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Monitoring practical science in schools and colleges

Appendix 4: School Staff Survey

Durham University

Prepared for the Gatsby Charitable Foundation and the Wellcome Trust

Helen Cramman, Vanessa Kind, Andrew Lyth, Helen Gray, Kirsty Younger, Adam Gemar, Paivi Eerola, Rob Coe, Per Kind

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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								
	,								
*1. Scho	ol/College name (*Required)								
*2. Wha	*2. What is your school/college's postcode? (*Required)								
*3. In wh	nich nation is your school/college? (*Required)								
Select one.									
0	England								
0	Northern Ireland								
0	Wales								
0	Scotland								
	Disease in disease very selection college above at eviation								
	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								
F F	~~								
5. Fundir									
O									
0	Local authority/state funded								
	Academy/Free School								
0	Independent								
0	Other								



6. Gender/S	6. Gender/Selectivity									
Select one.										
0	Boys non-s	elective								
0										
0	Mixed non	-selective								
0	,									
O Girls selective										
O Mixed selective										
*7. Are you	a science te	chnician? (*Required)								
Select one.										
O Ye	S	(Go to question number 91.)								
O No)	(Go to question number 8.)								
			<u> </u>							
		Commont Stordonto								
		Current Students								
8. How mar	ny students a	attend your school/college?								
9. For school	ols/sixth-forr	m colleges only:								
			Number							
		How many 15-16 year olds attend the school?								
How m	any 15-16 yε	ear-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 sciences?										
	olleges ONL'	Y: How many students study one or more sciences at A/AS-level, Higher/Aivalent?	Advanced							



	11. Does your school/college offer a regular extra-curricular STEM (Science, Technology, Engineering,								
	Mathematics) club that includes practical work in science? Select one.								
	O Weekly or fortnightly								
0	-		inigntiy						
	Monthly		urtimos a voar						
			w times a year						
	O Don't have a club								
*12. Are	e you Head	of a S	cience 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 school	ol/coll	ege 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	ise indicate	your	department						
Select o	ne.								
	0	Phy	sics						
	0	Che	mistry						
	0	Bio	ogy						
15. Plea	ise indicate	the r	umber of students studying PHYSICS						
				Number					
	Number of 11 – 14 year-olds								
	Number of students doing GCSEs/Nationals or equivalent in the subject								
Ni	umber of s	tuden	ts 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	gher 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							
ritysics							
Chemistr	у						
Biology							
22. Are any technician positions c	urrently unfilled?						
Select one.							
0	Yes						
0	No						
	Department B	udget					
22 M/hat ia tha assument agreed ho	dest (such diese staff selse	iss) allocated to esimon from success					
school/college?	laget (excluding stari salar	ies) allocated to science from your					
			£				
Budget for the	Science Department/ALL	specialist departments					
If applicable, bude	get for VOLIR SPECIALIST S	LIRIECT/DEPARTMENT only					
If applicable, budget for YOUR SPECIALIST SUBJECT/DEPARTMENT only							
24 What was I AST VEARIS a second	hudget (evel) die e et eff e	planias) allocated to asianas frame varia					
school/college?	budget (excluding staff sa	alaries) allocated to science from your					
			£				
Dudget for the	Science Department / ALL	specialist departments					
Budget for the	Science Department/ ALL	. specialist departments					
If applicable, budg	zet for YOUR SPECIALIST S	LIBIECT/DEPARTMENT only					
If applicable, budget for YOUR SPECIALIST SUBJECT/DEPARTMENT only							



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%)						
Percentages	do not need to	add up to 100%)		Proportion allocated total	! (%) of	
	Consumables a	and equipment for	practical work			
Photocopy	ing/reprographi	ics - for hard copy v etc.	worksheets, examinations			
	ICT - softw	vare, hardware, dat	ta logging			
	Science-spec	cific professional de	evelopment			
			Laboratories			
26. How man	y laboratories a	re available in you	r school/college?			
			Nui	mber of laboratories		
	Physics la	aboratories				
	Chemistry	laboratories				
	Biology la	aboratories				
	General scier	ice 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	r row.				T 1	
	All lessons	Most lessons	About half of the lessons	A few lessons	None	
11 – 14s	0	0	0	0	0	
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	e department laboratory f		0	0	0	0	0
	e department uipment and o		0	0	0	0	0
The	e department technical s		0	0	0	0	0
	The departm sufficient b		0	0	0	0	0
Tł	ne teachers ha compete		0	0	0	0	0
	Teachers are sufficient pro developr	fessional	0	0	0	0	0
		Pı	actical Wor	k Teaching	g this current year		
Prac	tical work is de	efined in this st	udy as:				
arou					e and develop an und enomena or manipula		
	Have you recei		sional develo	pment rela	ted to teaching scienc	ce practical wo	rk in the
Sele	Select one.						
С	O Yes (Go to question number 30.)						
С	O No (Go to question number 31.)						
30. F	Please indicate	the number 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	Yes	(Go to question number 32.)							
O No		(Go to question number 47.)							
Plea		NE science subject and Post-16 qualification you are teaching this year and answer all questions about teaching with this subject and qualification in mind.							
32. SUE	RIFCT								
Select of									
0									
0	Chemistr	W.							
0	Biology	y							
0		ease specify):							
		cuse spessify.							
	•								
33. QU	ALIFICATION								
Select o	one.								
0	A-level								
0	O Advanced Highers								
0	AS-level								
0	Highers								
0	Other (P	ease specify):							
24 8	·c .1								
		e Awarding Organisation whose specification you are following for this qualification:							
Select									
0	AQA								
0	Edexcel								
0									
0	CIE								
0	IB								
0	CCEA								
0	ICAAE								
0									
0	SQA								
0	Other (Pl	ease specify):							



