

Monitoring practical science in schools and colleges

**Appendix 4: School Staff Survey** 

**Durham University** 

**Prepared for the Gatsby Charitable Foundation and the Wellcome Trust** 

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**Publication date: January 2019** 

Version 1.0



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## 2 School staff survey for heads of science, science teachers and science technicians - Year 1

In year 1 of the study, the school staff survey was a single survey for heads of science, science teachers and science technicians, with branching points taking each role to their relevant questions.

	About your School or College						
	About your serious of conege						
*1. Scho	ol/College name (*Required)						
*2. Wha	t is your school/college's postcode? (*Required)						
*3. In wh	nich nation is your school/college? (*Required)						
Select on	ne.						
0	England						
0	Northern Ireland						
0	Wales						
0	Scotland						
	Please indicate your school or college characteristics						
4. Age Ra	ange						
Select or	ne.						
0	5 -19 Primary and Secondary						
0	11 - 16 Secondary						
0	11 - 19 Secondary						
0	16 - 19 Secondary						
0	FE College						
0	Other						
5 Eundir	ng.						
5. Funding Select one.							
0	Local authority/state funded						
	Academy/Free School						
0	Independent						
0	Other						



6. Gender/Selectivity									
Select one.	Select one.								
0	Boys non-s	elective							
O Girls non-selective									
O Mixed non-selective									
O Boys selective									
0	Girls select	ive							
0	Mixed sele	ctive							
. •									
*7. Are you	a science te	chnician? (*Required)							
Select one.									
O Yes	S	(Go to question number 91.)							
O No		(Go to question number 8.)							
		Current Students							
8. How mar	ıy students a	attend your school/college?							
9. For school	ols/sixth-forn	n colleges only:							
			Number						
		How many 15-16 year olds attend the school?							
How ma	any 15-16 ye	ear-olds take examinations in three separate science subjects (physics, chemistry and biology)							
How many post-16 students attend the school/college?									
	Hov	w many post-16 students study one or more sciences?							
	olleges ONL\	Y: How many students study one or more sciences at A/AS-level, Higher/A ivalent?	dvanced						
	·								



	11. Does your school/college offer a regular extra-curricular STEM (Science, Technology, Engineering,								
		that includes practical work in science?							
Select o	O Weekly or fortnightly								
-	O Monthly								
	1	or few times a year							
		ve a club							
	Dontna	ve a club							
*12. Are	e you Head	of a Science Department? (*Required)							
Select o	ne.								
0	Yes	(Go to question number 13.)							
0	No	(Go to question number 29.)							
		Departmental Structure							
13. Doe	s the schoo	l/college have separate departments for Physics, Chemistry and Biology?							
Select o	ne.								
0	Yes	(Go to question number 14.)							
0	No	(Go to question number 15.)							
14. Plea	se indicate	your department							
Select o	ne.								
	0	Physics							
	0	Chemistry							
	0	Biology							
15. Plea	se indicate	the number of students studying PHYSICS							
		Nu	ımber						
	Number of 11 – 14 year-olds								
	Number of students doing GCSEs/Nationals or equivalent in the subject								
Ni	umber of s	udents doing AS/A/Higher/Advanced Higher or equivalent in the subject							



16. Please indicate the number of students studying CHEMISTRY						
		Number				
Number of 11 – 14 year-	olds					
Number of students doing GCSEs/Nationals or equivalent in the subject						
Number of students doing AS/A/Higher/Advanced Higher or equivalent in the subject						
17. Please indicate the number of students studying BIOLO	)GY					
		Number				
Number of 11 – 14 year-	olds					
Number of students doing GCSEs/Nationals or equivalent in the subject						
Number of students doing AS/A/Higher/Advanced Hi	Number of students doing AS/A/Higher/Advanced Higher or equivalent in the subject					
Staffing						
18. How many science teachers (full-time equivalent, FTE)	teach in the school/college?					
19. How many teachers (FTE) teach each of these subjects	?					
	Number					
Physics						
Chemistry						
Biology						



20. How many technicians (FTE) in total support science in your school/college?						
21. How many technicians (FTE) s	upport each of these subj	ects?				
		Number				
Physics						
Physics						
Chemistr	V					
Biology						
		-				
22. Are any technician positions c	urrently unfilled?					
Select one.						
0	Yes					
0	No					
	Department B	udget				
22 141 1 1						
school/college?	laget (excluding staff salar	ies) allocated to science from your				
			£			
Rudget for the	Science Department/ALL	specialist departments				
Budget for the	socience Department/ALL	specialist departments				
If applicable, budg	get for YOUR SPECIALIST S	UBJECT/DEPARTMENT only				
/	,					
24 What was I AST YEAR'S annual	hudget (excluding staff s	alaries) allocated to science from your				
school/college?	i baaget (exclaamig stair s	and rest anotated to science from your				
			£			
Pudget for the	Science Department/ ALL	cnocialist donartments				
Budget for the	Science Department/ ALI	. specialist departifieffts				
If applicable, budg	get for YOUR SPECIALIST S	UBJECT/DEPARTMENT only				
appca.c.) bade	,	- · · · · · · · · · · · · · · · · · · ·				



25. Please state the proportions of your department budget allocated to these areas of expenditure (Note: Percentages do not need to add up to 100%)							
				Proportion allocated total	(%) of		
	Consumables a	nd equipment for	practical work				
Photocopying/reprographics - for hard copy worksheets, examinations etc.							
ICT - software, hardware, data logging							
	Science-spec	cific professional de	evelopment				
			Laboratories				
26. How man	y laboratories a	re available in you	r school/college?				
			Nur	nber of laboratories			
	Physics la	aboratories					
	Chemistry	laboratories					
	Biology la	aboratories					
	General scien	ce laboratories					
27. To what extent are science lessons taught in their appropriate laboratories, i.e. physics lessons in laboratories with physics equipment etc? PLEASE NOTE: Post 16 category - In FE Colleges this applies to AS/A2/Highers/Advanced Highers or academic equivalent ONLY							
Select one pe		Most lessens	About half of the losses	A fau lassans	None		
11 – 14s	All lessons	Most lessons	About half of the lessons	A few lessons	None O		
11 – 14s 14 – 16s	0	0	0	0	0		
Post 16	0	0	0	0	0		



28. How satisfied are you with the following factors in your department for delivering high quality practical work?							
Select	one per row.						
			Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
The	department has suffi laboratory facilities	cient	0	0	0	0	0
	department has suffi ipment and consuma		0	0	0	0	0
The	department has suffi technical support	cient	0	0	0	0	0
The department has a sufficient budget							0
The	teachers have suffic competency	0	0 0			0	
	Teachers are offered sufficient professional O O development				0	0	0
		Pr	actical Wor	k Teaching	g this current year		
Praction	cal work is defined in	this st	udy as:				
	d them, through dire			_	e and develop an und enomena or manipul	_	
	ve you received any at academic year?	profes	sional develo	pment rela	ted to teaching scien	ce practical wo	rk in the
	Select one.						
0							
0	O No (Go to question number 31.)						
30. Ple	ease indicate the nun	nber o	f days				

The next questions relate to teaching specific age groups (11 - 14, 14 - 16, Post-16). Please answer questions for each age group you teach.



	31. Are you teaching A/AS/Advanced Highers/Highers to Post-16 students in schools or colleges in the current academic year?								
Select	Select one.								
0	Ye	25	(Go to question number 32.)						
0	No	0	(Go to question number 47.)						
Plea	ase ii		science subject and Post-16 qualification you are teaching this year and answer all stions about teaching with this subject and qualification in mind.						
22 (11	ם ורכ								
32. SU									
Select									
0		Physics							
0		Chemistry							
0		Biology							
0	'	Other (Pleas	se specify):						
33. QL	JALIF	ICATION							
Select									
0		A-level							
	O Advanced Highers								
0		AS-level	9.000						
0		Highers							
0	,	Other (Pleas	se specify):						
			- Copesing Pi						
34. Ple	ase	specify the A	warding Organisation whose specification you are following for this qualification:						
Select	one.								
0	1	AQA							
0	ı	Edexcel							
0		OCR							
0		CIE							
0		IB							
0		CCEA							
0		ICAAE							
0		WJEC							
0		SQA							
0		Other (Pleas	se specify):						
1		1							



35. How much timetabled time (in hours) is allocated to the selected Post-16 subject and qualification each week?								
		ŀ	Hours					
-	36. Of the allocated hours, please estimate how many hours are used on the following activities in an average week in the current year. (Please use decimals if necessary, e.g. 3.5)							
			Number of hours each week					
Practical work carried out by students								
Teacher-led demonstrations to the whole class								
Computer simulation	Computer simulations and/or online experiments							
37. For your selected subject a of these activities in an acaden		n, approximately h	ow many days are allocated to each					
			Days in a year					
Outd	oor practical work/field	dwork						
Off-site visits to	science related industi	ry, museums etc.						
38. Has the number of days for	these activities chang	ed since the last ac	ademic year?					
Select one per row.								
	Increased	Decreased	Stayed about the same					
Outdoor practical work	0	0	0					
Off-site visits	0	0	0					
39. For your selected subject and Post-16 qualification, approximately how many practical science activities will a student carry out during the current year?								
40. Has the number of practical work activities/experiments altered since last year?								
Select one.								
O Increased O Decreased								
O Decreased O Stayed the same	<u> </u>							



41. For your selected subject and Post-16 qualification, how much lesson time (in hours) is allocated to preparing for and carrying out practical work assessment required by the Awarding Organisation in the current academic year?									
	Hours								
42. Please indicate how often the students in the selected subject and Post-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments									
Select one per row.									
Always Most of the time Seldom Never									
Students work as individu	ıals	0	0	(	)	0	)	0	
Students work in pairs		0	0		)	0	)	0	
Students work in groups (3 or mo per set of equipment)		0	0	(	)	0	)	0	
43. Please indicate how frequently following in their practical work act Select one per row.			d subject and P	ost-16 q	ualificati	ion do	the		
Select one per row.	All activities	Most activiti			A fe			No tivities	
Follow prepared instructions	O	O	es the acti		O		uci	O	
Discuss purpose of activity/experiment	0	0	0	)	0			0	
Design their own method	0	0	0	)	0			0	
Propose a hypothesis	0	0	О	0				0	
Evaluate uncertainty of data	0	0	О	)	0			0	
Analyse conceptual ideas in the activity/experiment	0	0	0	•	0			0	
Draw conclusions from data	0	0	С	)	0			0	
Write a report about the activity/experiment	0	0	0	)	0			0	
Evaluate methods of activity/experiment	0	0	C	)	0			0	
Evaluate other students' experiments	0	0	C	)	0			0	



44. For the selected subject and Post-16 qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons

Select one per row.

	High Impact - 5	4	3	2	No impact - 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

45. For your selected subject and Post-16 qualification, please compare and rate the importance of these aims in your practical work teaching

Select one per row.

	High importance - 5	4	3	2	No importance - 1
To develop practical skills for laboratory work	0	0	0	0	0
To learn the principles of scientific inquiry	0	0	0	0	0
To develop team-working and problem-solving skills	0	0	0	0	0
To motivate and engage students	0	0	0	0	0
To prepare students for future science-related jobs	0	0	0	0	0
To develop conceptual understanding	0	0	0	0	0
To develop students' creativity and critical thinking	0	0	0	0	0



Following Using Writ  47. Are you current acases	ing independently in a laboratory ing a set of instructions g science equipment ting science reports u teaching GCSE/ Nation	Very well prepared  O  O  O	Well prepared  O O O	Marginally prepared  O	Unprepared  O			
Following Using Writ  47. Are you current acases	laboratory ing a set of instructions g science equipment ting science reports u teaching GCSE/ Nation	prepared O O O O	prepared O O	prepared  O	0			
Following Using Writ  47. Are you current acases	laboratory ing a set of instructions g science equipment ting science reports u teaching GCSE/ Nation	0 0	0	0				
Using Writ  47. Are you current aca Select one.	g science equipment ting science reports u teaching GCSE/ Nation	0	0		0			
47. Are you current aca	ting science reports u teaching GCSE/ Nation	0		0				
47. Are you current aca	u teaching GCSE/ Nation		0	O	0			
Select one.	_	al science to 14 – 16		0	0			
		al science to 14 – 10	year old students	in schools or colleg	ges in the			
O Ye	es (Go to qu	estion number 48.)						
O No	o (Go to qu	estion number 65.)						
48. SUBJEC								
0	Chemistry							
0	Biology							
0	O Other (Please specify):							
49. QUALIF	FICATION							
Select one.								
0	National 4							
0	National 5							
0	Single subject GCSE							
0		Double Award GCSE						
0	Single Award GCSE Other (Please specify):							



50. Please spe	cify the Awarding Organisation whose specification y	ou are following for this qualification:					
Select one.							
0	AQA						
0	Edexcel						
0	OCR						
0	CIE						
0	IB						
0	CCEA						
0	ICAAE						
0	WJEC						
0	SQA						
0	Please specify:						
54 1 11	1: 1/ 1 1/1/2						
	subject/group you teach set by ability?						
Select one.							
O Yes	(Go to question number 52.)						
O No	(Go to question number 53.)						
E2 Chaosa an	e ability group you refer to when answering question	s about toaching					
Select one.	e ability group you refer to when answering question	s about teaching					
O	High						
0	High						
0	Medium						
	Low						
E2 How much	timetabled time (in hours) is allocated to the selecte	d subject and year group each week?					
55. How much	timetabled time (iii nodis) is anocated to the selecte						
		Hours					
	cated hours, please estimate how many hours are using the current year. (Please use decimals if necessary						
		Number of hours each week					
	Practical work carried out by students						
Tea	Teacher-led demonstrations to the whole class						
Computer simulations and/or online experiments							



55.5		1:0: .:					
-	lected 14 – 16 subject and q ies in an academic year?	ualification, a	pproximately ho	w many days are	allocated	to each	
	·				Days in a y	rear	
	Outdoor practical	work/fieldwo	ork				
C	Off-site visits to science relat	ed industry,	nuseums etc.				
56. Has the nun	mber of days for these activi	ties changed	since the last aca	ademic year?			
Select one per r	ow.						
	Inc	reased	Decreased	Stayed abo	out the san	ne	
Outdoor	practical work	0	0		0		
Off-	-site visits	0	0		0		
	<u> </u>						
•	lected 14 – 16 subject and q arry out during the current y		pproximately ho	w many practica	l science a	ctivities	
wiii a student ca	arry out during the current y	real :					
58. Has the nun	mber of practical work activi	ties/experime	nts altered since	e last year?			
Select one.							
0 1	Increased						
0 1	Decreased						
0 !	Stayed the same						
•	lected subject and 14 -16 qu nd carrying out practical wo			•			
current academ		K 033C33IIICI1	. required by the	. Awaranig Organ	1134110111111	tiic	
			Н	lours			
	cate how often the students		-	•	n work		
	pairs or in groups when carr	ying out prac	ical work activit	ies/experiments			
Select one per r	OW.						
		Always	Most of the time	About half the time	Seldom	Never	
Stude	ents work as individuals	0	0	0	0	0	
Sto	udents work in pairs	0	0	0	0		
	k in groups (3 or more stude er set of equipment)	ents O	0	0 0 0			



61. Please indicate how frequently students in the selected 14 - 16 subject and qualification do the following in their practical work activities/experiments.

