

# Physics Partners

## Annual Report 2020/2021



## CONTENTS

Page 1	<ul style="list-style-type: none"><li>• From our Patron</li><li>• 2020/2021 at a glance</li></ul>
Page 2	<ul style="list-style-type: none"><li>• Adapting and expanding our reach</li></ul>
Page 3	<ul style="list-style-type: none"><li>• Evaluating our impact</li><li>• Broadening the scope of our support</li></ul>
Page 4-5	<ul style="list-style-type: none"><li>• From the Schools</li></ul>
Page 6	<ul style="list-style-type: none"><li>• Governance and staffing</li></ul>
Page 7	<ul style="list-style-type: none"><li>• Accounts</li></ul>
Page 8	<ul style="list-style-type: none"><li>• Outlook</li></ul>

## FROM OUR PATRON

I am delighted to introduce Physics Partners' Annual Report for the year 2020/21.

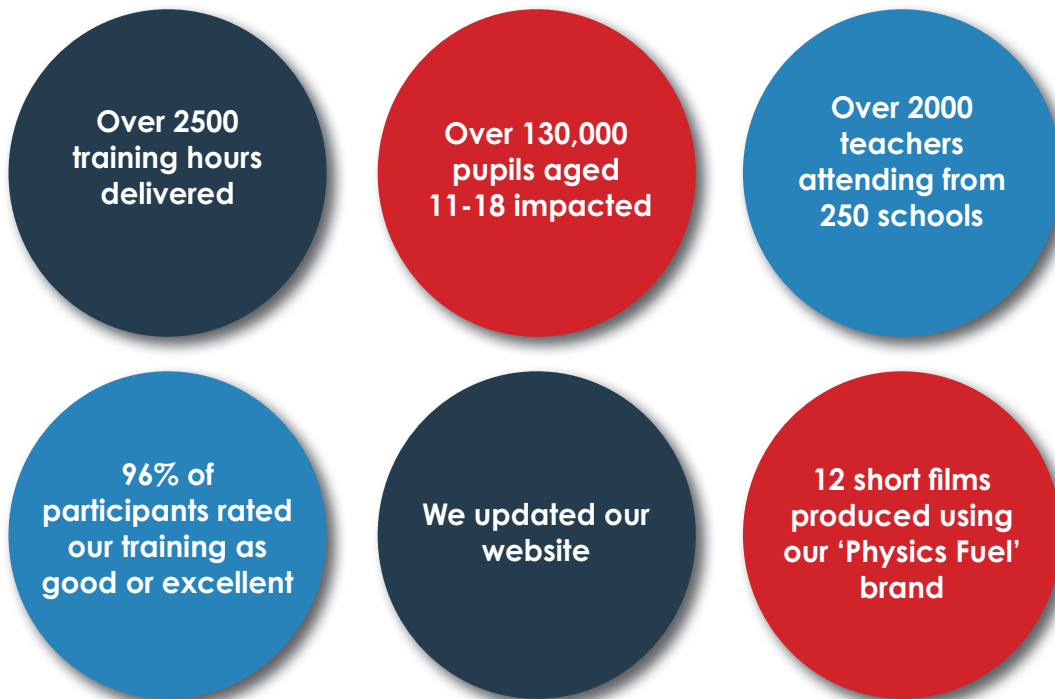
The work performed by the charity continues to be as important as it was when it was founded in 2007. Far too many schools in this country are short of specialist physics teachers and some have no qualified physics teachers at all. Only a third of Key Stage 4 Physics hours are taught by teachers with a degree in any science subject or mathematics.

It is good to see that the charity is now helping non-specialist teachers in over 250 schools across the UK, and that up to the start of the pandemic its expert trainers taught an average of 2,500 teacher hours each year at these schools. From March 2020 Physics Partners was able to transfer its teaching online without loss of teaching hours or impact.

The charity's close association with the Institute of Physics, together with the generous contributions of its sponsors, have allowed it to grow and prosper and I wish it many more years of innovation and success.

