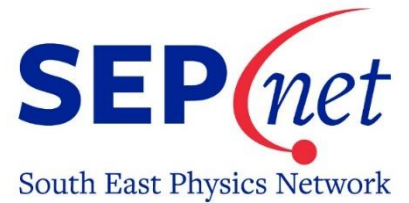


SEPnet Outreach & Public Engagement Strategy



High profile physics departments formed of engaged physics researchers with diverse communities; changing the culture in schools so that anyone can choose to do physics if they want to.

Structure Overview

The South East Physics Network (SEPnet) is a partnership of nine universities in the South East of England. The Outreach & Public Engagement Programme (OPE) has been part of SEPnet since its inception in 2008. Additional universities do also participate in the programme as OPE partners / Associate Members. They will be referred to collectively as partners.

All partners have agreed to commit at least 0.5 FTE staff time towards the SEPnet OPE programme. In most cases this will be an Outreach and/or Public Engagement Officer / Manager.

SEPnet in turn will provide a Director of OPE and a central OPE budget (which will come from partner memberships of SEPnet). The Director will:

- Direct the collaborative OPE programme by ensuring this strategy is kept up to date and evolves with the wishes of the SEPnet Collaboration Board.
- Manage the 0.5 FTE staff time contributions from partners.
- Build opportunities for SEPnet by maintaining and growing key external partnerships.
- Run central OPE projects.
- Raise the profile of SEPnet by sharing the learning from OPE projects from across SEPnet.

SEPnet Engagement Roadmap

Supporting and Growing Science Capital in our Local Communities

Our aim is to work longitudinally with the same communities over time to maintain and raise science capital, and improve access to science based experiences and resources. The communities we work with will be local to our partner universities and be comprised of audiences who are traditionally underserved by science engagement. The groups below are colour coded according to which of our three core themes they fit into; **Schools Outreach**, **Teacher CPD** and **Public Engagement**. We will do this by working with the following groups:

1. Early Years Groups and Parents/Guardians

We will work with libraries, community spaces, and Parent/Guardian and baby groups to deliver age appropriate sessions which will engage the children and raise the science confidence of the parents/guardians. We aim to raise parents/guardians confidence levels to enable them to undertake science based activities in the home, have science focussed conversations and engage with local science events and spaces.

2. Primary Schools

We will work with primary schools which are feeder schools to the secondary schools that we work with. This will allow us to work with the same children over many years through multiple intervention programmes. Inequalities in science identity and science capital form at an early age so it is important to start engaging students early.

3. Secondary Schools

Each partner university will work with at least 3 local secondary schools, selected due to poor Physics progression rates and being located within our target communities. The OPE officers will engage with KS3 students through multiple intervention programmes in school. KS3 is known to be a key stage in terms of drop off of science capital so this work will maintain and grow science capital within this age group.

4. Teachers

SEPnet will offer continuing professional development to teachers through multiple routes, to support and embed inclusive physics teaching practice. It is important to support teachers in this way as they are key influencers on students' science capital and science linked aspirations.

5. Youth Groups

Partner universities may run programmes with local youth organisations to support underrepresented groups of young people within the local area. This will enable these groups to see science as accessible to them, and to see its real world relevance outside the classroom. Examples may include youth clubs and girl guiding groups.

6. Community Spaces

Partners will run events and programmes with local community groups and spaces, targeting families and independent adults. This will improve visibility and accessibility of science in the local area by promoting science as culture, and support the work with all other groups. Examples include working with community centres and attending and running activities on high streets and at community festivals.

7. Public Engagement with Research

Partners will run audience focussed public engagement activities linked to the research taking place at their universities. These projects should be two-way and promote access and equity to research activities and outcomes.

