

The Ogden Schools Science Partnerships
Academic Year 2015/16
Greater Manchester and The West Midlands



making physics matter

Report for Co-ordinators, Teachers, Head Teachers
and Regional Representatives

Dear Ogden Co-ordinators, Teachers, Head Teachers and Regional Representatives,

Welcome to The Ogden Trust's second report to you, our partnerships.

It is very heartening for us to see how partnerships, schools, teachers and, last but not least, the students experience the benefits of the Ogden Partnership Programme. Sometimes, this is on an individual level when a student participates in a summer school or a teacher has the opportunity to attend a conference. More often though, groups of students and teachers profit from an Ogden event. For example, teachers drew on their collective expertise and set up their own CPD to prepare for changes in the curriculum. This way, hundreds of students are going to experience better teaching.

Your, the teachers' enthusiasm, which is demonstrated by the number of hours of extra work they invest, is the basis for the unbroken popularity of The Ogden Trust's Partnership Programme as evidenced by the fact that every month, we receive enquiries from teachers, headteachers and governors how they and their schools could join a partnership. We are very grateful to you to make it all happen.

We know that the co-ordinators in particular, invest a lot of time and effort in putting together their annual reports on partnership activities and we appreciate the wealth of information we get from them. We are always amazed to learn what you have done and how things came about. And we continue being surprised that there are still new and exciting formats addressing particular aspects and challenges in physics teaching. This year we would like to make more partnerships especially aware of outdoor physics and medical physics by showcasing them in our upcoming Rugby meeting.

We are looking very much forward to meeting the co-ordinators in June. As always, please let us have any comments and suggestions on the programme in general, and this report in particular.

Best,

Anke Friedrich

Cambridge, 27.04.2017

Section 1 Events and Activities - Students

Two of the aims of The Ogden Trust Partnership programme are

- to increase the number of students taking physics at GCSE, A level and at University, and
- to raise aspirations and enhance opportunities in physics, especially amongst disadvantaged students.

In order to address the first aim, it is **important to create a programme across all age groups** so that students are not turned off physics early on in their school careers and to ensure there is always a group of students arriving at the next transition point who have had the benefit of physics enrichment.

As over the last year, the Ogden Trust Primary Programme was established in its own rights, more independent primary partnerships were newly created or taken out of existing secondary partnerships. We therefore stopped encouraging every secondary partnership to offer events and CPD specifically aimed at primaries. Nevertheless, the partnerships in the Midlands – from where the primary work originated and where it is deepest seated - and some in Greater Manchester continued their established and tested activities (Fig 1).

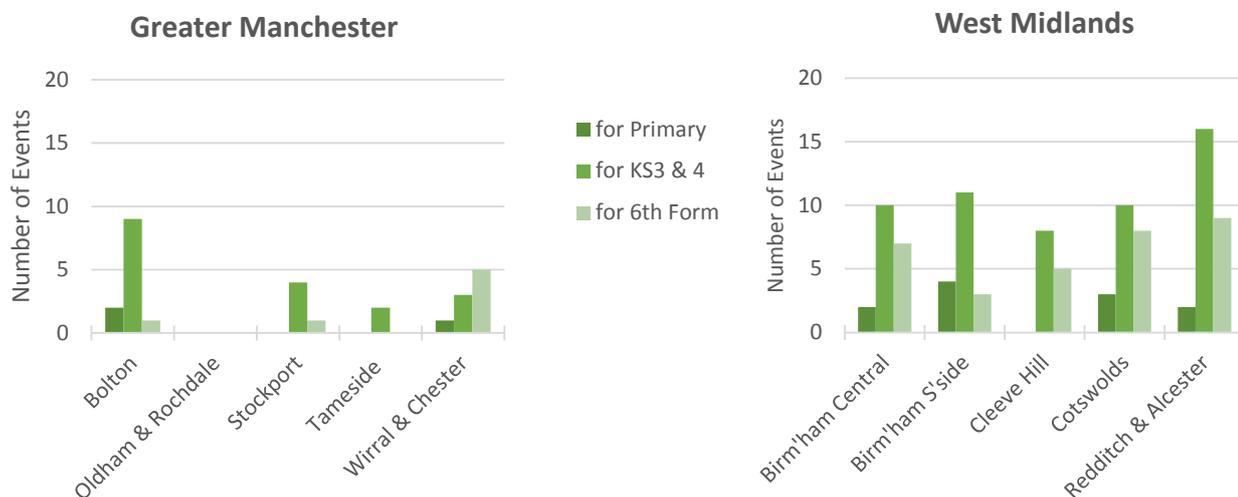


Figure 1 Number of Events for Students

Based on partnership reports for 2015/16

In 2015/16, Oldham & Rochdale had a very limited programme which focussed on teachers.