Sir Richard Friend FEng FRS, Cavendish Professor Emeritus, University of Cambridge

## 2020/2021 AT A GLANCE



## ADAPTING AND EXPANDING OUR REACH

Prior to 2020, all of our training was delivered on site via face-to-face sessions. In-person training ended abruptly in March 2020 owing to the COVID-19 pandemic. Our response was swift and effective: we created from scratch a comprehensive digital delivery model that enabled us to start running in-depth training sessions online just six weeks later. A total of 700 teacher-training hours were completed during the summer term; the speed with which the online programme was implemented was a result of the skilful coordination of our CEO, Bryan Berry, whose mastery of the necessary techniques was critical to its success.



Orange markers indicate schools supported since the start of the pandemic

The 2020/21 academic year was also severely disrupted by the pandemic. However, our new online capabilities enabled us not only to continue providing uninterrupted support to our existing network of hubs and teachers, but also to expand the number of schools we were able to reach throughout the UK. As a result, and despite the national lockdowns, we increased the number of schools we support. Online sessions were well-received and saw consistently good take-up, with group participant numbers averaging 18 non-specialist teachers.

Twenty Physics Partners trainers participated in online sessions, many of whom willingly learned new techniques and practices for engaging with participants across a very different medium and were quickly able to manage sessions using multiple cameras, a whiteboard, video and PowerPoint.

**We gratefully acknowledge the dedication and commitment of our trainers, and their readiness to adapt to a radically new way of working.**

**Sessions included teachers and technicians from multi-academy trusts including:**

**The Archdiocese of Liverpool School Improvement Trust  
The Kemnal Academies Trust  
The Partnership Learning Trust (Dagenham)  
The United Learning Trust  
The Harris Federation**

**Other sessions were conducted jointly with professional bodies and school partners including:**

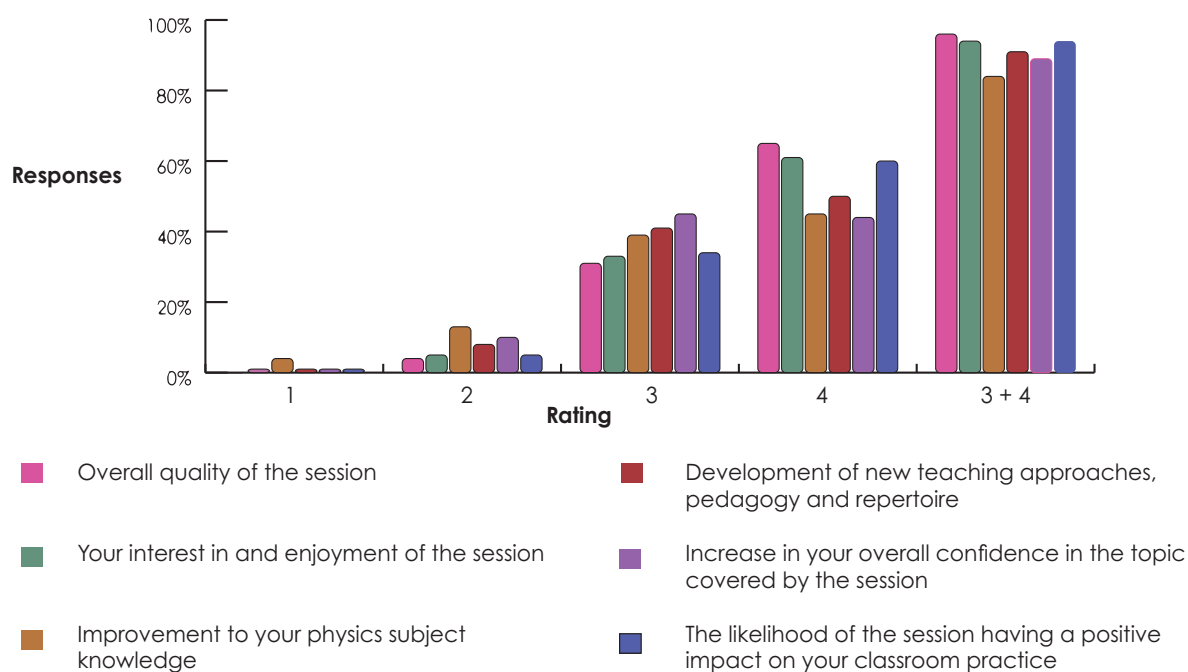
**The Association for Science Education  
The Institute of Physics  
Charterhouse School  
Dulwich College  
St Dunstan's School  
The Sussex Science Learning Partnership  
Tonbridge School  
Winchester College**

Our partnership with the Association for Science Education (ASE) has enabled Physics Partners to reach new audiences and, in particular, initial teacher training students. These 3-hour Saturday morning courses on key areas such as Forces, Electricity and Energy enable physics topics to be delivered in more depth and this has been welcomed by teacher trainees. This partnership with the ASE has generated income which is being used to support some of our core costs.