Select one per row.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	0	0	0
Design their own method	0	0	0	0	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	0	0	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	0	0	0
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	0	0	0

62. For your selected 14 - 16 subject and qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons

	High Impact - 5	4	3	2	No impact - 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0



63. For your selected 14 – 16 subject and qualification, please compare and rate the importance of these
aims in your practical work teaching

Select one per row.

	High importance - 5	4	3	2	No importance - 1
To develop practical skills for laboratory work	0	0	0	0	0
To learn the principles of scientific inquiry	0	0	0	0	0
To develop team-working and problem-solving skills	0	0	0	0	0
To motivate and engage students	0	0	0	0	0
To prepare students for future science-related jobs	0	0	0	0	0
To develop conceptual understanding	0	0	0	0	0
To develop students' creativity and critical thinking	0	0	0	0	0

64. Please rate how well you think students in your selected subject are prepared for practical
activities/experiments when they start the 14 – 16 phase.

#### Select one per row.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	0	0
Following a set of instructions	0	0	0	0
Using science equipment	0	0	0	0
Writing science reports	0	0	0	0

65. Are you teaching GCSE/National science to 11 – 14 year old students in the current academic year?						
Select one.						
0	Yes	(Go to question number 66.)				
0	No	(Go to question number 82.)				



Please indicate ONE timetabled subject and year group you are teaching to 11 - 14s this year and answer all questions about teaching with this subject and qualification in mind.

66. SUBJE	СТ							
Select one	2.							
0	Physics							
0	Chemistry							
0	Biology							
0	Science							
0	Other (Plea	ise specify):						
67. YEAR	GROUP							
Select one								
0 1	11 – 12s (Yea	ır 7)						
0 1	12 – 13s (Yea	ar 8 / S1 / 1st Year)						
0 1	13 – 14s (Yea	or 9 / S2 / 2nd Year)						
68 Is the	vear subject/	group you teach set by ability?						
Select one		group you teach set by ability:						
	'es	(Go to question number 69.)						
_	No .	(Go to question number 71.)						
69. Choos	e one ability g	group you refer to when answering questions about teaching						
Select one								
0		High						
0		Medium						
	О 1	Low						
70. How n	nuch timetabl	led time (in hours) is allocated to the selected subject and year group each week?						
		Hours						



average week	71. Of the allocated hours, please estimate how many hours are used on the following activities in an average week in the current year. (Please use decimals if necessary, e.g. 3.5)							
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-	f hours each week			
	Practical work carried	d out by students						
Tea	Teacher-led demonstrations to the whole class							
Computer simulations and/or online experiments								
-	elected 11 – 14 subject s in an academic year?		approximately how	many days	are allocated to each of			
					Days in a year			
	Outdoor pr	actical work/field	work					
	Off-site visits to science	ce related industry	, museums etc.					
72 Has the ne	umbar of days for these	a activities change	d since the last ass	adamia vaar				
Select one per	imber of days for these row.	e activities change	u since the last acc	defilic year	•			
		Increased	Decreased	Staye	d about the same			
Outdoo	or practical work	0	0		0			
Of	f-site visits	0	0		0			
Of	f-site visits	0	0		0			
74. For your so	f-site visits elected 11 – 14 subject carry out during the cu	t and year group, a	-	many pract	-			
74. For your so	elected 11 – 14 subject	t and year group, a	-	/ many pract	-			
74. For your so	elected 11 – 14 subject	t and year group, a	-	/ many pract	-			
74. For your so will a student	elected 11 – 14 subject	t and year group, a	approximately how		-			
74. For your so will a student	elected 11 – 14 subject carry out during the cu	t and year group, a	approximately how		-			
74. For your so will a student	elected 11 – 14 subject carry out during the cu	t and year group, a	approximately how		-			
74. For your so will a student  75. Has the nu Select one.	elected 11 – 14 subject carry out during the cu imber of practical worl	t and year group, a	approximately how		-			



76. For your selected 11 – 14 subject and year group, how much lesson time (in hours) is allocated to preparing for and carrying out statutory practical work assessment in the current academic year?				
	Hours			

77. Please indicate how often the students in the selected 11-14 subject and year group work individually, in pairs or in groups when carrying out practical work activities/experiments

#### Select one per row.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	0	0	0
Students work in groups (3 or more students per set of equipment)	0	0	0	0	0

78. Please indicate how frequently students in the selected 11-14 subject and qualification do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	0	0	0
Design their own method	0	0	0	0	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	0	0	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	0	0	0
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	0	0	0



79. For your selected 11 - 14 subject and year group, please compare and rate the impact of these factors on choosing what practical work to include in your lessons

Select one per row.

	High Impact - 5	4	3	2	No impact - 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

80. For your selected 11 - 14 subject and year group, please compare and rate the importance of these aims in your practical work teaching

Select one per row.

	High importance - 5	4	3	2	No importance - 1
To develop practical skills for laboratory work	0	0	0	0	0
To learn the principles of scientific inquiry	0	0	0	0	0
To develop team-working and problem-solving skills	0	0	0	0	0
To motivate and engage students	0	0	0	0	0
To prepare students for future science-related jobs	0	0	0	0	0
To develop conceptual understanding	0	0	0	0	0
To develop students' creativity and critical thinking	0	0	0	0	0



81. Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the $11-14$ phase.						
Select one per	r row.					
			Very well prepared	Well prepared	Marginally prepared	Unprepared
	indep labora	endently in a itory	0	0	0	0
Following	a set (	of instructions	0	0	0	0
Using so	cience	equipment	0	0	0	0
Writing	g scier	nce reports	0	0	0	0
			Background I	nformation		
82. Please ind	licate	the box correspon	ding to your age			
Select one.						
0		Under 25				
0		26–29				
0		30–39				
0		40–49				
0		50–59				
0		60 or older				
83. Please ind	licate	your gender				
Select one.						
0	Male	9				
0	Fem	ale				
0	Prefe	er not to say				
84. Please ind	licate	if your current tea	ching position is			
Select one.						
0		Permanent				
0		Temporary				
85. Please ind	licate	if you work				
Select one.	iicate	ii you work				
Select one.		Full Time				1
0		Part Time				



86. By the end of this academic year, how many years will you have been teaching altogether?						
		Number				
87. Ple	ease indicate you	r specialist science subject				
Select	one.					
0	Physics					
0	Chemistry					
0	Biology					
0	Other, e.g. Eart	h sciences. Please specify:				
		level of formal education you have you completed in a SCIENCE subject?				
Select						
	octorate degree					
l <del></del>	Masters Degree	tificate of Education on annivelent				
		tificate of Education or equivalent				
	achelor Degree	other post-16 qualification such as BTEC, diploma, IB, NVQ				
l <del></del>		cation obtained overseas; Armed Forces training; Please specify:				
	ther, e.g. Qualine	action obtained overseas, Armed Forces training, Fredse speemy.				
89. Ple	ease indicate whi	ch science subject you studied to this level.				
	all that apply.					
□ ві	ology - or related	d subject, e.g. Ecology/Marine Biology/Physiology/Zoology/Biomedical Science				
□ PI	nysics - or related	subject, e.g. Astrophysics/Electronics/Space Science				
□ ci	nemistry - or rela	ted subject e.g. Biochemistry/Pharmacology				
□ Ea	arth Science/Geo	ogy/Geography				
ΠО	Other, e.g. Engineering, Medicine, Optometry, general science					
*90. P	lease indicate if y	ou hold qualified teacher status in the nation where you currently work (*Required)				
Select	one.					
0	Yes	(Go to question number 116.)				
0	No	(Go to question number 116.)				



Technician							
	Background Information						
	91. Please indicate the box corresponding to your age						
Select one.							
0		Under 25					
0		26–29					
0		30–39					
0		40–49					
0		50–59					
0		60 or older					
92. Please inc	licate	your gender					
Select one.							
0	Mal	e					
0	Fem	ale					
0	Pref	fer not to say					
Г							
93. Please inc	licate	if your position as technician is					
Select one.							
0		Permanent					
0		Temporary					
94. Please inc	licate	if your work as technician is					
Select one.							
0		Full Time					
0		Part Time					



95. What is the highest level of formal education you have you completed in a SCIENCE subject?							
Select one.							
O Doctorate deg	O Doctorate degree						
O Masters Degre	O Masters Degree						
O Post Graduate	e Certificate of E	Education or equivalent					
O Bachelor Degr	ree						
O Other 18+ qua	alification, e.g. E	BTEC Certificate/Diploma/Apprentices	ship/Technical Qualification				
O A level or AS I	evel/Higher or <i>i</i>	Advanced Higher					
O GCSE/O level/	CSE/Scottish St	andard					
O No formal scie	ence qualification	on					
Other, e.g. Qu	ialification obta	ined overseas; Armed Forces training	;; Please specify:				
96. Are you a Regi	stered Science	Technician (RSciTech)?					
Select one.							
0		Yes					
0		No					
			<u>.</u>				
97. Are you workir	ng towards RSci	Tech registration?					
Select one.	16 10 11 11 11 11 11 11	real registration.					
О		Yes					
0		No					
Γ							
98. Have you received any professional development related to supporting science practical work in the current academic year?							
Select one.							
O Yes	(Go to qu	uestion number 99.)					
O No	(Go to qu	uestion number 100.)					
QQ Plance indicate	the number of	davs					
99. Please indicate	e the number of	uays	Ni waka wa				
			Number				



Your role as a Technician								
Practical work is defined in this study as:  "A learning activity in which students observe, investigate and develop an understanding of the world around them, through direct, hands-on, experience of phenomena or manipulating real objects and materials."								
100 P	100. Please indicate if you work as a general science or specialist science subject technician							
Select		The second of th	. сс с. ср					
0		eneral science technician						
0	Sp	ecialist science subject technician						
101. If	fapp	icable, please state which specialist sci	ience sul	oject(s) yo	u support.			
Select	all th	nat apply.						
	]	Physics						
	]	Chemistry						
		Biology						
		Other (Please specify):						
102. V	Ve w	ould like to know about the tasks you c	do as a te	echnician.	Please indi	cate how	often you d	o these
tasks:								
Select	all th	nat apply.	1	T				
			Daily	Weekly	Monthly	Termly	Annually	Never
	A	dvising a teacher how to do an experiment/use equipment						
	Phot	cocopying worksheets for lessons						
Dis	cussi	ng science curriculum requirements with a teacher						
S	ettin	g up equipment for an experiment						
Repairing technical equipment, e.g.								
	Rep	· · · · · · · · · · · · · · · · · · ·						
со	Pla	pairing technical equipment, e.g.	+	_				
со	Pla onstru	oscilloscopes, microscopes  nning a new experiment e.g. by						
Lia	Pla onstru Fili aising	pairing technical equipment, e.g. oscilloscopes, microscopes nning a new experiment e.g. by ucting and/or modifying equipment						
Lia	Pla onstru Fili aising	pairing technical equipment, e.g. oscilloscopes, microscopes  nning a new experiment e.g. by acting and/or modifying equipment eng worksheets/paper resources  with school senior managers about						



	103. Does your job include any responsibilities/roles outside the science department, either formal or informal?						
Select one.							
0	Yes	(Go to qu	estion number 104.)				
0	No	(Go to qu	estion number 106.)				
104. F	104. How much time in hours per week do you spend on your additional role(s)?						
	Number						
105. P	Please indicate wh	hat your ad	ditional role(s) is/are.				
Select	all that apply.						
	Technician in a	nother dep	artment				
	School/college	health and	safety advisor				
	Teaching assist						
	Other general i	role (Please	e specify):				
			Preparation Rooms				
106. F	low many prepar	ation room	ns are there in your school or college	?			
				Number			
107. F	low are preparat	ion rooms	organised?				
Select	Select one.						
0 9							
0 1							
O	Both specialist an	d shared p	reparation rooms				
108. A	Are any preparation	on rooms s	hared with another department (out	side science)?			
Select	one.						
	0		Yes				
	0		No				



109. Are any preparation rooms age-specific, e.g. 11 – 14, 14 – 16, post-16?					
Select one.					
0	Yes				
0	No				

## 110. In the preparation room(s) you use, please evaluate the following factors and facilities Select one per row.

	Available and sufficient/working	Available but insufficient/not working	Not available	Not relevant
Storage space for equipment	0	0	0	0
Working surfaces to meet the needs of the department	0	0	0	0
Gas, water, electricity supply	0	0	0	0
Proximity to laboratories	0	0	0	0
Computer, internet connections and telephone	0	0	0	0
Trolley for moving equipment	0	0	0	0
Space for trolleys	0	0	0	0
First aid kit	0	0	0	0
Mechanical ventilation	0	0	0	0
A lockable, ventilated chemical store	0	0	0	0
Refrigerator/freezer	0	0	0	0
Dishwasher or laboratory glass washer	0	0	0	0
Fume cupboard	0	0	0	0
A still for distilling water	0	0	0	0
Provision for the secure storage of gas cylinders	0	0	0	0



Laboratories				
111. How many laboratories are there in your school/college?				
	Number			

112. In the laboratories you assist, please indicate to what extent the following are satisfactory (available and in good working order) in relevant laboratories.

