



RADLEY

Academic Scholarship 2022

(A series of detailed reports to provide feedback for Preparatory Schools)



Subject reports

ENGLISH

Section A

The overall grasp and comprehension of the poem was sound, and all candidates showed a good understanding of the themes and general message of the poem. There were only a few misinterpretations between the speaker and nurses in the poem. The average candidates explored the feelings and emotions conveyed in a general way, but the best responses were able to synthesise these into a comment about the title and the connection between patient and medical staff. Nearly all candidates identified various poetic techniques and features ranging mostly from imagery (metaphor/simile) and some were able to describe the structure and rhyme patterns. Quotations and evidence from the poem were mostly included, but there was range of fluency of integration. Candidates must be encouraged to embed selected quotations into grammatically correct sentences. The middle range candidate simply explained the poem and did not go beyond feature-spotting, whereas better responses were able to show an appreciation of the effects of the language and structure. Students should be encouraged to start their analysis with stem-clauses such as “The poet uses this technique to convey/express/show/explore...” This might avoid a descriptive explanation. The best answers showed knowledge of a greater variety of techniques and were able to explore the effects using more nuanced and subtle vocabulary.

Introduction



There is a sense of returning to normality. It was very good to see the boys on their academic expedition to Radley and clear, once again, that they have been well prepared for what they faced in the examination hall. It is true that one or two papers offered unusual perspectives on testing, and this may have felt a little perturbing, but we made allowances for those and hope we have treated all candidates fairly. Teaching boys for scholarship can be an exciting business (who, after all, does not like teaching the brightest in their school?) but on the other hand, questions are always going to be exacting. There is a lot at stake with scholarship exams and this can be a real pressure on those getting boys ready for the papers. So, as you read these reports, I hope you recognise the fruits of your work in some of the comments, even if there may also be some useful pointers for improvement. As ever, it is impossible to prepare for all eventualities, but mental agility can be developed via an open-minded school environment where critical thinking is integral to all activities in the classroom and beyond. Thanks indeed for what you are doing to shape active young minds.

I hope you enjoy teaching the next cohort of candidates and these reports assist in that process.

Warm wishes
Stephen Rathbone
Academic Director MA, MA



Section B

Most candidates showed a reasonably sound understanding of spelling and grammar; inevitably, some non-native speakers struggled here. A number of candidates employed a more ambitious vocabulary, whilst a few too many others erred on the side of playing it safe, ultimately producing neater, but less sophisticated, responses. Candidates should be reminded that this isn't necessarily a good strategy.

In terms of content, there was a real range on offer. Many boys wrote with fluency and energy about historical figures or contemporary activists/politicians/philanthropists, etcetera; a pleasing number crafted Gothic short stories in miniature; a few wrote rather touching responses about family members. These responses generally scored well, rewarded for their forethought and style. The very best of these even displayed 'literary qualities': effectively building atmosphere, attending to details of characterisation, and constructing a plot. On the other end of the spectrum, lower-scoring responses were often a little unimaginative. Candidates would do well to remember that this is a creative writing task, and as such they should do their best to avoid static, predictable answers. In particular, I felt that often boys let themselves down by writing about their parents; while several candidates wrote excellent responses about their families, these stronger answers often focused on a specific memory with a father/mother and were generally more heartfelt. Weaker answers were vague, and typically didn't have a clear sense of progression from one idea to the next (e.g. 'I admire my dad. He works in a bank.' requires some further explanation). However, on the whole, most candidates managed to produce work with at least a few moments of reflection and sensitivity.

Section C

This year the standard of responses was high, with many candidates writing with confidence and control. It was especially pleasing to see so many boys drawing on their own experiences and their wider reading. The strongest pieces managed to combine accuracy, flair, and analysis of the essay title, while sequencing ideas smoothly. Issues arose where some candidates responded too narrowly, using only their first-hand experience and little knowledge of the wider world. Very few candidates referred to the poem they had read in Section A, which might have been an interesting catalyst for their essays. Obviously, extremely short, under-developed or inaccurate responses failed to score highly.