Our collaborations with multi-academy trusts such as the Harris Federation and the United Learning Trust enabled us to reach large numbers of teachers and provide a CPD lifeline during the recent lockdowns.

## EVALUATING OUR IMPACT

To strengthen our new online operation, we developed electronic feedback forms to be completed by participating teachers at the end of each session. The forms required non-specialist physics teachers to identify their specialism and provide feedback in various categories, ranging from the overall quality of the session, its usefulness in the classroom and its impact on teacher confidence. Teachers were invited to rate sessions on a scale of 1 (low) to 4 (high). A summary of participants' feedback can be seen in the chart below.



The figures shown in the chart above provide consistent evidence that our training is rated highly by participants. From our data, the majority of training participants are experienced teachers who have a biology or chemistry specialism. Most of our support is aimed at their GCSE teaching.

## BROADENING THE SCOPE OF OUR SUPPORT

We are grateful to the Royal Commission for the Exhibition 1851 for their grant to enable us to make a series of 'how to teach...' videos, covering key concepts across all Key Stage 4 topics, presented by Physics Partners experts. Designed to offer clear explanations and practical teaching advice, the videos are uploaded to our website where they are becoming widely viewed and appreciated. At the completion of the project, we will have a library of 20 concise and relevant 'Physics Fuel' videos, all available to watch online without charge.

To further enhance the support we provided throughout the pandemic, we developed an online session focusing on practical work without a lab. This was particularly relevant for teachers forced to conduct classes from home during school closures. This may also prove useful in the future for teachers whose science departments are less well-resourced.

"These videos are absolutely fantastic. Just watched the 10 minutes on Newton's 3rd Law - totally changed the way I will deliver my lesson on this!"

"Brilliant, clear explanation of thermal energy/radiation, for students and teachers"

"Just watched the Physics Partners film about energy transfer via radiation - clear, to the point and informative. Enjoyed it. And good links to further resources"



## FROM THE SCHOOLS

"The CPD provided by Physics Partners has given our science teachers, particularly those for whom Physics is not their specialist subject, a real boost in their physics knowledge and pedagogy, and so confidence delivering Physics in the classroom. Physics Partners provide an insight into key physics topics met at KS3 and KS4, and address some of the common misconceptions. Given one of the principal barriers to pupils advancing to A-level Physics is poor teaching at KS4, any improvement here will invariably increase interest, motivation, and uptake."

Matthew MacKenzie Science Consultant,  
Harris Federation

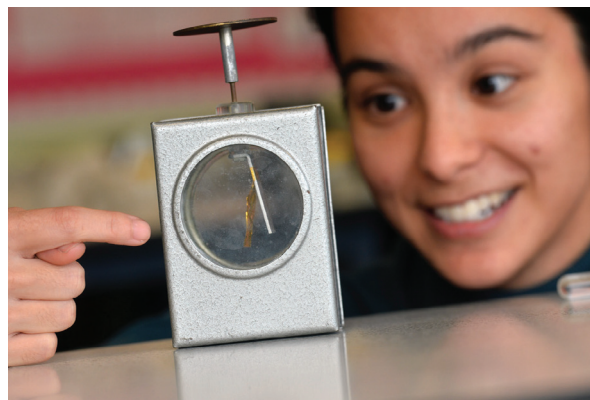


**"Perfectly pitched  
for a biologist!"**

Non-specialist teacher  
Electrical circuits session

**"Absolutely outstanding; the  
demonstrations are superb"**

Non-specialist teacher  
Electro-magnetism session



"When I started at St Edmund Arrowsmith, I arrived with a Chemistry Degree and a Chemistry Education PGCE so no formal training in Physics teaching or Physics pedagogy. During my Newly Qualified Teacher year, I attended the Physics Partners sessions hosted by our school. I found the sessions incredibly valuable. They improved my Physics subject knowledge and my confidence when delivering physics practicals and demonstrations.

