Subject: A-level Physics

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| **Welcome** | *Welcome to the course, overview from the teacher*  Hello future-physicists. Of course, you’re bonkers to do Physics. It’s probably the toughest A-level of the lot. It’s a **big** step up from GCSE. Do make sure you’ve talked to some current Y12 students and have a good idea of what you’ll have to do. And it doesn’t matter how clever you are. Everyone on the course is clever. Even the cleverest struggle just to get all the work done.  But for us it’s worth it. OK, there’s all the good stuff it does for your CV. Universities and employers know it’s a tough A-level and will respect you just for trying it, and yes, it builds analytical brain-power. Its unforgiving nature tests your thinking skills to the limits and builds intellectual horsepower; boot-camp for the brain.  More importantly, it’s the sudden flashes of insight, the realisation of how the world works, and even beyond the world, the whole universe. And when you get that wonderful clarity, it’s worth all the slog, pain, and sweat of the work. But then, those who climb the highest hills will always get the best views! |

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| **Course Summary / Expectations** | *Summary of course content, assessment methods etc.*  There are two parts of the A-level, and you need both to get into university and for most employers.   1. The class learning. Some of this is the topics you did at GCSE (electricity, waves etc.), and some new topics. Unlike GCSE we need to understand all of the basic topics in order to understand the Advanced topics. The course assumes we know everything from the GCSE. We teach topics roughly one per term, and they are assessed at the end of the topic by using real A-level questions. 2. The practicals. There are 12 required practicals, plus others that the teachers can choose to include. These must be written up and marked by the teachers to show that you have the necessary skills to work in a lab in industry or at university. Most students are amazed by how important they are, and how much work they have to do to get them to the required level. Again – ask a current Y12 about this. And students must pass, in order to satisfy their university offers.   You will be taught for 5 hour every week. You will have to do about 2 hours of homework for every 1 hour of classwork. So yes, that’s 10 hours per week of home study of Physics, and 15 hours per week of Physics.  If you miss a lesson you will face the problem that the following lesson – in perhaps 2 days’ time - will make no sense. Teachers will not chase you to catch up – you will have to chase them to get the course materials and homework. We follow the textbook fairly closely, not always in exactly the same order, but it can be used to catch you up.  There is a lot of Maths. It is the basic tool of Physics. You do not need A-level maths, though it’s a big help. There are two topics not covered in GCSE Maths which you will need to learn, but it’s never been a problem for previous students.  *.* |
| **Tasks to Complete** | *Research / Written Tasks/ Glossary completion. This should be reviewed from last year and can be extended to account for y11 starting this work earlier*  *The work will also need to be able to be submitted online/ via email*  The A-level assumes all students understood everything from GCSE Physics. And of course, none of us understand everything ever! The new Y12s in 2020 will have the added problem that they didn’t sit the GCSE, and so don’t know what they don’t know. So, the starting point is probably to do GCSE past papers in order to identify topics on which you’re not rock solid, and then revise them.  