It was sensible to approach the essay title from a position set out in the introduction to the piece; where this did not happen, responses sometimes felt meandering or directionless. A single sentence of conclusion was ideal, in order to avoid a sense of anti-climax. Answers which adopted two polarised positions, swinging between the two, were ineffective, unless they also established a middle ground. Some candidates sensibly adopted literary devices in their written work, to engage the reader; however, some of the writing felt dry and procedural, sticking only to a point-by-point format.

All in all, this felt like a good set of essays, particularly given the timeframe allowed.



MATHS

Unusually, last year, there were a couple of candidates whose ability was well beyond the standard we would normally expect at this level. This year there were more 'very good' candidates. I was therefore able to set a paper that was accessible to more of the candidates. In Statistical terms, the mean mark of the 2022 entry was higher than the 2021 entry, but the standard deviation was lower.

Paper 1

The mean mark on the paper for those candidates who were selected for part 2 was 70%, with a spread from a lowest mark of 28%, up to a highest mark of 91%. As ever, the aim of the paper was to test the routine 'teachable' algebraic techniques at the start of the paper, and to throw in a bit more 'thinking' as the paper progressed. I don't want to discourage those who have worked hard but who find that Maths is not their strongest subject. In general, I thought that the paper did what I wanted. My only negative comment is that presentation has slipped a bit this year. On both Paper 1 and Paper 2, it is easier to award method marks for an incorrect answer if you can see what that method is.

Paper 2

Again this year, I delayed the setting of Paper 2 until we had marked Paper 1. The mean mark in 2022 was 10% higher than in 2021, and every question had at least three fully correct solutions. I think there were two reasons for the higher mean. In most of the questions it was possible to pick up some marks by 'doing the obvious', without a need to succeed fully with the 'clever bit'. Secondly, with one exception, the short-listed candidates had made a pretty good stab on Paper 1. So, all candidates were fairly sound. I make the following observations:

Question 1 was intended as a gentle start. No candidate fell into the trap of thinking that an increase of 20% followed by a decrease of 10% is the same as an increase of 10%. But several of those who used the multiplier of 1.08 over two days did a two-day calculation, and ended up with a date of 21 March, rather than realising that, at the later stage, the 20% was important.

Question 2 was simple simultaneous equations for most candidates. One or two made little progress because they failed to realise that the equations given on the graph needed to be treated algebraically. In order to find the area of the triangle ABC, I had expected candidates to 'put it in a rectangle' and then subtract three right-angled triangles. But almost all used the right-angle at A, and continued with Pythagoras.

Question 3 proved to be the best discriminator on the whole paper. All candidates made some headway, but only a few saw it to the end.

I agonised over Question 4. I didn't want to give any scaffolding. In the end, I decided to include the radius of the larger semi-circle on the diagram. With hindsight, I should have also drawn an 'r' on the diagram, and hinted at Pythagoras. Marking the paper, I cut the marks down on this question. Other than knowing how to work out the area of a semi-circle, there was often little scope for method marks, and I didn't want to exaggerate the significance of the marks on a question which tended to be 'all or nothing'.

Question 5: In the second quadratic a good number of candidates realised that they could substitute for $3x - 2$ and then use the first part, but I also awarded full marks to the more agricultural solutions. The final part required the factorisation by $x + 5$ before reducing the rest to a quadratic. I thought this was tough and was pleased that three candidates spotted this for themselves. Those who stoically pressed ahead to a cubic



gained marks for obtaining the correct cubic. But I would not expect a scholarship candidate to know how to solve a cubic equation.

Question 6 was again intended to challenge. I deliberately did not give the amount of money spent. There were three approaches that I saw. One was to introduce an amount of your own and press ahead. The best answer on these lines was the candidate who spent \$3240. The second approach was to equate three pairs of equations - i.e. expenditure in week 1 equals expenditure in week 2, etcetera - and juggle with those. My expected approach was to introduce the total spent as a fourth variable, and then balance the equations for weeks 1 and 2 into a single equation, which could then be solved simultaneously with the equation for week 3.