35. How much timetabled time (in hours) is allocated to the selected Post-16 subject and qualification each week?								
				Hours				
35 0511 11								
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 o	f hours each week			
Practical work carried out by students								
Teacher-led demonstrations to the whole class								
Computer simulations and/or online experiments								
	37. 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 pr	actical work/field	work					
	Off-site visits to science	e related industr	y, museums etc.					
28 Has the ni	umber of days for these	activities change	ad since the last ac	ademic vear	2			
Select one per		detivities change	to since the last de	ademic year	•			
		Increased	Decreased	Staye	d about the same			
Outdoo	or practical work	0	0		0			
0	ff-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.								
0	Increased							
0	Decreased							
0	O Stayed the same							



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	()	С)	0
Students work in pairs		0	0)	О)	0
Students work in groups (3 or mo per set of equipment)	re students	0	0	()	С)	0
43. Please indicate how frequently following in their practical work act Select one per row.			d subject and P	ost-16 q	ualificati	on do	the	
Select one per row.	All activities	Most activiti			A fe			No tivities
Follow prepared instructions	O	O	es the acti		O	ues	act	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	C)	0			0
Evaluate uncertainty of data	0	0	О) 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				0
Evaluate methods of activity/experiment	0	0	0)	0			0
Evaluate other students' experiments	0	0	С)	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

	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



Select	one per row.					
			Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory		0	0	0	0	
Fol	lowing a set of ins	tructions	0	0	0	0
ι	Jsing science equi	pment	0	0	0	0
	Writing science re	eports	0	0	0	0
	t academic year?	SE/ National :	science to 14 – 16	year old students	in schools or colleg	ges in the
0	Yes	(Go to quest	tion number 48.)			
0	No	(Go to quest	tion number 65.)			
Plea		-	ct and 14 – 16 qua teaching with this s	•	teaching this year a ication in mind.	and answer all
48. SUI	ques BJECT one.	-	•	•		and answer all
48. SUI	BJECT one. Physics Chemistry	-	•	•		and answer all
48. SUI	BJECT one. Physics Chemistry	stions about 1	•	•		and answer all
48. SUI	BJECT one. Physics Chemistry Biology	stions about 1	•	•		and answer all
48. SUI	BJECT one. Physics Chemistry Biology	stions about 1	•	•		and answer all
48. SUI	BJECT one. Physics Chemistry Biology Other (Please	stions about 1	•	•		and answer all
48. SUI Select (BJECT one. Physics Chemistry Biology Other (Please	stions about 1	•	•		and answer all
48. SUI Select	Physics Chemistry Biology Other (Please	stions about 1	•	•		and answer all
48. SUI Select (O O 49. QU Select (O	BJECT one. Physics Chemistry Biology Other (Please	e specify):	•	•		and answer all
48. SUI Select of O	Physics Chemistry Biology Other (Please ALIFICATION one. National 4 National 5	e specify):	•	•		and answer all
48. SUI Select O O O O O O O O O O O O O O O O O O O	BJECT one. Physics Chemistry Biology Other (Please PALIFICATION one. National 4 National 5 Single subject	e specify): ct GCSE rd GCSE	•	•		and answer all



50. Plea	ase spec	ify the A	warding Organisation whose specification yo	u are following for this qualification:				
Select c	one.							
)	AQA						
)	Edexce	Edexcel					
)	OCR	OCR					
)	CIE	CIE					
)	IB						
)	CCEA						
)	ICAAE						
)	WJEC						
)	SQA						
)	Please	specify:					
Select of		subject/{	group you teach set by ability?					
O	Yes		(Go to question number 52.)					
0	No		(Go to question number 53.)					
	NO		(do to question number 55.)	L				
52. Cho	ose one	e ability g	group you refer to when answering questions	about teaching				
Select c				<u> </u>				
	0	ı	High					
	0		Medium					
	0	ı	.ow					
ı								
53. Hov	v much	timetabl	ed time (in hours) is allocated to the selected	subject and year group each week?				
				Hours				
			urs, please estimate how many hours are use rrent year. (Please use decimals if necessary,	_				
average	· Week i	ii tiic ca	Tene year (. rease ase decimals it recessory)					
				Number of hours each week				
Practical work carried out by students								
·								
Teacher-led demonstrations to the whole class			demonstrations to the whole class					
reacher-led definolistrations to the whole Class								
Computer simulations and/or online experiments								