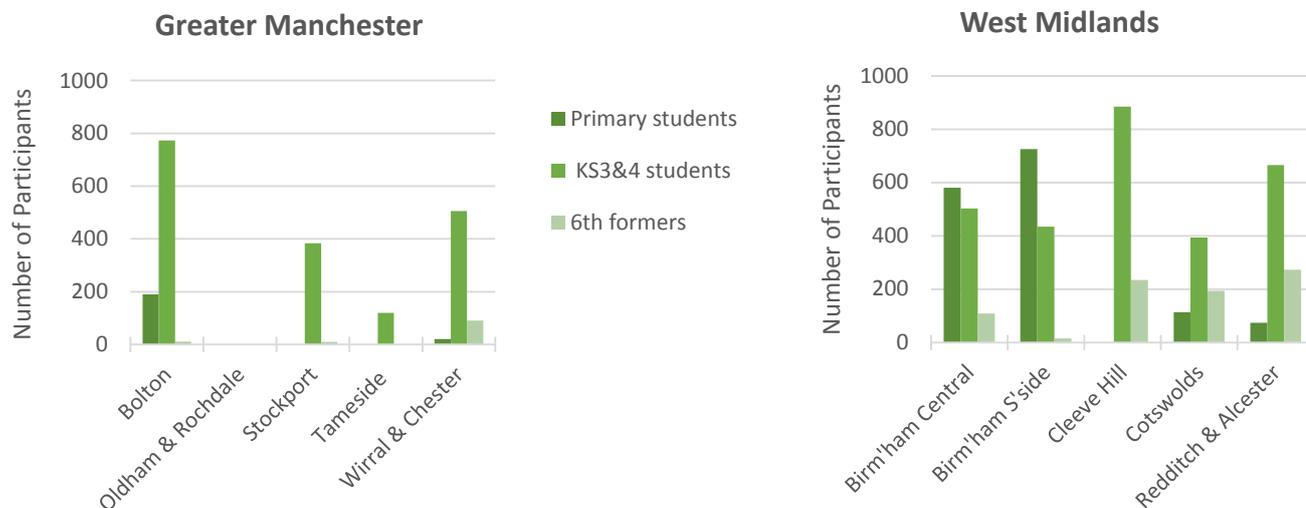


Figure 2 Number of Students Participating

Based on partnership reports for 2015/16

In Stockport, 10 Sixth Formers participated.

Most partnerships reached a few hundred students with their events, and one even more than a thousand (Fig 2). The previous year's trend remains, in that activities for KS3&4 generally are put on for higher students numbers than those aimed at 6th formers.

Reaching a huge number of students is a good start. However, **to maximise impact, The Ogden Trust would like partnerships to think carefully about for what purpose they run each activity** (Fig 3). To encourage this way of thinking, in the reports we ask for the purpose of events and ask some questions about the events' objectives. **This year we will insist on short but meaningful information on Achievements and Repeat Value** (Part III, column J). We will require similar information in next year's bids.

In order to encourage students to apply for a degree course, The Ogden Trust is of the opinion that it is important to take them to Universities. This is particularly important for disadvantaged students, many of whom will not have a close family member with the experience. "Celebration of work/awards" can be seen as a subcategory of "University engagement", as the majority of these celebrations were SPotY events led by The Trust's Science Officers.

To boost the number of schools taking pupils to Universities, in 2016/17 for the first time, we made sure that all partnership schools are invited for a SPotY prize giving by their nearest Ogden Science Officer.

The Trust would like partnerships to take as many students across all age groups to Universities as possible.

Almost all activities that co-ordinators classed as going 'beyond curriculum' were for gifted & talented students (9 out of 13) in KS4 and 6th formers, most of which were masterclasses (5). Also, the first Isaac Physics event in the North came under this heading.

In contrast, activities for the enrichment of the subject and curriculum delivery were more widespread, addressing all key stages and included competitions, trips, lectures, shows etc. The most popular formats were:

- Trips (11)
- Challenges and Competitions (6)
- Ambassador schemes and science clubs (6)
- Lectures (6)

A few co-ordinators classed some events as going 'beyond curriculum' (Fig 3). These were one masterclass, one competition as well as an event on medical physics.

