

LONGDEAN SCHOOL: A-level PHYSICS – BRIDGING PROJECT

OVERVIEW: IF you took the GCSE in Physics as a SEPARATE subject (e.g. as part of “triple” science alongside GCSEs in Biology & Chemistry), then complete Task B only.

IF you took two separate GCSEs in “Core” and Additional Science, then you need to complete BOTH tasks A & B. This will mean you need to collect the resources for Task A from Mr Yapp at the school before the end of term.

TASK A

You will need to collect a Workbook for GCSE Extension Science. You will also need access to any GCSE-level textbook, and any online or e-resources such as Bitesize or GCSEPod. We can lend you a book if necessary.

Complete the sections of the workbook that relate to Unit 3 of the GCSE Physics course.

Hand these in for inspection in the first AS lesson. We may decide to give you a P3H paper under test conditions in the first few days so that we can be jointly aware of any “gaps” that we need to address in the first term. (Your score on this is not linked to the offer of a place on the course – it is purely diagnostic.)

TASK B

Present a single-sheet “abstract” (500 words) produced to submission standard. Include Name, Title, no images, Arial, 10pt, OCR referencing throughout (BEWARE of PLAGIARISM). Choose any ONE of the following topics:

- The story of human understanding of the structure of the atom. *(This option is also included in the Chemistry bridging task and you cannot choose it for both subjects.)*
- The evidence for “The Big Bang” as the best current theory to explain how the universe began.
- “Rocket Science” – the Saturn V rocket and the Physics that made it work.
- Is it true that Dark Matter is the ‘invisible hand’ that sculpted the universe (comprising 85% of what constitutes galaxies and space)?
- The theory and applications of an important technique from the world of medical science that depends principally on physics e.g. ultrasound, MRI scans, X rays/CT scans, correcting vision (the eye).
- The theory and application of nuclear fusion as the answer to the world’s growing demand for electricity, negating the use of fossil fuels.
- The main points of Einstein’s Special Theory of Relativity as they affect our understanding of space and time.
- The Large Hadron Collider – history/achievements, and what next?
- The James Webb Space Telescope – from design concept to observing the Big Bang
- The Large Synoptic Survey Telescope – the world’s highest resolution digital camera
- The Hubble Space Telescope – revolutionising our view of the night sky