55. For your selected 14 – 16 su of these activities in an academ	= -	cation, ap	proximately ho	w many days are	allocated	to each	
					Days in a y	rear	
Outdo	Outdoor practical work/fieldwork						
Off-site visits to science related industry, museums etc.							
56. Has the number of days for	these activities c	hanged sii	nce the last aca	demic year?			
Select one per row.				,			
	Increase	ed	Decreased	Stayed abo	out the san	ne	
Outdoor practical work	0		0		0		
Off-site visits	0		0		0		
57. For your selected 14 – 16 su will a student carry out during t	•		proximately ho	w many practica	l science a	ctivities	
58. Has the number of practical	work activities/	ovnerimen	ts altered since	a last vear?			
Select one.	work activities/	хреппеп	ts aftered since	last year:			
O Increased							
O Decreased							
O Stayed the same	!						
59. 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?							
			Н	ours			
60. 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.		1	T	1	1		
	Always	Most of the time	About half the time	Seldom	Never		
Students work as ind	0	0	0	0	0		
Students work in p	0	0	0	0	0		
Students work in groups (3 or more students per set of equipment)			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 importa	nce 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 practic	al
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.)	1		
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. SUBJECT							
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							
O Hig		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					



	ocated hours, please es	-			ng activities in an			
				Number o	f hours each week			
	Practical work carried	l out by students						
Te	acher-led demonstratio	ons to the whole c	lass					
Con	nputer simulations and/	or online experim	nents					
-	selected 11 – 14 subject es in an academic year?		approximately how	v many days	are allocated to each of			
					Days in a year			
Outdoor practical work/fieldwork								
	Off-site visits to science	ce related industry	, museums etc.					
73. Has the n	umber of days for these	e activities change	d since the last ac	ademic year	?			
		Increased	Decreased	Staye	d about the same			
Outdo	or practical work	0	0		0			
0	ff-site visits	0	0		0			
-	selected 11 – 14 subject carry out during the cu		approximately how	v many pract	cical science activities			
75. Has the n	umber of practical work	c activities/experi	ments altered sinc	e last year?				
Select one.					1			
0	Increased							
0	Decreased							



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 rat	e how	well you think stu	udents in your sele	cted subject are p	repared for praction	cal
activities/exp		nts when they sta	rt the 11 – 14 phas	e.		
Select one pe	T TOW.		Very well prepared	Well prepared	Marginally prepared	Unprepared
Working independently in a laboratory			0	0	0	0
Following	a set o	of instructions	0	0	0	0
Using s	cience	equipment	0	0	0	0
Writin	g scien	nce reports	0	0	0	0
			Background I	nformation		
92 Planca inc	licato t	the how correspon	ding to your ago			
Select one.	iicate	the box correspor	iding to your age			
0		Under 25				
0		26–29				
0	,	30–39				
0		40–49				
0		50–59				
0		60 or older				
92 Dloggo inc	licato	vour gondor				
83. Please inc	iicate	your gender				
0	Male	<u> </u>				
0	Fema					
0		er not to say				
		,				
84. Please inc	dicate i	if your current tea	ching position is			
Select one.						
0	ı	Permanent				
O Temporary						
85. Please inc	dicate i	if vou work				
Select one.		, 00 110111111				
0		Full Time				
0		Part Time				



86. By	the end of this a	cademic year, how many years will you have b	een teaching altogether?
			Number
			_
07 DI-			
		r specialist science subject	
Select			
0	Physics Chemistry		
0	Biology		
0		h sciences. Please specify:	
	other, e.g. Eart	Trade specify.	
			<u> </u>
00 M/L	nat is the bights-t	lovel of formal education vary have your correct	loted in a SCIENCE subject?
Select		level of formal education you have you compl	eted iii a science subject:
	octorate degree		
l 	asters Degree		
l 		tificate of Education or equivalent	
	achelor Degree	enroate of Education of Equivalent	
l - 		other post-16 qualification such as BTEC, diplor	ma, IB, NVQ
l 		ation obtained overseas; Armed Forces training	
89. Ple	ase indicate whi	ch science subject you studied to this level.	
	all that apply.	, ,	
□ Bio	ology - or related	d subject, e.g. Ecology/Marine Biology/Physiol	ogy/Zoology/Biomedical Science
□ Ph	ysics - or related	subject, e.g. Astrophysics/Electronics/Space S	Science
□ Ch	emistry - or rela	ted subject e.g. Biochemistry/Pharmacology	
□ Ea	rth Science/Geo	ogy/Geography	
□ Ot	her, e.g. Enginee	ring, Medicine, Optometry, general science	
*00 0	oaso indicato if :	you hold qualified tooches status in the matica	whore you currently work (*Descised)
Select		ou hold qualified teacher status in the nation	where you currently work (* kequirea)
O	Yes	(Go to question number 116.)	
	No	(Go to question number 116.)	
ш	.10	(55 to question number 110.)	



