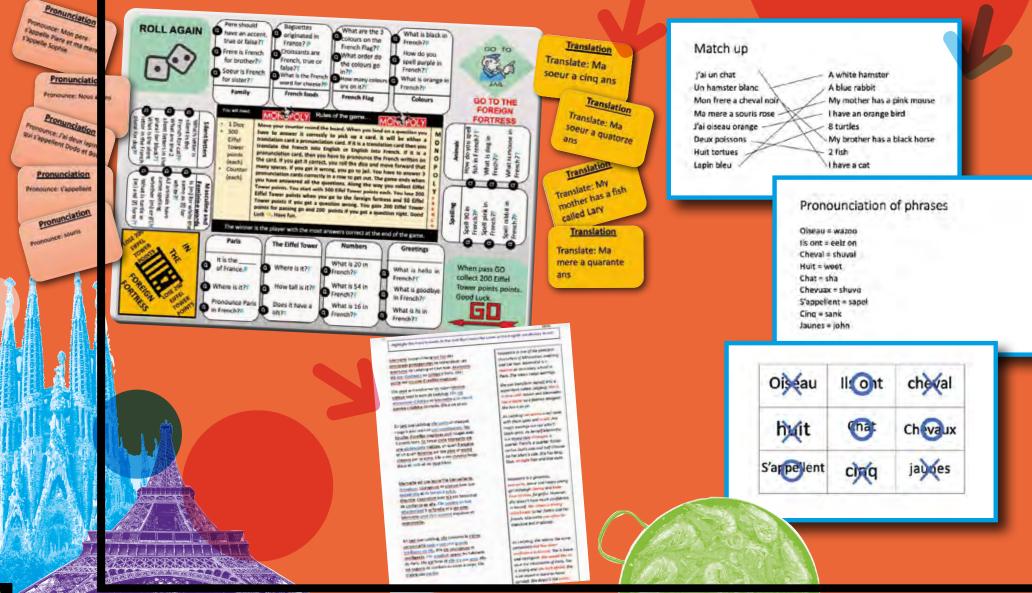
page 11

# LANGUAGE LEARNING

Princethorpe's MFL department is populating 'independent learning channels' in Microsoft TEAMS with extra wider reading and practice opportunities and our students are really rising to the challenge!

In particular, Year 8 student, **Sean Birtley**, has really made the most of this opportunity and is relishing the chance to challenge himself further. Here is an example of the independent work he has been completing:

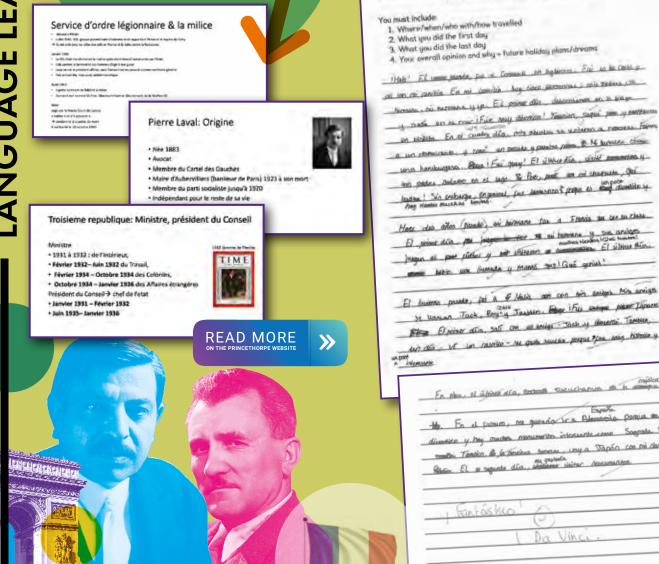
Year 8 students were asked to teach a parent and **Emmi Parmenter** went above and beyond, creating a PowerPoint to teach her dad and even recording the lesson. Emmi clearly internalised a lot of Mme Galano's teaching and we are very impressed with her work (and dad's). We may have a future teacher on our hands.



E.S.

Carrie Contraction

Upper Sixth Former. Henri Fuchss. has delivered an outstanding presentation about the leaders under the collaboration: Laval and Darnand. He was able to discuss in depth difficult concepts in the target language with only bullet points as support. Mme Galano was very impressed and enthused by his presentation and language skills.



