

# LETTER FROM THE EDITOR

We first launched *The Pinnacle* in 2010 and I am both a little shocked at how quickly the last eleven years have elapsed and immensely proud of the sheer volume of extraordinary accomplishment we have been able to celebrate. The Princethorpe Foundation certainly has its fair share of talented, creative and committed individuals.

I have a copy of all thirty issues of *The Pinnacle* displayed in my office, each one capturing the zeitgeist of the moment, but what they all have in common is a sense of our pupils challenging themselves, exploring what they love and what they're good at and above all, flourishing.

As this term draws to a close, we turn our attention to the new academic year ahead and the need to heal after a difficult twelve months. As a school we will be forging ahead with many new and existing initiatives, but we will also be focusing on strengthening and invigorating our sense of wellbeing, individually and collectively.

With this in mind, I would like to share with you the simple yet insightful Japanese concept of Ikigai – you will see it has inspired the design palette for this issue. Ikigai (ee-key-guy) is a Japanese concept that combines the terms iki, meaning "alive" or "life," and gai, meaning "benefit" or "worth." When combined, these terms mean that which gives your life worth, meaning, or purpose and is similar to the French term "raison d'être" or "reason for beina."

Above all else, Ikigai is a lifestyle that strives to balance the spiritual with the practical. This balance is found at the intersection where your passions and talents converge with the things that the world needs and is willing to pay for. I think this concept can help us appreciate why money does not always lead to fulfilment, why doing what the world needs can help us live a life of purpose and, for our students, how we might navigate option choices and finding our element.

At the intersection - the sweet spot which is Ikigai- are feelings of peace and wellbeing and a sense of human flourishing that can sustain us

throughout our entire lives. Rather than a

focus on transitory pleasure, Ikigai is aligned with eudaimonia

- the ancient Greek sense of a life well lived, leading to the
highest and most lasting form of happiness. In the end, ikigai
brings meaning, purpose, and fulfilment to your life, while also
contributing to the good of others and this is perfectly aligned to
our Catholic ethos.

The front cover for this issue is a painting by GCSE Art student, Ruby Harris. This is Ruby's final piece which is intended to 'challenge modern day beauty standards'. Whilst researching artists, Ruby particularly enjoyed the work of Gillian Lambert. She 'admired how Lambert could turn the grotesque and bizarre into something beautiful' and has here created a self-portrait made up of collaged images, painted on canvas using acrylic. Well done, Ruby, this is a striking and accomplished composition.

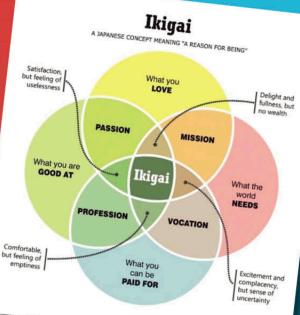
Thanks go to: staff at Princethorpe College; staff at Crackley Hall School (co-ordinated by Cat Hardwick); staff at Crescent School (co-ordinated by Sarah Webb); the Marketing Team; photography by Helen Stephenson; and Debbie McLaughlin at Dam Design Creative.



SEE YOU
NEXT ISSUE!
HELEN

PASCOE-WILLIAMS

EDITOR & CO-ORDINATOR OF THE DAVINCI PROGRAMME



# Finding Their Element

Congratulations to the 86 Princethorpe pupils who have completed independent research projects over the course of the last three to five terms. They have dedicated their own time every week, even during lockdown, to research a topic they are passionate about. This has culminated in the writing of lengthy academic dissertations, the creation of beautiful artefacts or the delivery of engaging performances.



Six Year 8 Academic Scholars have successfully completed their Level
1 Foundation Project Qualification in the following areas of research:

Sean Birtley	Should we bring back extinct species?
Amelia Chard	Is dance an art or a sport?
Zach Hawkins	Do prisons work?
Anna Johnson	Does music always positively affect your mental health?
Tom Leret	Should governments keep secrets?
Dylan Williams	Is noise pollution the biggest threat to marine life?

Fourteen Year 9 High Performance Learners have successfully completed their Level 2 Higher Project Qualification worth half a GCSE in the following areas of research:

Alex Bonsall	Choreograph and perform a dance on the topic of eating disorders in dance.
Amaanya Bose	Design a new logotype for Vogue magazine.
Jack Dando	Should we all speak the same language?
David Ikuomola	Is it morally acceptable to clone human beings?
∕Maria Lloyd	Should animals be cross bred?
Anjola Okusanya	Is intelligent life out there?
Oscar Reynolds	Are athletes born or made?
Liv Sarkies	A play adaptation of the legend 'Gelert the Dog'
Joseph Simon	Does God exist?
Ben Smith	Is cloning morally acceptable?

Tom Smith	Does the wealth of a country's citizens affect their happiness?
Roman Thearia	Is Communism viable?
Hattie Underhill	Produce a painting to show the effects of homophobia
Kaena Wasley	Should footballers get paid higher wages than nurses?

66 Upper Sixth students have successfully completed their Level 3 Extended Project Qualification worth half an A-level.

A huge thank you to all the members of staff who have helped mentor these students, especially Mrs Rose who helped mentor the Year 9 after school every week (even during lockdown via TEAMs):

EPQ	HPQ	FPQ
Mr Isaacs	∕Mrs Rose	Mrs Pascoe-Williams
∕Mrs Pascoe-Williams	∕Mrs Pascoe-Williams	
Dr Phelps		
∕Mrs Rose		
∕Mrs Schofield		
∕Mrs Scott		

### The New York Academy of Sciences

A reminder that if you are interested in STEM, The New York Academy of Sciences is now accepting applications for The Junior Academy and the 1000 Girls, 1000 Futures program. This application is open to students ages 13-17 and is due by 31 July, 2021. Admission decision notifications will be sent between 1-5 September, 2021.

More information about the programs:

- 1000 Girls, 1000 Futures connects STEM-focused high school girls to dynamic, motivated female mentors during a year-long virtual science education program. Participants gain access to innovative programming focused on developing essential 21st century skills and become part of a strong network of female STEM leaders from around the world! Students must be female identifying in order to participate in this program.
- The Junior Academy introduces exceptional students to an online community where they gain access to best-in-class STEM resources and work together to solve real-world problems. STEM professionals mentor student teams during 60-day innovation challenges, with multiple challenges a year for participants to choose from.

If you are interested, please follow this link: https://gsa.smapply.io/prog/student\_programs\_/



# FULL STEAM AHEAD!

Head of Physics, Mr Lee, was very impressed by both the large turnout (over 20 entries) and the excellent quality of the responses to a recent STEAM essay competition launched by the Princethorpe Science Department to highlight the work of inspirational STEAM figures.

