

Stimulating Physics Network Partner School status

Memorandum of Understanding between the Institute of Physics (IOP) and
(the School)

Introduction

The *Stimulating Physics Network* (SPN) is a national education project funded by the Department for Education (DfE), and managed by the Institute of Physics. The SPN has been operational at a national level since 2009.

Participation in A-level physics

The SPN project is based on the principle that physics A-level is a 'facilitating subject', providing young people with access to a range of economically valuable career paths. However, physics is often perceived by young people as a subject in which it is more difficult to achieve higher grades at A-level. There is also a strongly ingrained gender imbalance in A-level physics, with girls making up only 21% of entries, despite performing as well or better than boys at GCSE. Recent research and investigations suggest this imbalance derives from deep-seated and implicit biases against girls participating in the advanced study of physics.

Support for teachers

There is a shortage of specialist physics teachers in secondary schools. A high proportion of physics lessons, particularly in Key Stage 3, are taught by teachers without a specialist background in physics. These teachers are more likely to lack deep subject knowledge, pedagogical expertise, confidence and enthusiasm in physics, and a fluency in demonstrating the relevance of physics beyond the classroom. This is needed to ensure that all pupils, including girls, identify with physics as a subject which is accessible, aspirational and relevant.

A new primary and secondary science curriculum was introduced in September 2014 and revised science GCSEs will begin first teaching in September 2016. In a parallel process, A-levels have been reformed, with changes to the curriculum, assessment of practical activities and the structure of AS-levels; the first new A-levels were introduced from September 2015. Physics teachers, from Key Stage 2 to Key Stage 5, have a continuing need to encompass and mediate recent government reforms to the teaching and assessment of physics, via both external expert input and by having access to professional peer networks.

Aims of the SPN

In the period 2016-2019, the SPN aims to:

1. Contribute to a national increase in the number of students at state-funded schools in England progressing to A-level physics;
2. In the schools receiving targeted support ('SPN Partner Schools'), significantly increase the number of girls progressing to A-level physics;
3. Transition the project into a more financially sustainable model.

Elements of the SPN

1. A team of Teaching and Learning Coaches (TLCs), engaged directly by the IOP to lead CPD workshops in Partner Schools and facilitate local network activities through a Link or Lead School. Some also provide mentoring for early-career and returning physics teachers.
2. A team of Gender Balance Officers (GBOs), engaged directly by the IOP to facilitate evidence-based interventions in selected schools to increase the number of girls progressing to A-level physics.
3. A cohort of 350-400 Partner Schools, each benefiting from a bespoke support programme (see below).
4. A group of about 50 Link and Lead Schools, each providing CPD workshops and networking opportunities for about ten Partner Schools in the local area. Link School activities are led by a TLC; Lead School activities are led by a school-based physics coach (SPC).

5. A team of Higher Education Liaison Officers (HELOs) based at science education centres in regional universities. HELOs provide support for Partner School recruitment, Partner-Link/Lead School networks, regional teacher-day events, and university department liaison.
6. A team based at the IOP in London, providing management and support for all aspects of the SPN project, including communications, marketing and promotion of local, regional and national events, including Summer Schools.

IOP basic commitments

- IOP awards the School the status of 'SPN Partner School', for a period of one year from the date of this memorandum, with an option to extend the status following an annual review (see below), to a maximum of three years¹.
- Working with the School, the IOP will develop and deliver a bespoke programme of support for the School, through a dedicated TLC and/or SPC (the "Coach").
- The Coach will work to improve the School's teachers' and technicians' subject knowledge, pedagogical approaches and confidence in physics teaching, particularly in the use of practical activities.
- As part of the programme, the Coach will provide support on inclusive teaching techniques, based on the findings of the IOP's two-year 'Improving Gender Balance' (IGB) pilot project.
- In addition, the School will be offered a range of other support and resources, including: pupil engagement activities led by the Coach and/or GBO; local network CPD and networking events hosted by a Link or Lead School; annual regional physics teacher CPD days; residential CPD Summer Schools for non-specialist teachers; online peer-to-peer support via the TalkPhysics professional community.
- In appropriate circumstances, the School will be offered the opportunity to undertake a whole-school gender equality project with the support of a GBO, aimed specifically at addressing gender balance issues in subject choice, participation and attainment across the School and increasing the number of girls progressing to A-level physics (see below for further details).