Ability Creativity Task da Vinci Student Commitment YEAR O MICHAELMAS TERM SEPT OCT 2020 WRITTING ASSESSMENT (TA surra) 100-150 word essay about a past holiday

Here des other (pressio) en barrane tou a Francia un car su chana I prime alla per jugar to per se an homena y son anisoto Wanter al poor plation of and children a communities. El silvers dian more were an investo a manus wall Gue grint!

El lavorna presado, los a Elfaba non con nin antena Min antiga Se wannan Jack, Bring Jammer, Eler The same preser Timere! Fire Electric ates, sale on an aning Tack of Harden, Tanton, with the with you resorve - me gave much a proque from song Kittmin y

Year 9 student, Tom Smith,

delivered an accomplished

response to his winter writing

assessment, earning himself

a da Vinci.

Fa plas of apples day original Discussion of h maple other En el prover, re guerrio tra Plemento porque en seria dimeter y my markes menuseries intersants scene. Sugnala Facailian more Tantin & a porises some , my a Japan con mi dasa.

Race. El a sugueda día, septembre pietras descueraster

tantoskio Da Vinci

Elsewhere, Maria Lloyd, in Year 9, was given 20 minutes to write about her daily routine and school subjects, with no help. She showed excellent language skills as well as some creativity and flair in her style. She also used some words we have not seen in class. which shows great commitment to independent learning.

Lurdi 16 novembre

SB2 writing toth. Le main ge me foin à cre num et vinge, nomile je me down at je mabille avant muit heart mais mon fries s'habilly very built have at quart. Now allow our couldn't à dis hours et denn et les cours commenues vers anze heurs. Bons la matin j'ai l'histoire (l'est très mul) et après jui le desin Times copuins aiment la causin étans durné gue la project sympa at rigoleté.) Ensuite cest la récel althabitude j'ainne jouer au cast frismange une pomme. l'après midi mus copains et mai attons au ta déjate Je mange du suite et Deaucorp de promage puisans c'est bien. J'ai this trois cours l'après mille j'ai abrone amaris et l'EPS c'est annual Les cours filmitient à quarte hears mains vingt, le altre frant cine have at je just mus develor. 3 ma matière préférie « est une metho probleme la préprése mon copain et il est tout à pait marante. Current aptions it vait chains setting many car start grès fable et pot les maths dans non trouse j'ai une rolles une calculation, un style , une gomme De ne supporte por l'EDS étant donné que la post n'est pour support il un trop de nevolres et cest tros nul. De dobte L'EDS!

# **BLOOD BROTHERS**

In November, Year 11 drama students put on a striking production of Willy Russell's legendary musical *Blood Brothers*. A captivating and moving tale of twins who, separated at birth, grow up on opposite sides of the tracks, only to meet again with fateful consequences. Year 10 student, Natalya Elden, reviews the event:

## Blood Brothers Year 11 Ensemble Performance November 2020.

We were lucky enough to be an invited audience to the Drama Department's Year 11 Performance of *Blood Brothers*. Essentially a folk opera and Liverpudlian *West Side Story*, the epic narrative follows Mickey and Eddie - twins separated at birth who grow up on opposite side of the tracks never realising their fraternity.

From the outset it is obvious how hard all the performers had worked in the process. The portrayal of young children was very realistic and coupled with the blend of scouse and RP accents demonstrated real skill. Their ability to take on kid like mannerisms and use idiosyncratic and energetic movements is another example of the company synergy. The hard circumstances that fell on the Johnstone family was conveyed extremely well with the desperate Scouse tones used in the voice of Mrs Johnstone. This compared to the articulated and regulated vocals that were used to deliver the lines of Mrs Lyons showed just how different the twins' childhood was. As they were playing a variety of roles and shared the roles of the two mothers collectively, it was key to have a distinct difference between them, this talent was also achieved and displayed.