Of the five activities categorised as 'careers', only two were physics/astronomy related while two more were rather on engineering and another one on science in general. Using the partnerships for the **promotion of engineering is not encouraged by The Ogden Trust.**

A particularly attractive alternative is **medical physics**, where schools increasingly are supported by professional organisations through resources and presenters. Therefore, in acknowledgement of the difficulty of promoting Physics as a career, at the forthcoming annual partnership meeting in Rugby, The Ogden Trust will showcase a partnership that did a Medical Physics event.

For the coming academic year, The Trust welcomes the development and dissemination of more innovative formats for promoting careers in physics.

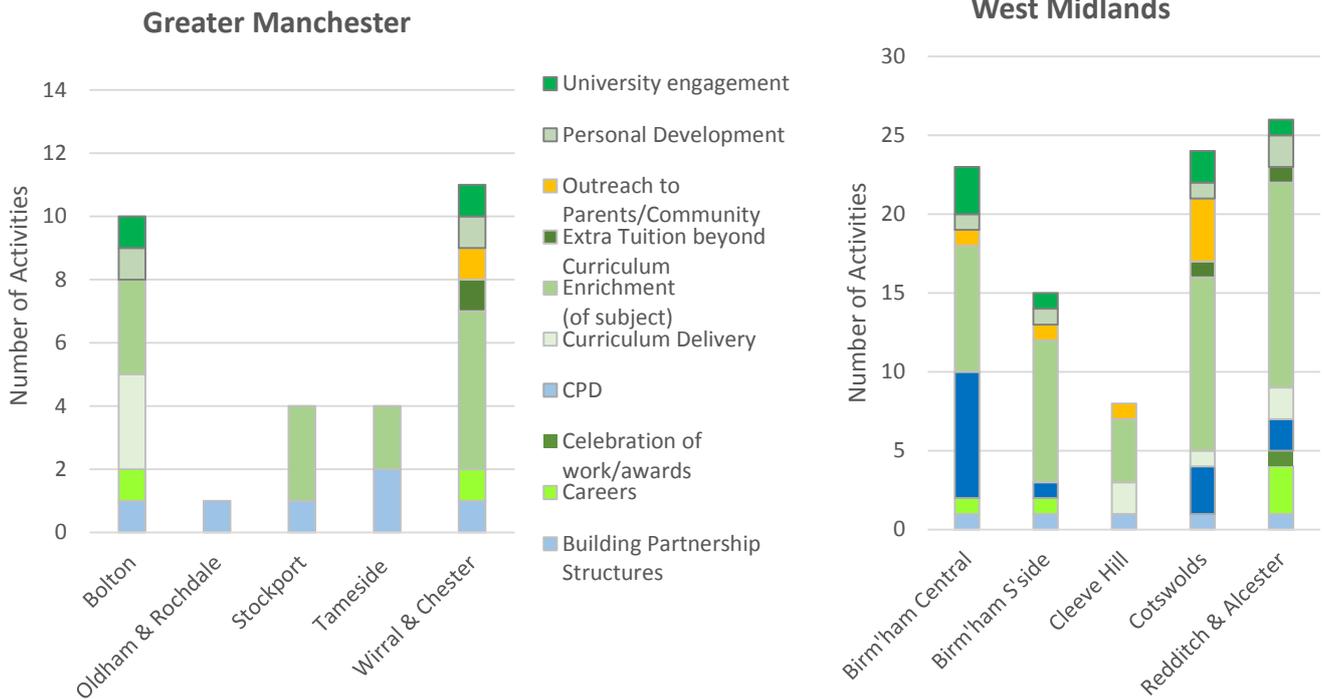


Figure 3 Purpose of Activities

Based on partnership reports for 2015/16

Activities aimed at students in green, for teachers in blue.

Co-ordinators had to make one choice from a menu for each of the events they reported on.

