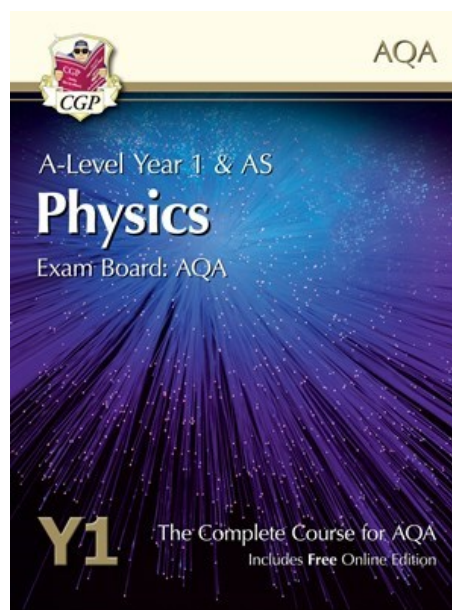
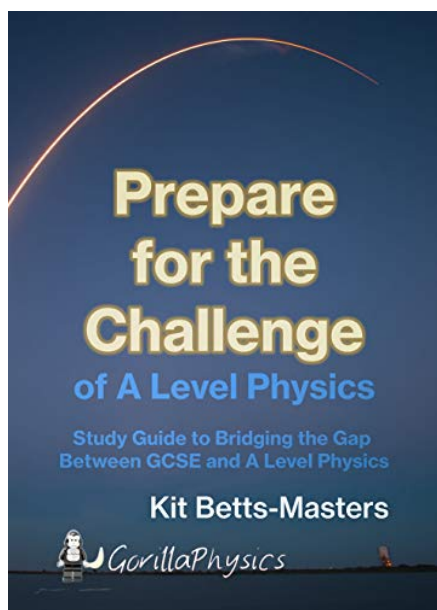


Coombe Wood School Year 12 Bridging Work - Physics

If you have any questions about this bridging work then please contact the Head of Sixth Form, Mr Brack, at this email address: jbrack@cws.foliotrust.uk

We recommend you purchase the following textbooks for this subject area:



To prepare for the course over the summer before September:

Kit Betts-Masters - Prepare for the Challenge of A Level Physics: Study Guide to Bridging the Gap Between GCSE and A Level Physics

To bring with you to your first Physics lesson in September: A-Level Physics for AQA: Year 1 & AS Student Book with Online Edition

The aim of the bridging work is to help prepare you for the A Level Physics course, and this year that is more important than ever due to the school closures and disruption to learning your year has experienced. It is your responsibility to ensure that you are familiar with the entire Physics GCSE course and have the necessary knowledge and resources to begin learning A Level Physics by the first lesson in September.

All bridging work must be completed by Friday 15th of September 2023 and forms part of your Pupil Passport at Coombe Wood Sixth Form.

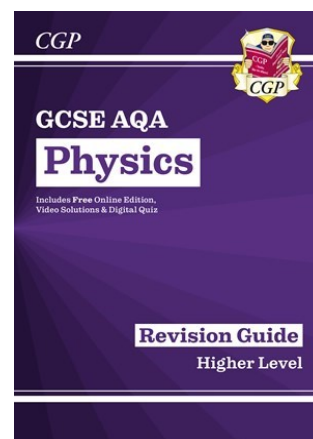
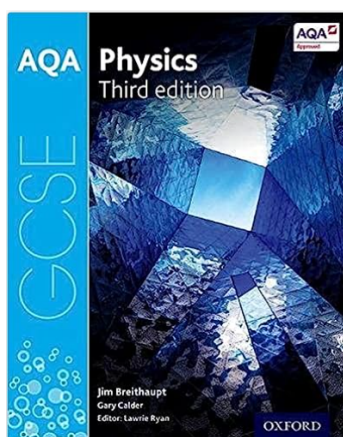
Task 1:

Use the following resources to revise any GCSE topics that you do not feel confident with or any that you missed due to covid school closures. You will have gaps in your knowledge due to the disruption of the last 3 years. **It is your responsibility to catch this up.** You want to start September feeling prepared and confident to take on the challenge of A Level Physics. Do not let your GCSE knowledge slow you down.

Before you start thinking about studying A Level Physics you need to ensure you have a very solid foundation in strong GCSE knowledge first. You should particularly focus on: Energy, Forces, Atomic structure, Waves and Electricity.