Acting wasn't the only crucial element to the success of the production. A monochromatic cinematic backdrop of the back-to-back 70's houses and key props really added to the performance, whilst exposing the environment of the deprived individuals living life the best they could. Well done Year 11 for sharing your performance with us! **By Natalya Elden, Year 10.** 



Year 9 scholar, Amaanya Bose, has written an especially succinct and articulate answer to a 12-mark 'design' question in Religious Studies. Here is her brilliant response:

#### "God Must Have Designed the World"

God must have designed the world because every object and every being has been meticulously considered in a way that enables them to thrive on earth. Spontaneity and thoughtlessness cannot justify the strategic way the world operates, as there is a certain order and reason to everything. For example, watches have a complicated, systematic way of working, which can only be achieved by a designer. Similarly, the world and our universe have components that interact with one another, which can only perform successfully with a superior being designing it. William Paley, an 18th century philosopher, believed in this concept: "...There must have existed, at some time, and at some place to other, an artificer (maker) or artificers, who formed the watch...every manifestation of design, which existed in the watch, exists in the works of nature." This shows that if an object as elaborate as a watch requires a designer, only a designer with higher intelligence – which is God - could have established the world.

However, the design argument can be undermined. There are many imperfections in the world which either inconvenience us or are illogical. For example, events such as war and injustice occur which conspire against certain people. If God is the designer of the world, the violence that ensues contradicts what a loving God would plan on creating. Additionally, organisms on earth have gradually adapted over time; Charles Darwin (a naturalist) confirmed that humans were initially primates - that we have evolved progressively to get to our current stage. Features like the opposable thumbs made their way into existence over time. Richard Dawkins, an evolutionary biologist claimed that "Natural selection is the blind watchmaker...Yet the living results of natural selection overwhelmingly impress us with the appearance of design as if by a master watchmaker, impress us with the illusion of design and planning." This quote suggests that nothing has been planned in advance. Therefore, God cannot have created an ideal world, despite William Paley's theory (later mocked by Dawkins as that of the "blind watchmaker").

In conclusion, I agree with the design argument, though I don't believe God designed the universe, as the argument

only proves that there is a designer behind the world and the universe. I think people retreat to God being behind the strategy of the world because this opinion complies with Occam's razor; God is the only being that is conceivable and processed by humans.

# WRONG BUT NOT ILLEGAL

## BY KRISTIAN HUUS, YEAR 10

Year 10 have been studying Chapter 8 of GCSE Computer Science – "Ethical, legal and environmental impacts of digital technology on wider society, including issues of privacy". We looked at the intersection of ethics and legality through a task called "Wrong but not illegal" where the students were asked to consider four hypothetical scenarios where the use of technology might be widely considered immoral or unethical but is not covered by any existing law. Here is a very thoughtful response from Year 10 pupil Kristian Huus.

#### Here are four examples of things that it is possible to use modern computing for that are clearly wrong but are not illegal.

#### Think about

- Is it possible to make them illegal?
- Is it a good idea to make them illegal?
- What would a law for that look like?

Produce a response to one or more of the examples (or you could even come up with examples of your own, answering the questions above).

## EXAMPLE 1

Artificial Intelligence is now able to identify mental illnesses and disorders that people have just by looking at their search history and social media posts. Companies can exploit this by for example targeting weight loss products at people with anorexia or by advertising gambling sites to people in the manic stage of bipolar disorder (which means sufferers act very impulsively).

I believe that this type of advertisement should not be illegal, but it should have restriction. I believe this because companies should be able to take advantage of certain people to advertise their brand to people that they believe could benefit or just make them more money by buying their products. An example of this could be advertising weight loss products or programs to people who are anorexic and want to lose weight, rather than advertising it to fat people who are happy how they are. These advertisements and companies may seem legit and look like they to people's bodies. Also, people who suffer from bipolar disorder (also known as bipolar depression) are recommended gambling sites, and they will rapidly change moods to hyperactive and begin gambling, resulting in the most likely losing lots of money, and making them change moods to anxious and depressed. Although this is wrong, it clearly goes under the category of advertisement and so therefore it should not be illegal, but I could be restricted. I think that targeting people soul on the fact that they have a certain mental illness in morally wrong and can cause even more mental harm, so the restriction that I think should be put in is not advertising to people with mental illnesses, put people who frequently search up things that relate to the company.