The essays were very thoughtful and well researched, covering a wide spectrum of different careers in STEAM. It was good to see an even mix of men and women, and many different nationalities represented, smashing stereotypes and truly showing just how diverse the world of STEAM is. Innovating for the future was the theme of this year's British Science Week, and Princethorpe's entries embodied this sentiment perfectly.

The prize-winning entries were:



#### **JACK DANDO** (Benet, Year 9) for his essay on Peter Zumthor, a

Swiss architect.

#### MIA PETRUCCI (More, Year 7) for her essay on Erin

Smith, a teenager who developed Al technology to detect early signs of Parkinson's disease.



#### **AMAANYA BOSE**

(Austin, Year 9) for her essay on Issey Miyake, an innovative Japanese textiles designer.



ED TWYMAN, SOREN WASLEY. **CHARLIE ATKINS, SAMMIE BORLAND, MEGAN THANDI,** ANDRÉ ONYEKWE, ALEX LLOYD. AND JACK FLEMING.

First place received 100 House points and a da Vinci, 2nd place 75 House points and a da Vinci, and 3rd place 50 House points and a da Vinci. 10 House points and merits were awarded to the other 20 entries as the standard was so high.

The innovator I have chosen is a Swiss architect by the name of Peter Zumthor, who attended the Pratt Institute School of Architecture as an exchange student in 1966 in New York, where he studied industrial design and architecture. In more recent times, his most powerful works including the 7132 Hotel and Feldkapelle are often described as 'uncompromising' and 'minimalist'.



Therme Vals Spa, Switzerland

In 2009 Zumthor was the winner of the Pritzker Prize, which is a prize given to living

architects whose work demonstrates qualities of talent, vision and commitment. In addition to this award, he also received the Royal Gold Medal in 2013, awarded by the Royal Institute



of British Architects on behalf of the British monarch. Zumthor describes what makes up an architectural atmosphere as, "this singular density and mood, this feeling of presence, well-being and harmony". This quote suggests that he personally believes that all architecture must create a sense of elegance and beauty, but also it must work with the environment that surrounds it in order to create the feeling of wellbeing when you experience it.

#### 2ND PLACE

### MIA PETRUCCI

I feel inspired when I read about girls who are involved in STEM. I love DT woodwork and I am in the club after school and I love to see when other airls join with me and I can't wait to have other opportunities where I can do more things like this. For this project I researched young innovators and particularly wanted to find young females who are making a difference in the world of medicine. I found so many interesting people, for example a student who found a way to make light using body heat which was used to help students in countries where they didn't have access to electricity for homework. I also really enjoyed reading about a boy who designed and developed a specialist bra that detected changes in breast tissue to alert the wear to early cancer signs. He did this after very sadly seeing his mum die of the disease. However, Erin Smith's works really hooked me!

In 2016 when Erin Smith was still in high school.

she spent one day binge watching YouTube videos of Michael J Fox. She observed a change in his smile as the years went on. Michael J Fox was diagnosed with Parkinson's and Erin watched more



videos of him talking to other patients with the disease. She noticed that when they smiled or laughed with each other their emotions looked distant: she wondered if this was a common symptom, so she decided to pursue this idea further. Erin spoke to doctors at a local hospital who looked after people with Parkinson's and they told her that they had also noticed this among their patients. Going forward she questioned if facial expressions could be used to monitor changes in the brain.

She soon learned that the part of the brain involved in facial expressions was one of the first parts to be affected with Parkinson's; she was right! This exiting discovery meant that if she monitored facial expression she could detect early signs of Parkinson's.

#### 3RD PLACE

### **AMAANYA BOSE**

Issey Miyake is a Japanese fashion designer, who is renowned for his innovative construction of textiles and the materials used in his clothes. Born in Hiroshima, his talent has spread worldwide for audiences

to appreciate. He is particularly recognised for his pleated attire and accessories that are practical, comfortable, and crease-free! Many of his projects have been exhibited in museums due



to their originality and technical essence. At age 82, he aspires to create what hasn't been done in the past - establishing new realities. This attitude is reflected in all his work, and it remains to still influence it. In 2004, The Issey Miyake Foundation was established. This was where traditional technological methods were conserved and passed on to future generations to acquire. At the beginning of March, he released his latest collection, "As the Way It Comes to Be". This series focuses on colours and shapes that naturally occur in nature, as well as the interaction between the clothes and the environment. Intricate, new forms are made as the wind blows into each fold; shadows are cast in areas lacking light; the beauty of it being subtly different each

I admire Issey Miyake due to his constant pioneering in the design field. He has an exceptional ability to produce apparel that is so far ahead of its time. It has taken a great deal of time developing each individual concept - I am fascinated by this.

**PRINCETHORPE** WEBSITE



# Lower Sixth take on the Physics Olympiad

This year the Lower Sixth undertook the Physics Olympiad while in home learning: a national competition, notorious for its difficulty. The Olympiad consisted of two multiple choice papers that encouraged students to think creatively within the subject of Physics. It was an opportunity to apply their understanding to a wider context beyond the curriculum.

Archie Hancock, said, "My advice to anyone considering taking part in this challenge is to give it a try. It is no secret that it is unorthodox in the questions asked with some relating to the Nobel prizes awarded to Physicists, but it offers an incredibly fun opportunity with a recognised association and I can only thank the Physics department for encouraging me to get involved."

Dan Lee, Head of Physics, added, "The Lower Sixth students took on the Physics Olympiad with great enthusiasm. I am proud of their results and would like to take this opportunity to congratulate all those who took part."

The following students were awarded certificates: Louis Beck - Bronze

Archie Hancock - Silver
Mary Lomas - Bronze
Caitlin Mason - Bronze
Joshua Rawlings - Bronze
Ben Scares - Bronze
Charlie Wollaston - Bronze
Stan Brocklebank - Commendation
Daniel Hatfield - Commendation



# Five Year 11 Physicists Awarded Certificates in Intermediate Olympiad

Five of our top Physicists in Year 11 took part in the Intermediate Physics Olympiad on Wednesday 17 March. It's a competition that tests pupils' knowledge and understanding of basic physics principles, with really

challenging problems that go well beyond the standard curriculum. 4,700 pupils from over 200 schools took part this year and were awarded certificates - Commendation, Bronze, Silver and Gold.

Due to the pandemic, this year's competition took the format of two 25-minute multiple choice papers sat online, a contrast to the written hour-long paper that would usually consist of short and long answer questions.