Technician				
		Background Information		
	licate	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	er not to say		
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. Wł	nat is the highest	level of fo	rmal education you have you complet	ted in a SCIENCE subject?					
Select	one.								
O Do	octorate degree								
Ом	O Masters Degree								
O Po	O Post Graduate Certificate of Education or equivalent								
ОВа	chelor Degree								
O Ot	her 18+ qualificat	tion, e.g. E	BTEC Certificate/Diploma/Apprentices	ship/Technical Qualification					
ОА	level or AS level/l	Higher or A	Advanced Higher						
O G(CSE/O level/CSE/S	Scottish Sta	andard						
O No	o formal science o	qualificatio	on						
Oot	her, e.g. Qualifica	ation obta	ined overseas; Armed Forces training	; Please specify:					
96. Are	you a Registered	d Science 1	Fechnician (RSciTech)?						
Select	one.								
	0		Yes						
	0		No						
		vards RSci ⁻	Tech registration?						
Select									
	0		Yes						
	0		No						
98 Ha	ve vou received a	inv nrofess	sional development related to suppor	ting science practical work in the					
	t academic year?		sional development related to suppor	ting science practical work in the					
Select	one.								
0	Yes	(Go to qu	estion number 99.)						
0	No	(Go to qu	estion number 100.)						
1	ı l								
99. Ple	ase indicate the r	number of	days						
				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. Please indicate if you work as a general science or specialist science subject technician Select one. 0 General science technician 0 Specialist science subject technician 101. If applicable, please state which specialist science subject(s) you support. Select all that apply. **Physics** Chemistry **Biology** Other (Please specify): 102. 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 Photocopying worksheets for lessons Discussing science curriculum requirements with a teacher Setting up equipment for an experiment Repairing technical equipment, e.g. oscilloscopes, microscopes Planning a new experiment e.g. by constructing and/or modifying equipment Filing worksheets/paper resources Liaising with school senior managers about science practical equipment/resources Moving furniture/textbooks

Setting up general IT equipment, e.g. electronic whiteboard, students' computers



inform		de any responsibilit	ies/roles outside the science department, either formal or			
Select	one.					
0	O Yes (Go to question number 104.)					
0	O No (Go to question number 106.)					
104. H	ow much time in h	ours per week do y	you spend on your additional role(s)?			
			Number			
105. P	lease indicate wha	t your additional ro	ple(s) is/are.			
Select	all that apply.					
	Technician in and	other department				
	School/college h	ealth and safety ad	visor			
	☐ Teaching assistant					
	Other general ro	le (Please specify):				
			Preparation Rooms			
106. H	ow many preparat	ion rooms are ther	e in your school or college?			
	от тату реврага		Number			
			Number			
_						
		n rooms organised	?			
107. H	ow are preparatio					
107. H Select		<u> </u>				
Select	one.		biology, chemistry and physics			
Select O S	<i>one.</i> Subject-specific pre		biology, chemistry and physics			
Select O S O P	one. Subject-specific pre Preparation rooms	paration rooms for	biology, chemistry and physics n all sciences			
Select O S O P	one. Subject-specific pre Preparation rooms	paration rooms for are shared betwee	biology, chemistry and physics n all sciences			
Select O S O P O B	one. Subject-specific pre Preparation rooms Both specialist and	paration rooms for are shared betwee shared preparatior	biology, chemistry and physics n all sciences			
Select O S O P O B	one. Subject-specific pre Preparation rooms Both specialist and	paration rooms for are shared betwee shared preparatior	n all sciences n rooms			
Select O S O P O B	one. Subject-specific pre Preparation rooms Both specialist and	paration rooms for are shared betwee shared preparatior	n all sciences n rooms			



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 Calledo					
About your School or College						
*1. Sch	ool/College	e name (*Required)				
1.00.	001,0011080	Thanke (negatives)				
*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				
0	Other					
	•					
5. Fund	ling					
Select o	one.					
0	Local auti	hority/state funded				
0						
0	Independ					
0	Other					



6. Gender	-/Selectivity			
Select one.				
0	Boys non-selective			
0	Girls non-selective			
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:			
	ooley sincer to this conteges only.	Number		
		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 (nedd 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 teacherscience only)	ers (full-time equivalent,	FTE) teach in the school/college? (head of
14. How many too share (ETE)	**************************************	cets? (hand of spignes 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	e subjects? (head of science only)
Physics		Number
Chemistry		
Biology	Biology	
17. Are any technician positio	uns currently unfilled? /h:	and of science only)
Select one.	nis currently unimeu! (Me	edd of science only)
0	Yes	
0	No	



	Department Budget (head of science of	nly)		
	the current annual budget (excluding staff salaries) alloc ege? (head of science only)	ated to science from your		
Budget fo	r the Science Department	£		
If applicable, your science department budget carried over from last year				
	s the budget changed since last year? (head of science on	nly)		
Select one.		7		
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%) <i>(he</i>			
Consumal	ples and equipment for practical work			
Photocop examinati	ying/reprographics - for hard copy worksheets, ons etc.			
ICT - software, hardware, data logging				
Science-specific 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

coneg	es in the currer	it 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	JBJECT				
Select	one.				
0	Physics				
0	Chemistry	Chemistry			
0	Biology	Biology			
0	Other (Please specify):				
24. Ql	JALIFICATION				
Select	one.				
0	A level				
0	Advanced	Highers			
0	AS level				
0	Highers				
0	Other (Please specify):				