I am now Assistant Head of Department, leading Physics across the school. Within this role I have written our 5 year physics curriculum and developed high quality curriculum resources. As a result, engagement and interest in physics has spiked over the past two years. The sessions with Graham during my early teaching career gave me the confidence and competence to successfully pursue a leadership role within our Science Department."

Keiran O'Callaghan, Assistant Head of Science  
St Edmund Arrowsmith Catholic High School Wigan



"We have valued the support from Physics Partners over the last few years and many of our teachers have been very fortunate to have benefited from the excellent support and tuition that they have received. They have been inspired and have become more confident in delivering Physics to their students."

A couple of Headteachers have also said to me that Physics was ranked third in performance across their range of science subjects but as a result of the support of Physics Partners, and especially Graham, Physics is now the best performing science subject! You can't say more than that in terms of impact."

Paul Greenall, Partnership Director  
The Liverpool Archdiocese Secondary Schools' Partnership

**"Training was absolutely brilliant, cannot fault it"**

Science technician  
Mechanics session

"Physics Hub at Trinity Academy Halifax (TAH) started in 2017 and, with the support of Physics Partners, has been on a 4 year journey of success. The administration and promotion of Physics Hub at TAH is undertaken by the teaching school within the multi academy trust (MAT) and funding comes through the Teacher Subject Specialism Training (TSST) programme from the Department for Education. The sessions are run from within TAH over the course of two full days."

All new physics non-specialists within the MAT are invited to attend, and places are also offered to other local and regional schools that have expressed an interest in attending. Content is delivered by our own Physics teachers in addition to the invaluable support offered by the trainers from Physics Hub. Over the Covid pandemic, in-school sessions moved online and Physics Partners again helped supply physics specialists to lead on these sessions."

Over the last 4 years we have had over 60 delegates attending from 18 schools. This has brought funding into the school from the TSST programme but also helped upskill our own Physics non-specialists within the MAT alongside those of our partner schools, leading to improved subject knowledge and enhanced delivery within the classroom. This has also raised the profile of the Trinity MAT alongside that of Physics Partners."

Anthony Hoyle, Lead Teacher Science,  
Halifax Trinity Academy

**"Excellent session, teacher aimed it our level"**

Non-specialist teacher  
Heat and thermal energy session



## GOVERNANCE AND STAFFING

Over the course of the year, we strengthened the Board with the appointment of four new trustees from the worlds of education, finance and medicine. Andrew Burton has assumed the role of Company Secretary.



**Mary Breen**  
Former Headmistress of St Mary's School, Ascot, and former Head of Physics at Eton College



**Winston Ginsberg**  
MBA Harvard Business School, and former partner and investment committee member at Towerbrook Capital



**Dr Arpan Mehta**  
Early-career Neurologist, Lady Edith Wolfson Clinical Fellow and Rowling Scholar at the Anne Rowling Regenerative Neurology Clinic, Edinburgh



**Andrew Burton OBE**  
Former Air Vice-Marshal and Head of RAF Administration; former Bursar and Clerk to the Governors at Sevenoaks School

Our longer serving trustees are:

**Thomas Cookson (Chair):** Former Head of King Edward VI School, Southampton; Sevenoaks School and Winchester College

**Sir Michael Jenkins (Treasurer):** Former Chair of the Education Committee, Sevenoaks School and former Chief Executive of LIFFE and Chairman of The London Clearing House

**Nick England:** Former Head of Ryde School, Isle of Wight, and author of numerous physics textbooks

**Tony Lyng:** Former Head of Brockhill Park College, Folkestone

**Krysia Sosin:** Assistant Headteacher, Hylands School, Chelmsford

**Derek Turner:** Former inspector for HMI, Ofsted and the Independent Schools Inspectorate

The staffing team has been expanded with a part-time Executive Assistant post supporting the Chief Executive, Bryan Berry, with the day-to-day management of the charity.