Many congratulations to the participating pupils, who were all awarded certificates:

Will Hawkins - Silver Tom Knight - Silver Madoc Williams - Silver Harry Scott - Bronze Ed Foster - Commendation

While being challenging, the Olympiad offered an incredibly valuable experience, by allowing the students to compete with the country's top young Physicists. The questions ranged from general Physics knowledge to relevant calculations, which kept the challenge fun as students weren't constrained to only one type of question. Furthermore, due to social distancing measures at the time, the Association responsible for the Olympiad formatted all the questions to be multiple choice, which made the competition completely different from the previous year's. As it is not graded, there was no pressure to perform and this allowed the students to enjoy the whole experience.

Caitlin Mason commented, "It has encouraged me to approach problems with a different outlook: considering the basic principles of Physics and recognising patterns. I hope to take this on in the future. It was a fantastic challenge, although daunting at the time, and I enjoyed the chance to apply what we have learnt to real-life challenges."



Madoc commented, "I found the Physics Olympiad a fun challenge that pushed me and made me take my Physics knowledge to the next level."

Will said, "I really enjoyed the challenge, especially seeing how physics is useful in the real world. Although I was glad it was multiple-choice!"

Tom added, "I saw this as a challenge that I could overcome and pushed myself to see how much Physics I truly understand."

#### Year 10 pupils enter the Junior Physics Challenge

In May, 60 Princethorpe College Year 10 pupils took part in the Junior Physics Challenge, a competition organised by the British Physics Olympiad.

This year the competition was run online and attracted 6,171 entries from 122 schools. It comprised of two papers each containing 30 multiple choice questions on topics that included Dynamics, Electricity, Optics, Heat, Units, Astronomy and Waves and was designed to engage and challenge pupils by offering a range of problems to solve.

### Five Princethorpe pupils were awarded Silver certificates including:

Zak Abba, Harry Fitzpatrick, Amy Hogg, Tom Lomas and Joseph Newborough. A further 44 pupils received Bronze certificates.

Dan Lee, Head of Physics, said, "Congratulations go to all the participants, it was great to see our Year 10 pupils engaging with the Junior Physics Challenge."





# Student success in the RSC Chemistry Olympiad

Designed to challenge and inspire, the UK Chemistry Olympiad is a national chemistry competition run by the Royal Society Of Chemistry. Hosted annually, it is aimed at students in the Sixth Form and offers a unique opportunity for chemistry students to develop their thinking and problem-solving skills and test their existing knowledge of chemistry in situations from the real-world.

The results of this year's competition have just been received and all three Upper Sixth students who took part in the 2021 Chemistry Olympiad have achieved a certificate. Lauren Mason and Alex Rejali are awarded Silver certificates (Lauren was just two marks off a Gold) putting them in the top 23% of all the participants. Lizzie Ridd was just one mark of a Bronze and receives a wellearned participation certificate. They faced tough national competition and we



# JUNIOR MATHS CHALLENGE SUCCESS

Back in April pupils from Princethorpe College took part in the 2021 UK Mathematics Trust (UKMT) Junior 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 pupils in Year 8 and Year 9 and Princethorpe selected 73 able mathematicians 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

Congratulations go to Year 8 pupil, Zach Hawkins who was awarded a Gold certificate, and took the award for best performing pupil in school, and to Year 7 pupil, Emily Hutton, who was awarded a Silver certificate, and took the award for best performing pupil in Year 7.

Gold certificates were also awarded to Year 8 pupils Noah Granfield, Amelia Chard and Dylan Williams.



Our Gold certificate winners (pictured) all performed so well that they have also all qualified for the follow-on round, the Junior Kangaroo Challenge.

Silver certificates went to: Matthew Crawford, Cassia O'Hanlon, Soren Wasley, Thomas Leret, Roxy Glenn, Olivia Wilde, Oliver Passantino

Bronze certificates were awarded to: Anna Johnson, Ferdie Worrall, Pippa Evans, Theo Sparkes, Oliver Baker, Jonjo Boyle, Daniel Taylor, Ariana Gray, Ben Jones, Charlie Atkins, Eden Chaplow, Aaron Cooper, Sophie Dovey, Daniel Ovens Gibbs, Ethan Peachey

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

# DIGGING DEEP

There has been growing excitement this term as we began casting for the Drama department's production of Holes. Based on the superb novel by Louis Sachar, the production is set to take place at the College in November. Pupils from all year groups have been invited to take part in related drama workshops and encouraged to take up a da Vinci challenge related to the piece: designing posters or programmes; designing a sound track, costumes, set design or puppets; choreographing dance sequences or writing film reviews.

> Look out for more information about the production and how you can get involved!

When you spend your whole life living in a hole, the only way you can go is up. (Zero/Hector Zeroni)

- Louis Sachar

# The Web

## By Gree Burford

Playing the role of Tim Berners-Lee and multiple roles
Influencing Practitioner: Bertolt Brecht

Section 1: Ideas, Rationale and Research

#### Rationale and Research

to incorporate modern Social Media

(eventually the Web as a whole) into

our discussion, as we found that the

majority of Echo Chamber activity takes

At the beginning of our research, we were inspired by a quote from Sophocles, "Nothing vast enters the lives of mortals without a curse." Considering how this idea could work in practice, we found the Echo Chamber effect: The Echo Chamber is a phenomenon whereby opinionated people are surrounded by those who agree with them, resulting in misinformation and extreme views. The 'something vast' to this 'curse' could be the right to free speech; everyone is permitted to speak their mind, regardless of the consequences. Another benefit to the ailment of the Echo Chamber is the exit; escaping the storm of polarised "Nothing vast viewpoints could in itself be a blessing. enters the lives After some consideration, we decided"

of mortals

without a

curse."

place online, where users are only recommended posts supporting viewpoints they're in agreement with, adding to the already volatile situation. From the beginning, we were interested in Brecht as a practitioner, as we felt our piece heading in the direction of a debate, for which the question would challenge an accepted societal norm: "Is It Time to Scale Back Our Use of The Web?". The Brechtian style naturally attracted us, but we were not interested in creating a 'Lehrstuck' (didactic 'preaching' theatre), rather a well-balanced debate.

supplying reasonable potency to both sides whenever possible.

We are very proud of Lower Sixth student Greg Burford and his extraordinary creative talent and we'd like to share with you the first draft of his A-level Theatre Studies Notebook which tracks the process of a devised piece entitled: THE WEB. We hope it will inspire younger theatre enthusiasts.



