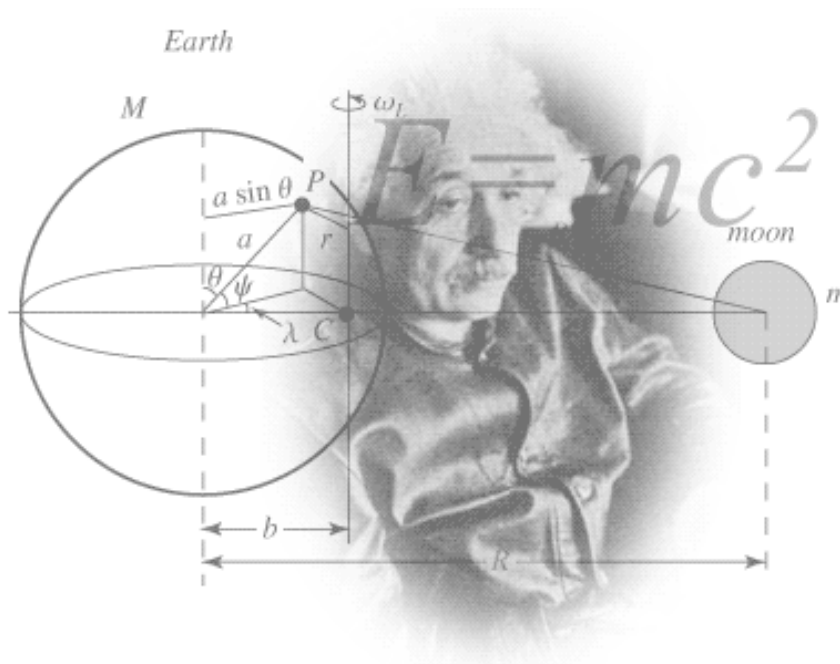




Preparation for A Level Physics



Welcome to A-Level Physics! This pack contains a structured programme of activities, resources, and essential skills to bridge the gap between GCSE and A-Level. Complete these tasks thoroughly over the summer term and holidays to ensure you are fully prepared to hit the ground running in September.



Specification:

OCR Physics Specification A:

<https://www.ocr.org.uk/qualifications/as-and-a-level/physics-a-h156-h556-from-2015/specification-at-a-glance/>

Part 1: The Physics Culture Club

To succeed at A-Level, you must develop an appreciation for the wider scope of Physics.

*Choose **at least three** of the resources below to read or watch.*

Immediately after each of these (before you forget), you should complete the Sixth Form Induction Tasks Worksheet.

*(Note: If you are unsure of what to go for, look for those marked with an asterix *.)*

Recommended Books:

- ***Carlo Rovelli: Seven Brief Lessons on Physics** - *A beautiful, concise introduction to modern physics concepts.*
- **Albert Einstein: Relativity** - *An accessible look into space-time directly from the source.*
- **Stephen Hawking: A Brief History of Time** - *The definitive classic on cosmology, black holes, and the universe.*

Essential Video & Media Clips:

- ***Mind-Bending questions from Physics** (TED Playlist)
https://www.ted.com/playlists/475/mind_bending_questions_from_ph
- **Shock and Awe, The Story of Electricity** – A brilliant 3-part documentary showing how electricity reshaped human civilisation. The link below takes you to a stream of all three parts joined together but it is best watched in hourly instalments.

<https://www.youtube.com/watch?v=Gtp51eZkwol>



- *Beauty, Truth and ... physics?

https://www.ted.com/talks/murray_gell_mann_on_beauty_and_truth_in_physics

- **The Map of Physics** - *An excellent conceptual map showing how classical mechanics, quantum mechanics, and relativity connect.*

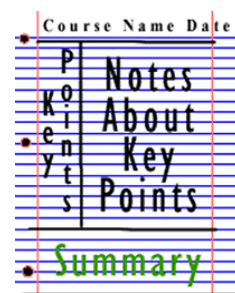
<https://youtu.be/ZihywtixUYo>

Part 2: Independent Research Tasks

A-Level Physics demands strong independent research and analytical note-taking.

Select **ONE** of the five independent research tasks below. Explore your chosen topic using the specified web portal and complete one detailed, full page of Cornell Notes.

(Cornell notes system: <http://coe.jmu.edu/learningtoolbox/cornellnotes.html>)



- a) <http://home.cern/about>

CERN encompasses the Large Hadron Collider (LHC) and is the largest collaborative science experiment ever undertaken. Find out about it here and make a page of suitable notes on the accelerator.

- b) http://joshworth.com/dev/pixelspace/pixelspace_solarsystem.html

The solar system is massive and its scale is hard to comprehend. Have a look at this award winning website and make a page of suitable notes.

- c) <https://phet.colorado.edu/en/simulations/category/html>

PhET create online Physics simulations when you can complete some simple experiments online. Open up the resistance of a wire html5 simulation. Conduct a simple experiment and make a one page summary of the experiment and your findings.

- d) <http://climate.nasa.gov/>

NASA's Jet Propulsion Laboratory has lots of information on Climate Change and Engineering Solutions to combat it. Have a look and make notes on an article of your choice.

- e) <http://www.livescience.com/46558-laws-of-motion.html>

Newton's Laws of Motion are fundamental laws for the motion of all the object we can see around us. Use this website and the suggested further reading links on the webpage to make your own 1 page of notes on the topics.



Part 3: Final Task Submission via Showbie

To finalise your transition portfolio and prove you are ready for the jump to A-Level Physics, your final task must be completed and submitted digitally via Showbie.

1. Download the **Showbie app** on your device or navigate to **my.showbie.com** in your browser.
2. Sign up as a student or log into your existing account.
3. Click "**Join a Class**" and enter our specific Year 12 Physics Induction Group code: **A9AVT**
4. Once inside the class, open the assignment folder titled "**GCSE → A Level OCR Transition Worksheet**".
5. Complete the worksheet tasks (you can print it out and take clean photos of your handwritten working, or edit the document digitally if your device allows).
6. Submit all files back into the Showbie assignment folder.

CRITICAL DEADLINE: Your completed worksheet and research notes must be uploaded back on Showbie **before our very first physics lesson in September**. We will be checking your submissions and reviewing your answers together during lesson one!