The breadth and depth of experience of the trustee body and staff team has enabled the charity to weather the recent pandemic, to enhance its activities and to be well-positioned for a return to face-to-face activities in 2021/2022.



## ACCOUNTS

The most recent audited accounts from 2019/2020 are shown below. During this period the Charity's income from donations and grants was £77,335 with an expenditure of £71,601. Despite the pandemic, this is broadly in line with recent accounts. We are pleased to report that in the financial year 2020/2021, the Charity received some significant donations which helped it to continue and expand its training during the pandemic.

The trustees gratefully acknowledge the generosity of the following donors during the past year which have enabled the charity's activities to continue.

- + Camilla Woodward and The Headley Trust
- + Damon de Laszlo
- + The Frank Jackson Foundation
- + IBM UK Trust
- + Ian and Nadja Van Every
- + John and Diana Kemp-Welch Charitable Trust
- + The Loveday Charitable Trust
- + The Royal Commission for the 1851 Exhibition
- + The Tobacco Pipe Makers and the Tobacco Trade Benevolent Fund
- + Winston Ginsberg

Although we are emerging from the pandemic with an enhanced portfolio of support and funding for the next three years secured, we remain alert to the ongoing challenge of fundraising for core costs.

Physics Partners Limited				
Charity No: 1125644		Company No: 06292894		
Statement of financial activities for the 12 months ending 31 August 2020				
	Unrestricted funds £	Restricted funds £	Total £	12 months ending 31/8/19 £
<b>Income and endowments</b>				
Donations and grants	58,535.00	18,800.00	77,335.00	71,220.00
Total	58,535.00	18,800.00	77,335.00	71,220.00
<b>Expenditure</b>				
Training fees and expenses	13,334.90	7,161.54	20,496.44	28,066.26
Website	2,736.82		2,736.82	2,843.42
Staff	33,293.57		33,293.57	15,393.45
Business Development	1,507.69		1,507.69	1,053.44
Administration	2,740.30		2,740.30	2,153.93
Fundraising	10,826.55		10,826.55	15,188.52
Total	64,439.83	7,161.54	71,601.37	64,699.02
<b>Net income</b>			5,733.63	6,520.98

## OUTLOOK

Despite its extraordinary challenges, the COVID-19 pandemic enabled Physics Partners to demonstrate its readiness and ability to respond effectively to significant change and disruption. Our new but proven online delivery techniques mean we are now in a stronger position to expand the number of schools and teachers we are able to support, through a combination of face-to-face and virtual training sessions.

Our key objectives for the 2021/22 academic year

### **Increase capacity**

- + Prepare our systems and processes for an increase to 300 participating schools and 3500 teacher training hours (currently 200 schools and 2250 hours)
- + Nurture and strengthen relationships with existing funders, and enhance our fundraising strategy in order to reach new supporters
- + Increase our cadre of experienced physics teachers and technicians able to lead training sessions
- + Enhance our core team to enable us to meet the demand for school-based physics training
- + Improve central systems and processes to support, coordinate and monitor programme delivery

### **Maximise impact**

- + Strengthen governance to prepare the charity for expansion
- + Improve analysis of reach/impact to better understand the school settings in which we operate
- + Strengthen partnerships with organisations committed to encouraging more girls to study physics
- + Enhance quality assurance processes related to school-based training
- + Engage more closely with existing and new partners
- + Increase the public benefit contribution from independent schools and multi-academy trusts that have the resources to support our work

### **Build reputation**

- + Develop a clear communications strategy to build brand awareness and reach
- + Develop an impact report summarising our key achievements and growth to date
- + Cultivate strategic partnerships to facilitate growth
- + Review and enhance our advisory group and draw upon their expertise to assist the charity to meet the future needs for physics teaching
- + Develop areas of thought leadership, underpinned by clear, evidence-based conclusions and recommendations to build our reputation as a charity at the forefront of physics teaching

## NOTES

Physics Partners Ltd is a company limited by guarantee.  
Registered in England No 06292894. Registered Charity No 1125644.  
Registered office: Chapel Cottage, Kemsing Road, Wrotham, Kent, TN15 7BU.

[www.physicspartners.com](http://www.physicspartners.com) @physicspartners