#### Academic' Research

Since our piece is Web focussed, we turned to its history, researching its creators, users, abusers and key dates. Two vital moments to our piece were the Web's creation, and the beginning of Facebook (modern social media). We ended up playing Burners-Lee (inventor of the Web) as the "omniscient creator", and Mark Zuckerberg (Facebook creator, owner of Instagram, etc.) as our stand-in villain, the "greedy capitalist boss" of the Web. We found examples of Echo Chambers during our research, but were most inspired by a Facebook comment section Echo Chamber concerning the botched execution of Wesley Perkins (rapist and murderer on death row). We found the morbid satisfaction of these users with Perkins' painful death to be both shocking and intriguing, leading our decision to incorporate this into our piece in some way. We also found examples of 'comment wars', online arguments in which users attempt to belittle one another due to contrasting views. Often, these arguments are caused by people's Echo Chambers clashing, and so these 'comment wars' remain relevant to

our discussion. In order to increase our piece's relatability, we decided to compile our own personal experiences of web-related arguments as a form of primary research. We also used olfactory stimuli to inspire (what would come to be) some of our "characters" - Scents used include: peat, biscuits, peppermint and vanilla. I read Orwell's "1984" in exploration of a potential

"We also found examples of 'comment wars', online arguments in which users attempt to belittle one another due to contrasting views."

dystopian element to our piece, but the dystopian theme was ruled out in favour of ensuring that our piece remained centred around modern reality, restricting the audience from getting lost in a fictitious world.

#### Practitioner Research

Despite our early interest in Brecht, we kept an open mind about other practitioners. We entertained the idea of creating an Avant

Garde 'Kneehigh' piece, littered with songs and heavily inspired by Musical Theatre – However, due to the serious nature of our debate, we decided to move on from the immersive, optimistic Kneehigh style. After ruling out abstraction, we looked into Stanislavski's naturalism, but found it too limitingly straightforward in terms of getting across a complex political point. Settling on the highly political Brecht was the perfect choice, as his deviation from traditional values was

"We entertained the idea of creating an Avant Garde 'Kneehigh' piece, littered with songs and heavily inspired by Musical Theatre"

fitting for the age-defying question we had considered asking our audience. Colin Peters worked on the Brechtian play, 'The Good Woman of Setzuan' – I was personally influenced by his summary of the style: "It's a bit like being able to watch the television and be on it at the same time. It's probably the most conducive way to break down the ideal – the proscenium says, "this is theatre, this is what we expect." Then you put something unexpected into that space, and completely turn it around.".

Congratulations to our GCSE Art students for completing some Receptional pieces in response to the theme of People & Places.

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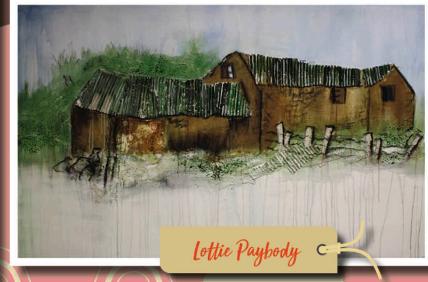
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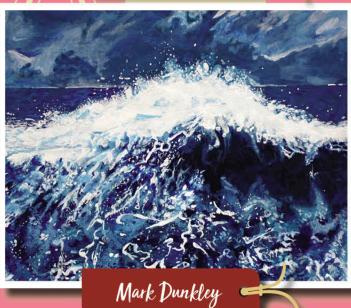
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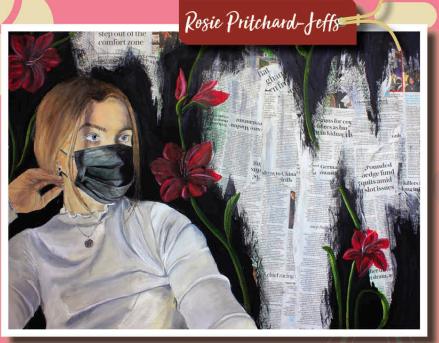






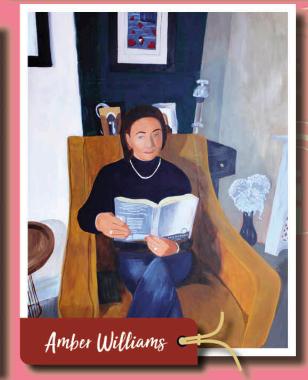


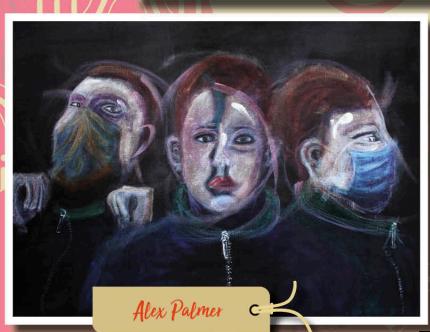












1-level Art It's difficult to comment on these artworks without referring to 'lockdown'; however, most, if not in lockdown. Two A-Level final paintings were completed entirely in all, pieces were worked on in lockdown. It's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'; however, most, if no let's difficult to comment on these artworks without referring to 'lockdown'. Two A-Level final paintings were completed entirely in all it is a let's difficult to comment to our students' resilience and creative talents! all, pieces were worked on in lockdown. Two A-Level final paintings were completed entil lockdown. All the pieces are testament to our students' resilience and creative talents!





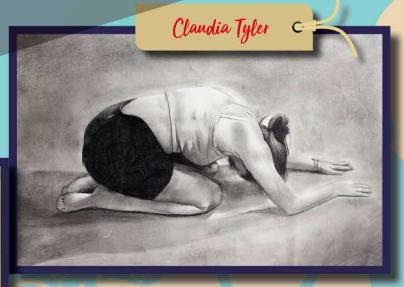


## Sophie Cheshire 🚅









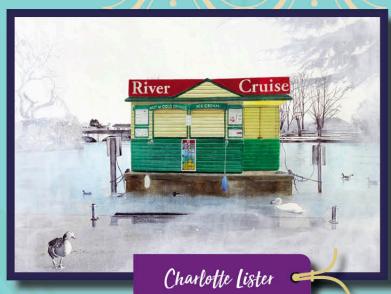


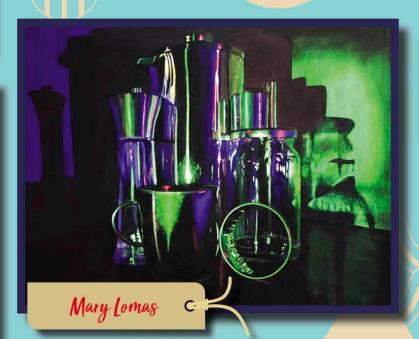












# CLASSIFICATION Amelia Burgess, 16 HUMA AND EVOLUTION

Earlier this year, during lockdown, Lower Sixth scientists conducted some research as part of the A-level Biology Classification and Evolution topic. Here are three good examples by Amelia Burgess, Tobias Lambe and Ishbel Kempton.