PHYSICS

The 2022 Physics scholarship paper was tough; as such, it succeeded in challenging the very most able candidates and in separating out the very good from the fairly good. The top score was 58%, with a mean score of 40% and a standard deviation of 11%. A score of over 55% was very impressive, placing the candidate in the top 10%.

The paper was designed to test aptitude rather than assess prior learning and knowledge, and the habits of thought which might be described as "thinking like a physicist". It was hoped to give opportunities to think about unfamiliar contexts, and to explore everyday Physics situations afresh. Each question tested a different skill - Maths, physical intuition, problem-solving, proportional reasoning, using an unfamiliar equation, etc.

As with all previous papers, successful candidates were able to express large numbers in standard form. The ability to make sensible estimates also proved useful, particularly on Question 2 about the number of hairs on a cat; blind guesses or assertions were not credited.

A few pieces of general advice:

1) Think beyond what you have been taught.

The paper was designed to identify candidates who would be willing not just to write down what they could see - for example on Question 1, what apparatus was labelled on the diagram given - but to identify those who have thought beyond this into why each equipment might have been used, and what the apparatus as a whole might be for.

In Question 3(c), many candidates used the simple ratio of diameters, rather than realising the ratio of the areas depended on the square of this, in order to carry the proportional reasoning to its conclusion and obtain the number of photons as around 250.

2) Try to relate what you see in the questions to your everyday experience of Physics.

Candidates who were able to show that they spend time thinking about the physics of experiences in their everyday life were generously rewarded. There were some excellent answers (relating the panels to various objects candidates had met, like the vacuum flask), but also some very poor answers to Question 3(a) - and some candidates did not seem to appreciate that the JWST would operate in the vacuum of space.



Many candidates lacked the spatial reasoning to visualise the geometry when Venus would be half illuminated when viewed from Earth, and only a couple were confident in the triangle they had drawn to go on to reason correctly and gain the single mark in part (b) of the question. Using your imagination is important in Physics!

3) Be Bold

Making sensible approximations to simplify the numbers is often a good idea in Physics. Endless longhand arithmetic is rarely the right path, and for candidates who embarked upon it, not only was this unnecessarily time-consuming, it was rarely mistake-free.

4) Keep going!

Successful candidates had the resilience and determination to carry on, even in difficult and unfamiliar situations, keeping a cool head and using what they knew: some with significant aplomb. When the going gets tough, the tough lower their standards a bit and at least do something!

CHEMISTRY

As in previous years, the Chemistry scholarship paper has no particular format and instead tries to discuss interesting Chemistry. We are not looking for boys to gain full marks, some will be closer, some further away. As a result, this paper is by its very nature challenging, requires an open mind and is therefore marked accordingly and credit is given where due. As in previous years, there was an excellent and expected spread of marks, as high as 90%.

This year we centred the paper around the candidates ability of reading and making sense of graphs, using their knowledge of the three states of matter. Boys had to consider the axes and predict the change of state along each of the axes.

Question 1: The start of the paper was fairly straightforward with boys having to discuss the three states of matter. It was surprising that not all candidates were able to sufficiently describe the behaviour and arrangement of particles in those states (something that is firmly in Common Entrance territory). In some sketches of a liquid the circles were not touching and in a few cases were also shown regularly arranged.

Question 2: This question showed a phase diagram and the candidates had to interpret the graphs and read off some data. Pupils were tested in their skill to interpret graphs with the knowledge of states of matter and how these states can be interconverted by changing pressure and temperature. This was the scholarship element of the paper and quite expectedly proved to be challenging for a number of boys. Those boys who approached the question more logically had a distinct advantage. It was good to see that a clear majority were able to correctly identify the areas of solid and gases in the phase diagram. Several candidates did not realise that a change entails the starting and end state (although credit was usually given for the correct end state). Interestingly, a few boys thought that an increase in pressure makes the particles move apart and even increases their speed. Not many boys knew that the change from solid to gas is called sublimation.