### EXAMPLE 2

Algorithms on sites like YouTube create "radicalisation rabbit holes". What this means people may start off with relatively main stream videos such as "Did Trump win the election" but to keep them on the site, the algorithm suggests more and more extremist videos to draw them in, leading to them video extreme or hateful material. This has been proven to be a major factor in the growth of terrorist and extremist groups.

I personally believe that these types of rabbit holes should be illegal. I can understand and accept a rabbit hole algorithm that keeps people on the site, as long as it is based on what people want to see (e.g. based on peoples search history, liked videos etc). I believe that rabbit holes that lead people to videos of violence on websites like YouTube should be illegal because they are almost promoting acts of terrorism and other violent acts to people who could be easily manipulated (examples of violent acts shown on YouTube could footage of the 9/11 attacks). These easily manipulated people are usually the ones that will join terrorist groups, and this is because some of the people in the videos that they are recommended are able to make people believe that they are doing the right thing and serving God. I'm not saying that these types of rabbit holes are ones that mainly attract people to violent acts, for example belief, religion and childhood can all be factors for the choices these people make, but these algorithms are definitely a factor as well and should therefore, in my opinion, be illegal. I believe that a law for these algorithms would be making sure that the videos recommended to users is decided by the types of videos they search up, watch and like. There should also be a rule on the type of content that people are able to upload, and videos of acts of terrorism should only be uploaded in attempts to raise awareness and not to be recommend to people so they can only be found if you search them up.

### EXAMPLE 3

"Data brokers" buy up data from different sites and sources and combine them. They then sell on this "aggregated" information. So, for example in the future if you have been watching a lot of GTA videos you may find your car insurance gets more expensive. Or if you have posted to social media about eating unhealthy food you may find yourself unable to get health cover because of who the brokers have sold your information on to. This is not illegal because they can do this using only information that you have made publicly available.

I believe that data brokers buying data should be illegal. I understand that a lot of people believe that these data brokers shouldn't be illegal, as they are only taking data that you have personally put on websites like Facebook or Instagram. Although you have put this data and information on these sites yourself, it is still morally wrong to sell people's personal data and recommend these people things that they may not want to see. When these people's data is sold, it can also have impacts on certain aspects of their life, for example, as said in the example, if you watch an excessive amount of GTA videos, it could lead to your car insurance becoming more expensive over time. This is because of the people the data brokers have sold your data too. I believe that this is very wrong, just because you watch videos of a video game like GTA, doesn't mean your're going to do bad things, I understand that some people have been influenced by video games like this, but most of these people were drunk after a night out, and anyway, that still doesn't prove that everyone who watches / plays GTA is going to commit crimes or drive dangerously. In my eyes, the law against these data brokers should be simple. Don't sell peoples personal data. Selling peoples data could lead to financial problems, or everyday peoples like health cover and so for that reason selling aggregated data should be illegal.

### EXAMPLE 4

Researchers have found that changing someone's political views are hard but convincing them that their vote doesn't matter is much easier. Therefore it has proven to be much more cost effective that rather than running an advertising campaign saying how good your candidate is, instead to run negative messages saying that politics is a waste of time, but just target those adverts as people who most likely vote for the other candidate.

I don't believe that this should be illegal. believe that this shouldn't be illegal because it's a way for political candidates to easily win an election. They do this by telling the people who are voting for the other candidate that politics is a waste of time (using anonymous Al) so that the oppositions predicted voters won't vote, supposedly making it easier for the candidate using the AI to win. Personally, I don't think that this should be illegal, but can understand why people believe that it should be and that it's an unfair way of winning an election. The fact the one candidate is able to manipulate the oppositions voters into believing that there is no need to vote and that it's a waste of time is a clearly unfair and unsportsmanlike technique, but I suppose candidates will do anything to win the election, recently shown by Donald Trump. If this was to become illegal, then the law against it should be to not manipulate other people. The candidates should be able to put up posters, hold rallies and other propaganda, as long as they aren't brain washing people. Manipulating people anonymously is wrong, but I don't think it should be illegal.