#### Task:

Design a poster on human evolution

Gel Electrophoresis for DNA Profiling:

sticky overlapping nucleotides) The cut DNA are specific sequences (called recognition sites)

DNA is cut into fragments by a restriction enzyme

Why the Homo family is bipedal (walk on two legs):

it is either blunt (no overlapping nucleotides) or

1. DNA fragments are put well of agarose gel with a buffer solution (ensuring a constant

3. An electric current is passed through the gel and the DNA fragments move towards the positive anode (this is because

A. The shorter to PMA fragments the faster they travel downwards, meaning DNA is separated so can be studied and compared. The location can be compared as well as the colour (and its density)

Scientists and paleoanthropologists still do not have a definitive answer on why or when bipedalism began.

However, they can use fossis to date when and use other surrounding information to theorise with. So we have a

sood idea of the timeline (by the dating of fossis and analysis of the femur / other leg bones for their strength and

in 1871, Charles Darwin offered an explanation in his book *The Descent of Mon*: Hominids needed to walk on two

ever in 2009, anthropologist C. Owen Loveloy of Kent State University revived Darwin's explanation by tyling

sever in JUD9, anthropologist C. Owen Liveloy or Nent State University revised val was a Explanation by symb Addism to the origin of monogamy. He stated that climatic changes led to the forests being more variable so th

legs to free up their hands. This theory is not widely accepted as it was 2 million years between the first recorded

2. The DNA is stained by the agarose gel, meaning it will be visible under UV light

cies needed to free their hands to go and gather food (backed up by studies the

- An overview of our evolutionary family tree
- Detail of one of our ancestors such as Neanderthal/Homo erectus/Homo habalis/ Australopithecus
- Explanation of one of our evolutionary traits such as... why we walk upright/why we lost our fur/why we developed complex language

omain - Eukarya

Phylum - Chardet

Order - Primate Family - Hominidae

Genus - Home

Species - Sapien

Detail one method used to help DNA profiling e.g. Gel electrophoresis/DNA hybridisation

# HUMAN EVOLUTION

Evolution: the process by which different kinds of living organism are believed to have developed from earlier forms during

- Depends on natural selection organisms better adapted to their environment tend to survive & produce more
- Around 10-12 million years ago, the ancestral primate lineage split into two major groups, evolving separately. One group were the early version of what we know today as the great apes which mostly remained in forest with an arboreal lifestyle. were use early version or write we know young as the great time which makes your remained in these which are for a some terrestrial, evolving to bipeds with larger brains. The other group, which eventually evolved to humans, became terrestrial, evolving to bipeds with larger brains.

#### (3.4 - 2.9, mil yrs ago) (20-15 mil yrs ago) (4.4 mil yrs ago) (2.1 - 1.6 mil yrs ago) (2.4 - 1.5 mil yrs ago) (2.0,000 yrs ago)

(4.2 - 3.9 mil yrs ago) This is an artist's interpretation of You can see here the evolutionary human tree what the species likely looked like which is split into 3 main groups (genus) : Homo,



It's thought this started around 6 million years ago through the David Pratt, Human Origins, September 2014

#### HOMO NEANDERTHALS

They are the closest species in the human family tree. Evidence stretches from Europe's east Atlantic coast to north Belgium and to central Asia. They were the first to survive through the cold glacial ecosystem.

- Stocky short bodies, broad chest, bulky torso & muscular limbs Helped generate & retain body heat
- Large nose warmed & humidified air Large brains - similar to now

- Built shelters
- Made & wore clothing Made advanced tools and created
- First to bury the dead May have created cave art

-- Ime after 40,000 years

Tobias Lambe, 16

### **Homo Erectus**

Homo Erectus are an extinct species that are thought to be ancestors of modern Homo Saplens. Scienti nome crecus are an exercis piecies one are unought to de encentors or mouern nome septems. Scientists currently believe they originated from Africa, however they have not rolled out Eurasia. They have first been recorded to lived 1.9 million years also and dispersed quickly. Although not all site have Homo Erectus emains, just broken animal bones and stone tools, these only indicate the presence of the species. They are remains, just crowen withing voties and source vivus, viese unly invicate line presente or the species. Firey a believed to be the first species to have controlled fire 1,000,000 years ago. They became extinct 200,000 years ago (perhaps to the evolution of Homo Sapiens). They share the same taxonom

#### Body Composition compared to Homo Sapiens:

- Medium stature, walking upright (Growing boy = 180cm)
- Receded Forehead
- Wide nose, jaws and palate
- Thin everted nose, high and prominent on face - Lower face projected forward
- Deepa and robust lower jaw, with little chin

- Thick cranial bones, angles rear skill, low brain case
- Flat top of cranium
- Smaller brains (vary but less than 1,000cm<sup>3</sup>, later Homo Sapiens have larger cavities 1000-2000cm<sup>3</sup>

#### Effect of the Body Composition

assas as one would see the constraint of the con - Nose = Adapted for less moisture loss in exhalation, so they can travel further in arid environ

Remandative transfers.

Zhoukoudien fossils were found in caves, pointing to them being cave dwellers (other evidence chouseurum nesses were round in ceres, pointing to their dering cave awarers torner write including stone tools, charred animal bones and seeds were also found). However, the rem including section (cons, kind red animals occups and sector were also round). However, the remains of Lantian, Trinii, Sangiran, and Mojokerto, as well as Tighenii, Olduvai, and Koobi Fora, were all found in open areas with water features nearby. Suggesting they were living in open of by rivers / close to water. Once excavated many ston



#### Ishbel Kempton, 16 ans storted distants to minion years ago caroupit are

#### Evolutionary family tree [4]

**Early Hominins** Lived between 7-4.4 million

years ago e.g., Sahelanthropus

Ape like traits- small cranial

more humans' traits- small canines for eating rather than hunting

Lived between 4.4-1.4 million years ago e.g., Australopi Lived across Africa. Had ape like traits.