Core Programme 1: Schools' Outreach

Aim: To raise, or at least maintain the [science capital](#) of Key Stage 3 students in the region by communicating the following messages via our programme of activities:

1. *Anyone can do physics.*
2. *Physics is exciting, relevant & important; it goes beyond the classroom.*
3. *Studying physics further broadens career possibilities.*

Schools that are underperforming in GCSE science and A-Level physics **will be prioritised** using the latest publicly available data, alongside any analysis from our external partners such as the Institute of Physics (IOP) and The Ogden Trust (Ogden). Schools that are also supported by external teacher networks, such as local university [access and participation \(previously widening participation\) teams](#), the [IOP teacher networks](#) or [Ogden teacher fellows](#), are preferred in order to ensure students will continue to receive support throughout.

All partners will offer the [Connect Physics](#) workshops as the basis of their schools outreach programme. SEPnet will continue to encourage projects which involve multiple engagements with fewer students across the region, helping build longer term partnerships with teachers and schools.

Partners looking to work on **improving the gender balance** in Physics are encouraged to participate in SEPnet's [Shattering Stereotypes](#) project which has been developed based on the [latest research](#) from the IOP's Improving Gender Balance team.

There are multiple inequities within the educational system and society as a whole and barriers to entry and progression in physics vary by gender, ethnicity, socio-economic status as well as other factors and intersectionality. A focus on promoting and improving diversity is embedded through our school programmes, and we are constantly working to understand how we can adapt our practice to embed equity.

SEPnet's school programmes are designed to be run using multiple interventions, therefore working with the same students over time to maintain and grow science capital. SEPnet strongly supports local partner activities that fit with the aims of this core programme, and dissuades one-off activities that do not form part of a broader longitudinal programme.

Other activities that can be included in this programme include local activities aimed at schools up to Year 11, as long as they include at least two of three messages featured in the Aim. These activities could include:

- Astrodome sessions
- Masterclasses / Discover sessions
- Work Experience
- Any on-campus events involving schools
- Ogden School Physicist of the Year
- Any additional partner-specific activity
-

All activities will be delivered by the SEPnet Outreach Officers and their teams of trained physics ambassadors who will be mostly undergraduate and some postgraduate students. SEPnet Outreach Officers who are funded by the Ogden Trust should ensure that the students they work with within the school are within the required Ogden targets.

Activities which target the following **will not** be considered as part of the Schools' Outreach programme and therefore will not be delivered as part of OPE Officers' accounted SEPnet time:

- KS5 **A-Level Physics** students
- Schools that have their own capacity and resource to bring in other STEM enrichment activities
- Any recruitment activity

Please note that researchers wishing to work with schools on projects based on their research should look at details of the Public Engagement **Research in Schools theme** below. Outreach activities targeting **families outside the classroom** should be considered alongside the Public Engagement **Communities theme**.

Core Programme 2: Teacher Continuing Professional Development

Aim: *To support the work of science teachers in the classroom by providing training to help Physics teaching become more equitable, and to help maintain and raise the science capital amongst their students.*

This programme supports teachers by increasing their understanding of barriers to science progression faced by certain groups, and by equipping them with the knowledge and resources to support all students.

Teachers within schools that align with core programme 1 will be prioritised, as will those teaching Physics with no subject specialism.

The programme is based around three themes:

1. Gender Stereotyping and Unconscious Bias CPD

This is an interactive training session designed for teachers. It can either be delivered in face-to-face workshop format or virtually. Additionally it will form part of a new OpenLearn course being offered through the Open University and Cardiff University.

2. Training teachers to run Connect Physics and Shattering stereotypes with their pupils

SEPnet officers and outreach ambassadors provide training to teachers to deliver our programmes themselves. This training may be delivered directly through a school, or through a partner network supporting teachers e.g. the IOP and the Ogden Trust.

3. Partner specific CPD activities

These are any activities run locally through partner universities to support teachers. Examples include on campus teacher CPD events, and teacher Q&A sessions in engagement events such as evening lectures. These may be stand-alone activities or integrated into the schools' programme or research in schools projects.

Core Programme 3: Public Engagement with Research

Aim: *To cultivate and embed a culture of engaged physics research with the public across all SEPnet partners through training and supporting research groups in SEPnet partners to develop, run and evaluate impactful methods of engaging many different and diverse publics with their research throughout their research cycles.*

This programme uses the National Coordinating Centre for Public Engagement's (NCCPE) [definition](#) of Public Engagement. All projects based on research and / or working outside schools are included in this programme.