# WONDERFUL SKETCHBOOK

**SCAR TEBBA** 

ABIGAIL PERRIER

SOMEL

PRIVA

Tik Tok

Pupils in Year 9 produced some highly accomplished work in their art lessons last term. Here is a selection of our favourites: HAMISH O'BRIEN

Eduardo Bertone

01

MINNIE MORGAN-SMITH

HOPE

ED TWYMAN

EVE READ-JONES

PRIYA SOMEI





# **ADVENTURERS**

In response to our Year 8 scheme of work to develop transactional writing skills, Chloe Potts, Dylan Williams and Jessica Lane did some particularly impressive work. Following the theme of adventures, the students researched Shackleton's Endurance voyage and were given a choice of three tasks. Here are examples of some of the highly engaging work produced.

## FINAL CHALLENGES?

#### Choose one of the following tasks:

- > Was Winston Churchill right to tell Shackleton to "proceed" with his expedition when war had broken out? Answer this question explaining your viewpoint and evaluating the situation.
- Write an email (I know they wouldn't have existed) to a friend persuading them to join Shackleton's expedition with you. Remember to use the DAFOREST techniques.
- Write a description or diary entry (!) of part of the Endurance's voyage from the point of view of one of the dogs or Mrs Chippy, the ship's cat. Try to convey the animal's personality and feelings through your writing.



Chlor Potts, 48

#### MRS CHIPPY DIARY ENTRY

#### Dear diary,

I have been unwillingly seized from my nice warm comfy rug in front the roaring open fire in the Shackleton drawing room and been dropped (not literally) into a smelly disgusting cold wet and bumpy boat. Yuk! Excuse me but do they even know who I am? I am a house cat; I am too majestic and important to even be seen on a boat with horrible mutts let alone float for days on end on this so-called boat. Listening to the constant chatter of those humanoids around me this is going to be such an 'adventure' and we should all be oh so excited. Not me. No. NEVER! We are surrounded by the evil devil = water! How am I supposed to enjoy this?

Sorry for the break there I actually managed to get some shelter and found a nice fur coat to curl up in, but its owner decided their need was much greater than mine. AS IF! Now back to this so-called adventure. One can only describe the conditions on board as fit for a dog. I have NEVER in my life had to live in such squalor! ... and with actual dogs. Now for those of you who have never had the pleasure dogs are truly awful. The smell - both ends, and the yapping is nonstop. They bark for: attention, they bark when they see their human, they bark when their human leaves, they bark when they are hungry, tired, bored, excited... you get the message. And did I mention the smell?!

Dylan Williams, GB

#### MRS CHIPPY LOG ABOARD THE BIG FLOATY THING.

#### Day 1

Mrs Chippy? Really? Do I look or smell like female deep-fried grease? I have been put "aboard"- I mean, come on, "aboard"? - a big floaty wooden thing. It is no place for a cat of such high importance as I. There are lots of dogs, but they leave me alone, although one in particular makes me uncomfortable...

#### Day 2

It turns out, I am on a "ship", a big thing that floats. I am loving it, endless tummy rubs and food, hominid feeders respect me, and I can do anything I please. I could get used to this.

### Day 3

The feeders are called men apparently. There is a big brown dog with floppy ears – Jane, I think – she tried to steal my food today but I'm too catly and scratched her nose so badly it bled; I think she was impressed. There is a man called John, he is my favourite feeder at the moment. He is the only one who hasn't called me coutchy-coutchy-coo. First you get my gender wrong (I was neutered!) and name me after food, then this?! He also is the only one who hasn't nearly stepped on me.

Day 4

An average day of belly rubs and food. Eat, sleep, repeat 5 times daily, until, during my pre-evening-late-midmorning-sleep, I am woken to shouting, something about a leak?

Jessica Lane, GB

#### ANTARCTIC EXPLORATION

## Morning Nick, how are you?

I've rather exciting news... I am to join an exploration led by Ernest Shackleton to the Antarctic! And, better yet, there is still a space open! I really think you would be perfect Nick! What with all your heavy work at the docks, you're more than well enough to manage the journey I'm sure! I've no doubt as you read this, you're thinking of those posters talking of a hazardous trip with no safe return and the like, but I'm sure those are just exaggerated to filter out cowards and weaklings. We would be perfect!

