

'The Aspiring Physicist.'

KS4/5



CHELTENHAM
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SCHOOL

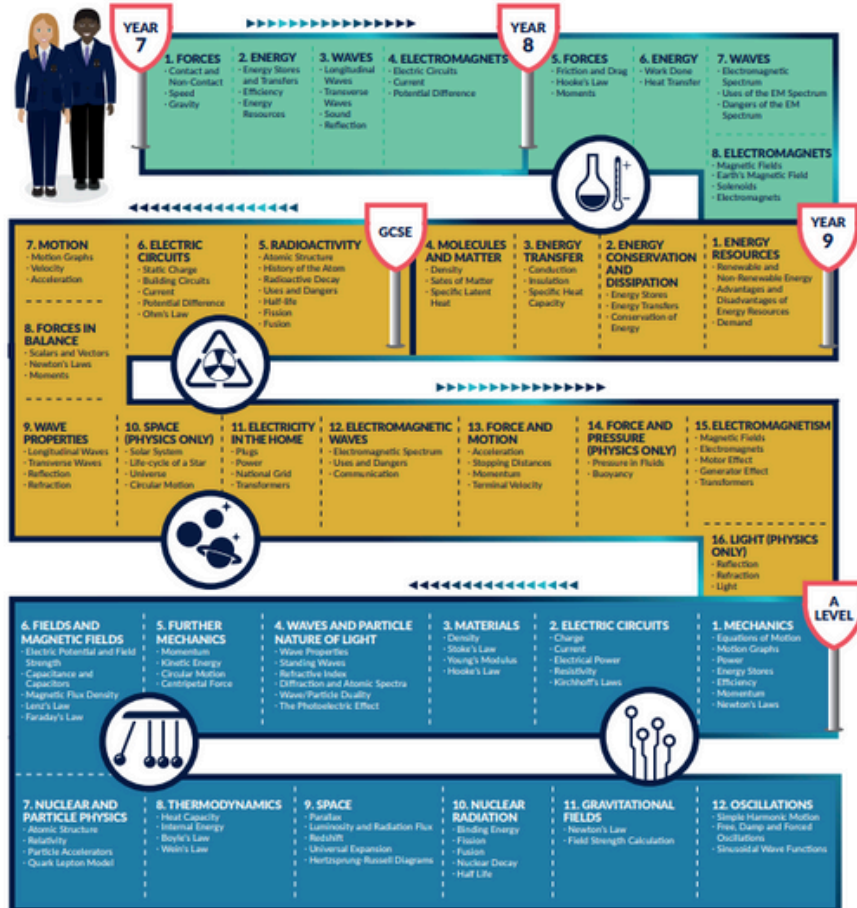


Inspiring lives through learning

'The Aspiring Physicist'



PHYSICS



'The Aspiring Physicist'



Physics isn't confined to equations on a page - it underpins the stars above us, the technology we use every day, the structure of matter, and the forces shaping our universe.

This booklet gathers ideas, articles, and books to broaden your sense of what it means to think like a physicist.

Whether you're at GCSE or A level, treat these pages as a launchpad: each suggestion is an invitation to explore, question, and see the world through a new lens.

The journey into physics stretches far beyond exams, it's about curiosity, wonder, and the drive to understand how and why everything works.

Good luck!

Head of Physics

Reading list



A Universe from Nothing - Lawrence Krauss

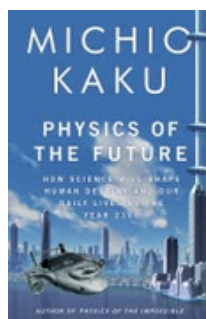
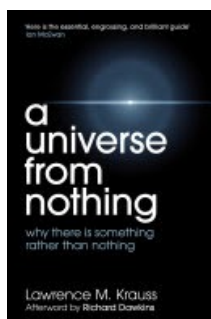
Provokes, challenges, and delights readers to look at the most basic underpinnings of existence in a whole new way. In the words of Richard Dawkins: this could potentially be the most important scientific book since Darwin's *On the Origin of Species*.

A Brief History of Time - Stephen Hawking

It begins by reviewing the great theories of the cosmos from Newton to Einstein, before delving into the secrets which still lie at the heart of space and time, from the Big Bang to black holes, via spiral galaxies and string theory. To this day *A Brief History of Time* remains a staple of the scientific canon, and its succinct and clear language continues to introduce millions to the universe and its wonders.