Australopithecine

Kingdom – animalia

Phylum - Chordata

Class - Mammalia Order - Primate

Family - Hominidae Genus - Homo

Species - Sapiens

Human characteristics- spine and legs show shift towards

#### Neanderthals

Our closest relative in human family tree Lived from 400,000 - 40,000 years ago

First skull of Neanderthals found in Belgium 1829- by Philippe Charles Schmerling but it warn't recognised as from Neanderthals until decades later First recognised windsned of Neanderthals found 1856 by quarrymen in Germany-

Inhibited western Europe to central Asia and migrated out of Africa

#### Structure

- Body's relatively short
- Males average 5ft 5 o Females average 5ft 1
- Broad chest, bulky torso, muscular limbs
- Helped retain heat
- Large noses, high bridges Created nasal chamber which warmed and humidified

The Neanderthals created their own culture showing high

- grave side flower

Mysteriously disappeared 40,000 years ago.
Some believe due to out competed by modern humans who arrived in Europe same time as Neandreath's extirction. Out is more accepted view is that could have mated with modern humans or self-incided store the large projection, this explains with most people from Asian or Europe discent have 1-2% reandershal genes.

#### Gel electrophoresis

Gel electrophoresis is a method for separation and analysis of nacromolecules and their fragments, based on their size and charge.

- DNA fragments put in well of agarose gel with buffer solution (constant pH)
- And electric current is passed th
- The gel contains a dye which stains the DNAs and fluoresces under UV

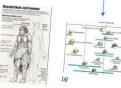
### Human evolution

Most recent ancestors

e.g., homo habilis 2.4-1.4 million years ago homo erectus 2-0.15 million years ago homo neanderthalensis 2-0.25 years ago Become distinctively more humans-

cranial capacity larger than any other- 2,97LBS/ 1,350 G Compared to an estimate from Sahelanthropus tchadensis 0.81 LBS/ 365 G

Controlled fire, Migrated out of Africa Only homo sapiens still exists



#### Why humans became bipedal [1] nation of different factors

## mg model; Pair bonding between males and females Females only mated with males who were bipedallsm Moles carried more standing up to bring to female Shown by teeth reduction and stee difference between make and female, typically of a monogamous species.

- evolve in trees this theory makes sens
  - Explains why some hominids were only partially

- Referency Region
  Helped us to keep cool in hot climate of Africa
  Reduces amount of body exposed sun and raises
  body away from hot ground Also exposes to greater wind flows - helps to keep
- Likely this is how it developed over time but not how first

- Mag.
  Change in environment food more widtly dispersed so had to
  travel further to gather resources
  Bjeedat and quadrupedal motions aske similar amount of energy
  Modern human user 57% less energy
  Shows shift to Bjeedalism wouldn't have been too difficult

# Computing Challenge

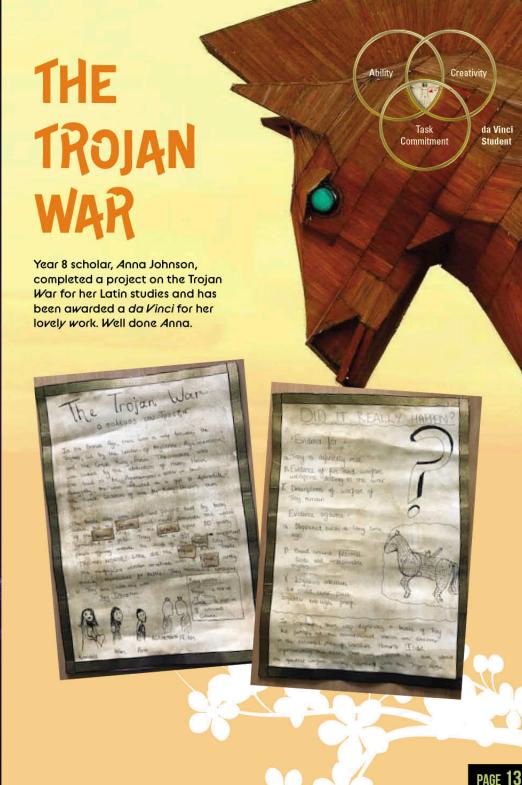
The Oxford University Computing Challenge is an invitational event for those who finished in the top 10% of the UK Bebras Challenge. Both challenges test skills such as logical thinking, pattern identification and decomposition as well as computer programming. The Oxford University Computing Challenge encourages pupils to develop their skills one stage further and consists of three sections of problems for pupils to solve.

Year 7 pupil, Daniel Oven Gibbs competed in the Junior section against just over 2,700 pupils who had qualified for this year's OUCC competition. Daniel finished in the top 15%, achieving a Merit grade for his submission. It was a super result.

Head of Computer Science, Adam Depledge said, "This is a really fantastic achievement by Daniel. Computational thinking is an incredibly useful and powerful skill and Daniel has shown he has mastered it to A-level, well beyond his years. It's great to see his abilities recognised in such a prestigious competition at such a young age and we look forward to seeing what he can accomplish in the future."

"This is a really fantastic achievement by Daniel.
Computational thinking is an incredibly useful and powerful skill and Daniel has shown he has mastered it to A-level, well beyond his years."

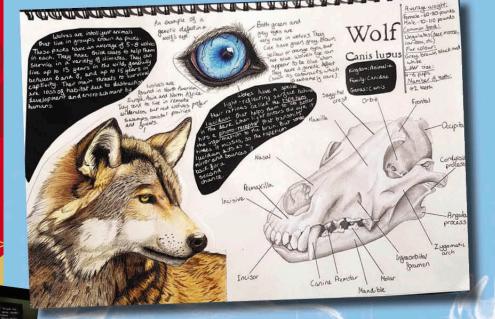






# LIGHTS! CAMERA! ACTION!

This NEA work has been produced by Upper Sixth student, Sophie Cheshire, who plans to study Costume Design at University. She has created a unique and original piece for a Norse Film, for the character 'Hel'. Her work is of the highest standard and it is likely that it will yield full marks when completed. The detail and intricacies in Sophie's work are breath-taking. From choice of materials, their manipulation into complex construction is way beyond the level of an A-level student. Without doubt, this is not the last work we will see from Sophie Cheshire - watch this space! We're sure to see her name on the credits of some future blockbusters.



The College's Anatomical Art competition has been won by, Year 8 pupil, Amelia Chard. Her stunning specimen drawing of a wolf, amazed, Head of Biology, Faye Roberts and Head of Art Paul Hubball, and as you can see from the image, is very deserving of its win.

The co-curricular competition encouraged pupils to bring together their artistic skills and knowledge of Biology in an anatomical drawing on a subject of their choice. Entrants could choose any subject and submit their work in any style.