Question 3: Not every candidate was secure in their definition of a compound (“chemically bonded” was often omitted). Pupils were then provided with some information on covalent bonding and they had to make deductions. On the whole, candidates acquitted themselves well. It was harder for some to spot that the nucleus must be positive (the magnitude of the charge was not asked) as the electrons are negative.



Question 4: The last question contained a regrettable omission (for which we apologise) of a sign in the Kelvin degrees Celsius conversion. Despite this mishap, this question was answered well and credit was given to any reasonable answer. It was heartening to see that a good number of boys knew about absolute zero and answered as intended. Finally, a brief revisit of a phase diagram and its interpretation for a few marks concluded the paper. Again, in general, the boys have done well here and a few even provided a credible answer for the supercritical state.

BIOLOGY

This year's Biology paper followed the usual format of a written passage followed by a comprehension exercise drawing partly on topics likely to have been covered at Prep School. The focus this time was Rewilding and the paper featured an abridged article about the Knepp Estate in Sussex which is currently one of the premier sites for this in the UK, and the release site for the reintroduction of the white stork. It also features in Isabella Tree's bestseller "Wilding".

As ever there were a series of ten definitions to start off the questions. These were generally well answered though some students had a tendency to use "English" definitions rather than scientific ones. Very few knew that a thermal was an air current that gliders or red kites might soar on and fewer still – almost nobody in fact – knew what a lichen was. Given ecologists regard them as important indicator species this is a bit surprising - some time spent getting to know them in a woodland or a graveyard would be time well spent. Questions 2 ("find it in the text") and 3 (classification) were well answered, except that some species were mistakenly thought to be invertebrates (lichens again!). Question 4, again on classification, was well done except that amphibians were occasionally accused of having scales (and some thought birds had fur).

The rest of the paper covered topics like biological control, habitat destruction, captive breeding and rewilding amongst other issues, and most students had a decent stab at writing about these, sometimes with great depth, interest and feeling. A food web/chain question is often included in our tests and it was interesting to note students continued to find it hard to include the producer layer and have arrows going in the right direction, although some useful species were picked out and arranged sensibly. Overall I would say the students found this year's paper more challenging than usual. Perhaps the passage being slightly longer than normal left less time for writing. Or maybe schools teach ecology topics later in the year when the weather is better and some outdoor exploration might be possible.

That said, marks ranged from about 30% (though very few this low) to 80% with the majority of students scoring 55% or higher, so there seems to have been a suitable balance of accessibility/challenge all the same. It was particularly enjoyable to see some students bringing their own knowledge of science/natural history to the table rather than just sticking to the more narrow confines of the curriculum. Thank you for your work with all the candidates.



FRENCH

The French scholarship paper yielded a wide range of results this year. Overall, the reading comprehension was well understood. Time markers were used effectively and the gap-filling exercise was a success. A few points were dropped here and there when gender agreements were overlooked by candidates, when they could have been used to disambiguate possible answers.

Technical knowledge of the language helped the applicants who got higher grades. Being able to recognise morphological items such as a past participle, a reflexive or an adverb was usually the sign of a more confident French learner. In the writing section, there were some excellent texts, which showcased complex structures which show range and confidence. I would recommend exploring structures such as “après m’être réveillé mais avant de prendre mon petit déjeuner” for applicants to be able to produce longer sentences in the target language. Logical connectors (for example, “pourtant”, “cependant”, “alors”, “ensuite”) also made a difference in the general flow of the written output.

Scripts from candidates who performed less well displayed narrower knowledge of grammatical structures such as reflexive verbs, adverbs as well as feminine adjectival agreements - both in the reading and writing components. The lack of lexical variety, repetition of adjectives (for example, intéressant, amusant, ennuyeux) and the rare use of reflexive verbs prevented some scripts from obtaining higher marks.