25. Pleas qualificat	e specify the Awarding Organisation whose specificatition:	on you are following for this				
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					
		stadents				
	much timetabled time (in hours) is allocated to the se tion each week?	lected Post-16 subject and				
		Hours				
	28. 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				
Practica	al work carried out by students					
Teache	r-led demonstrations to the whole class					
Comput	Computer simulations and/or online experiments					



				Days in a year	
Outdoor practical work/fieldwork					
Off-site visits to science-related industry, museums, etc.					
30. Has th	ne number of days for t	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	vicito	0	0	0	
			cation, approxim		
31. For yo	our selected subject and will a student carry out	l 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	l 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	l 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 you activities 32. How has select one	bur selected subject and will a student carry out that 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	has the number of practe. Increased Decreased Stayed the same	Post-16 qualif during the curr cical work activity	cation, approximent year?	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 o
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. SUBJ	ECT						
Select or	ne.						
0	Physics						
0	Chemistry						
0	Biology						
0	Other (please specify):						
40. QUA	LIFICATION						
Select or	าย.						
0	National 4						
0	National 5						
0	Single subject GCSE						
0	Double Award GCSE						
0	Single Award GCSE						
0	Other (please specify):						
		_					
41. Pleas qualifica	se specify the Awarding Organisation whose specification you are following for this						
Select or		-					
		_					
0	AQA						
0	Edexcel						
	OCR CIF						
0	CIE						
0	IB cost						
0	CCEA						
	ICAAE						
0	WJEC						
	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 week?	43. How much timetabled time (in hours) is allocated to the selected subject and year group each						
			Hours				
44. Of the allocated hours, please an average week in the current ye		•		_			
		1	Number of ho	ours each week			
Practical work carried out by stu	dents						
Teacher-led demonstrations to t	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/fieldwork							
Off-site visits to science related industry, museums etc.							
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							



•	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	r selected subject and 14 -16 q o preparing for and carrying out on in the current academic year	t practical		-	-	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 About half 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, pleas	se 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

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.

55. SUBJ						
Select or	ne.					
0	Physics					
0	Chemistry					
0	Biology					
0	Science					
0	Other (Please speci	fy):				
	•					
56. YEAF	R GROUP					
Select or	ne.					
0 1	11 – 12s (Year 7)					
0 1	12 – 13s (Year 8 / S1	/ 1st Year)				
\vdash	13 – 14s (Year 9 / S2					
.						
-	u are in a school in En g a GCSE syllabus?	gland and your selected year grou	p is 13 - 14s (Year 9), are you			
Select or	•					
Jelett of			1			
	0	Yes				
	0	No				
58. Wha group?	t is the average numb	per of students in a class for your se	elected 11-14 subject and year			
Enter a r	number.					
			students			
59. How week?	much timetabled tim	e (in hours) is allocated to the sele	ected subject and year group each			
reck.			Hours			



60. 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)					
			۸	lumber of ho	ours each week
Practical w	ork carried out by stu	udents			
Teacher-le	d demonstrations to				
Computer simulations and/or online experiments					
	selected 11-14 subje		up, approximate	ly how man	y days are allocated
					Days in a year
Outdoor practical work/fieldwork Off-site visits to science related industry, museums etc.					
62. How has					
Select one p	s the number of days er row.	for these activit	ies changed sind	e the last ac	ademic year?
Select one p	-	for these activit	Decreased		out the same
	-	I			·
	ractical work	Increased	Decreased		out the same
Outdoor p Off-site vis	ractical work	Increased O O ect and year gro	Decreased O O up, approximate	Stayed ab	out the same
Outdoor p Off-site vis 63. For your activities wi	ractical work its selected 11-14 subje	Increased O oct and year groduring the curre	Decreased O up, approximate ent year?	Stayed ab	out the same O O y practical science
Outdoor p Off-site vis 63. For your activities wi	ractical work its selected 11-14 subje	Increased O oct and year groduring the curre	Decreased O up, approximate ent year?	Stayed ab	out the same O O y practical science
Outdoor p Off-site vis 63. For your activities wi	ractical work its selected 11-14 subje	Increased O oct and year groduring the curre	Decreased O up, approximate ent year?	Stayed ab	out the same O O y practical science
Outdoor p Off-site vis 63. For your activities wi 64. How has Select one.	ractical work its selected 11-14 subjected 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



