

Physics Resources for Schools

Resources for students

Key stage	Resource
	Additional Reading
KS5	Worcester College Bookshelf Project this project involves sharing books that people have enjoyed about their subject. This list is regularly updated so look out for relevant texts.
KS5	From Cambridge University Reading List for Natural Sciences . Made to Measure: New Materials for the C21st Century Ball, P, Princeton University Press. New Science of Strong Materials Gordon, J.E, Penguin. Stuff Matters Miodownik, N, Penguin.
KS5	Engineering James Gleick's "The information: A History, A Theory, A Flood". Review written by Tiffin Girls' School's Farheen Muhammed.
KS5	Oxford University Press: Very Short Introductions: <ul style="list-style-type: none"> • Astrophysics: A Very Short Introduction - James Binney • Black Holes: A Very Short Introduction - Katherine Blundell • Crystallography: A Very Short Introduction - A. M. Glazer • Light: A Very Short Introduction - Ian A. Walmsley • Magnetism: A Very Short Introduction - Stephen J. Blundell • Particle Physics: A Very Short Introduction - Frank Close • Telescopes: A Very Short Introduction - Geoff Cottrell (visitor)
KS5	Staircase 12 reading suggestions and resources from current undergraduates.
	Websites
KS2-4	Purpose Games educational games related to Physics.
KS2-4	Planet 42 Physics Games.
KS2-4	Science Kids Physics facts, resources and games, experiments and lesson plans.
KS2-4	Memrise.com This has games, clips and apps to help students learn specific aspects of Physics.
KS2-5	Explore.org some of the big questions involving Physics that are relevant to us all such as; Do aliens exist? Could we live on another planet?

	<p>Are humans ruining the earth?</p> <p>Is a robot a person?</p> <p>Could you survive a natural disaster?</p> <p>Can time travel ever be possible?</p> <p>Do we see colour the same?</p> <p>Are explosions always destructive?</p>
ALL	News/activities, puzzles, experiments and database of 4000 physics websites designed to engage all ages with Physics.
ALL	Oxford Sparks Science website podcasts/videos/teaching resources, articles, activities/competitions materials.
ALL	Science Museum Resources – Physics
KS3	BBC Bitesize KS3 Physics.
KS4	BBC Bitesize GCSE Physics.
KS4-5	S-Cool GCSE and Level Physics Revision.
KS4-5	Khan Academy Physics Resources GCSE and A level.
KS4-5	Seneca Learning free on line learning GCSE and A Level Physics
KS2-5	OUP Education Platform - An online platform from Oxford University Press, providing expert advice and resources to support learning at home and at school.
KS4-5	Interesting resources to provide stretch and challenge involving input from a range of subjects.
KS4-5	JCS online resources for GCSE and A Level Physics.
KS4-5	Century Tech home learning Physics resources KS3 and GCSE free for duration of virus.
KS4-5	The Science Joy Wagon Physics Resources for GCSE and A Level – free for duration of virus.
KS4-5	Physics Guides on line organised under themes.
KS4-5	Physics Mastery free for duration of COVID 19.
KS4-5	Next Time fun questions and answers in Physics designed to make you think about physical concepts.
KS4-5	Glenhoe Education Physics Resources.
KS4-5	Simulations which can be used to replace practicals.
KS4-5	Physics Zone resources, simulations and experiments.
KS4-5	Isaac Physics website Physics problem solving for GCSE and A Level Physics- teachers can set up accounts and group students into classes to set problems for them.
KS4-5	NASA STEM activities for students of all ages, news, articles.
KS4-5	Zooinverse introduces students of all ages to astronomy.
KS4-5	Picture of the Day daily pictures from space with explanations.
KS4-5	My HE Plus super-curricular resources for Physics and Engineering