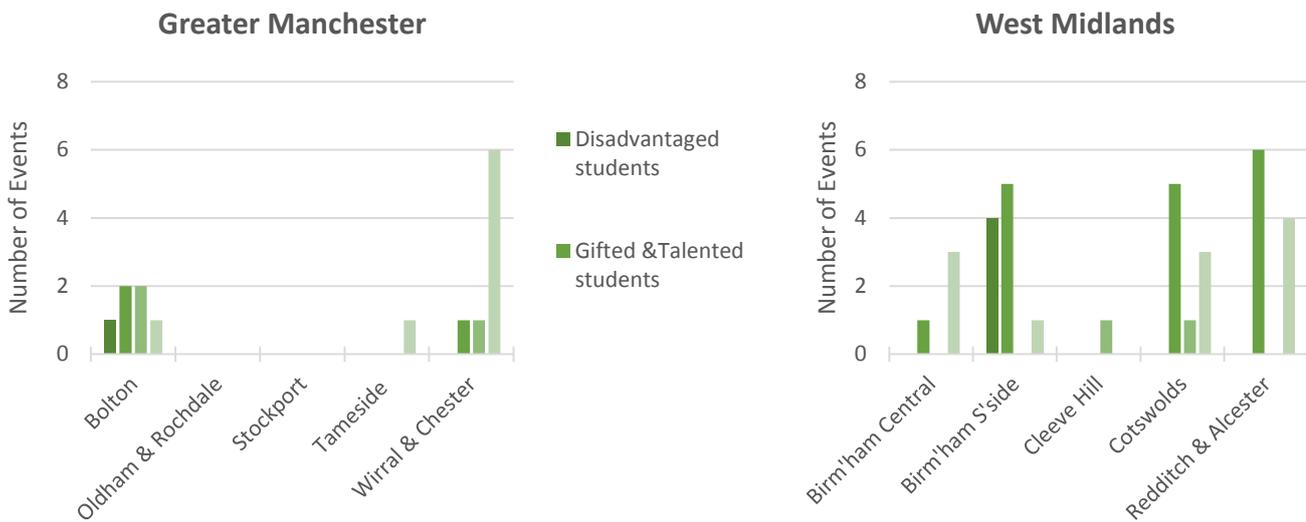


Figure 4 Events for Selected Students

Based on partnership reports for 2015/16

Multiple choices are possible, for example 'to encourage GCSE/A-level choice' and 'girls'.

As another way for The Trust to trace how partnerships are meeting the aims of our programme, co-ordinators also could flag up that participating students were selected by certain criteria for specific events (Fig 4). **By 'selection' we mean a conscious effort to positively discriminate for certain groups of students**, for example by individually asking or encouraging students to participate in particular events or by helping with the costs of trips. We do not mean putting on events for particular groups, though sometimes this might be feasible.

The choices 'Gifted & Talented Students', 'Girls' and 'To encourage GCSE/A level choice' go with the partnerships programme's first aim of increasing the number of students taking physics, and 'Disadvantaged students' corresponds to the second aim of 'raising aspirations and enhancing opportunities in physics, especially amongst disadvantaged students'.

It is interesting to see that offers for gifted and talented students by far outweigh those for disadvantaged students. In fact, only two partnerships made any positive discrimination for disadvantaged students at all.

Admittedly, in a partnership with high deprivation levels (Appendix 2, Fig 8), it might be that by addressing gifted and talented students, a high percentage of disadvantaged students will automatically benefit. On the other hand, there is a chance that through a process of self-selection, students from affluent families will benefit in the first place, as they tend to have more science-capital.

The Ogden Trust very much would like to encourage the partnerships to do more work with a particular focus on disadvantaged students.

The Office will raise this point when discussing funding bids with partnerships, and ask the Regional Representatives to address it when they are attending planning meetings.

At the annual meeting, you will be able to listen to a talk on Physics in Sport, an event which might be particularly suited for re-engagement of students.

Section 3 Events and Activities - Staff

Events for teachers comprised partnership meetings, CPD and a few other activities.

It is good to see that all partnerships are now meeting at least two or three times a year. Frequently, teachers tell The Ogden Trust that they consider the face-to-face meetings with colleagues the most valuable and inspiring part of the programme.

About half of the CPD offered for secondary teachers were developed in-house and delivered by other partnership teachers, mostly co-ordinators. ***In-house organised CPD is an area that The Ogden Trust would like to see growing***, as it is a highly sustainable activity with the potential for many students to benefit, and the capacity to increase teachers’ job satisfaction.

The other activities in which teachers participated were mainly meetings to do with CERN trips and project planning, which the co-ordinators felt that teachers present benefitted from as well.