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					
	75. Please indicate your specialist science subject				
Se	lect one.				
	Physics				
	Chemistry				
	Biology				
	Other, e.g. Earth sciences. Please specify:				
	. What is the highest level of formal education you have completed in YOUR SPECIALIST science bject?				
	lect one.				
0	Doctorate degree				
0	Masters degree				
0	Bachelor degree				
0	A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ				
0	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?				
	. What is the highest level of formal education you have completed in ANY SCIENCE subject?				
Se	lect one.				
Se	Doctorate degree				
Se	Doctorate degree Masters degree				
Se	Doctorate degree Masters degree Bachelor degree				
Se	Doctorate degree Masters degree Bachelor degree A level/Higher or other Post-16 qualification such as BTEC, diploma, IB, NVQ				
Se	Doctorate degree Masters degree Bachelor degree				
Se	Doctorate degree Masters degree Bachelor degree A level/Higher or other Post-16 qualification such as BTEC, diploma, IB, NVQ				
Se 0 0 0 0	Doctorate degree Masters degree Bachelor degree A level/Higher or other Post-16 qualification such as BTEC, diploma, IB, NVQ				
See	Doctorate degree Masters degree 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:				
See	Doctorate degree Masters degree 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: Please indicate which science subject you studied to this level.				
See	Doctorate degree Masters degree 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: Please indicate which science subject you studied to this level. Please indicate which science subject you studied to this level. Biology - or related subject, e.g. Ecology/Marine Biology/Physiology/Zoology/Biomedical				
See	Doctorate degree Masters degree 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: Please indicate which science subject you studied to this level. Please indicate which science subject you studied to this level. Please indicate which science subject you studied to this level. Biology - or related subject, e.g. Ecology/Marine Biology/Physiology/Zoology/Biomedical Science				
See	Doctorate degree Masters degree 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: Please indicate which science subject you studied to this level. Lect all that apply. Biology - or related subject, e.g. Ecology/Marine Biology/Physiology/Zoology/Biomedical Science Physics - or related subject, e.g. Astrophysics/Electronics/Space Science				



79. Please indicate if you hold a Post Graduate Certificate in Education or equivalent							
Selec	t one.						
0	O Yes (Answer question number 79.1.)						
0	O No						
79.1 Please indicate the age range for which you trained							
Select one.							
O 11 - 16							
	O 11 - 19						
	0	Other:					
	Please indicate quired)	e if you ho	d qualified teacher status in the nation where you currently work				
Selec	t one.						
	0		Yes				
	0		No				
	81. Have you received any professional development related to teaching science practical work in the current academic year?						
	t one.	, , , , , , ,					
0	Yes	(Go to	question number 82.)				
0	No	(Go to	question number 83.)				
			1				
82. P	lease indicate	the numbe	er of days				
83. 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.							



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 prize draw to win a £100 Amazon gift voucher.					
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.

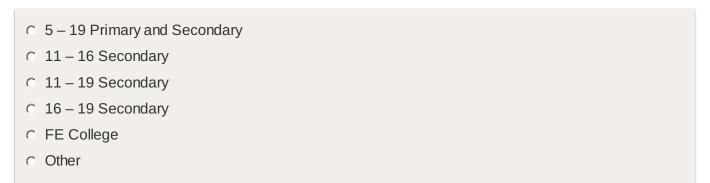
To start replying to the heads of science survey, click on the "Next" button below (please note that clicking on the "Next" button below indicates that you consent to participating in the survey based on the information given on this page).

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





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 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 fortnightlyMonthly
C Annually or few times a year
© 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 CHEMISTRY.			
Number of 11-14 year-olds	CHEMISTRY		
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 BIOLOGY. 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 C No			
How has the budget changed since last year?			
C Increased C Decreased C Stayed the same			
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			

C Yes			
C 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	O	O	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 C 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

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 etc.	-related indu	stry, museums	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	C	
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	0	0	0	О
Discuss purpose of activity/experiment	O	0	O	O	0
Design their own method	O	0	O	O	0
Propose a hypothesis	O	0	О	С	0
Evaluate uncertainty of data	0	0	0	0	О
Analyse conceptual ideas in the activity/experiment	О	0	O	0	0
Draw conclusions from data	O	0	0	C	0
Write a report about the activity/experiment	0	0	c	0	0
Evaluate methods of activity/experiment	0	0	C	O	0
Evaluate other students' experiments	0	0	C	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	O	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 Biology Other
If you selected Other, please specify:
Qualification: * Required
 National 4 National 5 Single subject GCSE Double Award GCSE Single Award GCSE Other
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 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	
C IncreasedC DecreasedC Stayed the same	
For your selected subject and 14-16 quithese activities in this academic year?	ualification, approximately how many days are allocated to each of Days in a year
Outdoor practical work/fieldwork	Days III a yeal
Off-site visits to science-related indusetc.	stry, museums,
	activities changed since the last academic year? Decreased Stayed about the same

Outdoor practical work

Off-site visits	0	0	O	
For your selected subject a student carry out during		•	pproximately how many pr	actical science activities will
Please enter a number.				
How has the number of p	ractical work	activities/exp	eriments altered since las	t year?
C IncreasedC DecreasedC Stayed the same				
•		•	ow much lesson time (in hosment required by the Awa	•
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	O	0
Students work in pairs	0	0	0	O	0
Students work in groups (3 or more students per set of equipment)	O	О	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	О	О	О	О
Discuss purpose of activity/experiment	0	0	O	O	0
Design their own method	0	0	0	C	0
Propose a hypothesis	0	O	O	0	0
Evaluate uncertainty of data	0	0	О	O	0
Analyse conceptual ideas in the activity/experiment	0	0	O	O	0
Draw conclusions from data	0	О	0	0	О
Write a report about the activity/experiment	0	0	c	O	0
Evaluate methods of activity/experiment	0	0	C	O	0
Evaluate other students' experiments	0	С	C	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	О
Preparation for practical exams	0	0	0	0	О
Requirements for coursework or controlled assessment	О	0	0	0	O
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	O	0	0	0	0
Students' interest in science	O	0	0	0	0

Students' behaviour	0	0	0	0	0
Students benaviour					

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	c	0	O	0
Following a set of instructions	0	О	O	0
Using science equipment	0	О	O	0
Writing science reports	O	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 yes, is this qualification an IGCSE?