All activities in this theme should be targeted to communities which are underrepresented in physics or underserved in science engagement. They should be audience focussed, feature two-way dialogues between researchers and communities, and where possible feature elements of co-design.

The programme will be based around three themes:

1. Local Community.

Aim: To encourage SEPnet partners to engage with communities which are local to their universities

SEPnet will continue to support these events; however, more experienced partners in this theme will be encouraged to engage with local communities under-served in science engagement. Activities featured in this theme help embed a culture of engagement across a physics department.

This will be the only theme where the degree of focus on physics research can be reduced depending on the nature of the project, allowing for local family outreach events to be included within the theme. These projects will be less eligible to be considered in future REF Impact Case Studies but will support the work within the KEF Public and Community Engagement theme.

External Partners & Resources: [Institute of Physics Grant Scheme](#), [STFC / NCCPE Wonder Match](#).

Examples: [Stargazing Live](#), [Dark Matter Day](#), [Pride Festivals](#), [Discovery Planet](#), [Early Years Storytelling](#) and [Music Festivals](#).

2. Research in Schools.

Aim: To help run projects which enable local students in schools to engage with and carry out current physics research.

The SEPnet Schools' Outreach programme contains little scope for research content. This theme will encourage research groups who want to partner with schools to develop projects which are research-based and are delivered in partnership with participating students and teachers. This could involve projects that provide students with the skills to carry out their own research projects alongside researchers or projects directly linked to physics research which impact the participating schools and students. Projects should be led and designed by researchers. OPE professionals within SEPnet partners are available to advise research groups to help plan projects, and help develop methods to evaluate and measure impact

The projects developed for this programme should be led first and foremost by the research and impact will be directly linked to that research. The Research in Schools programme is designed to be eligible to form future REF impact case studies.

External Partners & Resources: [Institute for Research in Schools](#).

Examples: [QMUL Physics Research in School Environments \(PRiSE\) programme](#).

3. **Research-Led – Consultancy**

Aim: To assist research groups within SEPnet partners in developing, running and evaluating impactful research-based projects that engage with different publics.

OPE professionals within SEPnet partners are available to advise research groups to help plan projects, write bids and pathways to impact statements and help develop methods to evaluate and measure impact. The emphasis here is on entire research groups as opposed to individual researchers; this is to ensure that no single researcher ends up bearing all of this workload.

This theme is about developing projects which are led first and foremost by the research and whose impact will be directly linked to that research. These projects will be eligible to be considered for future REF Impact Case Studies.

Partner organisations and target publics will depend on the different projects being developed and therefore also dependant on the research.

External Partners & Resources: [NCCPE](#), [UKRI's Pathways to Impact statements](#), [STFC Public Engagement Grants](#).

Examples: [Tactile Universe](#), [Reflecting Photonics](#).

Additional Comments

Each partner will contribute at least 0.5 FTE staff time towards any of the SEPnet OPE programmes and projects. In most cases this 0.5 FTE will be linked to a single OPE professional based in each of the partners. However, in some cases this 0.5 FTE may be shared amongst more than one person, such as a professional services staff member or a researcher working to embed and facilitate PE processes.

For some partners, the SEPnet staff contribution will be substantially more than 0.5 FTE, especially if they have more than one OPE professional, for example a Public Engagement Manager and an Outreach Officer. Time spent by researchers carrying out Public Engagement projects based on their own research does not count towards this 0.5 FTE as it is part of their role as a researcher.

How this **time is divided** amongst the programmes and projects will be decided before the start of each academic year by the SEPnet Director of OPE, local OPE professional staff and the local SEPnet Collaboration Board member.

SEPnet advises each partner to have a **budget** of at least £10,000 per annum for OPE activity; though it recommends this should be nearer to £15,000. These budgets typically cover the costs of Physics Ambassadors and running Community Projects.