There is no financial cost to the School or its teachers for any of this provision. The total annual budget of the SPN is £2.15 million; the estimated value of the support provided to each participating school is over £6,000 per year. The SPN is a publicly-funded project. We therefore ask for an expression of commitment from schools to ensure good value for money in the delivery of this project.

School basic commitments

In return for the benefits of being a SPN Partner School, the School agrees to:

- Commit to the values and aims which underpin the SPN; specifically, a commitment to promote physics as an important and facilitating subject for its students, and especially girls, to study at A-level.
- Working with the designated Coach, develop a written programme of support which includes:
 - An aim which relates to the SPN project's overall aim to increase progression to A-level physics;
 - Measurable targets for the period of support, including milestones/checkpoints to allow progress towards the targets to be assessed at agreed interim points;
 - Planned activities, including topics/themes and agreed dates/times for at least the first 12 months, which logically relate to the aims of the programme of support (i.e. making explicit the assumptions and desired outcomes);

¹ Subject to the continuation of the contract between the IOP and the DfE to administer the SPN project.

- A link to an associated item in the School's Strategic Improvement Plan, or equivalent;
- Analysis and discussion of progression and attainment data by gender, for physics and other subjects across the School.
- Submit the programme of support to the IOP for approval, and revise the programme if required.
- Sign off the programme of support at headteacher/principal level.
- Ensure that all teachers and technicians involved in the programme of support have adequate opportunity, particularly time, to participate in the agreed professional development activities.
 - The expected commitment will be six twilight sessions (or equivalent), unless explicitly agreed otherwise with the Coach at the programme's inception.
- Working with the Coach, deliver the programme of support successfully; as necessary, modify planned activities in agreement with the Coach.
- Provide all SPN-branded events, activities and resources at no cost to teachers, technicians, schools, parents or the IOP.
- Conduct an annual review of the progress of the SPN project in the School against its targets, at senior leadership level; on the basis of these reviews, agree with the Coach to extend or discontinue the Partner School status for agreed increments, to a maximum of 36 months' support in total.
- Submit annual reports to the School's headteacher/principal and governing body on the progress of the SPN project in the School towards its targets.

Whole-school equality project offer

The School has the option to participate in a project of evidence-based interventions to increase the number of girls progressing to A-level physics. This project is facilitated by a GBO and based on the findings of the IOP's two-year 'Improving Gender Balance' (IGB) pilot project.

The core SPN offer involves the Coach working with teachers to use more inclusive teaching techniques and improve the experiences of both girls and boys in the physics classroom. The whole-school equality project builds on this and works across the whole School to address gender inequities as well as with groups of girls to help develop their science identity and confidence.

If this offer is taken up by the School

In return for the benefits of this additional support, the School agrees to:

- Identify a member of senior leadership team as a gender champion whose role would include bringing together the whole School (staff and pupils) in a coherent campaign to challenge gender stereotypes;
- Recruit a working group of staff to help implement change across the School, where needed;
- Provide all School staff (teaching and non-teaching) with the opportunity to attend training, provided at no cost by the IOP/SPN either on the School premises or via online mechanisms, on topics such as gender awareness and unconscious bias, whether as part of their induction to the School or their ongoing professional development;
- Provide support for a student-run science ambassador or research scheme.

Communication Strategy

- Both parties will maintain good lines of communication as detailed in Annex 1.

Engagement and Contingency Strategy

- Both parties will remain actively engaged with the SPN partnership for its duration. In the event that links break down, or that the School wishes to withdraw from the SPN project, both parties agree to follow the 'Disengaged Partner School' procedure in Annex 2.