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

Yes

O No

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?
C IncreasedC DecreasedC Stayed the same	
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/f	ieldwork			
Off-site visits to science-related industry, museums, etc.				
How has the number of d	ays for these	activities cha	nged since the last acade	mic year?
	Increased	Decreased	Stayed about the same	
Outdoor practical work	0	0	О	
Off-site visits	С	0	О	
	-		oroximately how many pra	ctical science activities will a
student carry out during the	ne current ye	ar?		
Please enter a number.				
For your selected subject	t and 11_1/1 v	ear group ho	w has the number of practi	ical work
activities/experiments alt	-		w has the humber of practi	icai work
C Increased				
O Decreased				
C Stayed the same				
For your selected subject	and 11-14 y	ear group, ho	w much lesson time (in hou	urs) is allocated to preparing
for and carrying out statut	tory practical	work assessr	nent in the current academ	nic year?
Please enter a number.				
ricuse effet a flutiber.				

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	O	O	0
Students work in groups (3 or more students per set of equipment)	O	0	0	C	O

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	0	0
Discuss purpose of activity/experiment	O	O	O	0	C
Design their own method	О	О	О	0	О
Propose a hypothesis	O	0	0	C	0
Evaluate uncertainty of data	O	0	0	C	0
Analyse conceptual ideas in the activity/experiment	О	0	O	О	0
Draw conclusions from data	O	0	O	0	О
Write a report about the activity/experiment	O	0	O	O	0
Evaluate methods of activity/experiment	0	0	C	O	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	О
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	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	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	O	0
Following a set of instructions	O	0	O	0
Using science equipment	O	0	O	0
Writing science reports	О	0	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?

○ 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 11 - 14 year group?

C 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
 Male Female Other Prefer not to say
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 Biology Other
If you selected Other, please specify:
What is the highest level of formal education you have completed in YOUR SPECIALIST science subject?
 Doctorate degree Masters degree 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)
If you chose other, please specify:
What is the highest level of formal education you have completed in ANY SCIENCE subject?
 Doctorate degree Masters degree 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)

If you chose other, please specify:
Please indicate which science subject you studied to this level.
Thease marcate willow soletion subject you stadied to this level.
 □ Biology - or related subject, e.g. Ecology/Marine □ Biology/Physiology/Zoology/Biomedical Science □ 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
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.
11-1611-19Other
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?

 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
 Annually or few times a year
© 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
C Physics Chemistry Biology C Other
If you selected Other, please specify:
Qualification: * Required More info
 A level Advanced Highers AS level Highers Other
If you selected Other, please specify:

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

© AQA
© Edexcel
O OCR
© CIE
O IB
© CCEA
© ICAAE
© WJEC
© SQA
© 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 enter a number.
How much timetabled time (in hours) is allocated to the selected subject and Post-16 qualification each week? **Required*
Please enter a number.

qualification.

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	C	O

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	O	0	0	0
Students work in pairs	0	0	0	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	O	0	O	O	0
Design their own method	0	0	0	O	0
Propose a hypothesis	0	0	0	O	O
Evaluate uncertainty of data	0	O	0	O	О
Analyse conceptual ideas in the activity/experiment	0	0	O	O	0
Draw conclusions from data	0	0	0	0	O
Write a report about the activity/experiment	O	0	O	O	0
Evaluate methods of activity/experiment	0	0	O	O	0
Evaluate other students' experiments	O	C	О	O	C

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	O	0	0	0	0
Requirements for coursework or controlled assessment	O	0	0	0	0
Availability of equipment and resources	O	0	0	0	0
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	0
Following a set of instructions	0	0	0	O
Using science equipment	0	0	O	O
Writing science reports	O	C	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			
© 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
No impactNegative 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 all questions about teaching with this subject and qualification in mind.

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

disvers.
14–15-year-olds15–16-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.

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 14-16 qualification, how has the proportion of lesson time spent or practical work activities/experiments altered since last year?						
○ Increased						
C Decreased C Stayed the same						
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.	-related indu	ıstry,		
How has the number of da	ays for these	e activities cha	nged since the last acade	mic 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 properties of properti	ractical work	activities/exp	eriments altered since las	t year?
•	g out practica	-	ow much lesson time (in he sment required by the Awa	•
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	C	0	O
Students work in pairs	0	0	C	0	O
Students work in groups (3 or more students per set of equipment)	0	0	0	0	O

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	O	0	O	0	0
Discuss purpose of activity/experiment	0	O	O	O	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	O	0
Analyse conceptual ideas in the activity/experiment	0	0	O	0	0
Draw conclusions from data	0	0	0	O	0
Write a report about the activity/experiment	O	0	O	0	0
Evaluate methods of activity/experiment	0	0	O	0	C
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	O
Preparation for written exams	0	0	0	0	O
Preparation for practical exams	0	0	O	0	O
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

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	C	0	C	0
Following a set of instructions	0	0	O	0
Using science equipment	0	0	O	0
Writing science reports	0	0	O	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			
© 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)
12-13s (Year 8 / S1)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 stud group? * Required	dents in a class for your selected subject and 11-14 year
Please enter a number.	
How much timetabled time (in hour 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?