Use a textbook, revision guide or the websites below to help you:

- BBC Bitesize: [GCSE Physics \(Single Science\) - AQA - BBC Bitesize](#)
- [Save My Exams](#)
- [Physics & Maths Tutor](#)
- [Pass My Exams](#)
- [GCSE Revision | S-cool, the revision website](#)
- Revision guides and past papers



If you did not study Triple Science then you need to learn the topics that you did not cover over the Summer. These topics are in Triple and not in Double:

- Static electricity
- Pressure in gases and fluids
- Hazards and uses of radioactive emissions and of background radiation
- Nuclear fission and fusion
- Moments, levers and gears
- Terminal velocity and changes in momentum
- Reflection and refraction of waves
- Sound waves and waves for detection and exploration
- Lenses, visible light
- Black body radiation
- Induced potential, transformers and the National Grid

You need to bring evidence with you for what you have done to solidify your Physics GCSE knowledge with you on the first day of term.

Task 2:

Watch the following lecture by Professor Brian Cox

[Brian Cox Lecture - GCSE Science brought down to Earth](#)

Explain three interesting things you have learned from this that you did not know before watching.

Task 3:

Pick one of the Scientists or group of Scientists that have been awarded the Nobel Prize in Physics over the past 20 years. Explain how their work for which they were awarded the Nobel Prize is relevant to your life and the possible impact it could have in the future. I am not looking for you to explain their research in great detail, but spend a page writing about why their research is significant and give me your opinion about it. You will be presenting this to the class so you can make it into a powerpoint or handout.



<https://www.nobelprize.org/prizes/lists/all-nobel-prizes-in-physics/>

Task 4:

Below is a list of things you can read, watch or listen to to get you thinking about Physics and broaden your interest and understanding. I do not expect or recommend you to read, watch or listen to all of them. However it is important that you engage with Science beyond the curriculum and these are great so definitely pick a few things and give them a go.

You will need to create a presentation on at least one of the things from the list below. Again it does not need to be covered in a lot of detail. You just need to summarise it and more importantly give me your opinion about it. You can make your presentation into a powerpoint or hand out.

Books:

- Alan Lightman - Einstein's Dreams
- Andrea Gonzales and Sophie Houser - Girl Code: Gaming, Going Viral, and Getting It Done
- Anton Radevsky and Emma Sanders - The Large Hadron Collider Pop-Up Book
- Barbara Schultz - Bomb: The Race to Build - and Steal - The World's Most Dangerous Weapon
- Brian Cox - The Planets
- Brian Greene - The Elegant Universe

- Carl Sagan - Cosmos: The Story of Cosmic Evolution, Science and Civilisation
- David Macaulay - The Way Things Work Now
- Helen Czerski - Storm in a Teacup: The Physics of Everyday Life
- Jim Ottaviani - Feynman
- John Gribbin - In Search of Schrodinger's Cat: Updated Edition
- Leonard Mlodinow - The Drunkard's Walk: How Randomness Rules our Lives
- Libby Jackson - A Galaxy of Her Own: Amazing Stories of Women in Space.
- Margot Lee Shetterly - Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped to Win the Space Race
- Neil Degrasse Tyson - Astrophysics for Young People in a Hurry
- Reshma Saujani - Girls Who Code
- Richard P Feynman - Six Easy Pieces; Surely You're Joking Mr. Feynman
- Roger Penrose - The Emperor's New Mind: Concerning Computer, Minds and the Laws of Physics
- Simon Singh - Big Bang: The Origin of the Universe; The Code Book
- Stephen and Lucy Hawking - Unlocking the Universe
- Stephen Hawking - A Brief History of Time; My Brief History
- Tanya Lee Stone - Almost Astronauts: 13 Women Who Dared to Dream

Podcasts/videos:

- [TED Talks](#) - search Physics.
- [Houston We Have a Podcast | NASA](#)
- [Podcasts | New Scientist](#)
- [Radiolab](#)
- [Rocket - Relay FM](#)
- [Science Vs | Gimlet](#)
- [Science Weekly](#)
- [Scienceish](#)
- [TED Tech podcast](#)
- [BBC Radio 4 - The Curious Cases of Rutherford & Fry - Downloads](#)
- [WSJ's The Future of Everything - WSJ Podcasts](#)
- [BBC Radio 4 - The Infinite Monkey Cage - Downloads](#)
- [BBC Radio 4 - The Life Scientific](#)
- [Podcast — The Story Collider](#)

Documentaries:

- Apollo 11
- Behind the Curve
- Connected
- Cosmos
- Explained
- Mercury 13
- The Planets series by Professor Brian Cox

Films:

- 2001: A Space Odyssey
- A Beautiful Mind

- Agora
- Contact
- Hawking
- Hidden Figures
- Interstellar
- Tesla
- The Boy Who Harnessed the Wind
- The Imitation Game
- The Man Who Knew Infinity
- The Martian
- The Theory of Everything

Places you can visit or events you can attend in and around London:

- Bletchley Park
- Horniman Museum.
- Imperial College London Festival
- Kirkaldy Testing Museum
- Pint of Science
- Royal Observatory in Greenwich.
- Science Museum.
- The Royal Institute/The Faraday Museum
- Wellcome Collection
- National Physical Laboratory
- The Science Gallery