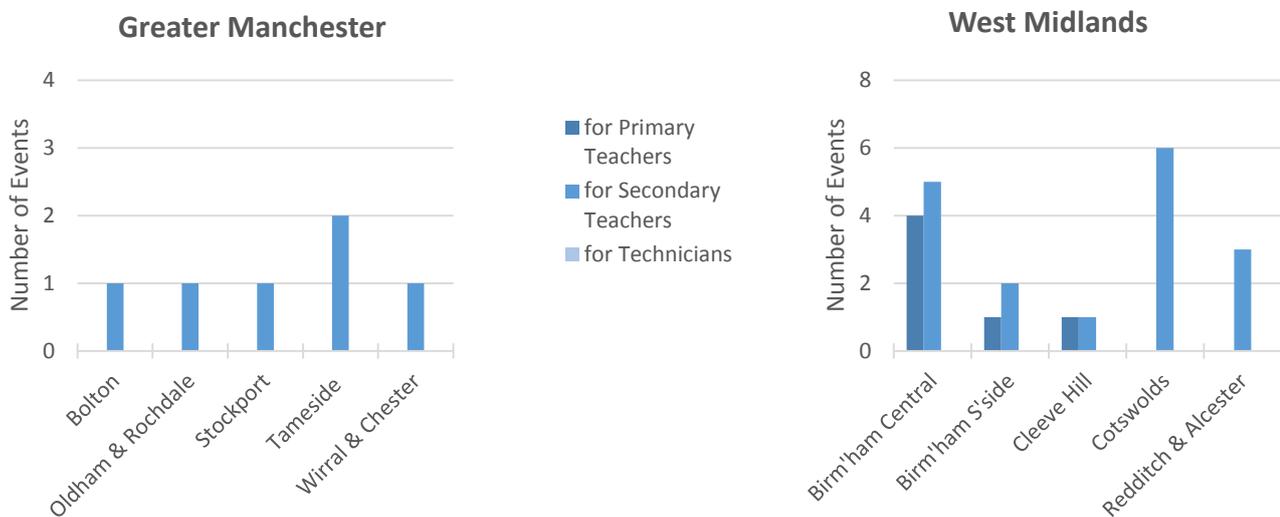


Figure 9 Number of Events for Staff

Based on partnership reports for 2015/16

Events include partnership meetings and CPD. Partnership meetings are counted as one event for each partnership, regardless of how many meetings actually took place.

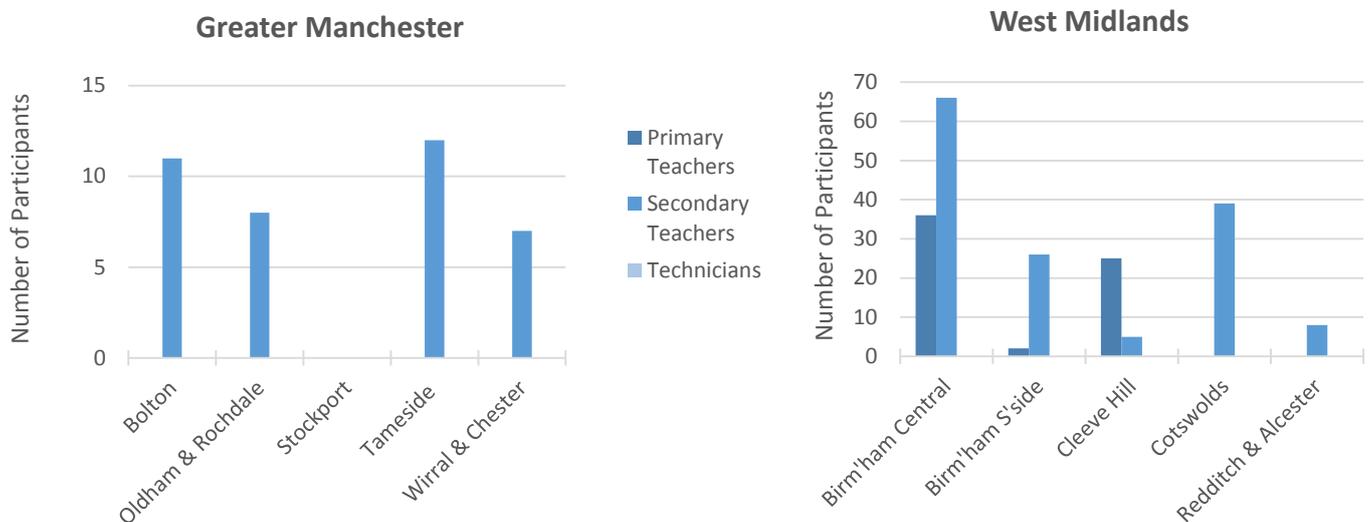


Figure 10 Number of Staff Participating

Based on partnership reports for 2015/16

Appendix 1 Challenges in the Work with Partnerships and Possible Solutions

This section is a repeat of last year's reports and based on information provided by co-ordinators then. As we think it is still relevant and useful, in particular to new co-ordinators and partnerships, we kept it in.