© Decreased				
C Stayed the same				
For your selected subject	_		proximately how many day	s are allocated to
			Days in a yea	r
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	0	О	0	
Off-site visits	0	0	O	
For your selected subject activities will a student ca	•	0 1 1	proximately how many pra ear?	ctical science
For your selected subject activities/experiments alto no lncreased Decreased Stayed the same			w has the number of practi	cal work
		 /		

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	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

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	O	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	0
Draw conclusions from data	0	O	0	0	C

Write a report about the activity/experiment	0	0	0	0	С
Evaluate methods of activity/experiment	О	0	C	О	0
Evaluate other students' experiments	C	0	С	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	C
Curriculum requirements for prescribed activities	0	0	0	0	O
Preparation for written exams	0	0	0	0	O
Preparation for practical exams	0	0	0	0	O
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	0	0	0	0	C

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	C	0	0	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.
C Under 25 C 26–29 C 30–39 C 40–49 C 50–59 C 60 or older
Please indicate your gender
 Male Female Other Prefer not to say
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.
C PhysicsC ChemistryBiologyOther
If you selected Other, please specify:
What is the highest level of formal education you have completed in YOUR SPECIALIST science subject?
 Doctorate degree Masters degree 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)
If you chose other, please specify:
What is the highest level of formal education you have completed in ANY SCIENCE subject?
C Doctorate degree C Masters degree

 A level/Higher or other post-16 qualification such as BTEC, diploma, IB, NVQ Other (e.g. Qualification obtained overseas; Armed Forces training)
If you chose other, please specify:
Please indicate which science subject you studied to this level.
 □ Biology - or related subject, e.g. Ecology/Marine □ Biology/Physiology/Zoology/Biomedical Science □ 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
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

34 / 39

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

- 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 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 ★ Required		TE) in total support science in your school/college?
Please ente	r a number.	
How many te	chnicians are employed on the fo	ollowing basis?
		FTE
Term-time of	only (pro-rata)	
	only (pro-rata) with additional uring school holidays	
Year round holidays)	(term time and school	
How many se		upport your science department? * Required
How many te	chnicians (FTE) support each of FTE	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?
IncreasedStayed the sameDecreased

Are any technician positions currently unfilled?

Background Information

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

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

Qualifications

○ No

what is the highest level of formal education you have completed in a SCIENCE subject?
C Doctorate degree
C Masters degree
C Post Graduate Certificate of Education or equivalent
© Bachelor degree
C 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
C No formal science qualification
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 vou work	as a general	science or	specialist	science	subject technician
	,	9				

	General science technician Specialist science subject technician
If ap	plicable, please state which specialist science subject(s) you support.
	Physics Chemistry Biology Other
If yo	u 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 nours 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.
 ☐ Technician in another department ☐ School/college health and safety advisor ☐ Teaching assistant ☐ Other
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).	

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	O	0	0	0	0
Fully functioning sinks and drainage	0	C	0	O	0
Roof, floor, walls in good condition	0	C	0	0	0
Basic Health and Safety standards met, e.g. eye protection, screens, fire extinguishers	C	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	C	0	0	C
Well distributed power points	0	C	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	O
Fume cupboard with working gas, electricity and water supplies (Chemistry only)	0	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	O	0	0	0
Van de Graaff Generator	0	О	0	0
Air Track with air source	0	О	C	0
Electric Vacuum Pump	0	0	C	0
Class set (groups) of data loggers with sensors	0	C	0	0
Class set (groups) of ray boxes and lenses	C	O	0	0
Magnetic field observation kit (iron filings, magnets)	C	O	0	0
Class set (groups) of multimeters or volt and ammeters	O	О	O	0
Class set (groups) of Newtonmeters	0	C	0	0
Class set (groups) of magnets	C	O	0	0
Class set (groups) of tuning forks	C	O	0	0
Class set (groups) of bulbs, bulb holders and wires	О	O	O	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	O	O	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	O	0
Class set (groups) of Erlenmeyer flasks	C	0	O	0
Class set (groups) of Bunsen burners	O	0	O	0
Eye protection for all students	O	O	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	O	0
Digital microscope with visualizer and/or camera	C	O	0	0
Haemocytometer	O	O	0	0
Gel electrophoresis equipment and centrifuge	C	O	0	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	O	0	0	0
Class set (groups) of colorimeters	O	0	0	0
Class set (groups) of field work equipment	O	0	0	0
Anatomical models, e.g. eye, torso, ear, heart	O	0	0	0
Class set (groups) of dissection kit	C	0	O	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.		
	7	

Be the first to know about the findings of the study

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Please enter a valid email address.			
	_		

Thank you

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