



# Physics A-level Bridging Booklet

*If you only do one thing, join Brilliant and complete the Science Essentials Course. I've added some other courses for you, but this is the one you should start with.*

<https://brilliant.org/classroom/join/besf7c/>

*The next thing you should do, is check out some of these videos which will introduce important concepts that we will explore during Physics A-level.*

## **SI units**

[The kg is dead, long live the kg](#)

## **Scientific methods**

[The Big Misconception About Electricity](#)

[How Wrong Is VERITASIUM? A Lamp and Power Line Story](#)

[How Electricity Actually Works](#)

[How Right IS Veritasium?! Don't Electrons Push Each Other??](#)

## **Forces and Motion**

[Beaker Ball Balance Problem](#)

[Explained: Beaker Ball Balance Problem](#)

[Buoyancy Quiz](#)

## **Quantum physics**

[The Original Double Slit Experiment](#)

[Single Photon Interference](#)

## **Relativity**

[How Special Relativity Makes Magnets Work](#)

[Why Gravity is NOT a Force](#)

*If you want to do some maths practice and try some different kinds of mathematical problems, here are two sites you can use.*

[https://isaacphysics.org/pages/pre\\_made\\_gameboards?stage=all#gcse\\_to\\_alevel](https://isaacphysics.org/pages/pre_made_gameboards?stage=all#gcse_to_alevel)

<https://www.theproblemsite.com/pro-problems/physics/>

*Here is an overview of the course content, which may be helpful too.*

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

## **Wider Reading**

*If you want to read some books, here's a list of recommendations, that will all help you in tackling A-level physics and beyond.*

### **Physics**

Unlocking the Universe – Stephen and Lucy Hawking

The Universe in a Nutshell - Stephen Hawking

The Feynman Lectures on Physics - Richard Feynman <https://www.feynmanlectures.caltech.edu/>

Six Easy Pieces - Richard Feynman <https://archive.org/details/six-easy-pieces>

QED - Richard Feynman

A Brief History of Time - Stephen Hawking (beware very advanced)

Forces of Nature – Brian Cox & Andrew Cohen

How to Teach Quantum Physics to Your Dog – Chad Orzel

Quantum Theory Cannot Hurt You - Marcus Chown

Why does  $E=mc^2$  ? - Brian Cox and Jeff Forshaw

Fizz: Nothing is as it seems - Zvi Schreiber

Seven Brief Lessons in Physics - Carlo Rovelli

Six not so Easy Pieces - Richard Feynman

In Search of Schrodinger's Cat - Updated Edition by John Gribbin

The Elegant Universe - Brian Greene

The Road to Reality: A complete guide to the laws of the universe - Rodger Penrose

### **General Science**

Rationality from AI to Zombies - Eliezer Yudkowsky

Superforecasting - Philip Tetlock and Dan Gardner

What If - Randall Munroe

How to – Randall Munroe

Bad Science – Ben Goldacre

Women in Science: 50 Fearless Pioneers Who Changed the World - Rachel Ignotofsky

### **Fiction**

Surely you're joking Mr. Feynman - Richard Feynman

<https://archive.org/details/RICHARDP.FEYNMANSURELYYOU'REJOKINGMR.FEYNMAN/page/n7/mode/2up>

What do you care what other people think - Richard Feynman

<https://archive.org/details/whatdoyoucarewha0000feyn>

Harry Potter and the Methods of Rationality - Eliezer Yudkowsky <http://www.hpmor.com/> (be aware this is quite advanced)

The Martian - Andy Weir