Physics Resources for Schools

Resources for students

Key stage	Resource
	Additional Reading
KS5	Ask a Physicist look at questions which have been asked before and the answers they have received and submit your own.
KS4	BBC Bitesize GCSE Physics.
KS3	BBC Bitesize KS3 Physics.
KS4-5	Brilliant.org - Physics - Investigate everyday physics, from household objects to weather patterns.
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	Century Tech home learning Physics resources KS3 and GCSE free for duration of virus.
KS4-5	CERN resources to support Physics/engineering and computing.
KS5	James Gleick's "The information: A History, A Theory, A Flood". – Especially useful if interested in Engineering.
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.
KS4-5	Glenhoe Education Physics Resources.
KS5	Gresham College public lectures science
KS5	Guidance on the PAT (Physics Aptitude Test) – This is the Oxford-specific admissions assessment for Physics.
KS5	Harvard University- Physics problem of the week

KS5	I want to study Engineering questions / problem solving to support university applicants.
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.
ALL	James Dyson challenges for children designed to get them interested in engineering- many can be completed at home.
KS4-5	JCS online resources for GCSE and A Level Physics.
KS4-5	Khan Academy Physics Resources GCSE and A level.
KS4-5	NASA STEM activities for students of all ages, news, articles.
KS4-5	The New Scientist
KS4-5	Next Time fun questions and answers in Physics designed to make you think about physical concepts.
KS4-5	Nrich Mathematical questions and resources connected to Physics GCSE and A Level.
KS5	Our New Grad Blog is an online platform for Oxford Physics research students to write about the stories behind their work.
KS5	Oxford Research: Cheaper, Smaller, Super resolution - Nano imaging.
KS5	Oxford Research: How do quantum physicists affect industry? (video)
KS5	Oxford Research: To the Zooniverse and beyond- how researchers having been harnessing volunteers to support their work.
KS5	Oxford Science Blog
ALL	Oxford Sparks Science website podcasts/videos/teaching resources, articles, activities/competitions materials.
KS5	Oxford University Press: Very Short Introductions: • 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)
KS2-5	Oxplore.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? Are humans ruining the earth? Is a robot a person?

	Could you survive a natural disaster? Can time travel ever be possible? Do we see colour the same? Are explosions always destructive?
KS4-5	Phys Org - Physics News
KS4-5	Physics Guides on line organised under themes.
KS4-5	Physics Mastery free for duration of COVID 19.
KS5	Physics Questions set by Oxford tutors.
KS4-5	Picture of the Day daily pictures from space with explanations.
KS2-4	Planet 42 Physics Games.
KS2-4	Purpose Games educational games related to Physics.
KS4-5	The Science Joy Wagon Physics Resources for GCSE and A Level – free for duration of virus.
KS2-4	Science Kids Physics facts, resources and games, experiments and lesson plans.
ALL	Science Museum Resources – Physics
KS4-5	Seneca Learning free on line learning GCSE and A Level Physics
KS4-5	Simulations which can be used to replace practicals.
KS5	Staircase 12 reading suggestions and resources from current undergraduates.
KS4-5	Things we Don't Know Discover the questions that Physicists are trying to answer.
KS4-5	Tomorrow's Engineers- activities designed to introduce engineering principles and challenges
	Websites
KS5	YouTube channel 'Marco Reps' contains examples of electrical engineering projects.
KS4-5	Zooniverse introduces students of all ages to astronomy.
	Radio/Podcasts/Videos/MOOCs
KS5	Balliol College Insight Talk on Gender Bias in Science
ALL	BBC Physics
KS4-5	BBC4 In Our time - interview with Physicists.
KS4-5	Bill Nye the science guy videos.
KS5	Free Physics MOOCS.
KS4-5	The Naked Scientist radio show, podcasts and more.

KS5	Oxford for Eastern England - Springboard Video - Science Denialism Online
KS5	Oxford for Eastern England - Springboard Video - The Physics of Wind Turbines
KS5	Oxford Quantum Materials YouTube Channel.
KS5	Oxford University Physics podcasts
KS5	Physics Aptitude Test video - A webinar by Dr Jennifer Barnes, explaining how to prepare for the Physics Aptitude Test. – This is the Oxford-specific admissions assessment for Physics.
KS4-5	Physics Podcasts from podbean.
KS5	Physics TED Talks - Short talks of less than 20 minutes on various Physics topics.
KS4-5	Player FM Physics podcasts
KS5	Project Tuva- Collaborative Project with interesting Physics videos
KS5	The Royal Institution's 'Particle accelerators for humanity' series featuring Oxford's Dr Suzie Sheehy
ALL	Royal Society Physics playlist
ALL	YouTube Physics documentaries playlist
	Magazines and Journals
KS5	Nature - Physics.
KS4-5	New Scientist.com.
KS4-5	Physicstoday.org.
KS5	Science Daily- Latest Physics News and research
	Competitions
KS3-5	Big Bang Competitions for young scientists and engineers.
KS4-5	The British Physics Olympiad 10 annual Physics competitions for KS4 and KS5 students- website contains past questions and papers with answers.
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.
KS3-5	National Science and Engineering Competitions.
KS3-5	Oxford University Academic Competitions for schools and Colleges
KS3-5	Various science competitions.

	Events
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.
KS3-5	The Royal Society offers lectures/events digital collections and resources.

Resources for teachers

Resource	Notes
The Association of Science Education	Resources for KS2-5 students, best practice teaching guide along with outreach events and conferences.
The British Science Association	Contains sections on Physics and astronomy. ▪ STEM competitions- CREST and Youth Challenge ▪ British Science week ▪ Mass participation projects and more
ClickView	Provides remote lessons with resources, worksheet and videos- charges may apply.
Institute of Physics	Resources to support teachers.
The Ogden Trust.	Aims to promote the take up of Physics post 16 with events and programmes to enhance physics teaching.
Oxford Sparks	Physics teaching resources.
Science in school	Journal for teachers of Science in Europe.
TES Teaching Resources for Physics.	Lesson plans worksheets and activities for secondary and students.
Tomorrow's Engineers	Website with careers information, information about competitions and workshops.