There are some rote learning tasks of things the A-level assumes you know:   1. All 22 of the Physics equations for GCSE <https://www.thamesmead.surrey.sch.uk/wp-content/uploads/2019/09/AQA-Physics-Equations.pdf> 2. There are 13 other equations that the GCSE gives students in the exam. You should memorise these 3. The orders of the electromagnetic spectrum, and the visible part of that spectrum 4. The numerical prefixes and their meaning, so you can use them and recognise them, from femto (f), through to Peta (P). See <https://en.wikipedia.org/wiki/Metric_prefix>, but don’t worry about centi, deci, deca, and hecto. 5. The seven SI base units: <https://en.wikipedia.org/wiki/International_System_of_Quantities>   You would do well to make flashcards of these and memorise them over the summer. |
| **Summer Reading** | *Texts, articles etc. Will need to be able to post on Teams/ access online*   * *Oxford University Press transition pack:* * [*http://fdslive.oup.com/www.oup.com/oxed/secondary/science/Science\_A\_Level\_Transition\_Pack\_Physics.pdf*](http://fdslive.oup.com/www.oup.com/oxed/secondary/science/Science_A_Level_Transition_Pack_Physics.pdf) * *PIXL Transition pack:* * [*https://drive.google.com/open?id=1vI2doobF-Mc7d\_yMR-ED8j2YY0LzXFKV*](https://drive.google.com/open?id=1vI2doobF-Mc7d_yMR-ED8j2YY0LzXFKV) * *Isaac Physics:* * [*https://isaacphysics.org/alevel*](https://isaacphysics.org/alevel) * *CGP Headstart to A Level (free as a kindle book)* * [*https://www.amazon.co.uk/Head-Start-level-Physics-Level-ebook/dp/B00VE2NII4/ref=msx\_wsirn\_v1\_6/259-0922743-4799544?\_encoding=UTF8&pd\_rd\_i=B00VE2NII4&pd\_rd\_r=0b9dbecd-8c91-43ed-8cb7-95c3137282ef&pd\_rd\_w=XxLER&pd\_rd\_wg=adPAb&pf\_rd\_p=2c73497e-0658-4f6d-8f3c-06c50c0881ec&pf\_rd\_r=XM9XCBYH1TH593V5E0S9&psc=1&refRID=XM9XCBYH1TH593V5E0S9*](https://www.amazon.co.uk/Head-Start-level-Physics-Level-ebook/dp/B00VE2NII4/ref=msx_wsirn_v1_6/259-0922743-4799544?_encoding=UTF8&pd_rd_i=B00VE2NII4&pd_rd_r=0b9dbecd-8c91-43ed-8cb7-95c3137282ef&pd_rd_w=XxLER&pd_rd_wg=adPAb&pf_rd_p=2c73497e-0658-4f6d-8f3c-06c50c0881ec&pf_rd_r=XM9XCBYH1TH593V5E0S9&psc=1&refRID=XM9XCBYH1TH593V5E0S9) * *Prepare for the challenge of A level Physics (free as a kindle book)* * [*https://www.amazon.co.uk/gp/product/B0851MGFWZ/ref=as\_li\_qf\_asin\_il\_tl?ie=UTF8&tag=gorillaphys06-21&creative=6738&linkCode=as2&creativeASIN=B0851MGFWZ&linkId=da683336f706916f0618812965d27980*](https://www.amazon.co.uk/gp/product/B0851MGFWZ/ref=as_li_qf_asin_il_tl?ie=UTF8&tag=gorillaphys06-21&creative=6738&linkCode=as2&creativeASIN=B0851MGFWZ&linkId=da683336f706916f0618812965d27980) * *Physics Transition Workbook* * [*https://drive.google.com/open?id=1imydFOC7beMR-9cYiyDfFBowQoUHExaI*](https://drive.google.com/open?id=1imydFOC7beMR-9cYiyDfFBowQoUHExaI) * *AQA Transition Guide* * [*https://drive.google.com/open?id=14JweDdLpxm0yRtwTS7aIk0Dfs5bu23xD*](https://drive.google.com/open?id=14JweDdLpxm0yRtwTS7aIk0Dfs5bu23xD) * *Open University Press Science skills pack* * [*https://fdslive.oup.com/www.oup.com/oxed/secondary/science/Science\_A\_Level\_skills\_pack.pdf?region=uk*](https://fdslive.oup.com/www.oup.com/oxed/secondary/science/Science_A_Level_skills_pack.pdf?region=uk) |
| **Useful Websites/ Resources** | *Websites, documentaries, YouTube clips etc.*   * *PIXL A Level Physics Baseline test* * [*https://drive.google.com/open?id=1pqB04ONOS-grv-jFlGrsIQ7z9JgJpSpg*](https://drive.google.com/open?id=1pqB04ONOS-grv-jFlGrsIQ7z9JgJpSpg) * *Fundamental skills for A Level Physics (John Eyre)* * [*https://drive.google.com/open?id=1vCFDxdTQ8cnWmJ66g4K23BNXPUlUGYRH*](https://drive.google.com/open?id=1vCFDxdTQ8cnWmJ66g4K23BNXPUlUGYRH) * *PIXL Gateway Physics* * [*https://drive.google.com/open?id=1MjhEFDrnfqZxSCQALKUMStEP0CSln9Xn*](https://drive.google.com/open?id=1MjhEFDrnfqZxSCQALKUMStEP0CSln9Xn) |
| **Key Terms/ Glossary** | *Can be completed or can be part of the tasks – for students to research and complete* |