

BOURNE GRAMMAR SCHOOL BULLETIN

Week ending Friday 6 November 2020

From Jonathan Maddox, Headteacher

NOTHING CAN MASK THE FACT THAT LIFE GOES ON AT OUR SCHOOL

Two days into the second National Lockdown, the only change in School is the fact that we are now all wearing masks for much of the time. It is good to see how smoothly students and colleagues have adapted to this new requirement. In fact, following my communications at the weekend many students wore masks in School before Thursday, from which point the expectation that they should be worn came into force.

ARMISTICE DAY

It has long been our practice on Armistice Day to sound a bell at 11:00 and to invite all students and colleagues to stand in silence for two minutes. There is no need for this significant moment in the School's year and, indeed, that of the entire nation to be compromised in any way as we operate under the bubble system. So we will observe Armistice Day in our usual manner on Wednesday. Students who are a member of any of the cadet organisations may, should they choose to, wear their uniforms in School throughout Wednesday.

ACADEMIC CATCH-UP PROGRAMME

This is now under way, with sessions in School and online every evening except for Fridays. There has been a good many messages of appreciation for the programme, for which I and my colleagues are grateful.

GCSE CERTIFICATES

It is our usual practice to hold a special, celebratory assembly at which it is my special pleasure to hand out to each Year 12 student who studied for their GCSEs here their GCSE certificates. For obvious reasons the assembly cannot take place this year but, working with Assistant Headteacher Mr Brooker who, last year, was Head of Year 11, a virtual event will be devised so that the students' achievement can be properly and formally recognised.

EXAMINATION LEAVE DATES FOR 2021

At present it remains the Government's intention that traditional, written public examinations will take place in the summer. Clearly, in the light of the second lockdown and the evolving situation in the country, we are keeping a very sharp eye on developments so as to ensure that our students are in the best possible position whatever happens in terms of the Summer 2021 assessments. We have determined provisional dates for the commencement of study leave for Year 11 and Year 13 students but I prefer not to release these now, not least because the national timetable for the public examinations has not yet been formally confirmed. Recognising that students and families need to know these dates, I will release them as soon as it is appropriate to do so.

SIXTH FORM APPLICATIONS NOW OPEN

Starting today, students wishing to register to join the Sixth Form for September 2021 can do so by visiting www.sixthform.net and clicking the 'Apply to the Sixth Form' link located on the right-hand side of the page.

SIXTH FORM VIDEO

November is the month in which we hold our spectacular Sixth Form Open Evening. The School is always packed with our own Year 11 students and many from other schools too, and with the Sixth Form now pushing five hundred students, this year's event would have been on a truly grand scale. No such event can happen this year but we have commenced our marketing for entry to the Sixth Form in September 2021 by alternative means and it is probable that all will see this in local publications and on banners in Bourges Boulevard, Peterborough. The centrepiece of this year's campaign is an impressive video to which the Head Student team have contributed. The video can be seen at our new Sixth Form web address - www.sixthform.net.

WORKING WITH THE NEW HEADTEACHER

Most unfortunately the second National Lockdown has necessitated a re-think of the arrangements that had been made to welcome Alastair Anderson to the School. I will spend two days with Mr Anderson next week in virtual contact and it is hoped in addition that he will be able to visit in person at the very end of term, by which time the lockdown will, hopefully, have been lifted. I am anxious to reassure everyone that I regard it as one of my most important tasks this term to ensure that my successor is as well briefed and as well prepared as possible in advance of his taking over in January.

CATERING - FUSION MOBILE APP

Following student feedback, the 'Fusion' catering pre-order app will offer a significantly wider range of food for pre-order starting from **Monday 9 November**. Students are asked to use the pre-order app as the default method for ordering food for collection at break and lunchtimes. Doing so allows catering staff to ensure that students are served as quickly as possible, minimises queueing and reduces the handling of food items. Students may continue to order a limited range of food 'on demand' each day at their bubble's catering outlet.

EXTRA-CURRICULAR CLUBS - Mr Ray, Director of PE & Sport

In recent weeks we have continued to have a significant number of students attending extra-curricular sporting activities following social distancing guidelines. Based on a more recreational level in most cases, Monday of this week saw more than 110 students take part in either Year 7 Football, Year 7 Netball, or Cross-Country. On Wednesday a similar number participated in Year 8 Hockey, Year 9 Netball, Cross-Country, or a GCSE PE Rugby assessment to enable students to submit marks for their examinations next summer. Each activity continued to abide by recommendations as laid out by School or the Governing Body of each sport.