Amelia's drawing was impressive, demonstrating both her artistic skill and

biological knowledge, and her work will now be submitted into the Royal Society of Biology's national competition, 'The Nancy Rothwell Award'.

Congratulations also go to: Year 8
Dylan Williams, who took second
place with his drawing of coral and to
Year 8 Roxy Glenn and Year 7 Hetty
Frost, who both received a Highly
Commended for their drawings
of a chameleon and guinea pig
respectively.

Combining Art and Science in a co-curricular competition is part of the College's ongoing promotion of STEAM. An approach that builds links between the subjects and helps to cement learning and encourage pupil creativity.



### HOLLY WATERFIELD



**GCSE Golf Assessment Video** Handican 5.2

#### **TOP 5 ACHIEVEMENTS**

- Lutterworth Golf Club Ladies Champion | 2020
- U15 Four Counties Champion | 2019
- Lutterworth Golf Club Junior Champion | 2019/2020
- Lutterworth Golf Club Junior Captain | 2019-2021
- Leicestershire and Rutland County Junior Vice-Captain | 2020-2021

## **Golfing Commitment**

If any pupil wants to use a sport outside of the Princethorpe extra-curricular programme for their GCSE PE, they have to use the specification to put together video evidence, both for internal marking by the department and for external moderation by the exam board.

> The way that Year 11 pupil, Holly Waterfield, has tackled this task over the two-year course, navigating course closures due to the Covid pandemic, has been a real credit to her. The quality of her video shows both her skill and task commitment, and the PE department rewarded her with a da Vinci merit earlier this term for her final submission.





# tepping it Ip

Mme Galano's Year 7 Spanish students have been writing about the weather. Ewan Pearce, Elise Robbins and Josh Gorbutt took it a step further and included in their work prior learning, adding in activities and reasons. Well done everyone, Mme Galano is delighted with your work ethic.

Me llamo Find Weather and Seasons en el sur « in the South en el esté = in the East Read the text below, and highlight or underline the Now write something similar about where you live. Use the text above to help you MNO on Inglaterra en el centro En Inglatura el Europa es muy have free fact our have free y there arrows a very Illusie. En et norke, on vivoro hace color y back soil . En el centro, en solitari, boce frio y more a vices muse en primar y hace soly bock calor on verano. En a esteren pero no hace salor. En croesec. cerca de sonto, hace froy have sol nunco have color.

My teacher's feedback on my writing:

Me Ilamo JOSh Writing Task - Weather and Seasons

Read the text below, and highlight or underline the #adverbs of frequer

Vivo en España, en el norte. En España el tiempo es muy diferense. En el sur hace color y lluev muy poco. En el norte, en invierno, hace mucho frio y siempre nieva en las montañas. Hace

ow write something similar about where you live. Use the text above to help you.

Visc en Infotora, en el centre for apporton En el rote has no ment much proper face from For el cete por doro,

My teacher's feedback on my writing:

en el sur = in the North en el sur = in the South en el este = in the East en el oeste = in the West en el centre = in the centre

Vivo en España, en el norte. En España el tiempo es muy diferente. En el sur hace color y l'ue

jow write something similar about where you live. Use the text above to help you.

Writing Task – Weather and Seasons Read the text below, and highlight or underline the

Infina Haca Exmo Lugge so xxxvia y my boxx sel protection of getting from the graph and heavy in the second there are graph and a conductive to the second there are graph and a conductive to the second there are graph and a conductive to the second the sec grand production on breat large plan a very base much brogge

Vocab: en el norte « in the North

en el sur = in the North en el sur = in the South en el este = in the East en el oeste = in the West en el centrg = in the centre cerca de = near

twan

# Cam McGregor

Cam recently joined the college in the Lower Sixth and is currently one of our Sports Captains and one of the top 400m runners in the country running for Rugby & Northampton Athletics Club

### How have you found settling into life at Princethorpe College?

Considering the circumstances, I found settling in at Princethorpe relatively smooth and easy. As well as the school's welcoming and caring nature, having close friends currently at the school willing to show me the ropes made the transition into Sixth Form life very easy-going, I was lucky enough to have previously made acquaintances on the Rugby pitch outside of school. Although the online lessons were tough as the interaction of classmates and teachers wasn't there, I learnt a lot during our periods away from school

### How did you get involved in athletics and do you do any other sports?

Growing up I was always relatively quick, so turning up to a competition with no previous experience of racing, winning and subsequently being scouted by a local coach was the turning point for me. I also played rugby for my previous school, local club and a National Rugby Sevens academy.

# What impact has Covid had on your training and competitions this year (what have you been doing differently during lockdown)?

With no access to the unique surface of a tartan athletics track, Covid made training life very difficult. My training venue changed to the bustling Cawston Park in Rugby concrete path and a questionable home-gym set up had to make do for my training. Competitions have been tough due to the many new restrictions and lack of spectators, but I have managed to get stuck in to five athletics competitions this year so far.

#### What has been the highlight of you season so far?

The highlight this year must have been breaking the sub 50 second 400m time at the Loughborough University Track which has been a goal of mine for the last few years. Although, breaking the senior boys school athletics records for 200m and 400m came close.

### What are your goals for the rest of the athletics season?

This season I hope to represent Princethorpe and do well at the English Schools Championships in July and additionally head into the off-season fit and healthy to prepare for next year's season in which I hope to compete for England U20s and potentially Great Britain Juniors

#### Who are your sporting role models?

Personally, my role models would be my training partners. All four of which compete at either National or International standard. Training with those that are at a higher standard than yourself pushes you and creates higher levels of drive to succeed than would be there if they were absent. Having them compete for Great Britain and England forces me to look up to them and try to match their success.

#### What advice would you give to young athletes?

It sounds a cliché but from personal experience trusting the 'process' is vital for anyone wanting to succeed, whether that be inside or outside the classroom. Over the last two years I suffered from a re-occurring hip injury. After seeing five different professional physiotherapists, a hip-specialist orthopedic surgeon, multiple S&C coaches and months of rehab of doing small exercises (which at the time felt purposeless), I am finally able to achieve my goals and thrive at my sport.



The highlight this year must have been breaking the sub 50 second 400m time at the Loughborough University Track which has been a goal of mine for the last few years.