Performance Management and Grievance Strategy

- Both parties acknowledge the performance management structure for Coaches in Annex 3, and agree to follow the grievance and escalation procedures in Annex 3.

Partner School

Risk Management and Liability Strategy

- Both parties will comply with their statutory obligations in relation to the safety of teachers, pupils and other employees or representatives of either party in the delivery of the SPN project, and will follow the terms of the Risk Management and Liability Strategy in Annex 4 to help achieve this.

Data and Evaluation

- Both parties agree to share relevant information with each other and with designated agents (i.e. external evaluators), for evaluating the success of the national SPN project in meeting its objectives, to the extent that such information sharing is permitted by the Data Protection Act 1998. Both parties shall fully comply with all applicable laws and regulations relating to the processing or protection of personal data including, but not limited to, the seventh data protection principle set out in the Data Protection Act 1998. For reference, the project's external evaluators will also be required to comply with these laws and regulations.
- The headteacher/principal, Head of Science/Physics and teachers of physics at the School will participate in essential evaluation activities, including the completion of online surveys within the timeframe specified by the project's external evaluators. They may also be asked to take part in other optional data collection activities, such as interviews.
- The School will provide to the IOP and/or the external evaluators of the SPN project some anonymised data on the post-16 destination of their pupils on request; specifically, the number of pupils (by gender) progressing from KS4 to study A-level physics each year, whether at the School or elsewhere. This relates to schools' wider obligations to track pupil destinations and applies equally to 11-16 and 11-18 establishments.
- Neither the School nor any individuals will be identified in any reports or other publications arising from the SPN project evaluation. The information collected will be used for research and evaluation purposes only and no information that can identify individuals will be used for any other purpose without the explicit permission of the individuals concerned. Any personal data collected will be destroyed by the external evaluators in accordance with the Data Protection Act 1998 when it is no longer required.
- The School has a right to full publicity and credit for its role in any publicised SPN event; similarly, the School has the right to see any such material prior to publication and to withhold the use of its name, those of its employees and pupils, or anything which might identify the School. IOP and the School agree to avoid the use of photos of pupils of the School in any such material, where any pupil could be identified from such photo.

General

- All materials produced or used by IOP in relation to this memorandum shall be owned by IOP.
- Both parties agree to comply with all applicable laws and regulations relating to their performance under this memorandum.
- This arrangement does not create a partnership between the parties, and neither party can act or purport to act on behalf of the other.

Signatures

This memorandum of understanding will be effective upon the signature of authorised officials from both parties. It will cover an initial one year period from the date of the last signature. It may be extended, renewed or terminated by mutual written agreement.

For the Institute of Physics

David Cameron
 Manager, Stimulating Physics Networks

Signed:
 Date:

For the School

Name:
 Headteacher/Principal

Signed:
 Date:

Annex 1

Communication Strategy

SPN Coach (TLC and/or SPC)	SPN Operational Contact (The School – Science)
Name/s:	Name:
Email/s:	Position:
Phone/s:	Email:
Higher Education Liaison Officer	SPN Partnership Contact (The School – SLT)
Name:	Name:
Email:	Position:
Phone:	Email:
TLC Team Leader (IOP)	SPN Manager (IOP)
Name:	Name: David Cameron
Email:	Email: david.cameron@iop.org
Phone:	Phone: 0207 470 4899

- The School will provide two contacts – an ‘Operational Contact’, typically within the science department, and a ‘Partnership Contact’, ideally within the School’s leadership team.
- The SPN Coach (TLC and/or SPC) and the School’s Operational Contact will be the respective points of contact in all matters relating to the organisation of CPD workshops, or other SPN events in which the School is participating.
- The Higher Education Liaison Officer (HELO) and the School’s Partnership Contact will be the points of contact for all general matters relating to the partnership between the School and the SPN project.
- The SPN Manger will be the point of contact for any other matter which has not been resolved by the Coach or HELO.