Sadly, following the recent government announcement, all school sports clubs before or after the school day must cease until 2 November at the earliest. It is a great shame, but understandable that we must take this action - we will undoubtedly be keen to re-start clubs as soon as is appropriate. As a result, we plan to offer similar lunchtime clubs where time and numbers will allow. As year, this avenue of school sport seems to remain open. Details will be forwarded to students as soon as is practicable.

The Government guidance states:

Where schools are offering extra-curricular activities (that is, before and after school clubs) they should only do so where it is reasonably necessary to support parents to work, search for work, or undertake training or education, or where the provision is being used for the purposes of respite care.

They commented further, stating:

Outdoor sports should be prioritised where possible, and large indoor spaces used where it is not, maximising natural ventilation flows (through opening windows and doors or using air conditioning systems wherever possible), distancing between pupils and paying scrupulous attention to cleaning and hygiene. This is particularly important in a sports setting because of the way in which people breathe during exercise.



CATCH-UP PROGRAMME - Mr Hewitt, Deputy Headteacher (Academic)

I am delighted to report that attendance to the first week of catch-up sessions was very pleasing; more than 300 students took advantage of the extra learning opportunities provided by the School. My thanks to all the students who took part last week.

The catch-up sessions taking place next week are displayed in the table below. In order to reserve a place for the face-to-face sessions, please use the booking system which can be accessed [here](#). Students can sign-up for as many sessions as they would like to attend, although please be aware that the booking system will close on Sunday at 21:00. Bookings can be made each week between 15:00 on Friday and 21:00 on Sunday for sessions in the subsequent week.

If students prefer to access the learning from home, they have the opportunity to log on to *TEAMS*, click the invitation link which is posted by the relevant teacher at 17:00 in their year group TEAM, and participate in a remote lesson that is taught by a teacher using a webcam.

| | YEAR 8 | YEAR 9 | YEAR 10 | YEAR 11 | YEAR 13 | YEAR 13 | | |
|----------------|--|---|--|---|---|--|---|--|
| Mon 9th Nov | SCIENCE Space 1 Mr Baker MFL2 | SPANISH Present tense - regular and irregular verbs Miss Baverstock E4 | CHEMISTRY Crude Oil 1 Mr Mitchell M6 | ART Coursework Catch-up Mrs Welling A1 and A2 | ENGLISH LITERATURE The Winters Tale Ms Mears SS5 | PHYSICS Circular Motion Mr Lennox SS3 | | |
| | Space 1 Dr Hanson TEAMS | Present tense - regular and irregular verbs Miss Baverstock TEAMS | Crude Oil 1 Mr Marsden TEAMS | No Session Required | The Winters Tale Ms Kemp TEAMS | Circular Motion Mr Lennox TEAMS | | |
| Tues 10th Nov | SPANISH Near Future tense and nouns Ms Currier MFL2 | ENGLISH Reading: Developing interpretations. Miss Dye E1 | COMPUTER SCIENCE Python Programming James Brown CO2 | BIOLOGY Homeostasis 1 Dr Hanson EPR1 | PSYCHOLOGY Approaches Ms Thurlow SS4 | | | |
| | Near Future tense and nouns Ms Currier TEAMS | Reading: Developing interpretations. Ms Mears TEAMS | No Session Required | Homeostasis 1 Mr Vaughan TEAMS | Approaches Ms Thurlow TEAMS | | | |
| Weds 11th Nov | MFL2 Key Skills: Source Analysis Mr Green M12 | ENGLISH Reading: Finding multiple interpretations Miss Bennett E1 | PHYSICS Energy Transfers Mr Miller M6 | EPR People of faith should support the freedom of religious expression' Mr Tighe EPR1 | SPANISH Jóvenes de hoy ciudadanos del mañana Multiple exam skills Mrs Worrall SS3 | ECONOMICS Essential Introduction to Economics Theme 1 Mr Hartley SS1 | | |
| | Key Skills: Source Analysis Mr Green TEAMS | Reading: Finding multiple interpretations Ms Watson TEAMS | Energy Transfers Mr Mitchell TEAMS | People of faith should support the freedom of religious expression' Mr Howard TEAMS | No Session Required | No Session Required | | |
| Thurs 12th Nov | MATHEMATICS Venn Diagrams Mr Smith M11 | CHEMISTRY Metals Mr Harris E4 | HISTORY Immigration in 1920s Miss Capper M5 | DESIGN ENGINEERING Microcontroller Circuit Design Mr Dougall DE1 | PE Social Facilitation and Arousal Ms C Bowtell SS4 | THEATRE STUDIES Hedda Gabler Mr Moxley Drama Studio | POLITICS Electoral Systems Mr Hewitt IT1 | FRENCH Translation Mrs Cowell SS5 |
| | Venn Diagrams Mr Sheppard TEAMS | Metals Mr Marsden TEAMS | Immigration in 1920s Miss Capper TEAMS | Microcontroller Circuit Design Mr Delport TEAMS | No Session Required | No Session Required | No Session Required | No Session Required |