Variety in verbs would also considerably help the general range of the students. In many papers, a few verbs were used over and over. Expanding the repertoire of regular verbs (mostly -er and -ir groups) would be an accessible way to improve. For the more able students, that combined with systematic variation in tenses for the writing would help secure a higher mark.

A small number of boys struggled to deliver accurate verbs in any tense and looked, on paper, more like beginners than scholarship candidates; if you have any scholarship candidates who have learnt French for less than 18 months then do let us know as they can sit our Language Aptitude Test instead.

SPANISH

Spanish is taught ab initio at Radley College, but some candidates study it at Prep school or have Spanish-speaking heritage. These boys are welcome to demonstrate their skills in the Spanish paper as an alternative to French, which is the most popular foreign language taught at feeder schools.

The Spanish test was sat by one candidate who demonstrated a wide lexical range. This enabled him to tackle the reading exercise with great success. His written Spanish was ambitious and detailed, and showed a good instinct for the development of ideas. He struggled with the detection and conjugation of verbs in the past tense, but he was confident in the use of the present and immediate future. It would be advisable for boys to finish five minutes before the allotted time, to be able to check their work thoroughly and correct any basic grammatical oversights.



GERMAN

German is taught *ab initio* at Radley College, but some candidates embark on a course of study at Prep School or have family ties to a German-speaking country. These boys are welcome to demonstrate their skills in the German paper as an alternative to French, which is the most popular foreign language taught at feeder schools.

The German test was sat by one candidate who demonstrated a native level of fluency and extremely impressive accuracy in the final written response. There were some basic oversights in the comprehension, mainly in cases where the question included a negative or modified time phase compared to the text. Boys should finish writing five minutes before the end of the test so that they can check their work thoroughly.

LANGUAGE APTITUDE TEST

Modern languages play an important role in the Lower School at Radley College. It is possible to start learning French, German and Spanish as a beginner in the Shell year, so the language aptitude test allows potential Scholars who have studied other languages to demonstrate transferable skills in this area of the curriculum. It also assesses precision of expression in English, which is a second language for many of those who sit the paper. More specifically, it requires boys to identify patterns and to explain grammatical structures using appropriate terminology. In 2022, questions were based on the constructed language Esperanto and Cuneiform, a syllabic writing system. Ten boys opted for this test.

Question 1: Esperanto

Most boys were able to identify verbs and state relevant observations. Typically, however, candidates focused on morphology (verb forms) rather than syntax (position after the subject and negative particle, but before a direct object pronoun). There was some confusion about terminology when analysing sentence structure. The best responses included reference to subject and object pronouns, conjugation and declination. Less secure responses were limited to direct comparison with English (e.g. "mi is the same as I").

Question 2: Cuneiform

The majority of candidates gained more marks in this part. Only two boys did not correctly match the written and spoken form in every case. The most successful observations included detailed descriptions rather than mere bullet points. It was possible to identify the written form using repetition, word length and a process of elimination. All candidates who matched up the eight symbols were able to transcribe two words correctly, although about half did not make it explicit that each symbol corresponded to only one syllable.



HISTORY

Managing time pressure proved to be the greatest challenge in the new, 30-minute History paper. The combination of requiring candidates to respond to an unseen source and craft a short argument based on history that they had studied resulted in a wide range of marks (12 to 27 out of 30) that enabled the top candidates to be clearly identified. As ever, the paper sought to assess candidates' ability to think on their feet, present balanced discussion and show historical imagination.

Candidates' responses to the first 10-mark question were the strongest across the paper. All candidates identified the main themes within the passage, and most were able to infer one or two relevant points from the source. Some managed more. The higher-performing candidates were able to support their inferences with well selected quotations from the extract, and explain why this supported their points about the nature of Boston in 1776. The weaker candidates tended to be less precise and concise in their selection of supporting evidence.

The second 10-mark question produced the least strong response of the three. A number of candidates were able to make general points about the quality of evidence offered by the passage, but only a few were able to convert this into sustained evaluation. The higher-performing candidates were able to draw on the outline of the source's provenance from the introductory blurb, reflecting on issues such as the history of *The Massachusetts Spy*, the paper's position in the revolutionary divide and its geographic and social reach in their answer.