Physics of the Future - Michio Kaku

Space elevators. Internet-enabled contact lenses. Cars that fly by floating on magnetic fields. This is the stuff of science fiction--it's also daily life in the year 2100. Renowned theoretical physicist Michio Kaku considers how these inventions will affect the world economy, addressing the key questions. In *Physics of the Future*, Kaku forecasts a century of earthshaking advances in technology that could make even the last centuries' leaps and bounds seem insignificant.



Competitions



UK Rocketry Challenge (UKROC)

The UK Youth Rocketry Challenge (UKROC) is a great way to engage the next generation of engineers with practical experience of building and executing complex missions. This is an exciting way to learn more about maths and science, with the UK winners getting the chance to compete against teams from France, USA and Japan at the International Finals.



The Big Bang Fair

Discover exciting possibilities and connect to inspiring role models in STEM with the Big Bang. The Big Bang Fair brings science and engineering careers to life with hands-on activities and shows. Young inventors and experimenters, future game-changers and lifesavers all develop and shine in The Big Bang Competition.

Listen and Watch



Podcasts



Infinite Monkey Cage

Professor Brin Cox and Robin Ince host a witty, irreverent look at the world through scientists' eyes. Joined by a panel of scientists, experts and celebrity science enthusiasts they investigate life, the universe and everything in between.



BBC Inside Science

A weekly programme that illuminates the mysteries and challenges the controversies behind the science that's changing our world.



Naked Scientists

Weekly science show. Science news stories, scientific breakthroughs and interviews with leading scientists.

Listen and Watch

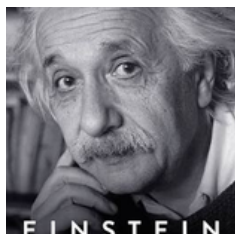


Films/YouTube/TV



Interstellar

The film follows a group of astronauts who travel through a wormhole near Saturn in search of a new home for mankind.



Oppenheimer Docs: Einstein and the Bomb

Youtube: Kyle Hill, Joe Scott

Work Experience and Events



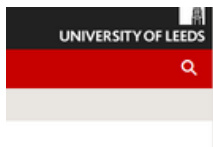
Work experience in physics gives you the chance to explore how scientific ideas are applied in cutting-edge research and industry. Whether you're taking part in university workshops, supporting science events, or getting involved in real scientific projects, these opportunities help you understand what life as a physicist is really like.

Physics-related experiences can include:

- University outreach programmes, such as STEM Outreach workshops, lab sessions and research projects
- Academic placements, including Year 12 Work Experience Week in Physical and Chemical Sciences
- Masterclasses and taster events, like those offered by the University of Oxford Department of Physics
- Science communication, for example volunteering at Cheltenham Science Festival
- General science work experience, through programmes like Success at School
- Large research organisations, including STFC, supporting major scientific experiments in the UK and worldwide

These opportunities help develop analytical, problem-solving and technical skills, while strengthening applications for future study or careers in physics, engineering, research or technology.

Work Experience and Events



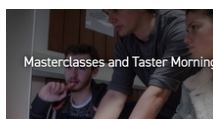
Work Experience | STEM Outreach Team

Learn what it's like to work in an academic, research-based university through a series of workshops, lab sessions and a project. Explore Physics topics, meet world-leading experts and get a taste of what life as a researcher is like.



Year 12 Work Experience Week | School of Physical and Chemical Sciences

Opportunity to learn what it's like to work in academia through attending seminars, lab sessions, and undertaking a research project.



Masterclasses and Taster Mornings | University of Oxford Department of Physics

These events form part of our access programme for young people interested in studying physics at university



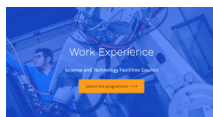
Volunteer at Cheltenham Science Festival

Opportunity to get behind the scenes at the Science Festival with the chance to see great Science events for free.



Science Work Experience | Success at School

Whether you're sure you want to be an astronomer or you're thinking you might make a practical physicist, getting yourself some science work experience is a must.



STFC Work Experience

The Science and Technology Facilities Council (STFC) is one of Europe's largest research organisations supporting scientists and engineers and running experiments around the UK and world-wide.



The Careers Team at Bournside deliver regular Inspire Breakfast Lectures. Open to students in Year 10 - 13, these business-focused breakfasts invite speakers from all corners of industry to share their professional experiences and valuable insights with Bournside students over breakfast; opening our eyes to the opportunities available across many industry sectors.

Take a look at upcoming speakers and reserve your space here.