2021 U2	20 Rugby & No	ortha	mpt	on		
Event	Perf	Pos		Venue	Meeting	Date
200	22.78 1.7	4	12	Nuneaton	Nuneaton Open Events - Season Opener	11 Apr 21
200	22.80 w 2.5	5	2	Birmingham (U)	University of Birmingham Series 1	21 Apr 21
400	49.68	2	2	Loughborough	Charnwood AC Open	19 May 21
400	49.86	3	5	Kettering	Kettering Open Meeting	31 May 21
400	50.23	4	2	Lee Valley	Lee Valley Track Open	25 Apr 21
400	51.38	1	5	Nuneaton	Nuneaton Open Events - Season Opener	11 Apr 21

### Design Technology

Tom Wilcox A-level Design & Technology, Hardwood, glass and acrylic coffee table.

# Innovation and Hard Work

With Covid restrictions and lockdown, the opportunities for practical work were greatly reduced for our pupils this year. However, through hard work, innovation and a few Saturday mornings (!) they were able to produce some pieces which we are really proud of. This is a selection of GCSE Art/Textiles work demonstrating pupils' expression of their design with fabrics and A-level Design & Technology practical outcomes.

## Garments

Nature's Adornment by Lilly-Anne Brown,
GCSE. Inspired by nature's organic components.
An intricately detailed tutu that combines a
heavily embellished bodice with printed layers
of tulle. A garment that would not look out of
place on the stage of a fairy-tale ballet.



## Design Technology

Toby Rigg A-level Design & Technology, Pine and mild steel garden planter designed for a user in a wheelchair.



The Peacock and the Swan by Issy Bunting, GCSE. Inspired by the contrast between these two magnificent birds. The grace and elegance of both creatures, the colour palette nature adorned upon them. Set side by side for a stark contrast in this striking and unique corset.





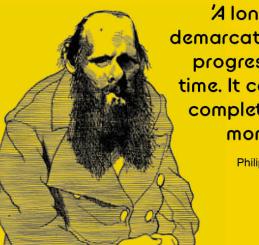
# LOCKDOWN READING

### Dostoyevsky, prescience, and sibling rivalries

Lower Sixth Academic Scholar, Sebastian Dibb, set himself a reading challenge for Lockdown: to read 21 books. He surpassed this. He has been working through the Cambridge University English Literature first year reading list, enjoying works as varied and challenging as Virginia Woolf and the whole of The Prelude. Aside from that, he has also read some heavy weight Russian Literature: the major works of Dostoyevsky and Tolstoy. Here Sebastian gives us a glimpse of the insights he has gained.

In May 2020, a study by Nielson found that people had nearly doubled the amount of time they spent reading in lockdown, with around a third of those asked explaining that books provided 'an escape from the crisis.' Unsurprisingly, the names of Fyodor Dostoyevsky, Ray Bradbury and J.M. Coetzee were casually omitted from this clique of 'comforting' lockdown reads. Nonetheless I credit my somewhat questionable canon over the past sixteen months for, if anything, providing an invaluable perspective to the monotony of lockdown – after all, one can't help but reflect after trawling through the kaleidoscopic mess that is 19th century Russian literature: things could probably be a lot worse.

Aside from mercifully salvaging my attention span previously crippled by YouTube and Netflix, my lockdown canon has also, on occasion, provided uncanny parallels between our 21st century pandemic and the events of fiction written centuries before. Middlemarch features cholera outbreaks, *War and Peace* opens with St Petersburg socialite Anna Pavlovna contracting flu but hosting a party anyway, and *The Plague* by Albert Camus... well, not much more needs to be said. What may have begun as a desperate attempt on my part to keep the lassitude of lockdown at bay (not to mention getting one-up on my sister) quickly turned into something far more meaningful, as author Philip Hoare put it: 'A long book demarcates seasonal progression and time. It can put you completely in the moment.' Irrespective of future lockdowns, I think this is something we can all benefit from.



'A long book

demarcates seasonal

progression and

time. It can put you

completely in the

moment.'

Philip Hoare



# Carnegie Celebration

Princethorpe College's Carnegie Celebration took place on Thursday 17 June and the 16 pupils who have shadowed the prestigious book award from Year 7 right up to Upper Sixth were invited to attend. Upper Sixth students Lauren Mason and Charlotte Fitzpatrick have shadowed the award since they were in Year 7, which is an outstanding achievement.



The Carnegie Award requires pupils to try and read as many of the longlisted books as possible and all of the shortlisted books. Following a strict judging criteria based on characterisation, plot, themes and style, pupils are able to vote for their choice of winner.

The winner of the Carnegie Medal for 2021 is 'Look Both Ways' by Jason Reynolds. Interestingly, this book was voted the worst by our 'Princethorpe' Carnegie Shadowers'; their vote went instead to 'Run Rebel' by Manjeet Mann. It's always interesting to see what the judges vote for compared to the pupils. 'Look Both Ways' is about working towards your dreams no matter the cost, the importance of family/friendships, bullying and escaping from the life you were born into.

#### There were eight books on the shortlist:

- Jason Reynolds Look Both Ways
- Ruta Sepetys The Fountains of Silence
- Joseph Coelho The Girl Who Became a Tree
- Sophie Anderson The Girl Who Speaks Bear
- Elizabeth Acevedo Clap When You Land
- Lauren Volk Echo Mountain 6.
- 7. Manjeet Man - Run Rebel
- 8. Marie-Louise Fitzpatrick Midnight Beach

Thank you to all the Princethorpe Carneaie Shadowers. You are an impressive cohort of young people. Anyone who has not yet read any of the books listed above, we challenge you to read them over the summer!



# **Kissing it Better**

The residents at Leycester House Care Home chose Princethorpe's Year 8 pupil, Chloe Potts, as one of six overall winners of a recent local poetry competition. This is an amazing achievement as there were over 70 entries.

The residents and members of the Poetry Society enjoyed reading Chloe's poem so much, they invited her to meet them via Zoom to read out her poem. Chloe was awarded a Kissing it Better certificate in creative thoughtfulness. We are very proud of her achievement and delighted to share her winning poem with you.

### What happiness means to me

Happiness to me has suddenly changed. Now its simply my family, friends and love that never ends.

It used to be playdates, going out, having 'fun' and being on holiday, especially in the

Of course, those things still make me smile,

In fact, a cheeseburger, chocolate milkshake and most food has done for a while.

It's just that now I have learnt what happiness is really about.

It's the love of 'my people' who have been there throughout.





Year 7 pupil, Alexa Holland, has far exceeded expectations in a research project set for the pupils in Science lessons. Alexa chose to do a presentation and a poster, both of which were excellent.



NEORMATION ingth of day. length of the unit 1-38 Earth years

ROVERSin total N.M.S. R. has sent (robotic vehicles) to mary-these tovers and called Sojaurner, Spirit, Opportunity and Curiouity. The