	All	Most	About half	A few	None
Easy access for technicians	0	0	0	0	0
Appropriate space for class sizes	0	0	0	0	0
Good quality furnishings, e.g. benches, stools, shelving, storage	0	0	0	0	0
Fully functioning sinks and drainage	0	0	0	0	0
Roof, floor, walls in good condition	0	0	0	0	0
Basic Health and Safety standards met, e.g. eye protection, screens, fire extinguishers	0	0	0	0	0
Mechanical ventilation	0	0	0	0	0
Computers available for student use	0	0	0	0	0
Space to leave long term investigations/experiments	0	0	0	0	0
Well distributed taps	0	0	0	0	0
Well distributed power points	0	0	0	0	0
Accessible shut-offs for gas, electricity and water and an earth- leakage circuit breaker on the electrical supply	0	0	0	0	0
Provision for teacher-led demonstrations that might require gas, water and electricity.	0	0	0	0	0
An interactive whiteboard, projector etc.	0	0	0	0	0
Working blinds/curtains/light-dimming system for black outs (Physics only)	0	0	0	0	0
Fume cupboard with working gas, electricity and water supplies (Chemistry only)	0	0	0	0	0
Well distributed gas taps (Chemistry only)	0	0	0	0	0



#### **Science Equipment**

Please select the items in the following three questions that are relevant for the laboratories you serve and indicate if an item is available in working order and/or as a complete set.

#### 113. Physics or General Science Laboratory item

	Available in working order/complete set	Available but not working/not complete set	Not available	Don't know
Oscilloscope with spectrum analysis	0	0	0	0
Van de Graaff Generator	0	0	0	0
Air Track with air source	0	0	0	0
Electric Vacuum Pump	0	0	0	0
Class set (groups) of data loggers with sensors	0	0	0	0
Class set (groups) of ray boxes and lenses	0	0	0	0
Magnetic field observation kit (iron filings, magnets)	0	0	0	0
Class set (groups) of multimeters or volt and ammeters	0	0	0	0
Class set (groups) of Newtonmeters	0	0	0	0
Class set (groups) of magnets	0	0	0	0
Class set (groups) of tuning forks	0	0	0	0
Class set (groups) of bulbs, bulb holders and wires	0	0	0	0



#### 114. Chemistry or General Science Laboratory item

	Available in working order/complete set	Available but not working/not complete set	Not available	Don't know
UV Spectrophotometer	0	0	0	0
More than one digital precision balance (±0.001g)	0	0	0	0
Class set (groups) of magnetic stirrers	0	0	0	0
Class set (groups) of heating mantles	0	0	0	0
Class set (groups) of distillation apparatus	0	0	0	0
Class set (groups) of pH meters	0	0	0	0
Class set (groups) of student molecular modelling kit	0	0	0	0
Class set (groups) of ground glass gas syringe	0	0	0	0
Class set (groups) of titration equipment	0	0	0	0
Class set (groups) of Erlenmeyer flasks	0	0	0	0
Class set (groups) of Bunsen burners	0	0	0	0
Eye protection for all students	0	0	0	0



#### 115. Biology or General Science Laboratory item Select one per row. Available but not Available in working Don't Not working/not complete order/complete set available know set 0 0 0 0 Genetic engineering kit Digital microscope with 0 0 0 0 visualizer and/or camera Haemocytometer 0 0 0 0 Gel electrophoresis 0 0 0 0 equipment and centrifuge Class set (groups) of 0 0 0 0 datalogger with sensors Class set (groups) of optical 0 0 0 0 microscopes Water bath and 0 0 0 0 thermometers Class set (groups) of 0 0 0 0 colorimeters Class set (groups) of field 0 0 0 0 work equipment Anatomical models, e.g. eye, 0 0 0 0 torso, ear, heart Class set (groups) of 0 0 0 0 dissection kit Class set (groups) of plastic 0 0 0 0 petri dishes 116. We would be pleased to hear about any other experiences of practical work in your current school or college you would like to share. We also welcome your views and opinions on how practical science might change in future years.



## 3 School Staff Survey for heads of science and science teachers - Year 2

In year 2 of the study, there were two separate surveys, one for heads of science and the other for science teachers. There was no survey for science technicians in year 2 of the study. Below is the survey for heads of science, which contains all the questions for science teachers. Questions asked only to heads of science are indicated next to the relevant questions.

About your Cabool or Callego							
About your School or College							
*1. School/College name (*Required)							
1.00.	1. Schooly conege hame ( Nequirea)						
*2. Wh	at is your s	chool/college's postcode? (*Required)					
		n is your school/college? (*Required)					
Select o	one.						
	0	England					
	0	Scotland					
Please	indicate yo	ur school or college characteristics					
4. Age	Range						
Select o	one.						
0	5 -19 Prin	nary and Secondary					
0	11 - 16 Se	econdary					
0	11 - 19 Se	econdary					
0	16 - 19 Se	econdary					
0	FE College	е					
O Other							
	•						
5. Fund	ling						
Select o	one.						
0	O Local authority/state funded						
0	Academy	/Free School					
0	Independ						
0	O Other						



6. Gender/Selectivity						
Select one.						
O Boys non-selective						
0						
0	Mixed non-selective					
0	Boys selective					
0	Girls selective					
0	Mixed selective					
	Current Students					
7. How m	any students attend your school/college?					
		_				
8. For sch	ools/sixth-form colleges only:					
	Number					
How many 15-16 year-olds attend the school?						
How many 15-16 year-olds take examinations in three separate science subjects (physics, chemistry and biology)						
How many post-16 students attend the school/college?						
How many post-16 students study one or more science subjects?						
9. For FE colleges ONLY: How many students study one or more science subjects at A/AS-level, Higher/Advanced Higher or academic equivalent?						



# 10. Please indicate the number of students studying PHYSICS (head of science only)

10. Flease indicate the number of students studying FHTSICS (nead of science only)	
	Number
Number of 11-14 year-olds	
Number of students doing GCSEs/Nationals or equivalent in the subject	
Number of students doing AS/A level/Higher/Advanced Higher or equivalent in the subject	
11. Please indicate the number of students studying CHEMISTRY (head of science only)	
	Number
Number of 11-14 year-olds	
Number of students doing GCSEs/Nationals or equivalent in the subject	
Number of students doing AS/A level/Higher/Advanced Higher or equivalent in the subject	
12. Please indicate the number of students studying BIOLOGY (head of science only)	
	Number
Number of 11-14 year-olds	
Number of students doing GCSEs/Nationals or equivalent in the subject	
Number of students doing AS/A level/Higher/Advanced Higher or equivalent in the subject	



Staffing (head of science only)							
13. How many science teache science only)	rs (full-time equivalent,	FTE) teach in the school/college? (head of					
14. How many teachers (FTE) teach each of these subjects? (head of science only)							
14. How many teachers (FTE)	teach each of these subj						
		Number					
Physics							
Chemistry							
Biology							
only)		ce in your school/college? (head of science					
16. How many technicians (F)	E) support each of these	subjects? (head of science only)					
Physics		Number					
Chemistry							
Biology							
17 Are any technician positio	ns currently unfilled? /he	and of science only)					
17. Are any technician position Select one.	ns currently unimea? (ne	edu oj science oniy)					
0	Yes						
0	No						



	Department Budget (head of science of	nly)
	s the current annual budget (excluding staff salaries) alloc ege? (head of science only)	ated to science from your
	r the Science Department	£
If applicat	ole, your science department budget carried over from las	st year
19. How ha	as the budget changed since last year? (head of science on	uly)
0	Increased	
0	Decreased	
0	Stayed the same	
	state the proportions of your department budget allocate e (Note: percentages do not need to add up to 100%) (he	
		Proportion allocated (%) of total
Consumal	bles and equipment for practical work	
Photocop examinati	ying/reprographics - for hard copy worksheets, ions etc.	
ICT - softv	vare, hardware, data logging	
Science-s <sub>l</sub>	pecific professional development	



#### Laboratories (head of science only)

21. How satisfied are you with the following factors in your department for delivering high-quality practical work? *(head of science only)* 

Select one per row.

	Very satisfied	Satisfied	Neither satisfied not dissatisfied	Dissatisfied	Very dissatisfied
The department has sufficient laboratory facilities	0	0	0	0	0
The department has sufficient equipment and consumables	0	0	0	0	0
The department has sufficient technical support	0	0	0	0	0
The department has a sufficient budget	0	0	0	0	0
The teachers have sufficient competency	0	0	0	0	0
Teachers are offered sufficient professional development	0	0	0	0	0



#### **Practical Work Teaching this current year**

Practical work is defined in this study as:

"A learning activity in which students observe, investigate and develop an understanding of the world around them, through direct, hands-on, experience of phenomena or manipulating real objects and materials."

The next questions relate to teaching specific age groups (11-14, 14-16, Post-16). Please answer questions for each age group you teach.

22. Are you teaching AS/A level/Advanced Highers/Highers to Post-16 students in schools or

college	es in the curre	nt academic year?
Select	one.	
0	Yes	(Go to question number 23.)
0	No	(Go to question number 38.)
		science subject and Post-16 qualification you are teaching this year and about teaching with this subject and qualification in mind.
23. SU	BJECT	
Select	one.	
0	Physics	
0	Chemistry	
0	Biology	
0	Other (Ple	ase specify):
24. QU	JALIFICATION	
0	A level	
0	Advanced	Highers
0	AS level	<u> </u>
0	Highers	
0	Other (Ple	ase specify):



25. Please specify the Awarding Organisation whose specification you are following for this qualification:							
Select on	e.						
0	AQA						
0	Edexcel						
0	OCR						
0	CIE						
0	IB						
0	CCEA						
0	ICAAE						
0	WJEC						
0	SQA						
0	Other (Please specify):						
	26. What is the average number of students in a class for your selected Post-16 subject and qualification?						
		students					
	much timetabled time (in hours) is allocated to the se ion each week?	lected Post-16 subject and					
		Hours					
	e allocated hours, please estimate how many hours angle week in the current year. (Please use decimals if ne	_					
		Number of hours each week					
Practica	Practical work carried out by students						
Teacher	eacher-led demonstrations to the whole class						
Comput	er simulations and/or online experiments						



				Days in a year		
Outdoor	r practical work/fieldwo	rk				
Off-site	visits to science-related	industry, muse	eums, etc.			
30. Has th	ne number of days for th	nese activities o	hanged since the	last academic year?		
	e per row.		J	,		
		Increased	Decreased	Stayed about the same		
Outdoor	r practical work	0	0	0		
Off-site	visits	0	0	0		
31. For yo	our selected subject and will a student carry out	Post-16 qualif during the curi	cation, approximent year?	ately how many practical science		
31. For your activities	our selected subject and will a student carry out has the number of pract	Post-16 qualif during the curi	cation, approximent year?			
31. For your activities	our selected subject and will a student carry out has the number of pract	Post-16 qualif during the curi	cation, approximent year?	ately how many practical science		
31. For you activities  32. How had select one	our selected subject and will a student carry out has the number of practe.	Post-16 qualif during the curi	cation, approximent year?	ately how many practical science		
31. For your activities  32. How has select one	nas the number of practe.	Post-16 qualif during the curi	cation, approximent year?	ately how many practical science		
31. For you activities  32. How has select one of the select one o	nas the number of practe.  Increased Decreased Stayed the same	Post-16 qualif during the curr cical work activity	ties/experiments	ately how many practical science		



# 34. Please indicate how often the students in the selected subject and Post-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments

Select one per row.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	0	0	0
Students work in groups (3 or more students per set of equipment)	0	0	0	0	0

# 35. Please indicate how frequently students in the selected subject and Post-16 qualification do the following in their practical work activities/experiments

Select one per row.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	0	0	0
Design their own method	0	0	0	0	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	0	0	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	0	0	0
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	0	0	0



36. For the selected subject and Post-16 qualification, please compare and rate the impact of
these factors on choosing what practical work to include in your lessons

Select one per row.

	High impact - 5	4	3	2	No impact -
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

37. Please rate how well you think students in your selected subject are prepared for practical
activities/experiments when they start the Post-16 phase.

Select one per row.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	0	0
Following a set of instructions	0	0	0	0
Using science equipment	0	0	0	0
Writing science reports	0	0	0	0

38.	Are you teaching G	CSE/National science	to 14-16 year	r old students in	schools or	colleges in
the	current academic y	/ear?				

Select one.

0	Yes	(Go to question number 39.)
0	No	(Go to question number 54.)



Please indicate ONE science subject and 14-16 qualification you are teaching this year and answer all questions about teaching with this subject and qualification in mind.