ALL	James Dyson challenges for children designed to get them interested in engineering- many can be completed at home.
KS5	YouTube channel 'Marco Reps' contains examples of electrical engineering projects.
KS5	I want to study Engineering questions / problem solving to support university applicants.
KS4-5	Tomorrow's Engineers - activities designed to introduce engineering principles and challenges
KS4-5	Nrich Mathematical questions and resources connected to Physics GCSE and A Level.
KS5	Harvard University - Physics problem of the week
KS4-5	Brilliant.org develop quantitative skills in Maths, Physics and Computer Science thorough questions and challenges- free trial then charges may apply.
KS4-5	British Physics Olympiad past papers and solutions to physics problem solving questions.
KS4-5	Brilliant.org - Physics - Investigate everyday physics, from household objects to weather patterns.
KS4-5	The New Scientist
KS4-5	Phys Org - Physics News
KS4-5	Things we don't know Discover the questions that Physicists are trying to answer.
KS5	Ask a Physicist look at questions which have been asked before and the answers they have received and submit your own.
KS5	whystringtheory.com : This site developed by Prof Joseph Conlon provides a brief and entertaining introduction to string theory. Topics include quantum gravity, quantum strings and extra dimensions. There is also a book with the same title voted Physics World's 2016 Book of the Year.
KS4-5	CERN resources to support Physics/engineering and computing.
KS5	Institute of Physics resources for post 16 students.
KS5	Gresham College public lectures science
KS5	Physics Questions set by Oxford tutors.
KS5	Guidance on the PAT (Physics Aptitude Test)
KS5	Oxford University research in Quantum Computing.
KS5	Oxford Research : How to be certain of uncertainty in climate change and weather forecasts.
KS5	Oxford Research : Cheaper, Smaller, Super resolution - Nano imaging.
KS5	Oxford Research : To the Zooniverse and beyond- how researchers having been harnessing volunteers to support their work.
KS5	Oxford Research : Particle Accelerator - Physics for the masses.
KS5	Oxford Research : A Revolution in Solar Power Technology.
KS5	Oxford Research : How do quantum physicists affect industry? (video)

KS5	Oxford Science Blog
KS5	Our New Grad Blog is an online platform for Oxford Physics research students to write about the stories behind their work.
Radio/Podcasts/Videos/MOOCs	
KS4-5	The Naked Scientist radio show, podcasts and more.
KS3	KS3 Science podcasts including some on Physics.
KS4-5	GCSE and A Level Physics podcasts by Seneca.
KS4-5	Interesting Physics Podcasts from podbean.
KS4-5	Player FM Physics podcasts
KS4-5	BBC4 In Our time - interview with Physicists.
KS5	Oxford University Physics podcasts
KS5	Physics TED Talks - Short talks of less than 20 minutes on various Physics topics.
KS4-5	Bill Nye the science guy videos.
ALL	Physics documentaries Including BBC Physics.
KS5	Project Tuva - Collaborative Project with interesting Physics videos
ALL	YouTube Physics documentaries playlist.
ALL	Royal Society Physics playlist.
KS5	The Royal Institution's 'Particle accelerators for humanity' series featuring Oxford's Dr Suzie Sheehy.
KS5	Oxford Quantum Materials YouTube Channel.
KS5	Physics Aptitude Test video - A webinar by Dr Jennifer Barnes, explaining how to prepare for the Physics Aptitude Test.
KS5	Free Physics MOOCs.
Magazines and Journals	
KS5	Qubit - newsletter provides information about what's new in physics, university guidance, information about careers and upcoming events and competitions.
KS5	Science Daily - Latest Physics News and research
KS4-5	Physicstoday.org.
KS5	Nature - Physics.
KS4-5	New Scientist.com.
Competitions	
KS3-5	Oxford University Academic Competitions for schools and Colleges
KS4-5	The British Physics Olympiad 10 annual Physics competitions for KS4 and KS5 students- website contains past questions and papers with answers.
KS3-5	National Science and Engineering Competitions.
KS3-5	Big Bang Competitions for young scientists and engineers.

KS3-5	Various science competitions.
KS2-5	Formula One in Schools students aged 9 to 19 deploy CAD/CAM software to collaborate, design, analyse, manufacture, test, and then race miniature compressed air powered cars made from F1 model block.
KS2-5	Greenpower Trust Science and Technology Maths and Engineering challenge to design, build and race an electric car for children aged 9 upwards.
Events	
KS3-5	The Royal Society offers lectures/events digital collections and resources.
KS3-5	Physics in Advent - an Advent calendar with a difference. Each day from 1st to 24th December there is a video clip of an experiment which you can do yourself. You then answer the questions on the website and watch a video of the solution. Prizes are available. The project is run by the University of Göttingen.

Resources for teachers

Resource	Notes
The Ogden Trust.	Aims to promote the take up of Physics post 16 with events and programmes to enhance physics teaching.
Clickview	Provides remote lessons with resources, worksheet and videos- charges may apply.
Science in school	Journal for teachers of Science in Europe.
Institute of Physics	Resources to support teachers.
TES Teaching Resources for Physics.	Lesson plans worksheets and activities for secondary and students.
Oxford Sparks	Physics teaching resources.
The Royal Institution of Science	Resources and events.
Tomorrow's Engineers	Website with careers information, information about competitions and workshops.
The British Science Association	Contains sections on Physics and astronomy. <ul style="list-style-type: none"> ▪ STEM competitions- CREST and Youth Challenge ▪ British Science week ▪ Mass participation projects and more
The Association of Science Education	Resources for KS2-5 students, best practice teaching guide along with outreach events and conferences.