Physics reading list

If you want to go further with physics you'll need to look beyond the exam specification. It will help you when you're writing your personal statement.

All pupils will be expected to read at least one book from this list and write a short report on it. Alternative tasks may be approved by the physics department e.g. a suitable book not on the list, building a piece of experimental apparatus.

- Read
  - A Short History of Nearly Everything - Bill Bryson
  - Why does e = mc2? - Brian Cox
  - Big Bang: The Most Important Scientific Discovery of All Time and Why You Need to Know About It - Simon Singh
  - What If?: Serious Scientific Answers to Absurd Hypothetical Questions by Randall Munroe
  - A Brief History of Time - Stephen Hawking
  - The Universe in a Nutshell - Stephen Hawking
  - The Making of the Atomic Bomb - Richard Rhodes
  - Carrying the Fire: An Astronaut's Journeys - Michael Collins
  - 13 Things That Don't Make Sense: The Most Intriguing Scientific Mysteries of Our Time - Michael Brooks
  - Six Easy Pieces: Fundamentals of Physics Explained - Richard Feynman
  - How to Solve it: A New Aspect of Mathematical Method - George Polya
- Listen
  - More or Less: Behind the the Stats
  - The Infinite Monkey Cage
  - Physics World
  - The Titanium Physicists
- Watch
  - Practical engineering
  - SciShow
  - CrashCourse Physics
  - PBS SpaceTime
  - Steve Mould
  - YouCanScienceIt
  - Physics Girl
  - Sixty Symbols
  - Veritasium
  - Institute of Physics
- Websites
- Visit

Read

Most of these, and a few more, can be found in 132. Ask one of the physics teachers if you want to borrow one.

A Short History of Nearly Everything - Bill Bryson

Bryson is a non-scientist who took it on himself to educate himself on science later in life. It's accessible and gives context.

Why does e = mc^2? - Brian Cox

Big Bang: The Most Important Scientific Discovery of All Time and Why You Need to Know About It - Simon Singh

What If?: Serious Scientific Answers to Absurd Hypothetical Questions by Randall Munroe

Good for a chuckle, and learning something. There are a few extra articles in the book but the website continues to be updated. Read it online, he includes lots of links to references.

A Brief History of Time - Stephen Hawking

Surprising light on maths and accessible.

The Universe in a Nutshell - Stephen Hawking

The Making of the Atomic Bomb - Richard Rhodes

Carrying the Fire: An Astronaut's Journeys - Michael Collins

13 Things That Don't Make Sense: The Most Intriguing Scientific Mysteries of Our Time - Michael Brooks

Six Easy Pieces: Fundamentals of Physics Explained - Richard Feynman

Anything by Feynman would be worth reading.

How to Solve it: A New Aspect of Mathematical Method - George Polya

Although this is more aimed at teachers of maths it makes it sets out clearly the good habits of mathematical problem solving.

How to Teach Relativity to Your Dog - Chad Orzel

Mr Brooks and Mrs Bennett both enjoyed this one.

UCL engineering department have also put together a reading list for school pupils found here

Listen

More or Less: Behind the the Stats

Mostly a statistical look at the news, but it has the type of critical thinking we want in physics

The Infinite Monkey Cage

Brian Cox and Robin Ince looking at science, mostly physics, but plenty of laughs

Physics World

Run by the Institute of Physics, cutting edge physics in an accessible format

The Titanium Physicists

The most in-depth physics podcast I've found that still tries to be accessible. Mostly about astrophysics.

The Guardian's Science Weekly

Not constrained to physics but they take one story and go into more depth than most other popular science podcasts

Watch

Practical engineering

A relatively new channel with a self explanatory name

SciShow

Short videos on science, light hearted and wide ranging

CrashCourse Physics

From the same people as SciShow, a mini lecture series pitched at AS/A2 level

PBS SpaceTime

If you're interested in the really weird stuff about space and cosmology this has it. A little advanced but fun.

Steve Mould

Some fun physics demonstrations, often original.

YouCanScienceIt

Physics experiments, with almost no specialist equipment

Physics Girl

Fun videos

Sixty Symbols

Interviews with university lecturers talking about physics

Veritasium

Explores misconceptions in physics

Institute of Physics

The professional body for physics

Walter Lewin

One of the most famous physics lecturers, A level and above

Websites

http://www.physicsandmathstutor.com/

Lots of exam style questions and mark schemes

https://what-if.xkcd.com/

Fun with scientific thinking, follow the references to go deeper

https://isaacphysics.org/

A question base that will be used during the year in lessons. There is also a chance to get in touch with University level physics teachers and mentors

http://hyperphysics.phy-astr.gsu.edu/hbase/hph.html

From before the days of wikipedia when the idea of hyperlinks was still new. Well organised brief notes at a first year university level

https://getrevising.co.uk/

free to register place students share notes, be careful of notes made by students might have mistakes in them!

http://thephysicsteacher.ie/leavingcertphysicshome.html

A collection of notes and videos covering many of the areas we look at in AS physics

Visit

Here are a few of the things near enough to Vyners that you can go on a day trip to.

The Science Museum
The Museum of the History of Science
Bletchley Park
Jodrell Bank Discovery Centre
University open days

Make

Physics is a practical subject. Lab work is full of elegant solutions and kludges. The only way to learn these skills is by making things.
Try some woodwork
Build something from a kit
Build a radio
Try any of the things from Bruce Yeany