39. SUBJECT								
Select one	2.							
0	Physics							
0	Chemistry							
0	Biology							
0	Other (please specify):							
	IFICATION							
Select one	2.							
0	National 4							
0	National 5							
0	Single subject GCSE							
0	Double Award GCSE							
0	Single Award GCSE							
0	Other (please specify):							
_								
41. Please qualificati	e specify the Awarding Organisation whose specification you are following for this ion:							
Select one	2.							
0	AQA							
0	Edexcel							
0	OCR							
0	CIE							
0	IB							
0	CCEA							
0	ICAAE							
0	WJEC							
0	SQA							
0	Other (please specify):							



42. What is the average number of students in a class for your selected 14-16 subject and qualification?							
Enter a number.							
students							
43. How much timetabled time (in hours) is allocated to the selected subject and year group each week?							
			Hours				
44. Of the allocated hours, please estimate how many hours are used on the following activities in an average week in the current year. (Please use decimals if necessary, e.g. 3.5)							
		1	lumber of ho	ours each week			
Practical work carried out by students							
Teacher-led demonstrations to t	Teacher-led demonstrations to the whole class						
Computer simulations and/or or	nline experimen	ts					
45. For your selected 14-16 subjeto each of these activities in an activities in activities activities in activities in activities in activities ac	•	tion, approxima	tely how ma	ny days are allocated			
				Days in a year			
Outdoor practical work/fieldwo	rk						
Off-site visits to science related industry, museums etc.							
46. How has the number of days for those activities changed since the last academic year?							
Select one per row.	46. How has the number of days for these activities changed since the last academic year?  Select one per row.						
	Increased	Decreased	Stayed ab	out the same			
Outdoor practical work	0	0		0			
Off-site visits	0	0		0			



•	r selected 14-16 subject and quill a student carry out during th			ely how many p	oractical s	cience		
_								
48. How ha	s the number of practical work	activities	/experiments	altered since la	st year?			
Select one.								
0	Increased							
0	Decreased							
0	Stayed the same							
allocated to	or selected subject and 14 -16 q o preparing for and carrying ou on in the current academic year	t practical	work assessn	nent required b	-	rding		
	Hours							
50. Please indicate how often the students in the selected 14-16 subject and qualification work individually, in pairs or in groups when carrying out practical work activities/experiments  Select one per row.								
Always Most of the time Seldom Never								
Students	work as individuals	0	0	0	0	0		
Students	work in pairs	0	0	0	0	0		
	work in groups (3 or more per set of equipment)	0	0	0	0	0		



51. Please indicate how frequently students in the selected 14-16 subject and qualification do the following in their practical work activities/experiments.

Select one per row.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	0	0	0
Design their own method	0	0	0	0	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	0	0	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	0	0	0
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	0	0	0



52. For your selected 14-16 subject and qualification, please compare and rate the impact of the	se
factors on choosing what practical work to include in your lessons	

Select one per row.

	High impact - 5	4	3	2	No impact -
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

53. Please rate how well you think students in your selected subject are prepared for practical
activities/experiments when they start the 14-16 phase.

Select one per row.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	0	0
Following a set of instructions	0	0	0	0
Using science equipment	0	0	0	0
Writing science reports	0	0	0	0

54. Are you teaching GCSE/National science to 11-14 year	r old students in the current academic
year?	

Select one.

0	Yes	(Go to question number 55.)
0	No	(Go to question number 70.)



Please indicate ONE timetabled subject and year group you are teaching to 11-14s this year and answer all questions about teaching with this subject and qualification in mind.

			1		
55. SUBJ	SUBJECT				
Select or	e.				
0	Physics				
0	Chemistry				
0	Biology				
0	Science				
0	Other (Please specif	fy):			
56. YEAR	R GROUP				
Select or	ne.				
0 1	l1 – 12s (Year 7)				
0 1	12 – 13s (Year 8 / S1	/ 1st Year)			
0 1	13 – 14s (Year 9 / S2	/ 2nd Year)			
-	57. If you are in a school in England and your selected year group is 13 - 14s (Year 9), are you teaching a GCSE syllabus?				
Select one.					
	0	Yes			
	O No				
58. What is the average number of students in a class for your selected 11-14 subject and year group?					
Enter a n	Enter a number.				
			students		
59. How week?	much timetabled tim	e (in hours) is allocated to the sele	ected subject and year group each		
			Hours		



an average	week in the current y		•		following activities in .5)
	Number of				ours each week
Practical work carried out by students					
Teacher-led demonstrations to the whole class					
Computer	simulations and/or o	nline experimer	nts		
	selected 11-14 subje		up, approximate	ly how many	y days are allocated
					Days in a year
Outdoor practical work/fieldwork  Off-site visits to science related industry, museums etc.					
62. How has	s the number of days	for these activit	ies changed sinc	e the last ac	rademic year?
	-	for these activit	ies changed sind		out the same
Select one p	-	I	Ī		·
Select one p	er row.	Increased	Decreased		out the same
Outdoor proof Off-site vis	er row.	Increased  O O ect and year gro	Decreased  O  O  up, approximate	Stayed ab	out the same
Outdoor poor Off-site vise 63. For your activities wi	er row.  ractical work  its  selected 11-14 subje	Increased  O  O  ect and year groduring the curre	Decreased  O  up, approximate ent year?	Stayed ab	out the same  O O y practical science
Outdoor poor Off-site vise 63. For your activities wi	er row.  ractical work  its  selected 11-14 subje Il a student carry out	Increased  O  O  ect and year groduring the curre	Decreased  O  up, approximate ent year?	Stayed ab	out the same  O O y practical science
Outdoor proof Off-site vis  63. For your activities wi  64. How has	er row.  ractical work  its  selected 11-14 subje Il a student carry out	Increased  O  O  ect and year groduring the curre	Decreased  O  up, approximate ent year?	Stayed ab	out the same  O O y practical science
Outdoor properties of the state	ractical work its selected 11-14 subjected in the student carry out in	Increased  O  O  ect and year groduring the curre	Decreased  O  up, approximate ent year?	Stayed ab	out the same  O O y practical science



65. For your selected 11-14 subject and year group, how much lesson time (in hours) is allocated		
to preparing for and carrying out statutory practical work assessment in the current academic		
year?		
	Hours	

66. Please indicate how often the students in the selected 11-14 subject and year group work individually, in pairs or in groups when carrying out practical work activities/experiments

Select one per row.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	0	0	0
Students work in groups (3 or more students per set of equipment)	0	0	0	0	0

67. Please indicate how frequently students in the selected 11-14 subject and qualification do the following in their practical work activities/experiments.

Select one per row.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	0	0	0
Design their own method	0	0	0	0	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	0	0	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	0	0	0
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	0	0	0



68. For your selected 11-14 subject and year group, please compare and rate the impact of these factors on choosing what practical work to include in your lessons

Select one per row.

	High impact - 5	4	3	2	No impact -
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

69. Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the 11-14 phase.

Select one per row.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	0	0
Following a set of instructions	0	0	0	0
Using science equipment	0	0	0	0
Writing science reports	0	0	0	0



#### **Background Information** 70. Please indicate the box corresponding to your age Select one. 0 Under 25 0 26-29 0 30-39 0 40-49 0 50-59 0 60 or older 71. Please indicate your gender Select one. 0 Male 0 Female 0 Prefer not to say 72. Please indicate if your current teaching position is ... Select one. 0 Permanent 0 **Temporary** 73. Please indicate if you work.... Select one. 0 Full time 0 Part time 74. By the end of this academic year, how many years will you have been teaching altogether?

Number



75. Please indicate your specialist science subject	
Select one.	
O Physics	
O Chemistry	
O Biology	
Other, e.g. Earth sciences. Please specify:	
76. What is the highest level of formal education you have completed in YOUR SPECIALIST so subject?	cience
Select one.	
O Doctorate degree	
O Masters degree	
O Bachelor degree	
A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ	
Other (e.g. Qualification obtained overseas; Armed Forces training); please specify:	
77. What is the highest level of formal education you have completed in ANY SCIENCE subject	rt?
Select one.	
O Doctorate degree	
O Masters degree	
O Bachelor degree	
O A level/Higher or other Post-16 qualification such as BTEC, diploma, IB, NVQ	
Other (e.g. Qualification obtained overseas; Armed Forces training); please specify:	
78. Please indicate which science subject you studied to this level.	
Select all that apply.	
Biology - or related subject, e.g. Ecology/Marine Biology/Physiology/Zoology/Biomedical Science	ıl
Physics - or related subject, e.g. Astrophysics/Electronics/Space Science	
☐ Chemistry - or related subject e.g. Biochemistry/Pharmacology	
☐ Earth Science/Geology/Geography	
Other, e.g. Engineering, Medicine, Optometry, general science	



79. Please indicate if you hold a Post Graduate Certificate in Education or equivalent				
Select	t one.			
0	Yes	(Answer	question number 79.1.)	
0	No			
			1	
79.1	Please indicate	the age r	ange for which you trained	
Select		_		
	0	11 - 16		
	0	11 - 19		
	0	Other:		
	Please indicate Juired)	if you ho	ld qualified teacher status in the nation where you currently work	
Select	•			
	0		Yes	
	0		No	
	ave you receivourrent academ		ofessional development related to teaching science practical work in	
Select		io year.		
0	Yes	(Go to	question number 82.)	
0	No	(Go to d	question number 83.)	
		I		
82. Pl	ease indicate t	he numbe	er of days	
schoo	ol or college yo	u would li	lear about any other experiences of practical work in your current ke to share. We also welcome your views and opinions on how e in future years.	



#### **Prize draw**

To thank you for completing the survey, we would like to invite you to enter our free prize draw to win one of five £100 Amazon gift vouchers. Your email address is required so that we can get in touch if you win. Your details will not be used to identify you as part of the survey and will not be used for marketing purposes.

84. Please select whether you would like to participate in the free practice and a select whether you would like to participate in the free practice.	rize draw to win a £100
Select one.	
O Yes, I would like to participate in the free prize draw to win a £100 Amazon gift voucher.	(Answer question number 84.1.)
O No thanks, I would not like to participate	
84.1 My email address is:	
Be the first to know about next year's s	urvey
85. We would like to add you to our priority notification list for when year. To be added to the list, please leave your email address below	•

be used to identify you within the survey data and will not be used for marketing purposes.



4 School Staff Survey for heads of science - Year 3

# Practical Work in Science - Heads of Science survey

The Practical Work in Science Survey is seeking views, opinions and experiences about practical work from everyone teaching and supporting science in any secondary school or college within England and Scotland.

We are now into the final year of this exciting three-year national study. Your responses, along with the data we have collected in the last two years, will build a rich and detailed picture of how practical work in science has changed over this period. Each response is important to ensure that we represent the impact of changes in practical science to researchers and policy-makers.

The study is led by Durham University's Centre for Evaluation and Monitoring (CEM) and School of Education and is funded by the Gatsby Charitable Foundation, with a contribution from the Wellcome Trust. The project is part of an on-going programme of work by Gatsby, Wellcome and the Nuffield Foundation to understand and improve practical work in science education.

We are extremely keen to gather responses from as many heads of science, science teachers and technicians as possible within each school, so please do ask as many colleagues as possible to complete a survey. The perspective of multiple members of staff within a school gives us much richer data and will allow us to understand much more about science practical work in schools.

To thank you for completing the survey, you are invited to participate in a prize draw to win one of five £100 gift vouchers. We would also like to offer you the chance to sign up to be the first to hear about the findings of the study in spring 2018.

Many thanks for your support of the study.

Vanessa Kind, Per Kind, Helen Cramman, Karen Jones, Kirsty Younger and Helen Gray

Durham University School of Education and Centre for Evaluation and Monitoring (CEM)

#### Consent

Your school / college name and postcode are requested in the survey to keep track of institutions over the three-year period, but these will not be identified in any report. Names of individual respondents are not required. All information given to us, including all personal details, will be treated in the strictest of confidence in accordance with the Data Protection Act. None of your experiences or thoughts will be shared with anyone outside of the study partners without removal of all identifying information. The survey responses and results (with all personally identifiable information removed) will be made freely available at the end of the study, and will help researchers, funders, and policy makers to understand the views about practical work in science in the UK. When the survey responses and results of the study are published, your answers will be included with data provided by other people, no individual or institution will be identifiable from the research findings. The study has ethical clearance from Durham University's School of Education Research Ethics Committee and is conducted in accordance with British Educational Research Association (2011) guidelines. Participants are completing the survey on a voluntary basis and may withdraw at any time. The survey takes approximately 20 - 25 minutes to complete.

To participate in the prize draw at the end of the survey, we request that you leave an email address. This email address will only be used at the end of July to notify you if you have won one of five £100 Amazon gift vouchers. We also separately request your email address if you would like to be notified when the findings of the study are published in spring 2018. In either case, your email address will not be used to identify you within the survey data and will not be used for marketing purposes.

If you have any queries or comments about the survey or study as a whole, please contact research@cem.dur.ac.uk.

Please note that heads of science will be asked the science teacher questions in the later part of this survey and do not need to complete the separate teacher survey as well.

To start replying to the heads of science survey, click on the "Next" button below (please note that clicking on the "Next" button below indicates that you consent to participating in the survey based on the information given on this page).

### About your School or College

What is the name of your school/college? * Required
What is your school/college's postcode? * Required
Please enter a valid UK postcode.
In which nation is your school/college? * Required
C England C Scotland

### Please indicate your school or college characteristics

#### Age range \* Required

5 – 19 Primary and Secondary
 11 – 16 Secondary
 11 – 19 Secondary
 16 – 19 Secondary
 FE College

#### Funding \* Required

C Local authority / State-funded

Academy / Free school

Independent

Other

Other

#### Gender / Selectivity \* Required

Boys non-selective

Girls non-selective

Mixed non-selective

Boys selective

Girls selective

Mixed selective

How would you describe the status of practical work in science within your school/college?

• High (senior management prioritise practical work in science)

- Medium (senior management do not show any particular preference for practical work in science)
- C Low (senior management favour other priorities over practical work in science)

Does your school/college offer a regular extra-curricular STEM (Science, Technology, Engineering, Mathematics) club that includes practical work in science?
© Weekly or fortnightly
© Monthly
C Annually or few times a year
C Never
How many students attend your school/college? * Required
Please enter a whole number (integer).

### For schools / sixth-form colleges only

	Number
How many 15-16 year-olds attend the school?	
How many 15-16 year-olds take examinations in three separate science subjects (physics, chemistry and biology)	
How many post-16 students attend the school/college?	
How many post-16 students study one or more science subjects?	