Partnership schools do not participate in planned events

This has been the most common problem encountered by more than 14 partnerships. Below are the reasons the co-ordinators gave.

Challenge	Solution
<ul style="list-style-type: none"> • Students not allowed out because of timetable/school calendar (in 14 reports) • school calendars are mutually exclusive • an issue only with state but not with independent schools 	<ul style="list-style-type: none"> • Enough notice of events/early planning to get them into schools' calendars • For KS4 and 5 move events to after school/the evening • only keep activities for KS3 and primary during school hours
<ul style="list-style-type: none"> • Staff are not let out/cover not paid for by school (in 5 reports) 	<ul style="list-style-type: none"> • Strategy meeting with Senior Leaders from all schools bought in support for partnership programme, especially KS4. Ask your Regional Representative to invite and chair • Repetition of events that have proven successful • Rotate between partnership schools hosting events
<ul style="list-style-type: none"> • Distances to school hosting the event (4x) • cost for transport (3x) 	<ul style="list-style-type: none"> • Budget for transport in partnership bid • Also see last point under 1.
<ul style="list-style-type: none"> • Joint trips between schools not possible due to timing and involved paperwork (2x) 	<ul style="list-style-type: none"> • Do other events
<ul style="list-style-type: none"> • Audience unexpectedly small (fewer NQTs/non-specialists than expected) 	<ul style="list-style-type: none"> • Cancel event or open to more schools • Anke can help with advertising
<ul style="list-style-type: none"> • Event not suitable for schools due to different curricula needs 	<ul style="list-style-type: none"> • Make partnership programme as relevant as possible
<ul style="list-style-type: none"> • Partnerships pull out from events at short notice 	<ul style="list-style-type: none"> • Charge for no-shows • Closer communication between co-ordinator (in this case a Teacher Fellow) and schools solved the issue

Partnership contacts

Another area of recurring problems for co-ordinators were teachers at the other partnership schools.

Challenge	Solution
<ul style="list-style-type: none"> • Loss of partnership contacts, no handover of Ogden role (8x) 	<ul style="list-style-type: none"> • The co-ordinator sent letters to partnership schools and invited new teachers; these can also be written and sent by the Regional Representatives with official Ogden header • The co-ordinator visited all schools (i.e. teachers and senior management) and introduced the scheme and local bid. This can also be done by the Regional Representative • Teachers moving schools bring their new school into partnership and the old school is dropped • Drop unresponsive schools; possibly take in new, keen schools
<ul style="list-style-type: none"> • No response to communications from partnership schools/contacts (6x) 	<ul style="list-style-type: none"> • As above
<ul style="list-style-type: none"> • Lack of participation in partnership meetings (5x) 	<ul style="list-style-type: none"> • Rotate the meeting place between partnership schools • Move meetings before/after partnership events • Combine meetings with mini CPD/bring and share activities • Involve Regional Representative as broker • Drop unresponsive schools; possibly take in new, keen schools
<ul style="list-style-type: none"> • Partnership contacts not taking up their share of organisation of events (5x) 	<ul style="list-style-type: none"> • Rotate events between partnership schools • Involve Regional Representative as broker • Drop schools of non-participating teachers

Reporting to The Ogden Trust, Evaluation of Events, Miscellaneous

A few co-ordinators gave feedback on our reporting requirements, the template and on problems with evaluation of partnership events.