HOUSE NEWS - Mr Brooker, Assistant Headteacher (Pastoral)

Earlier this week the House Leaders wrote to all students concerning the School's desire to support local charities, and thus our local community. The students will have the opportunity to select a charity of their choice and put forward a short, written proposal which explores their chosen charity's mission, and why they believe it is one we could support here at Bourne Grammar School. In order to be considered, the charity must operate and have an impact locally. The House Leaders will weigh the various proposals and make the final choice; no doubt a difficult one given the commitment and compassion so regularly demonstrated by our students. It is hoped that whatever the outcome, our students will remember that despite the bubbles and restrictions faced by all, we remain committed to each other and to our wider community.

| | | | |
|--|---|--|---|
|  |  |  |  |
| 1,527 | 1,780 | 1,431 | 1,744 |

*These totals show all House Points earned minus Behaviour Points.
It includes points from all students in each house between 02/11/2020 and 05/11/2020.*

'In response to the COVID-19 pandemic, has the UK Government achieved the right balance between public health and public wealth?'

Thomas Lawson is in Year 13 and currently studying A-Levels in Economics, Law and Mathematics. He intends to read for a degree in Economics at university. In this brief summary of his very topical EPQ research project, Thomas argues that the government struggled to find the right balance between public health and public wealth in tackling the COVID-19 pandemic up to September 2020.

For my EPQ I decided to focus on a topic that has been massively affecting us all: the COVID-19 pandemic. Due to my interest in economics I decided to complete a project with a focus on this and asked whether the government achieved a balance between public health and public wealth.

Due to the extremely current nature of my topic I had to select a cut-off point where I would not consider any further reporting. As of this point, 1 September 2020, the COVID-19 pandemic had killed 41,546 people¹, and the Bank of England forecasted that the output of the country would only return to pre-pandemic levels at the end of 2021². This informed my hypothesis that the government did not achieve a balance between public health and the economy.

One of my main findings is that the government should have imposed a lockdown sooner, this is an idea that is widely agreed upon by scientists, including epidemiologist Neil Ferguson who said that had a lockdown been imposed just a week earlier, the deaths caused by the virus could have been halved³. I also looked into the non-lockdown approach taken by Sweden, the figures from this show that it experienced a significantly higher death rate compared to its neighbours for a very minimal economic gain⁴, and so I determined that this strategy seemed ineffective at protecting public health and public wealth.

In an effort to learn more about economics to assist with the writing of my project I enrolled in an online lecture series focussing on game theory and behavioural economics hosted by the University of Warwick. I used these skills I learnt to determine if a lockdown enforced by law which may cause economic damage was necessary. I used a prisoner's dilemma style game, shown in Figure 1.⁵

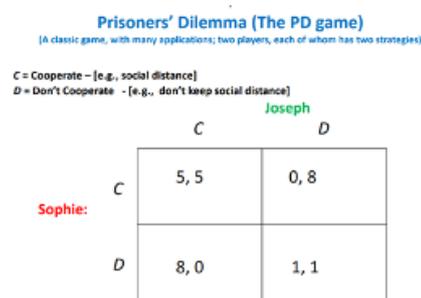


Figure 1
The Prisoners' Dilemma

This shows how two "players" can choose to either social distance or not, and the levels of happiness they would gain from taking the respective decision. Due to the higher happiness gained from "cheating", humans have an incentive to not social distance and so the only way to ensure they do this to stop the spread of the virus would be to make the lockdown rules enforceable by law. I then applied theories such as the optimism bias, in which humans underestimate the chances of negative things happening to them, and status quo bias, in which human beings are resistant to change, to further prove that the lockdown rules needed to be enforced by law.