### For FE colleges only

How many students study one or more science	e subjects at A/AS-level, Higher/Advanced Higher o
academic equivalent?	

Please enter a whole number (integer).	

### Departmental Structure

Please indicate the number of students studying PHYSICS.

	PHYSICS
Number of 11-14 year-olds	
Number of students doing GCSEs / Nationals or equivalent in the subject	
Number of students doing AS / A level / Higher / Advanced Higher or equivalent in the subject	
Please indicate the number of students studying CHEN	MISTRY.  CHEMISTRY
Number of 11-14 year-olds	CHEINISTRY
Number of 11-14 year-olds	
Number of students doing GCSEs / Nationals or equivalent in the subject	
Number of students doing AS / A level / Higher / Advanced Higher or equivalent in the subject	
Please indicate the number of students studying BIOLO	OGY. BIOLOGY
Number of 11-14 year-olds	
Number of students doing GCSEs / Nationals or equivalent in the subject	
Number of students doing AS / A level / Higher / Advanced Higher or equivalent in the subject	

### Staffing

How many science teachers (full-time equivalent, FTE) teach in the school/college? * Required				
Please enter a number.				
How many teachers (FTE) teach each of these subjects?				
Physics				
Biology				
How many science teacher positions (FTE) in total are currently unfilled in your school/college?				
Please enter a number.				
How many technicians (FTE) in total support science in your school/college? * Required				
Please enter a number.				
How many technicians are employed on the following basis?				
Term time only (pro rata)				
Term-time only (pro-rata)				
Term-time only (pro-rata) with additional paid time during school holidays				
Year round (term-time and school holidays)				

How many senior technicians (FTE) in total support your science department? * Required
Please enter a number.
How many technicians (FTE) support each of these subjects?
Physics
Chemistry
Biology
Are any technician positions currently unfilled?
C Yes
○ No
How has the number of technicians (FTE) in your school/college changed within the last year?
○ Increased
C Decreased C Stayed the same
Stayed the same
Which of these factors have affected the number of technicians within your school/college in the last year?
□ Financial
☐ Change in student numbers
☐ Long term ill health ☐ Failure to recruit
☐ Decision not to recruit after post becomes vacant
☐ School restructuring

☐ Curriculum changes	
□ None of the above	
□ Other	
If you selected Other, please specify:	

### Department Budget

What is the current annual budget (excluding staff salaries) allocated to science from your school/college?				
	£			
Budget for the science department				
If applicable, your science department budget carried over from last year				
Do you have access to central funds within the school departmental budget?	for additional purchases not covered within your			
C Yes				
How has the budget changed since last year?				
<ul><li>Increased</li><li>Decreased</li><li>Stayed the same</li></ul>				
Please state the proportions of your department budge percentages do not need to add up to 100%)	et allocated to these areas of expenditure. (Note:  Proportion allocated (%) of total			
Consumables and equipment for practical work				
Photocopying/reprographics - for hard copy worksheets, examinations etc.				
ICT - software, hardware, data logging				
Science-specific professional development				

○ No			

If yes, please state the area and proportion allocated to it:

Are there any other areas of science expenditure not covered above?

	Area of expenditure	Proportion of funding (%)
1		
2 (optional)		
3 (optional)		

### Resources

How satisfied are you with the following factors in your department for delivering high-quality practical work?

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
The department has sufficient laboratory facilities	O	0	C	О	0
The department has sufficient equipment and consumables	O	0	O	О	0
The department has sufficient technical support	O	0	O	С	0
The department has a sufficient budget	O	0	O	С	О
The teachers have sufficient competency	O	0	O	С	0
Teachers are offered sufficient professional development	O	0	O	О	0

## Practical Work Teaching this current year

Practical work is defined in this study as:

"A learning activity in which students observe, investigate and develop an understanding of the world
around them, through direct, hands-on, experience of phenomena or manipulating real objects and
materials."

The next questions relate to teaching specific age groups (11-14, 14-16, Post-16). Please answer questions for each age group you teach.

Are you teaching AS / A level or Highers / Advanced Highers to Post-16 students in schools or colleges in the current academic year? \* Required

© Yes			
© No			

## For those teaching AS / A level / Highers / Advanced Highers

Subject: * Required
C Physics C Chemistry C Biology O Other
If you selected Other, please specify:
Qualification: * Required
■ More info
C A level C Advanced Highers C AS level C Highers
Please specify the Awarding Organisation whose specification you are following for this qualification.
C AQA C Edexcel C OCR C CIE C IB C CCEA C ICAAE C WJEC

ii you selected Other, please specify.	
What is the average number of student Required	ts in a class for your selected subject and Post-16 qualification? *
Please enter a number.	
How much timetabled time (in hours) is week? * Required  Please enter a number.	s allocated to the selected subject and Post-16 qualification each
Of the allocated hours, please estimate week in the current year.	e how many hours are used on the following activities in an average
	Number of hours each week (please use decimals if necessary, e.g. 3.5) * Required
Practical work carried out by students	
Teacher-led demonstrations to the whole class	
Computer simulations and/or online experiments	
For your selected subject and Post-16 practical work activities/experiments a	qualification, how has the proportion of lesson time spent on ltered since the last academic year?
C Increased C Decreased	

				Days in a year
Outdoor practical work/f	ïeldwork			
Off-site visits to science-related industry, museums, etc.			5,	
How has the number of d	ays for these	activities cha	nged since the last ac	ademic year?
	Increased	Decreased	Stayed about the sai	me
Outdoor practical work	0	0	О	
Off-site visits	0	0		
			9	
-	t and Post-16	6 qualification,	approximately how m	any practical science activitie
will a student carry out du	t and Post-16 ring the curre	6 qualification, ent year? * F	approximately how m	
will a student carry out du	t and Post-16 ring the curre	6 qualification, ent year? * F	approximately how m	
will a student carry out du  Please enter a number.  How has the number of p	t and Post-16 ring the curre	6 qualification, ent year? * F	approximately how m	

Stayed the same

For your selected subject and Post-16 qualification, how much lesson time (in hours) is allocated to preparing for and carrying out practical work assessment required by the Awarding Organisation in the

current academic year?

Please enter a number.	

Please indicate how often the students in the selected subject and Post-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	O	O	0	0
Students work in groups (3 or more students per set of equipment)	0	О	0	0	0

Please indicate how frequently students in the selected subject and Post-16 qualification do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	О	O	0	О
Discuss purpose of activity/experiment	0	O	O	O	0
Design their own method	0	O	О	O	0
Propose a hypothesis	0	С	О	0	0
Evaluate uncertainty of data	0	С	O	0	0
Analyse conceptual ideas in the activity/experiment	0	0	C	0	0
Draw conclusions from data	0	С	O	0	0
Write a report about the activity/experiment	0	0	O	O	0
Evaluate methods of activity/experiment	0	0	O	O	0
Evaluate other students' experiments	0	0	O	O	0

For the selected subject and Post-16 qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	О
Requirements for coursework or controlled assessment	0	0	C	C	0
Availability of equipment and resources	0	0	0	0	О
Availability of technical support	0	0	0	0	О
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	O	0	0	0	0
Students' behaviour	0	0	0	0	0

Please rate how well you think students in your selected subject and qualification are prepared for practical activities/experiments when they start the Post-16 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	C	0	C	0
Following a set of instructions	O	0	0	0
Using science equipment	O	0	0	0
Writing science reports	0	O	0	O

For your selected subject and Post-16 qualification, have your students had an opportunity to plan and carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

© Yes			
○ No			

In your opinion, have recent changes to practical work assessment had an impact on assessing students' practical science skills, for your selected subject and Post-16 qualification?
C Positive impact
○ No impact
C Negative impact
Do you offer Extended Project Qualifications (EPQ) in science in your school/college?
C Yes
C No
If yes, how many students chose to carry out an EPQ in science in the last academic year in your school/college?
Please enter a whole number (integer).
How many of these students chose to carry out an EPQ involving practical work in science in the last academic year in your school/college?
Please enter a whole number (integer).

## Practical Work Teaching this current year for 14-16-year-olds

Are you teaching GCSE / National science to 14-16-year-old students in your school or college this current academic year? \* Required

○ Yes			
C No			

## For those teaching GCSE/National science to 14-16-year-old students

Please indicate ONE science subject and 14-16 qualification you are teaching this year and answer the following questions about teaching with this subject and qualification in mind. Subject: \* Required

C Physics C Chemistry C Biology C Other
If you selected Other, please specify:
Qualification: * Required
<ul> <li>National 4</li> <li>National 5</li> <li>Single subject GCSE</li> <li>Double Award GCSE</li> <li>Single Award GCSE</li> <li>Other</li> </ul>
If you selected Other, please specify:
If you selected either Single subject, Double Award or Single Award GCSE, is this qualification an IGCSE?
C Yes C No

Please indicate the year group within the $14-16$ age range that you are referring to in your answers.
○ 14–15-year-olds ○ 15–16-year-olds
Please specify the Awarding Organisation whose specification you are following for this qualification:
C AQA C Edexcel C OCR C CIE C IB C CCEA C ICAAE C WJEC C SQA C Other
If you selected Other, please specify:
What is the average number of students in a class for your selected subject and 14-16 qualification? * Required
Please enter a number.
How much timetabled time (in hours) is allocated to the selected subject and year group each week? * Required
Please enter a number.

Of the allocated hours, please estimate week in the current year.	e how many ho	ours are used on the following activities in an average
	Number of he	nours each week (please use decimals if necessary, e.g. 3.5) * Required
Practical work carried out by students		
Teacher-led demonstrations to the whole class		
Computer simulations and/or online experiments		
<ul> <li>work activities/experiments altered sin</li> <li>Increased</li> <li>Decreased</li> <li>Stayed the same</li> </ul>	ce last year?	
Stayed the same		
For your selected subject and 14-16 quality these activities in this academic year?		pproximately how many days are allocated to each of
		Days in a year
Outdoor practical work/fieldwork		
Off-site visits to science-related indusetc.	stry, museums,	,
How has the number of days for these		nged since the last academic year?  Stayed about the same
แบเซลระน	- Corcuseu	Stayed about the same

	Increased	Decreased	Stayed about the same
Outdoor practical work	0	0	0

Off-site visits	С	0	O	
For your selected subject a student carry out during		-	pproximately how many ן.	oractical science activities
Please enter a number.				
How has the number of p	ractical work	activities/exp	eriments altered since la	st year?
<ul><li>C Increased</li><li>C Decreased</li><li>C Stayed the same</li></ul>				
For your selected subject preparing for and carrying current academic year?		•	•	hours) is allocated to varding Organisation in the
Please enter a number.				

Please indicate how often the students in the selected subject and 14-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	O	O	0	0
Students work in pairs	0	O	0	0	O
Students work in groups (3 or more students per set of equipment)	O	0	0	0	0

Please indicate how frequently students in the selected subject and 14-16 qualification do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	С	0	О	С
Discuss purpose of activity/experiment	0	0	o	O	0
Design their own method	O	C	О	C	O
Propose a hypothesis	0	О	O	0	О
Evaluate uncertainty of data	0	О	0	0	0
Analyse conceptual ideas in the activity/experiment	0	0	o	O	0
Draw conclusions from data	0	С	0	С	С
Write a report about the activity/experiment	0	0	C	0	0
Evaluate methods of activity/experiment	0	0	C	О	O
Evaluate other students' experiments	0	0	O	0	0

For the selected subject and 14-16 qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	O	0	C	0	0
Availability of equipment and resources	O	0	0	0	О
Availability of technical support	0	0	0	0	O
Your self-confidence for teaching practical work	O	0	0	0	0
Students' interest in science	O	0	0	0	0

0		0	O
	0		

Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the 14-16 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	o	0	C	0
Following a set of instructions	О	0	О	0
Using science equipment	O	О	О	0
Writing science reports	0	0	0	0

For your selected subject and 14-16 qualification, have your students had an opportunity to plan and carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

C Yes			
C No			

In your opinion, have recent changes to practical work assessment had an impact on assessing students' practical science skills, for your selected subject and 14-16 qualification?

- Positive impact
- No impact
- Negative impact

## Practical Work Teaching this current year

Are you teaching GCSE / National science to 11-14-year-old students in the current academic year? \* Required

○ Yes			
C No			

## For those teaching 11-14-year-old students

Please indicate ONE science subject and year group you are teaching to 11-14s this year and answer all questions about teaching with this subject and year group in mind. Subject: * Required
C Physics C Chemistry C Biology C Science C Other
If you selected Other, please specify:
Year group: * Required
C 11-12s (Year 7) C 12-13s (Year 8 / S1) C 13-14s (Year 9 / S2)
If your selected year group is 13-14s (Year 9), are you teaching a GCSE syllabus?
C Yes C No
If we is this qualification an ICCSE?

What is the average number of students in a class for your selected subject and 11-14 year group? \* Required

YesNo

Please enter a number.	
How much timetabled time (in hours) is Required	s allocated to the selected subject and year group each week? *
Please enter a number.	
Of the allocated hours, please estimate week in the current year.	e how many hours are used on the following activities in an average  Number of hours each week (please use decimals if necessary,
Practical work carried out by students	e.g. 3.5) * Required
Teacher-led demonstrations to the whole class	
Computer simulations and/or online experiments	
For your selected subject and 11-14 yework activities/experiments altered single	ear group, how has the proportion of lesson time spent on practical ce last year?
<ul><li>C Increased</li><li>C Decreased</li><li>C Stayed the same</li></ul>	
For your selected subject and 11-14 ye these activities in an academic year?	ear group, approximately how many days are allocated to each of
	Days in a year

Outdoor practical work/fi	ieldwork			
Off-site visits to science etc.	-related indu	ıstry, museums	,	
How has the number of da	ays for these	e activities char	nged since the last acade	emic year?
	Increased	Decreased	Stayed about the same	
Outdoor practical work	0	0	O	
Off-site visits	0	0	O	
Please enter a number.				
For your selected subject activities/experiments alternative activities/experiments activiti	-		v has the number of pract	ical work
For your selected subject for and carrying out statut	-	• .	•	urs) is allocated to preparing nic year?
Please enter a number.				