Annex 2

Engagement and Contingency Strategy

- The School will agree with the Coach an explicit contingency to protect the continuity of the partnership (both operationally and in terms of enthusiasm), in the event that any of the School's SPN contacts becomes unavailable due to staff turnover or long-term absence (e.g. sickness, maternity leave). An example might be to make the SPN element of the role explicit in any replacement process, and/or ensuring an introductory session for any replacement with the Coach.

Disengaged Partner School procedure

- If the School wishes to withdraw its involvement in the SPN project before the completion of the agreed term, the Coach will arrange a meeting with the head teacher or principal to discuss and agree a strategy for the withdrawal of SPN involvement and possible legacy activities. Notes and agreed actions from this meeting will be circulated to the HELO, TLC Team Leader and SPN Manager.
- If the Coach and HELO fail to achieve any meaningful contact, by phone, email or in person, with either SPN contact at the School for an extended period (e.g. three months, or a full school term), the School may be considered a 'disengaged Partner School'. This decision is a matter for the collaborative judgement of the Coach and HELO, based on the individual school's context.
- In this circumstance, the Coach will arrange a meeting with the School's Partnership Contact or head teacher/principal; this meeting will discuss any issues which are limiting the School's participation, whether a revised programme of support is required, and how best use can be made of the Coach and School's time for the benefit of the teaching and learning of physics. Notes and agreed actions from this meeting will be circulated to the HELO and TLC Team Leader.
- If it is agreed, or if IOP in its reasonable opinion decides, that the School cannot continue to meet its commitments to the SPN project, the School will cease to hold the status of 'SPN Partner School', and the School's place in the Coach's portfolio will be offered to another school.
- Schools which re-engage at any stage in this process will no longer be considered 'disengaged'.
- In the event of lack of agreement between the School and the Coach, TLC Team Leader or HELO, the School may contact the SPN Manager. See the grievances strategy in Annex 3.

Annex 3

Performance Management and Grievance Strategy

- IOP is responsible for the management of and any disciplinary issues relating to IOP-employed TLCs.
- Where TLCs or SPCs are seconded to the SPN project, performance management and disciplinary issues will be the exclusive responsibility of the relevant individual's employer.
- IOP resolves to ensure that the School receives high quality support from the Coach throughout the period that the School is an 'SPN Partner School'
- In the event that the School is concerned about the quality of support being received from the Coach or the performance of the Coach, this should in the first instance be discussed informally with the Coach in question. If concerns remain, they should be reported to the TLC Team Leader, copying in the HELO.
- If the School remains dissatisfied, or if the School's Coach is also the TLC Team Leader, the School may escalate its concerns to the SPN Manager.

Annex 4

Risk Management and Liability Strategy

- Coaches are responsible for conducting themselves in a safe and professional manner at all times when on the School's premises or when working with teachers, pupils and technicians from the School.
- It is the responsibility of each Coach to conduct a risk assessment for any activity they facilitate which has an inherent level of risk. The School has the right to request sight of these risk assessments, giving a reasonable period of notice.
- The IOP and, in relation to seconded Coaches, the relevant individual's employer shall comply with their respective duties relating to health, safety and welfare in respect of compliance of all project activities carried out by the Coaches with the Health and Safety at Work Act. The IOP Health & Safety policy is available upon request. TLCs work within the latest guidelines published by organisations such as ASE and CLEAPSS.
- The School and its teachers and technicians remain responsible for the safety of their own actions and liable for damage or injury caused by their own acts or omissions, including in the presence of a Coach.
- The School is responsible for ensuring the safety of any equipment owned by the School and used by a Coach on School premises as part of an SPN-led workshop or event, under the terms of the Employers' Liability (Defective Equipment) Act any other applicable legislation.
- If the School has any concerns about the safe conduct of a Coach, these should be reported using the grievance procedures in Annex 3.

Child Protection

- IOP will ensure that all TLCs have current Enhanced DBS clearance.