Challenge	Solution
Report too tedious	
<ul style="list-style-type: none"> Dislike of /problems with Excel 	<ul style="list-style-type: none"> Fill in the report soon after each event Share the work between partnership teachers, i.e. everybody fills in the events that they organised
<ul style="list-style-type: none"> No idea how to evaluate events, how to measure effectiveness of activities in raising aspirations and standards in Physics 	<ul style="list-style-type: none"> We use excel in order to be able to pull data from all partnerships together for reports such as this one; we also use this general data ourselves for directing individual partnerships as well as the programme and reports to our trustees. To help co-ordinators with the use of Excel, we put some useful hints into the report that should make it easier.
<ul style="list-style-type: none"> No student feedback 	<ul style="list-style-type: none"> Become clear about which events to evaluate for themselves, us or not at all; some events may require both immediate and later evaluation Regional Representative can assist More information here http://www.ogdentrust.com/schools-partnerships/resources1/evaluation
<ul style="list-style-type: none"> Relevant partnership contact does not provide information. 	<ul style="list-style-type: none"> The Trust will understand.
Other: And finally some miscellaneous.	
<ul style="list-style-type: none"> The local university did not deliver a promised event 	<ul style="list-style-type: none"> This can happen and is out of the partnerships' control; however, Ogden Science Officers at the universities have a remit of working with partnerships and teachers should feel free to suggest events that would be useful for their partnerships
<ul style="list-style-type: none"> Sharing of common equipment is not feasible 	<ul style="list-style-type: none"> Only a few partnerships have been successful in sharing equipment and it is not obvious why it works in some places but not in others. The Ogden Trust now does not encourage bids for shared – or any – equipment any more.
<ul style="list-style-type: none"> Events had to be cancelled because of OFSTED inspections 	<ul style="list-style-type: none"> This is outside teachers' control, the office will understand this – although an engaging Ogden event may be regarded in very positive OFSTED

	terms!
<ul style="list-style-type: none">• Partners are keen but reliance on goodwill is a risk factor	<ul style="list-style-type: none">• The Ogden Trust is very aware of this and we know and value each teacher's personal engagement; this is the glue that keeps the partnerships together and makes them work. In order to support partnerships as well as possible, The Trust created Teacher Fellowships and the support network of Regional Representatives, Consultants and Science Officers.

Appendix 2 Profile of Partnerships and Partnership Schools

The Ogden Trust is very interested in the composition of partnerships. While high-achieving schools often can contribute capacity and expertise, the programme can potentially achieve the most impact in schools with few or none subject specialists and high numbers of students with low science capital.

This year, The Ogden Trust did not ask co-ordinators to collect information on teaching staff in partnership schools. In the previous year, we gathered data on the total number of staff teaching physics, the number of physics specialists as well as the qualifications that the other teachers held. This exercise will be repeated on a two or three year basis.

Some of the partnerships include selective state schools or independent schools (Fig 7). Often these are schools where teachers have the capacity to take on extra responsibilities and thus contribute to partnerships’ stability and ability to run events.

We found huge variations in schools’ ratio of disadvantaged students within partnerships (Fig 8). While some partnerships have no or few schools with high deprivation levels, others are almost entirely composed of schools with above average percentage of children on free school meals.

The average percentage of students on Free School Meals over the last six years in state-funded secondary schools in 2016 was 29.3% ¹. For reporting purposes, we created the following categories: 10% or fewer children on free school meals (well below average), 11-20% (below average), 21-35% (average) and more than 36% (above average).