The third 10-mark question, asking candidates to reflect on a turning point in a battle or war that they have studied, produced a range of responses. A number of interesting topics were covered: the Second World War and Battle of Hastings proved popular, although strong answers were also offered on Trafalgar and the Battle of Kadesh. The best responses included both detailed knowledge of the candidates' selected battle and a considered argument that focused closely on whether, and why, their battle represented an important turning point in history.

GEOGRAPHY

I very much enjoyed reading this year's scholarship answers. It was clear that boys were well prepared and they wrote at length and with some passion about a variety of geographical issues. As usual, candidates had to choose three questions from a possible six. Misinterpretation of these instructions was rare. Marks ranged from 33% to 89%.

The questions are designed to get candidates to think critically and logically about material that they have covered at school and to demonstrate their wider geographical knowledge and understanding from beyond their courses. The instructions at the top encourage them to bring in knowledge of place examples and real-world events. A lack of exemplification did limit several responses and candidates are reminded that they should draw on their own experiences of local geography as well as case studies from school and wider reading/information from the news to exemplify points and score more highly.

Defining key terms is helpful at the start of an answer to confirm understanding and focus thoughts but there is no need to write a full introduction – several answers were limited by a long and general



introduction. Answers should be separated into paragraphs, and candidates may be reminded again that the PEEL structure is helpful in achieving high marks (Point, Explain, Evidence, Link).

All boys wrote answers that linked to the key word in the question but not all wrote answers that directly answered the question. It is essential that candidates take time to read, re-read and underline the command word and key words in the question to ensure the response is well focused. Points should follow logically, and shorter sentences are encouraged for clarity and impact.

Boys who were able to demonstrate an understanding of why and how geographical issues vary spatially and temporally scored high marks.

RELIGIOUS AND ETHICAL STUDIES

The scholarship paper tests students' ability to construct a persuasive argument and demonstrate knowledge and understanding of areas within theology and ethics.

Poorer answers gave speculative and general arguments which were not grounded in theological or philosophical detail. Some resorted to a common sense approach which did not demonstrate knowledge or understanding. Many answers stated facts, to varying degrees of accuracy, but without allowing them to develop an argument. Often, relevant examples were cited, particularly for the question about the role of religion in the 21st Century. Answers which focussed on description rather than analysis did not score highly. Only 2 of the 23 candidates scored full marks for spelling, punctuation and grammar.

More successful answers gave a clear and decisive thesis which engaged with the question. Many demonstrated a high level of knowledge and understanding and a few were able to mention the names of scholars that relate to the topics, such as JS Mill, Jeremy Bentham and Augustine of Hippo. Those which acknowledged that the second question was about Utilitarianism also did well as the content had a clear focus. All essays gave a judgement in the conclusion but the best justified their opinions in a compelling manner. The mean average was 15/25.

LATIN

18 candidates sat the new, shorter Latin paper. There seems to have been adequate time available, but the setter would welcome feedback on this - and indeed more generally.

A cluster of candidates coped well with the complexity of the main unseen passage, but marks tailed off thereafter from a combination of missed words or unknown vocabulary, and from failure to identify and translate accurately the varied constructions tested in subordinate clauses - as in previous years, only the best candidates dealt convincingly with participle phrases, cum clauses and so on. Only two candidates attempted the prose composition sentences, one doing well and one finding it very hard. Again, feedback would be welcomed on whether easier sentences would be attempted by more candidates. As normal, the marks for the Section B comprehension were in line with the marks for Section A.



GREEK

Overall performances were very encouraging. The opening sentences were dealt with well, although tenses were not as well observed as other elements. A few confused 'river' and 'horse'. Singular for plural was the next most common error. The passage was the strongest section, and candidates seemed to thrive on having a narrative to follow. Grammar questions were generally pleasing, while the English into Greek section was definitely the most challenging - candidates struggled to manipulate nouns and verbs used earlier in the exam.