Please indicate how often the students in the selected subject and 11-14 year group work individually, in

pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	0	O	O
Students work in groups (3 or more students per set of equipment)	O	0	O	0	0

Please indicate how frequently students in the selected subject and 11-14 year group do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	O	0	0
Discuss purpose of activity/experiment	0	0	O	O	O
Design their own method	0	О	0	0	О
Propose a hypothesis	0	О	0	0	0
Evaluate uncertainty of data	0	О	O	0	0
Analyse conceptual ideas in the activity/experiment	0	0	C	0	O
Draw conclusions from data	0	0	O	0	О
Write a report about the activity/experiment	0	0	O	O	0
Evaluate methods of activity/experiment	0	0	O	C	0
Evaluate other students' experiments	0	0	C	O	0

For the selected subject and 11-14 year group, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	O	0	0	0	O

Curriculum requirements for prescribed activities	0	0	0	0	O
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	O	0	0	0	0
Requirements for coursework or controlled assessment	O	0	0	0	0
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	O
Your self-confidence for teaching practical work	0	0	0	0	O
Students' interest in science	0	0	0	0	0
Students' behaviour	O	0	0	0	0

Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the 11-14 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	C	0	C	0
Following a set of instructions	O	0	O	O
Using science equipment	O	0	O	0
Writing science reports	О	О	О	О

For your selected subject and 11-14 year group, have your students had an opportunity to carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

C Yes			
O No			

In your opinion, have recent changes to practical work assessment had an impact on assessing students' practical science skills, for your selected subject and 11 - 14 year group?

© Positive impact

- No impact
- Negative impact

## **Background Information**

Please select the age range corresponding to your age.
C Under 25 C 26–29 C 30–39 C 40–49 C 50–59 C 60 or older
Please indicate your gender
<ul> <li>Male</li> <li>Female</li> <li>Other</li> <li>Prefer not to say</li> </ul>
Please indicate if your current teaching position is
C Permanent C Temporary
Please indicate if you work
C Full-time C Part-time

By the end of this academic year, how many years will you have been teaching altogether?

Please enter a number.	

## Qualifications

Please indicate your specialist science subject.		
C Physics C Chemistry C Biology C Other		
If you selected Other, please specify:		
What is the highest level of formal education you have completed in YOUR SPECIALIST science subject?		
<ul> <li>Doctorate degree</li> <li>Masters degree</li> <li>Bachelor degree</li> <li>A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ</li> <li>Other (e.g. Qualification obtained overseas; Armed Forces training)</li> </ul>		
If you chose other, please specify:		
What is the highest level of formal education you have completed in ANY SCIENCE subject?		
<ul> <li>Doctorate degree</li> <li>Masters degree</li> <li>Bachelor degree</li> <li>A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ</li> <li>Other (e.g. Qualification obtained overseas; Armed Forces training)</li> </ul>		

If you chose other, please specify:		
Please indicate which science subject you studied to this level.		
Thead market which earlies easjest you stadied to the level.		
<ul> <li>□ Biology - or related subject, e.g. Ecology/Marine</li> <li>□ Biology/Physiology/Zoology/Biomedical Science</li> <li>□ Physics - or related subject, e.g. Astrophysics/Electronics/Space Science</li> <li>□ Chemistry - or related subject e.g. Biochemistry/Pharmacology</li> <li>□ Earth Science/Geology/Geography</li> <li>□ Other, e.g. Engineering, Medicine, Optometry, general science</li> </ul>		
Please indicate if you hold a Post Graduate Certificate in Education or equivalent.		
C Yes C No		
If your answer was yes, please indicate the age range for which you trained.		
C 11-16 C 11-19 C Other		
If you selected Other, please specify:		
Please indicate if you hold qualified teacher status in the nation where you currently work. * Required		
C Yes C No		

academic year?		
C Yes C No		
If you answered yes, please indicate the number of professional development days received.		
Please enter a number.		
How many further days of professional development related to teaching science practical work have you requested but not been permitted to attend?		
Please enter a number.		
How many further days of professional development related to teaching science practical work have you been offered by the school but were unable or chose not to attend?		
Please enter a number.		
We would be pleased to hear about any other experiences of practical work in science in your current school or college you would like to share. We also welcome your reflections on changes in practical work in science over the last few years.		

Have you received any professional development related to teaching science practical work in the current

#### Prize draw

#### **PRIZE DRAW**

To thank you for completing the survey, we would like to invite you to enter our free prize draw to win one of five £100 Amazon gift vouchers. Your email address is required so that we can get in touch if you win. Your details will not be used to identify you as part of the survey and will not be used for marketing purposes.

Please select whether you would like to participate in the free prize draw to win a £100 Amazon gift voucher.

- C Yes, I would like to participate in the free prize draw to win a £100 Amazon gift voucher.
- No thanks, I would not like to participate.

Please enter your email address:

Please enter a valid email address.	

#### Be the first to know about the findings of the study

Durham University, the Gatsby Charitable Foundation and the Wellcome Trust greatly appreciate the time that you have taken to support this study. To thank you for your involvement, we would like to add you to a priority notification list so that you will be the first to know when the findings of the study are published in spring 2018. The list may be shared with the Gatsby Foundation and the Wellcome Trust for this purpose. To be added to the list, please leave your email address below. Your email address will not be used to identify you within the survey data and will not be used for marketing purposes.

Please enter a valid email address.	

## Thank you

Thank you for taking part. You have responded anonymously to our survey. If you would like to contact us, please send an email to research@cem.dur.ac.uk.



5 School Staff Survey for science teachers - Year 3

# Practical Work in Science - Science Teachers survey

The Practical Work in Science Survey is seeking views, opinions and experiences about practical work from everyone teaching and supporting science in any secondary school or college within England and Scotland.

We are now into the final year of this exciting three-year national study. Your responses, along with the data we have collected in the last two years, will build a rich and detailed picture of how practical work in science has changed over this period. Each response is important to ensure that we represent the impact of changes in practical science to researchers and policy-makers.

The study is led by Durham University's Centre for Evaluation and Monitoring (CEM) and School of Education and is funded by the Gatsby Charitable Foundation, with a contribution from the Wellcome Trust. The project is part of an on-going programme of work by Gatsby, Wellcome and the Nuffield Foundation to understand and improve practical work in science education.

We are extremely keen to gather responses from as many heads of science, science teachers and technicians as possible within each school, so please do ask as many colleagues as possible to complete a survey. The perspective of multiple members of staff within a school gives us much richer data and will allow us to understand much more about science practical work in schools.

To thank you for completing the survey, you are invited to participate in a prize draw to win one of five £100 gift vouchers. We would also like to offer you the chance to sign up to be the first to hear about the findings of the study in spring 2018.

Many thanks for your support of the study.

Vanessa Kind, Per Kind, Helen Cramman, Karen Jones, Kirsty Younger and Helen Gray

Durham University School of Education and Centre for Evaluation and Monitoring (CEM)

#### Consent

Your school / college name and postcode are requested in the survey to keep track of institutions over the three-year period, but these will not be identified in any report. Names of individual respondents are not required. All information given to us, including all personal details, will be treated in the strictest of confidence in accordance with the Data Protection Act. None of your experiences or thoughts will be shared with anyone outside of the study partners without removal of all identifying information. The survey responses and results (with all personally identifiable information removed) will be made freely available at the end of the study, and will help researchers, funders, and policy makers to understand the views about practical work in science in the UK. When the survey responses and results of the study are published, your answers will be included with data provided by other people, no individual or institution will be identifiable from the research findings. The study has ethical clearance from Durham University's School of Education Research Ethics Committee and is conducted in accordance with British Educational Research Association (2011) guidelines. Participants are completing the survey on a voluntary basis and may withdraw at any time. The survey takes approximately 15 minutes to complete.

To participate in the prize draw at the end of the survey, we request that you leave an email address. This email address will only be used at the end of July to notify you if you have won one of five £100 Amazon gift vouchers. We also separately request your email address if you would like to be notified when the findings of the study are published in spring 2018. In either case, your email address will not be used to identify you within the survey data and will not be used for marketing purposes.

If you have any queries or comments about the survey or study as a whole, please contact research@cem.dur.ac.uk.

To start replying to the science teachers survey, click on the "Next" button below (please note that clicking on the "Next" button below indicates that you consent to participating in the survey based on the information given on this page).

## About your School or College

What is the name of your school/college? * Required
What is your school/college's postcode? **Required
Please enter a valid UK postcode.
In which nation is your school/college? * Required
© England
© Scotland

## Please indicate your school or college characteristics



5 – 19 Primary and Secondary
11 – 16 Secondary
11 – 19 Secondary
16 – 19 Secondary
FE College
Other

#### Funding \* Required

- C Local authority / State-funded
- Academy / Free school
- Independent
- Other

#### Gender / Selectivity \* Required

- Boys non-selective
- Girls non-selective
- Mixed non-selective
- Boys selective
- Girls selective
- Mixed selective

How would you describe the status of practical work in science within your school/college?

<ul> <li>Medium (senior management do not show any particular preference for practical work in science)</li> </ul>		
C Low (senior management favour other priorities over practical work in science)		
Does your school/college offer a regular extra-curricular STEM (Science, Technology, Engineering, Mathematics) club that includes practical work in science?		
© Weekly or fortnightly		
Monthly		
<ul> <li>Annually or few times a year</li> </ul>		
© Never		
How many students attend your school/college? * Required		
Please enter a whole number (integer).		

C High (senior management prioritise practical work in science)

## For schools / sixth-form colleges only

	Number
How many 15-16 year-olds attend the school?	
How many 15-16 year-olds take examinations in three separate science subjects (physics, chemistry and biology)	
How many post-16 students attend the school/college?	
How many post-16 students study one or more science subjects?	

## For FE colleges only

How many students study one or mo	re science subjects at	t A/AS-level, High	er/Advanced Higher
or academic equivalent?			

#### Practical Work Teaching this current year

Practical work is defined in this study as:

"A learning activity in which students observe, investigate and develop an understanding of the world around them, through direct, hands-on, experience of phenomena or manipulating real objects and materials."

The next questions relate to teaching specific age groups (11-14, 14-16, Post-16). Please answer questions for each age group you teach.

Are you teaching AS / A level or Highers / Advanced Highers to Post-16 students in schools or colleges in the current academic year? \* Required

© Yes			
C No			

#### For those teaching AS / A level / Highers / Advanced Highers

Please indicate ONE science subject and Post-16 qualification you are teaching this year and answer all questions about teaching with this subject and qualification in mind.

Subject: * Required
© Physics
Chemistry Biology
O Other
If you selected Other, please specify:
Qualification: * Required
★ More info
C A level
<ul> <li>Advanced Highers</li> </ul>
<ul><li>AS level</li><li>Highers</li></ul>
© Other
If you selected Other, please specify:

Please specify the Awarding Organisation whose specification you are following for this

qualification.
C AQA C Edexcel C OCR C CIE C IB C CCEA C ICAAE C WJEC C SQA C Other
If you selected Other, please specify:
What is the average number of students in a class for your selected subject and Post-16 qualification? **Required
Please effet a flumber.
How much timetabled time (in hours) is allocated to the selected subject and Post-16 qualification each week? ** Required
Please enter a number.

Of the allocated hours, please estimate how many hours are used on the following activities in an average week in the current year.

	Number of hours each week (please use decimals if necessary, e.g. 3.5) * Required
Practical work carried out by students	
Teacher-led demonstrations to the whole class	
Computer simulations and/or online experiments	

For your selected subject and Post-16 qualification, how has the proportion of lesson time spent on practical work activities/experiments altered since the last academic year?

- Increased
- Decreased
- Stayed the same

For your selected subject and Post-16 qualification, approximately how many days are allocated to each of these activities in an academic year?

	Days in a year
Outdoor practical work/fieldwork	
Off-site visits to science-related industry, museums, etc.	

How has the number of days for these activities changed since the last academic year?

	Increased	Decreased	Stayed about the same
Outdoor practical work	О	0	0

Off-site visits	C	0	0

For your selected subject and Post-16 qualification, approximately how many practical science activities will a student carry out during the current year? \*\*Required\*

Please enter a number.		

How has the number of practical work activities/experiments altered since last year?

- Increased
- Decreased
- Stayed the same

For your selected subject and Post-16 qualification, how much lesson time (in hours) is allocated to preparing for and carrying out practical work assessment required by the Awarding Organisation in the current academic year?

Please enter a number.		

Please indicate how often the students in the selected subject and Post-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	C	0	0

Students work in groups (3 or more			
students per set of equipment)			

Please indicate how frequently students in the selected subject and Post-16 qualification do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	0	0
Discuss purpose of activity/experiment	0	0	O	O	0
Design their own method	0	0	0	O	0
Propose a hypothesis	0	0	0	O	0
Evaluate uncertainty of data	0	O	0	O	0
Analyse conceptual ideas in the activity/experiment	0	0	O	O	0
Draw conclusions from data	0	0	0	0	0
Write a report about the activity/experiment	0	0	O	0	0
Evaluate methods of activity/experiment	0	C	O	0	0
Evaluate other students' experiments	0	0	С	O	0

For the selected subject and Post-16 qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	O	0	0	0	C
Curriculum requirements for prescribed activities	0	0	0	0	C
Preparation for written exams	0	0	0	0	0

Preparation for practical exams	0	0	0	0	O
Requirements for coursework or controlled assessment	O	0	0	0	0
Availability of equipment and resources	O	0	0	0	O
Availability of technical support	O	0	0	0	0
Your self-confidence for teaching practical work	O	0	0	0	0
Students' interest in science	O	0	0	0	O
Students' behaviour	O	0	0	0	0

Please rate how well you think students in your selected subject and qualification are prepared for practical activities/experiments when they start the Post-16 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	O	0	C	О
Following a set of instructions	0	0	0	O
Using science equipment	0	0	O	O
Writing science reports	0	0	O	O

For your selected subject and Post-16 qualification, have your students had an opportunity to plan and carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

○ Yes			
O No			

In your opinion, have recent changes to practical work assessment had an impact on assessing students' practical science skills, for your selected subject and Post-16 qualification?