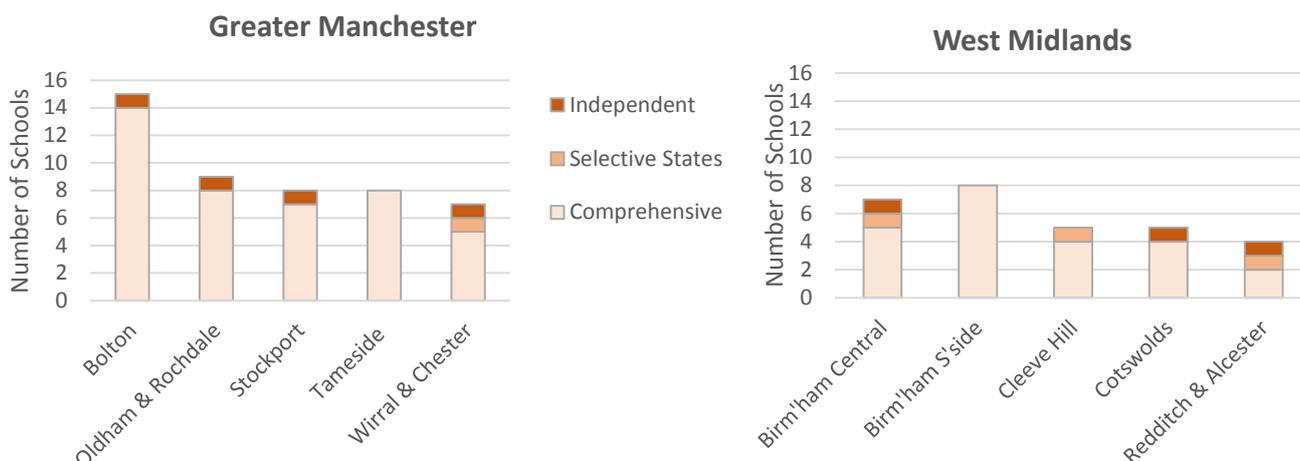


Figure 7 Different Types of Secondary Schools within Partnerships

Based on partnership reports for 2015/16

¹ <https://www.compare-school-performance.service.gov.uk/>

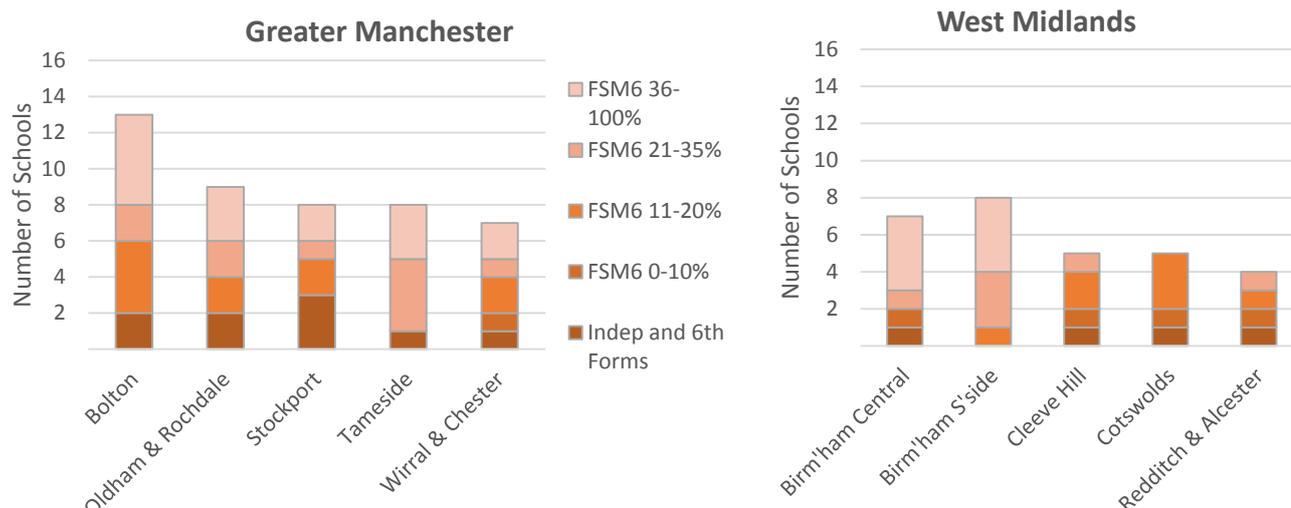


Figure 8 Data for Free School Meals Over the last 6 Years

Data for 2016 taken from the School and College Performance Tables.

Free School Meal data is not provided for independent schools and Sixth Forms.

FSM6 stands for average percentage of students on free school meals over the last 6 years

For additional support, The Ogden Trust gives paid Teacher Fellowships with a view of opening teachers' time for delivery of events and administration of the partnership (Tab 1). Normally these fellowships are offered to the co-ordinators in their second year.

There are a number of reasons though why sometimes teacher fellowships cannot be granted. Where the co-ordinator is the only subject specialist, the school won't release them; also it happens that the co-ordinator is assistant head, or co-ordinatorship changed. In one case, a teacher in a different Ogden role supported the partnership.

Greater Manchester	Bolton	Oldham & Rochdale	Stockport	Tameside	Wirral & Chester	Tamar
Age of PS	9	3	1	4	7	2
Teacher Fellowships	1	1	0	0	1	0
Hub School	11-18	11-18	11-18	11-16	11-18	11-18

West Midlands	Birmingham Central	Birmingham Southside	Cleeve Hill	Cotswolds	Redditch & Alcester
Age of PS	4	3	3	3	5
Teacher Fellowships	1	0	0	1	1
Hub School	11-18	11-18	11-18	11-18	11-18

Table 1 General Information on Partnerships

The number of Teacher Fellowships is based on the partnerships' reports for 2015/16.