

**A-Level Physics A level Guide**

**How Physics will be taught:**

You will have 5 lessons a week taught by one teacher.

The Y12 course is made up of the following modules: Particle Physics, Quantum Mechanics, Waves, Mechanics, Materials and Electricity.

Lessons will consist of explanations, worked examples, practical work and exercise completion. Lessons will have some time available for exercise completion from the course textbook or exam questions from the exam board; however, the majority of this will be done outside of lessons as homework. There will also be lesson time available to consolidate and go through the exercises completed outside of the classroom where needed.

At the end of each unit, an assessment will happen in class, you will be expected to revise for this and there will be time to go through any issues after if required.

**Working expectations:**

* Attend all lessons
* Complete organised and neat notes
* Complete all tasks to the best of your ability
* Ask for help if required
* Work well independently and with others
* Be willing to share ideas

**What 100% effort in this subject looks like:**

* Completing all exercises set on time - do not fall behind as it can result in your failing to understand subsequent topics.
* Seeking help when you are struggling and not leaving questions in exercises incomplete.
* Re-writing notes and creating summary sheets to organise the key points
* Completing additional tasks/reading around the subject in your own time

**Folder Policy:**

*Your folder should have:*

* Clear notes on each topic
* Separate sections for each teacher and topic
* Marked homework and tests to show progress
* Other revision materials in the back of the folder

**What marking looks like:**

* Assessed homework will be marked and graded
* Topic assessments will be marked and graded
* Any class exercises/exam questions will be self marked in green pen

**What homework looks like:**

* Exam questions
* Research tasks
* Planning presentations

**Specification at a glance:**

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| --- |
| SUBJECT: PhysicsEXAM BOARD: AQA |
| Course Overview | A-level Physics allows students to appreciate how fundamental Science works and to study optional topics that particularly interest them including Astrophysics. There is no coursework – practical skills and understanding are tested in the final exams. Year 12 Year 13Unit 1 Measurements and Errors Unit 6 Further Mechanics and Thermal PhysicsUnit 2 Particles and Radiation Unit 7 Fields and their ConsequencesUnit 3 Waves Unit 8 Nuclear PhysicsUnit 4 Mechanics and Materials Unit 9 AstrophysicsUnit 5 Electricity |
| Useful websites | iop.org.ukaqa.org.ukphet.colorado.eduantonine-education.co.ukisaacphysics.orgalevelphysicsonline.com |

**Summer term bridging**

1. We will be setting you are number of tasks of the next few weeks. These will seek to push your knowledge of Physics in preparation for your A level studies which begin in September.

**Summer preparation**

The purpose of giving you a summer bridging task is:

1. To provide a bridge from level 2 to level 3 study, and lead into the early stages of the course.
2. To engage you in independent learning which is required at level 3.
3. To encourage you to develop your work ethic and commitment to study.
4. To measure your suitability for the course and assess your initial levels of achievement.

**Task 1**

|  |  |  |  |
| --- | --- | --- | --- |
| Q1 |  There are four fundamental forces in Physics, which force would have the greatest effect on two electrons in a vacuum?  | A Strong | The correct answer is… |
| B Weak |
| C Electrostatic |
| D Gravitation |
| Q2 | Fundamental particles cannot be split into smaller constituents. Which of the following is considered to be a fundamental particle?  | A Muon | The correct answer is… |
| B Proton |
| C Neutron |
| D Kaon |
| Q3 | Unstable nuclei may decay, releasing radiation. Which of the following decay mechanisms will cause the number of neutrons in a nucleus to increase? | A Beta minus | The correct answer is… |
| B Alpha |
| C Beta plus |
| D Gamma |
| Q4 | Which of these waves cannot be polarised?  | A Ultrasound | The correct answer is… |
| B Infrared  |
| C Seismic “S” waves |
| D Ultraviolet |
| Q5 | Physicists sometimes calculate the charge per unit mass of a charged particle. They use the equation: $$Charge per unit mass=\frac{Charge}{Mass}$$What will be the units of the charge per unit mass?  | A C kg | The correct answer is… |
| B V/m  |
| C C kg-1 |
| D kg A |
| Q6 | Which of the following quarks might be found in a proton? | A Strange | The correct answer/s are… |
| B Top |
| C Up |
| D Charm |
| Q7 | Which of the following will produce a coherent source of light? | A Candles | The correct answer is… |
| B L.E.Ds |
| C LASERs |
| D The Sun |
| Q8 | Which of the following is a definition of stress?  | A Bridging tasks | The correct answer is… |
| B Length / Change in length  |
| C Force / Area |
| D Force / Extension |
| Q9 | Which of the following answers is most likely to be the approximate mass of air in your bedroom? | A 1000 kg | The correct answer is… |
| B 0.1 kg |
| C 20 kg |
| D 1x10-8 kg  |
| Q10 | Which of the following will reduce in electrical resistance as it increases in temperature?  | A Iron | The correct answer is… |
| B Manganese Oxide |
| C Vibranium  |
| D Aluminium |
| Q11 | Who proposed the concept that matter can exhibit both wave properties and particle like properties?  | A Einstein | The correct answer is… |
| B Feynman |
| C Rutherford |
| D de Broglie |
| Q12 | Optical fibre systems are used extensively for broadband communication. Which physics process is critical to this system? | A Diffraction | The correct answer is… |
| B Dispersion |
| C T.I.R |
| D Time travel |

**Further Tasks:**

**Please complete the following tasks. They can be done in any order:**

Please complete the following bridging unit provided by Oxford University Press, this covers all essential skills required for the A Level course.

<http://fdslive.oup.com/www.oup.com/oxed/secondary/science/Science_A_Level_Transition_Pack_Physics.pdf>

If you would like further work then you are able to download the CGP Head Start to Physics textbook for free at the moment from Amazon.

[https://www.amazon.co.uk/Head-Start-level-Physics-Level-ebook/dp/B00VE2NII4/ref=tmm\_kin\_swatch\_0?\_encoding=UTF8&qid=&sr=](https://www.amazon.co.uk/Head-Start-level-Physics-Level-ebook/dp/B00VE2NII4/ref%3Dtmm_kin_swatch_0?_encoding=UTF8&qid=&sr=)

**Please bring your work with you to your first lesson.**

**Link to the Specification:**

<https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408>