© Positive impact
<ul> <li>No impact</li> <li>Negative impact</li> </ul>
Do you offer Extended Project Qualifications (EPQ) in science in your school/college?
C Yes C No
If yes, how many students chose to carry out an EPQ in science in the last academic year in your school/college?
Please enter a whole number (integer).
How many of these students chose to carry out an EPQ involving practical work in science in the last academic year in your school/college?
Please enter a whole number (integer).

### Practical Work Teaching this current year for 14-16-year-olds

Are you teaching GCSE / National science to 14-16-year-old students in your school or college this current academic year? \*\*Required

○ Yes			
C No			

## For those teaching GCSE/National science to 14-16-year-old students

Please indicate ONE science subject and 14-16 qualification you are teaching this year and answer all questions about teaching with this subject and qualification in mind.

Subject: * Required
C Physics C Chemistry C Biology
Qualification: * Required
<ul> <li>National 4</li> <li>National 5</li> <li>Single subject GCSE</li> <li>Double Award GCSE</li> <li>Single Award GCSE</li> <li>Other</li> </ul>
If you selected Other, please specify:
If you selected either Single subject, Double Award or Single Award GCSE, is this qualification an IGCSE?
C Yes C No

disvers.
<ul><li>14–15-year-olds</li><li>15–16-year-olds</li></ul>
Please specify the Awarding Organisation whose specification you are following for this qualification:
C AQA C Edexcel C OCR C CIE C IB C CCEA C ICAAE C WJEC C SQA C Other
If you selected Other, please specify:
What is the average number of students in a class for your selected subject and 14-16 qualification? **Required
Please enter a number.

Please indicate the year group within the 14-16 age range that you are referring to in your

week? * Required							
Please enter a number.							
Of the allocated hours, please estimate how many hours are used on the following activities in an average week in the current year.							
	Numb	er of hours each week (please use decimals if necessary, e.g. 3.5) * Required					
Practical work carried out by students							
Teacher-led demonstrations to the whole class							
Computer simulations and/or online experiments							
For your selected subject and 14-1 practical work activities/experiment	•	ion, how has the proportion of lesson time spent on ince last year?					
© Increased							
<ul><li>Decreased</li><li>Stayed the same</li></ul>							
For your selected subject and 14-16 qualification, approximately how many days are allocated to each of these activities in this academic year?							
		Days in a year					
Outdoor practical work/fieldwork							

How much timetabled time (in hours) is allocated to the selected subject and year group each

Off-site visits to science museums, etc.									
How has the number of days for these activities changed since the last academic year?									
	Increased	Decreased	Stayed about the same						
Outdoor practical work	C	O	0						
Off-site visits	O	0	C						
activities will a student ca		-	pproximately how many pr ear?	actical science					
Please enter a number.									
How has the number of practical work activities/experiments altered since last year?  Increased  Decreased  Stayed the same									
For your selected subject and 14-16 qualification, how much lesson time (in hours) is allocated to preparing for and carrying out practical work assessment required by the Awarding Organisation in the current academic year?									
Please enter a number.									

Please indicate how often the students in the selected subject and 14-16 qualification work individually, in pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	0	0	0
Students work in pairs	0	0	0	C	0
Students work in groups (3 or more students per set of equipment)	0	0	0	0	0

Please indicate how frequently students in the selected subject and 14-16 qualification do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	O	0	0	O
Discuss purpose of activity/experiment	0	0	О	O	0
Design their own method	0	0	0	O	0
Propose a hypothesis	0	0	0	0	0
Evaluate uncertainty of data	0	0	0	O	0
Analyse conceptual ideas in the activity/experiment	0	0	O	0	0
Draw conclusions from data	0	O	0	O	O
Write a report about the activity/experiment	0	0	О	0	0
Evaluate methods of activity/experiment	O	0	O	0	0
Evaluate other students' experiments	0	0	O	0	0

For the selected subject and 14-16 qualification, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	0	0	0	0	0
Curriculum requirements for prescribed activities	0	0	0	0	0
Preparation for written exams	0	0	0	0	0
Preparation for practical exams	0	0	0	0	0
Requirements for coursework or controlled assessment	0	0	0	0	О
Availability of equipment and resources	0	0	0	0	0
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	0	0	0	0	0

Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the 14-16 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	C	0
Following a set of instructions	0	0	0	0
Using science equipment	0	0	O	O
Writing science reports	0	С	0	O

For your selected subject and 14-16 qualification, have your students had an opportunity to plan and carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

○ Yes			
C No			

students' practical science skills, for your selected subject and 14-16 qualification?	
C Positive impact	
○ No impact	
C Negative impact	

In your opinion, have recent changes to practical work assessment had an impact on assessing

### Practical Work Teaching this current year for 11-14-year-olds

Are you teaching science to 11-14-year-old students in the current academic year? \* Required

© Yes			
© No			

### For those teaching 11-14-year-old students

Please indicate ONE science subject and year group you are teaching to 11-14s this year and answer all questions about teaching with this subject and qualification in mind.

Subject: * Required
C Physics Chemistry Biology Science Other
If you selected Other, please specify:
Year group: * Required  C 11-12s (Year 7)
C 12-13s (Year 8 / S1) C 13-14s (Year 9 / S2)
If your selected year group is 13-14s (Year 9), are you teaching a GCSE syllabus?
C Yes C No
If yes, is this qualification an IGCSE?
C Yes

C No	
What is the average number of student group? * Required	dents in a class for your selected subject and 11-14 year
Please enter a number.	
How much timetabled time (in hours week? * Required	s) is allocated to the selected subject and year group each
Please enter a number.	
Of the allocated hours, please estir average week in the current year.	mate how many hours are used on the following activities in an
	Number of hours each week (please use decimals if necessary, e.g. 3.5) * Required
Practical work carried out by students	
Teacher-led demonstrations to the whole class	
Computer simulations and/or online experiments	
For your selected subject and 11-1 practical work activities/experiment	4 year group, how has the proportion of lesson time spent on ts altered since last year?
© Increased	00 / 00

© Decreased							
C Stayed the same							
For your selected subject	_		proximately how many day	s are allocated to			
each of those activities in	ranadadin	lo your.	Days in a yea	ır			
Outdoor practical work/f	ieldwork						
Off-site visits to science museums, etc.	-related indu	stry,					
Outdoor practical work	Increased	Decreased	nged since the last acade  Stayed about the same	•			
Outdoor practical work	O	O	0				
Off-site visits	0	0	Ō				
For your selected subject and 11-14 year group, approximately how many practical science activities will a student carry out during the current year?  Please enter a number.							
For your selected subject activities/experiments alto Increased  C Decreased  C Stayed the same			w has the number of practi	cal work			
		07 / 00					

For your selected subject and 11-14 year group, how much lesson time (in hours) is allocated to preparing for and carrying out statutory practical work assessment in the current academic year?

Please enter a number.	

Please indicate how often the students in the selected subject and 11-14 year group work individually, in pairs or in groups when carrying out practical work activities/experiments.

	Always	Most of the time	About half the time	Seldom	Never
Students work as individuals	0	0	O	0	0
Students work in pairs	0	0	C	0	0
Students work in groups (3 or more students per set of equipment)	O	0	O	0	0

Please indicate how frequently students in the selected subject and 11-14 year group do the following in their practical work activities/experiments.

	All activities	Most activities	About half of the activities	A few activities	No activities
Follow prepared instructions	0	0	0	O	0
Discuss purpose of activity/experiment	O	0	O	0	0
Design their own method	O	0	0	O	0
Propose a hypothesis	O	0	0	O	0
Evaluate uncertainty of data	0	0	0	0	0
Analyse conceptual ideas in the activity/experiment	O	0	O	O	O
Draw conclusions from data	0	O	0	0	C

Write a report about the activity/experiment	0	0	O	0	С
Evaluate methods of activity/experiment	0	0	0	0	0
Evaluate other students' experiments	0	0	O	0	O

For the selected subject and 11-14 year group, please compare and rate the impact of these factors on choosing what practical work to include in your lessons.

	High impact 5	4	3	2	No impact 1
Amount of timetabled lesson time	O	0	0	0	C
Curriculum requirements for prescribed activities	0	0	0	0	C
Preparation for written exams	0	0	0	0	C
Preparation for practical exams	0	0	0	0	C
Requirements for coursework or controlled assessment	0	0	0	C	0
Availability of equipment and resources	0	0	0	0	О
Availability of technical support	0	0	0	0	0
Your self-confidence for teaching practical work	0	0	0	0	0
Students' interest in science	0	0	0	0	0
Students' behaviour	O	0	0	0	O

Please rate how well you think students in your selected subject are prepared for practical activities/experiments when they start the 11-14 phase.

	Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory	0	0	0	0
Following a set of instructions	0	0	C	0

Using science equipment	0	0	O	0
Writing science reports	0	0	O	O

For your selected subject and 11-14 year group, have your students had an opportunity to carry out an open-ended, extended investigation (longer than 2 weeks) involving practical work in lesson time in the last academic year?

© Yes			
© No			

In your opinion, have recent changes to practical work assessment had an impact on assessing students' practical science skills, for your selected subject and 11-14 year group?

- Positive impact
- No impact
- Negative impact

## **Background Information**

Please select the age range corresponding to your age.
<ul> <li>C Under 25</li> <li>C 26–29</li> <li>C 30–39</li> <li>C 40–49</li> <li>C 50–59</li> <li>C 60 or older</li> </ul>
Please indicate your gender
<ul><li>Male</li><li>Female</li><li>Other</li><li>Prefer not to say</li></ul>
Please indicate if your current teaching position is
C Permanent C Temporary
Please indicate if you work
C Full-time C Part-time

Please enter a number.		

By the end of this academic year, how many years will you have been teaching altogether?

## Qualifications

Please indicate your specialist science subject.
<ul><li>C Physics</li><li>C Chemistry</li><li>Biology</li><li>Other</li></ul>
If you selected Other, please specify:
What is the highest level of formal education you have completed in YOUR SPECIALIST science subject?
<ul> <li>Doctorate degree</li> <li>Masters degree</li> <li>Bachelor degree</li> <li>A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ</li> <li>Other (e.g. Qualification obtained overseas; Armed Forces training)</li> </ul>
If you chose other, please specify:
What is the highest level of formal education you have completed in ANY SCIENCE subject?
<ul><li>Doctorate degree</li><li>Masters degree</li></ul>

<ul> <li>A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ</li> <li>Other (e.g. Qualification obtained overseas; Armed Forces training)</li> </ul>
If you chose other, please specify:
Please indicate which science subject you studied to this level.
<ul> <li>□ Biology - or related subject, e.g. Ecology/Marine</li> <li>□ Biology/Physiology/Zoology/Biomedical Science</li> <li>□ Physics - or related subject, e.g. Astrophysics/Electronics/Space Science</li> <li>□ Chemistry - or related subject e.g. Biochemistry/Pharmacology</li> <li>□ Earth Science/Geology/Geography</li> <li>□ Other, e.g. Engineering, Medicine, Optometry, general science</li> </ul>
Please indicate if you hold a Post Graduate Certificate in Education or equivalent.
C Yes C No
If your answer was yes, please indicate the age range for which you trained.
C 11-16 C 11-19 C Other
If you selected Other, please specify:

© Bachelor degree

Please indicate if you hold qualified teacher status in the nation where you currently work. * Required
C Yes C No
Have you received any professional development related to teaching science practical work in the current academic year?
C Yes C No
If you answered yes, please indicate the number of professional development days received.
Please enter a number.
How many further days of professional development related to teaching science practical work have you requested but not been permitted to attend?
Please enter a number.
How many further days of professional development related to teaching science practical work have you been offered by the school but were unable or chose not to attend?
Please enter a number

We would be pleased to hear about any other experiences of practical work in science in your current school or college you would like to share. We also welcome your reflections on changes in practical work in science over the last few years.

#### Prize draw

#### **PRIZE DRAW**

To thank you for completing the survey, we would like to invite you to enter our free prize draw to win one of five £100 Amazon gift vouchers. Your email address is required so that we can get in touch if you win. Your details will not be used to identify you as part of the survey and will not be used for marketing purposes.

Please select whether you would like to participate in the free prize draw to win a £100 Amazon gift voucher.

- © Yes, I would like to participate in the free prize draw to win a £100 Amazon gift voucher.
- O No thanks, I would not like to participate.

Please enter your email address:

Please enter a valid email address.			

#### Be the first to know about the findings of the study

Durham University, the Gatsby Charitable Foundation and the Wellcome Trust greatly appreciate the time that you have taken to support this study. To thank you for your involvement, we would like to add you to a priority notification list so that you will be the first to know when the findings of the study are published in spring 2018. The list may be shared with the Gatsby Foundation and the Wellcome Trust for this purpose. To be added to the list, please leave your email address below. Your email address will not be used to identify you within the survey data and will not be used for marketing purposes.

Please enter a valid email address.	

### Thank you

Thank you for taking part. You have responded anonymously to our survey. If you would like to contact us, please send an email to research@cem.dur.ac.uk.



6 School Staff Survey for science technicians - Year 3

# Practical Work in Science - Technicians survey

The Practical Work in Science Survey is seeking views, opinions and experiences about practical work from everyone teaching and supporting science in any secondary school or college within England and Scotland.

We are now into the final year of this exciting three-year national study. Your responses, along with the data we have collected in the last two years, will build a rich and detailed picture of how practical work in science has changed over this period. Each response is important to ensure that we represent the impact of changes in practical science to researchers and policy-makers.