Can you imagine? Sailing through the seas into uncharted territory, making and breaking records! We would return champions! And they've got dogs too I heard. You love dogs Nick. It'd be like having your own pack, and your missus couldn't complain, could she? We'd be fed every day I think, cause they'd want to keep us good and strong. And I heard that all exploration ships have enough rum to fill a house! I suppose you'll know about all that anyway, from the docks, but surely, it'll be ten times as wonderful as what comes in from overseas cause people are going to fund it right. I mean, it'll be glory for the nation wont it, so they're sure to sponsor Shackleton. And Shackleton too Nick! Have you heard what they're saying about him? Apparently, he's the best captain the world's ever seen. John told me that he turned back his ship last time cause he figured out the crew would starve.



# PHYSICS ESSAY COMPETITION WINNER

Upper Sixth polymath, Josh Tidd, was the winner of our inaugural 2020 Physics Essay Writing Competition. His essay on acoustic levitation thoroughly deserved first place, proving that Josh is not just an outstanding musician and creative, but an excellent scientist as well. Congratulations, Josh.



## ACOUSTIC LEVITATION

Acoustic Levitation is the act of suspending an object in air against gravity, solely through high intensity sound waves being produced onto the object. Ultrasonic frequencies are needed to be able to counteract the force of gravity on the object. Piezoelectric transducers are most commonly used as they can efficiently generate high amplitude outputs at desired frequencies. As the forces of these waves via acoustic radiation on any surface are weak, only small and light objects are able to be levitated efficiently.

The first demonstration of the possibility of acoustic levitation was made in Kundt's Tube experiments in 1866. The experiment in a resonant chamber demonstrated that the particles could be gathered at the nodes of a standing wave by the acoustic radiation forces.

Sound waves are longitudinal waves that produce oscillations parallel to the direction of travel. They produce compressions and rarefactions of particles that create points of maximum and minimum pressure. A standing wave is where oscillations are in a fixed space where regions of significant oscillation (antinode) and regions with 0 oscillation (node) remain in a constant location. This can be caused by sound reflecting off a surface, instigating interactions between its compressions and rarefactions causing interference. Compressions that meet rarefactions cancel each other out and produce zero displacements at the nodes of a standing wave. These nodes have minimum pressure of wave particles and antinodes have maximum pressure.

 $I = 20\log\left(\frac{P}{P_0}\right)$  $P_0 = 2 \ge 10^{-5} \text{ N/m}^2$ 

In space, where there is little gravity, floating particles collect in the standing wave's antinodes, which are stationary. On Earth, objects collect just below the antinodes, where the acoustic radiation pressure, or the amount of pressure that a sound wave can exert on a surface, balances the pull of gravity.

There is a relationship between the intensity of sound in decibels and magnitude of pressure in the wave:

An object can be placed above the antinode such that the pressure below the object is greater than the pressure below it. Higher pressure means more collisions with the object underneath. These collisions mean that there will be a resultant buoyancy force upwards, keeping it afloat. However, the object needs to be small enough that it doesn't extend into another pressure compression area as it could exert a downward force.

If we wanted to levitate a human, the wavelength must be at least as long as they are tall. This is because the space between antinodes are equivalent to the wavelength.

The average mass of a person is 62kg and the average height is 1.77m.

Pressure = Force/Area. Assuming a human to be a cube,  $P = (62x9.81)/(1.77^2) = 194 Pa$ 

 $I = 20 \log (194/2x10^{-5}) = 140 dB.$ 

Therefore, an intensity of at least 140dB is needed to levitate a man. This volume is very loud and is equivalent to an aircraft carrier deck, therefore frequencies outside our hearing range are much preferred such as 40kHz. However, at 40kHz, the distance between antinodes is 8mm.

As a light's intensity is not directly related to a light's wavelength, we can separately workout the maximum frequency required to levitate the man using the man's height:

Frequency = Wavespeed / Wavelength = 330 / 1.77 = 186Hz.

Theoretically, a frequency below 186Hz and an intensity above 140dB would levitate a man, but it would be difficult to achieve this.

JOSH TIDD. U6 PRINCETHORPE COLLEGE PHYSICIST. WINNER OF 2020 PHYSICS ESSAY WRITING COMPETITION

The Princethorpe Foundation www.princethorpe.co.uk

Princethorpe College Princethorpe, Rugby, Warwickshire, CV23 9PX Tel: 01926 634200 E-mail: post@princethorpe.co.uk