I then evaluated the economic measures taken by the government using the skills learnt in my A level Economics studies to see if these measures would prove to be effective. I used an aggregate demand/aggregate supply diagram to show the effects of these measures on the economy and found that they would help to increase output without impacting price level. However, when looking at the GDP figures for the UK we see that real output was still harmed significantly so these measures still proved ineffective. Ultimately, the evidence suggests that the government did not achieve a balance between wealth and health, we can see that significant damage has been caused to both which could have been avoided if the government had acted differently.

¹ HM Gov, 'Deaths in United Kingdom'. 1 September. <https://coronavirus-staging.data.gov.uk/deaths>

² Bank of England, Monetary Policy Report August 2020, 5. <https://www.bankofengland.co.uk/-/media/boe/files/monetary-policy-report/2020/august/monetary-policy-report-august-2020>

³ 'Coronavirus: 'Earlier lockdown would have halved death toll', BBC, 10 June. <https://www.bbc.co.uk/news/health-52995064>

⁴ Le Page, Micheal, 'Is Sweden's coronavirus strategy a cautionary tale or a success story?', *New Scientist*, 13 August 2020. <https://www.newscientist.com/article/2251615-is-swedens-coronavirus-strategy-a-cautionary-tale-or-a-success-story/>

⁵ Abhinay Muthoo, slide from online lecture "Cooperation in the time of Corona", 14/05/2020.

'Do Telomeres provide more benefits or hindrances to human health?'

Jasmine Forster is in Year 13 and is currently studying A-Levels in Biology, Chemistry and Geography. She hopes to read Biology at university, with a particular interest in genetics, thus leading to her decision to study the subject of Telomeres for her Extended Project Qualification. Jasmine draws on her extensive literature review of peer-reviewed sources for the EPQ to answer a complex scientific question, which could have important implications for living longer and avoiding diseases.

Telomeres are caps of non-coding DNA found at the end of chromosomes (see Figure 1)^{1,2} They are composed of six nucleotides (the building blocks of DNA) in a pattern which can be repeated thousands of times. Every time that one of our cells divides, our telomeres become shorter³. This could be due to things such as a lack of exercise, the cell coming under stress, dietary choices, stress levels, disease, and so on⁴. The main function of telomeres is to protect the DNA that codes for essential structures within our body, but this shortening can present many issues.

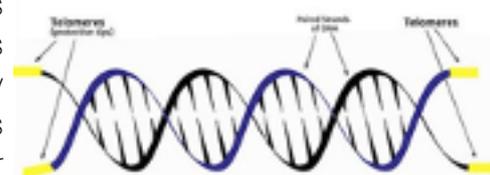


Figure 1
Location of Telomeres on a Chromosome

Telomere shortening can lead to three main things: cell senescence, apoptosis, or oncogenic transformation⁵. Senescence is the deterioration of a cell and its functions over time, whilst apoptosis is a form of programmed cell death, in which a cell is purposefully destroyed as it cannot function properly. The most dangerous effect, however, is oncogenic transformation, which is the development of cancerous cells⁶. It is a disease shown to have direct links to telomere length in certain situations. These cancerous cells have the ability to divide rapidly as they express an enzyme telomerase when their telomeres become critically short⁷. Telomerase adds more repeats of non-coding DNA to the end of telomeres, making them longer or maintaining current length and thus preventing the cell from being damaged. A mutation in the cell means that they can overcome any mechanisms in place to prevent it from dividing rapidly, and this makes the disease invasive.

Despite this, not all to do with telomeres is negative. Telomerase has the ability to treat humans and prevent the effects of telomere shortening. The viral delivery of Telomerase Reverse Transcriptase (TERT) provides the instructions to create a component of telomerase, stimulating its production and thus adding telomeric repeats to the end of our telomeres⁸. Another drug, TAT2, enhances the immune response to viruses by increasing telomerase activity in immune cells and thus making them last longer within the body⁹. Both of these methods can be considered positives of telomeres' presence in humans.

During my project, there were many downsides of telomeres that I found in my research. However, by looking at all of the different aspects of telomeres and the weight of importance of numerous factors, I came to the conclusion that telomeres are more functionally important to humans than they are damaging because they not only protect our DNA but offer methods of preventing natural effects of their shortening.