The study is led by Durham University's Centre for Evaluation and Monitoring (CEM) and School of Education and is funded by the Gatsby Charitable Foundation, with a contribution from the Wellcome Trust. The project is part of an on-going programme of work by Gatsby, Wellcome and the Nuffield Foundation to understand and improve practical work in science education.

We are extremely keen to gather responses from as many heads of science, science teachers and technicians as possible within each school, so please do ask as many colleagues as possible to complete a survey. The perspective of multiple members of staff within a school gives us much richer data and will allow us to understand much more about science practical work in schools.

To thank you for completing the survey, you are invited to participate in a prize draw to win one of five £100 gift vouchers. We would also like to offer you the chance to sign up to be the first to hear about the findings of the study in spring 2018.

Many thanks for your support of the study.

Vanessa Kind, Per Kind, Helen Cramman, Karen Jones, Kirsty Younger and Helen Gray

Durham University School of Education and Centre for Evaluation and Monitoring (CEM)

#### Consent

Your school / college name and postcode are requested in the survey to keep track of institutions over the three-year period, but these will not be identified in any report. Names of individual respondents are not required. All information given to us, including all personal details, will be treated in the strictest of confidence in accordance with the Data Protection Act. None of your experiences or thoughts will be shared with anyone outside of the study partners without removal of all identifying information. The survey responses and results (with all personally identifiable information removed) will be made freely available at the end of the study, and will help researchers, funders, and policy makers to understand the views about practical work in science in the UK. When the survey responses and results of the study are published, your answers will be included with data provided by other people, no individual or institution will be identifiable from the research findings. The study has ethical clearance from Durham University's School of Education Research Ethics Committee and is conducted in accordance with British Educational Research Association (2011) guidelines. Participants are completing the survey on a voluntary basis and may withdraw at any time. The survey takes approximately 15 - 20 minutes to complete.

To participate in the prize draw at the end of the survey, we request that you leave an email address. This email address will only be used at the end of July to notify you if you have won one of five £100 Amazon gift vouchers. We also separately request your email address if you would like to be notified when the findings of the study are published in spring 2018. In either case, your email address will not be used to identify you within the survey data and will not be used for marketing purposes.

If you have any queries or comments about the survey or study as a whole, please contact research@cem.dur.ac.uk.

To start replying to the science technician survey, click on the "Next" button below (please note that clicking on the "Next" button below indicates that you consent to participating in the survey based on the information given on this page).

# About your School or College

What is the name of your school/college? * Required
What is your school/college's postcode? * Required
Please enter a valid UK postcode.
In which nation is your school/college? * Required
© England
© Scotland

### Please indicate your school or college characteristics



5- 19 Primary and Secondary
11 – 16 Secondary
11 – 19 Secondary
16 – 19 Secondary
FE College
Other

#### Funding \* Required

Local authority / State-funded
 Academy / Free school
 Independent
 Other

#### Gender / Selectivity \* Required

Boys non-selective
Girls non-selective
Mixed non-selective
Boys selective
Girls selective
Mixed selective

How many students attend your school/college? \* Required

Please enter a whole number (integer).	
-	

How would you describe the status of practical work in science within your school/college?

- High (senior management prioritise practical work in science)
- Medium (senior management do not show any particular preference for practical work in science)
- C Low (senior management favour other priorities over practical work in science)

Does your school/college offer a regular extra-curricular STEM (Science, Technology, Engineering, Mathematics) club that includes practical work in science?

- Weekly or fortnightly
- Monthly
- $\ \ \bigcirc$  Annually or few times a year
- Never

# Staffing

How many te <b>★</b> Required		TE) in total suppo	rt science in your school/college?
Please enter	r a number.		
How many te	chnicians are employed on the fo	ollowing basis?	
			FTE
Term-time o	only (pro-rata)		
	only (pro-rata) with additional uring school holidays		
Year round holidays)	(term time and school		
How many se	enior technicians (FTE) in total su r a number.	pport your sciend	ce department? * Required
How many te	chnicians (FTE) support each of	these subjects?	
Physics			
Chemistry			
Biology			

C Yes C No
How has the number of technicians (FTE) in your school/college changed within the last year?
<ul><li>Increased</li><li>Stayed the same</li><li>Decreased</li></ul>

Are any technician positions currently unfilled?

# Background Information

Please select the age range corresponding to your age.
<ul> <li>Under 25</li> <li>26–29</li> <li>30–39</li> <li>40–49</li> <li>50–59</li> <li>60 or older</li> </ul>
Please indicate your gender
© Male
© Female
© Other
C Prefer not to say
Please indicate if your position as technician is
© Permanent
© Temporary
Please indicate if your work as technician is
© Full-time
© Part-time
of artumo

Please indicate if your work as technician is
<ul> <li>Term-time only (pro-rata)</li> <li>Term-time only (pro-rata) with additional paid time during school holidays</li> <li>Year-round (term time and school holidays)</li> </ul>
By the end of this academic year, how many years will you have been a science technician altogether?
Please enter a number.

## Qualifications

○ No

What is the highest level of formal education you have completed in a SCIENCE subject?
C Doctorate degree
© Masters degree
C Post Graduate Certificate of Education or equivalent
© Bachelor degree
© Other 18+ qualification, e.g. BTEC Certificate / Diploma / Apprenticeship / Technical Qualification
C A level or AS level/Higher or Advanced Higher
© GCSE/O level/CSE/Scottish Standard
<ul> <li>No formal science qualification</li> </ul>
Other, e.g. Qualification obtained overseas; Armed Forces training; Please specify:
Are you a Registered Science Technician (RSciTech)?
C Yes C No
Are you working towards becoming a Registered Science Technician (RSciTech)?
© Yes

Have you received any professional development related to supporting science practical work in

the current academic year?
C Yes C No
Please indicate the number of professional development days received
Please enter a number.
How many further days of professional development related to supporting science practical work have you requested but not been permitted to attend?
Please enter a number.
How many further days of professional development related to supporting science practical work have you been offered by the school but were unable or chose not to attend?
Please enter a number.

### Your role as a technician

Practical work is defined in this study as:

"A learning activity in which students observe, investigate and develop an understanding of the world around them, through direct, hands-on, experience of phenomena or manipulating real objects and materials."

Please indicate	if you work	as a general	science or	specialist	science:	subject technician.
	,					

	General science technician  Specialist science subject technician
If ap	oplicable, please state which specialist science subject(s) you support.
	Physics Chemistry Biology Other
If yo	ou selected Other, please specify:

We would like to know about the tasks you do as a technician. Please indicate how often you do these tasks: *Select all that apply.* 

	Daily	Weekly	Monthly	Termly	Annually	Never
Advising a teacher how to do an experiment / use equipment	0	0	0	0	0	0
Photocopying worksheets for lessons	0	0	O	O	0	0

Discussing science curriculum requirements with a teacher	0	0	0	0	0	0
Setting up equipment for an experiment	0	O	0	0	O	0
Repairing technical equipment, e.g. oscilloscopes, microscopes	0	O	0	0	0	0
Planning a new experiment, e.g. by constructing and/or modifying equipment	C	0	C	O	O	0
Filing worksheets/paper resources	0	0	C	0	0	0
Liaising with school senior managers about science practical equipment or resources	0	0	0	0	0	0
Moving furniture or textbooks	O	0	0	0	O	0
Setting up general IT equipment, e.g. electronic whiteboard, students' computers	O	0	O	O	O	O
Working directly with students on practical science activities in lessons	0	0	0	0	0	0
Working directly with students on practical science activities outside lessons	C	O	C	O	O	0

Does your job include any responsibilities/roles outside the science department, either formal or informal?

© Yes			
© No			

### Additional role

How much time in hours per week do you spend on your additional role(s)?
Please enter a number.
Please indicate what your additional role(s) is/are. Select all that apply.
<ul> <li>□ Technician in another department</li> <li>□ School/college health and safety advisor</li> <li>□ Teaching assistant</li> <li>□ Other</li> </ul>
If you selected Other, please specify:

### **Preparation Rooms**

How many preparation rooms are there in your school or college?

Please enter a whole number (integer).	
	1

How are preparation rooms organised?

- © Subject-specific preparation rooms for biology, chemistry and physics
- Preparation rooms are shared between all sciences
- Both specialist and shared preparation rooms

Are any preparation rooms shared with another department (outside science)?

© Yes			
○ No			

In the preparation room(s) you use, please evaluate the following factors and facilities.

	Available and sufficient/working	Available but insufficient/not working	Not available	Not relevant
Storage space for equipment	0	C	0	0
Working surfaces to meet the needs of the department	0	C	O	0
Gas, water, electricity supply	0	O	0	0
Proximity to laboratories	O	O	0	0

Computer, internet connections and telephone	O	O	O	0
Trolley for moving equipment	0	O	O	0
Space for trolleys	0	O	0	0
First aid kit	0	0	0	0
Mechanical ventilation	O	0	0	0
A lockable, ventilated chemical store	0	O	O	0
Refrigerator/freezer	0	0	0	0
Dishwasher or laboratory glass washer	0	o	0	0
Fume cupboard	0	O	C	0
A still for distilling water	O	O	O	0
Provision for the secure storage of gas cylinders	0	O	0	0

### Laboratories

How many laboratories are there in your school/college?

In the laboratories you assist, please indicate to what extent the following are satisfactory (available and in good working order) in relevant laboratories.

	All	Most	About half	A few	None
Easy access for technicians	0	0	0	0	0
Located close to prep rooms	0	0	0	0	0
Accessible to SEND students	0	0	0	0	0
Appropriate space for class sizes	0	0	0	0	0
Good quality furnishings, e.g. benches, stools, shelving, storage	0	0	O	0	0
Fully functioning sinks and drainage	0	0	0	0	C
Roof, floor, walls in good condition	0	C	0	0	0
Basic Health and Safety standards met, e.g. eye protection, screens, fire extinguishers	0	0	0	0	0
Mechanical ventilation	0	O	0	0	0
Computers available for student use	0	0	0	0	0
Space to leave long term investigations/experiments	0	0	0	0	0
Well distributed taps	0	0	0	0	C
Well distributed power points	0	O	0	0	0
Accessible shut-offs for gas, electricity and water and an earth-leakage circuit breaker on the electrical supply	0	0	0	0	0
Provision for teacher-led demonstrations that might require gas, water and electricity	0	0	0	0	0
An interactive whiteboard, projector etc.	0	0	0	0	0

Working blinds/curtains/light-dimming system for black outs (Physics only)	O	0	0	0	O
Fume cupboard with working gas, electricity and water supplies (Chemistry only)	O	0	0	0	O
Well distributed gas taps (Chemistry only)	0	0	0	0	0

## Science Equipment

Please select the items in the following three questions that are relevant for the laboratories you serve and indicate if an item is available in working order and/or as a complete set.

#### Physics or General Science Laboratory item

	Available in working order/complete set	Available but not working/not complete set	Not available	Don't know
Oscilloscope with spectrum analysis	0	C	0	0
Van de Graaff Generator	0	О	0	0
Air Track with air source	0	0	0	0
Electric Vacuum Pump	0	0	C	0
Class set (groups) of data loggers with sensors	0	O	0	O
Class set (groups) of ray boxes and lenses	0	O	0	O
Magnetic field observation kit (iron filings, magnets)	O	O	0	0
Class set (groups) of multimeters or volt and ammeters	O	O	O	O
Class set (groups) of Newtonmeters	0	C	0	O
Class set (groups) of magnets	O	O	0	0
Class set (groups) of tuning forks	0	O	0	0
Class set (groups) of bulbs, bulb holders and wires	O	O	0	0

### Chemistry or General Science Laboratory item

	Available in working order/complete set	Available but not working/not complete set	Not available	Don't know
UV Spectrophotometer	O	О	C	0
More than one digital precision balance (±0.001g)	O	0	O	0
Class set (groups) of magnetic stirrers	O	O	0	0
Class set (groups) of heating mantles	O	O	0	0
Class set (groups) of distillation apparatus	O	0	0	0
Class set (groups) of pH meters	C	0	O	0
Class set (groups) of student molecular modelling kit	O	0	O	0
Class set (groups) of ground glass gas syringe	O	O	0	0
Class set (groups) of titration equipment	O	O	0	0
Class set (groups) of Erlenmeyer flasks	O	O	0	0
Class set (groups) of Bunsen burners	O	•	O	0
Eye protection for all students	0	C	O	0

Biology or General Science Laboratory item

	Available in working order/complete set	Available but not working/not complete set	Not available	Don't know
Genetic engineering kit	0	0	0	0
Digital microscope with visualizer and/or camera	O	C	O	0
Haemocytometer	O	O	0	0
Gel electrophoresis equipment and centrifuge	C	O	O	0
Class set (groups) of datalogger with sensors	C	O	O	0
Class set (groups) of optical microscopes	C	O	O	0
Water bath and thermometers	C	O	O	0
Class set (groups) of colorimeters	C	O	O	0
Class set (groups) of field work equipment	O	C	0	0
Anatomical models, e.g. eye, torso, ear, heart	o	C	0	0
Class set (groups) of dissection kit	C	O	0	0
Class set (groups) of plastic petri dishes	O	O	0	0

We would be pleased to hear about any other experiences of practical work in science in your current school or college you would like to share. We also welcome your reflections on changes in practical work in science over the last few years.

#### Prize draw

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Please select whether you would like to participate in the free prize draw to win a £100 Amazo	on
gift voucher.	

- O Yes, I would like to participate in the free prize draw to win a £100 Amazon gift voucher.
- O No thanks, I would not like to participate.

Please enter your email address:

Please enter a valid email address.		

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Please enter a valid email address.	

# Thank you

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Monitoring Practical Science in Schools and Colleges

Version 1.0

Publication date: January 2019

ISBN: 978-0-907552-19-2