SEPnet recommends that all SEPnet OPE professionals review their **workload** once a term with the Director and local line manager to ensure they are working at 1.0 FTE. It is common for SEPnet OPE staff to be assigned too many projects, raising this to around 1.2 FTE - 1.4 FTE each.

SEPnet also recommends that each partner develop its **own local OPE strategy**. Having a local strategy will:

- Encourage OPE activity towards a partners local long-term aim, which could include a long-term recruitment strategy through a strategic Schools' Outreach programme or suitable Public Engagement projects which are eligible as Impact Case Studies in future rounds of REF.
- Focus the limited available OPE resource (including OPE staff time, researchers time, budget) at SEPnet partners towards encouraged activity.
- Help OPE staff to maintain a 1.0 FTE workload through prioritising projects based on alignment to local long-term aims.

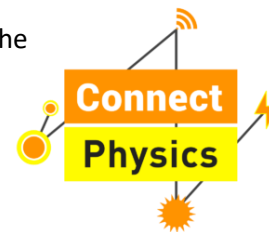
The SEPnet Director of OPE will continue to run termly meetings and training sessions which may be attended by any OPE professional at a SEPnet partner, along with any additional staff assigned to the 0.5FTE SEPnet OPE contribution. The central budget will only cover costs for the members of staff assigned to the SEPnet contribution. Any costs for additional OPE professionals should come from local budgets.

The director is also responsible for coordinating these sessions with the [Ogden Trust](#) to ensure there is minimal duplication in sessions.

Projects

Connect Physics

[Connect Physics](#) is a set of three workshops for Key Stage 3 science students which answer the questions:



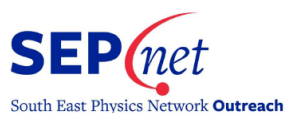
- What is physics?
- Why do physics?
- How do we do physics?

The workshops are suitable for students of all science abilities. The workshops encourage students to think of the bigger picture through connecting different ideas, such as topics from KS3 science, the latest physics research or their everyday lives. They are able to find out about careers that are available after studying physics and they are given a chance to develop their skills using the scientific method and the peer-review process by tackling an open-ended problem with no given solution. Details of each of the workshops can be found in our [Teacher's Guide](#).

The evaluation of the pilot project and development of the workshops can be found [here](#).

Shattering Stereotypes

[Shattering Stereotypes](#) is a set of three workshops for Year 8 students which aim to raise awareness of what gender stereotypes are, in particular:



Shattering Stereotypes

- Gender Stereotypes in the context of a student's everyday life.
- Gender Stereotypes and a student's possible career path.

The project also aims to empower students so they can identify and challenge situations in which they are presented with these stereotypes.

The evaluation of the pilot project can be found [here](#).

SEPnet Public Engagement Awards

The biennial Awards aim to showcase and reward the best of Public Engagement from across the SEPnet partners. The awards are divided into three categories showcasing the best in Individuals, Projects and Research Groups. Details can be found below:

- [SEPnet Public Engagement Awards webpage](#)
- [2017 Award Winners](#)
- [2017 Call for Nominations](#)
- [2015 Award Winners](#)

Interact Symposium - SEPnet / IOP / STFC

The aim of this biennial symposium is to cultivate a community of engagement practitioners within the physical sciences who develop high-quality STEM engagement and encourage a culture of strategic and reflective practice.

Over half of the 30 parallel sessions on offer at Interact 2017 were delivered by physicists from a SEPnet partners, or had some SEPnet involvement in their project.



[The evaluation report](#) and follow up report from Interact 2017 showcase the findings of physicists who attended the symposium.

Early Year's Storytelling (IOP Partnership)

This programme reaches young children and their parents/ guardians through libraries and community venues. It is a partnership with the IOP and uses stories and accompanying resources developed by IOP Scotland. The aim of this programme is to raise the science confidence of parents and carers in the local community, and encourage them to do science based activities and have science themed conversations with their children at home. We are targeting communities served by the primary and secondary schools we are working with, to support the science capital ecosystem.

We have a partnership with Surrey Libraries and have trained their staff to deliver the storytelling sessions and linked activities. They have 52 libraries across the county.