¹ T.A. Sciences@. n.d. What Is A Telomere? | Human Cellular Aging | TA-65 TA Sciences. [online]

Available at: <<https://www.tasciences.com/what-is-a-telomere.html>>

² Yourgenome.org. 2016. *What Is A Telomere?* [online]

Available at: <<https://www.yourgenome.org/facts/what-is-a-telomere#:~:text=Telomeres%20are%20distinctive%20structures%20found,bases%20%3Frepeated%20over%20and%20over.>>>

³ Shamma, M., 2011. Telomeres, Lifestyle, Cancer, and Aging.

Current Opinion in Clinical Nutrition and Metabolic Care, 14(1), pp.28-34.

⁴ Polonis, K., Sompalli, S., et al, 2019.

Telomere Length and Risk of Major Adverse Cardiac Events and Cancer in Obstructive Sleep Apnoea Patients. *Cells*, 8(5), p.381.

⁵ Shamma, M., 2011, op cit

⁶ www.dictionary.com. n.d. *Definition of Oncogenic* | Dictionary.Com. [online]

Available at: <<https://www.dictionary.com/browse/oncogenic>>

⁷ Scientific American. 2001. *Do the Telomeres in Cancer Cells Shrink?*. [online]

Available at: <<https://www.scientificamerican.com/article/do-the-telomeres-in-cancer/>>

⁸ Ramunas, J., Yakubov, E., Blau, H. and Cooke, J., 2020.

Compounds, Compositions, Methods, And Kits Relating to Telomere Extension. US 10,525,075 B2.

⁹ Geddes, L., 2008. *'Elixir of Youth' Drug Could Fight HIV And Ageing*. [online] New Scientist.

Available at: <<https://www.newscientist.com/article/dn16035-elixir-of-youth-drug-could-fight-hiv-and-ageing/>>

STUDENTS OF THE WEEK

| Name | Year | Staff | Subject |
|---------------------|------|-------------------------|--------------------|
| Thomas Duff | 7 | Mr Gillespie | Mathematics |
| Donald McGeorge | 7 | Mrs Williamson | English |
| Husayn Walji | 7 | Ms Jasinska | Spanish |
| Livvy Bodmer | 7 | Miss Patman | Spanish |
| Riley Crown | 7 | Mr Green | History |
| Ata Egeli | 7 | Mr Adamson | Mathematics |
| Finn Gillespie | 7 | Mrs Baverstock | Spanish |
| Rebekah Arnold | 8 | Miss Hurrell | Spanish |
| Martha Caney | 8 | Mr Fone | Computing |
| Jessica Burton | 8 | Mr Green | History |
| Ella Dunnett | 8 | Mr Delport | Design Engineering |
| Mayra Narang | 8 | Mr Miller | Science |
| Netra Ranjith | 8 | Miss Mafusire-Strawford | Art |
| Sam Gupta | 9 | Mr Fleckney | Physics |
| Evie Lound | 9 | Mr Brown | Design Engineering |
| Raj Sisodia | 9 | Mrs Welling | Art |
| Matthew Bailey | 9 | Ms McVicker | Registration |
| Abigail Ferguson | 10 | Ms Creedon | Pastoral |
| Erin Holden | 10 | Ms Waldron | Registration |
| Michael O'Donnell | 10 | Mrs Williamson | English |
| Aadhi Visvanathan | 10 | Ms McVicker | English |
| Warrick McKoy | 10 | Mrs Williamson | English |
| Keyon Snoek | 10 | Miss Smallshaw | Chemistry |
| Jenny Baker | 10 | Mr Moxley | Drama |
| Kaitlyn Hallas | 10 | Ms Creedon | Pastoral |
| Sam Harris | 10 | Ms Kemp | English |
| Noah Akamessan | 11 | Mr Adams | Mathematics |
| Caitlin Dawkins | 11 | Mr Gillespie | Mathematics |
| Nimrah Imaan Nadeem | 11 | Mr Lennox | Physics |
| Oscar Potts | 11 | Dr Barmby | History |
| Isa Rehman | 11 | Miss Watson | English |
| Phoebe Bardwell | 11 | Mrs Lattimer | Mathematics |
| Hugo Brill | 11 | Mr Andy | Mathematics |
| Alexandra Weston | 11 | Mrs Lattimer | Mathematics |
| Zara Chambers | 11 | Miss Watson | English |
| Abby Garthwaite | 13 | Mr Moxley | Theatre Studies |
| Gemma Parker | 13 | Ms Creedon | Spanish |