Monitoring practical science in schools and colleges

Appendix 7: Higher Education Student 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 Higher Education student survey – Year 1

About your university

Please note that questions in bold with a * are compulsory.

***1. Name of university (*Required)**

***2. In which nation is your university? (*Required)**

Select one.

○	England
○	Northern Ireland
○	Scotland
○	Wales

***3. Which subject are you studying at university? (Select all the options which apply) (*Required)**

Select all that apply.

☐	Biological Science (including Life Sciences, Plant Biology and Animal Sciences)
☐	Chemistry
☐	Physics (including Astronomy)
☐	Other:

About your experiences before university

We would like to know about your experiences in practical science at school or college before you started university and how well they prepared you for the first year of your degree.

(Typical examples of post-16 education are Scottish Highers, A Levels, International Baccalaureate Diploma Programme etc. If you entered university from an international school, or from a foundation course, please reflect on these courses when answering the questions.)

4. Thinking about each of the practical skills listed below, how well prepared do you feel in using them at university? (Select one option per row)

Select one per row.

	Not at all prepared	*Somewhat unprepared*	*Somewhat prepared*	*Very well prepared*	*Don't know*
Confidence to work in a science laboratory	○	○	○	○	○
Confidence to undertake experiments in an outdoor context	○	○	○	○	○
Ability to solve problems independently in a practical context	○	○	○	○	○
Ability to follow laboratory instructions	○	○	○	○	○
Ability to understand laboratory and/or fieldwork instructions	○	○	○	○	○
Ability to understand the theory behind the scientific method	○	○	○	○	○
Competence in scientific methods and practices, specifically: Planning experiments	○	○	○	○	○
Competence in scientific methods and practices, specifically: Use of scientific equipment	○	○	○	○	○
Competence in scientific methods and practices, specifically: Time management	○	○	○	○	○
Competence in scientific methods and practices, specifically: Note-taking	○	○	○	○	○

Competence in scientific methods and practices, specifically: Scientific report-writing	○	○	○	○	○
Ability to use mathematical concepts and skills in a practical context, for example, for data analysis	○	○	○	○	○
Ability to follow laboratory Health and Safety regulations	○	○	○	○	○
Ability to use IT tools in the laboratory or in the field, e.g. for making measurements	○	○	○	○	○
Ability to use IT tools for analysing and presenting data obtained in own experiments	○	○	○	○	○
Communication, team-working and presentation skills when working in a laboratory or in the field	○	○	○	○	○
Ability to use specialist laboratory and/or fieldwork equipment e.g. glassware in chemistry, an oscilloscope in physics or a microscope in biology	○	○	○	○	○
Ability to apply specialist methods and techniques when carrying out experiments or fieldwork	○	○	○	○	○

5. Have there been any laboratory or fieldwork activities in your degree course so far that you have felt unable to do well in because you didn't have the right practical skills?

Select one.

○	Yes	(Answer question number 5.1.)
○	No	

5.1 If yes, please give an example.

6. Overall, how do you rate laboratory teaching in your post-16 education as a preparation for laboratory courses and/or fieldwork in your first year at university?

Select one.

○	Poor preparation
○	Prepared me fairly poorly
○	Prepared me fairly well
○	Very good preparation
○	Don't know

About you

7. What is your gender?

Select one.

○	Male
○	Female
○	Prefer not to say

8. What type of school/college did you attend for your post-16 education? (Select all the options which apply)

Select all that apply.

☐	Local authority state-funded school/college
☐	Academy
☐	Free school
☐	Independent school/college
☐	Further Education college
☐	International school/college
☐	University foundation course
☐	Other:

9. In which nation did you study for your post-16 qualifications? *

Select one.

○	England
○	Northern Ireland
○	Scotland
○	Wales
○	Other

10. Please state which Post-16 science qualifications you have.

	Level/Qualification e.g. A-Level, Higher, IB	*Subject e.g. Physics*
1		
2		
3		
4		
5		
6		
7		

11. Have you participated in training or studied for any of the qualifications in the list below? (Select all options which apply to you)

Select all that apply.

☐	BTEC and other level 3 vocational qualifications
☐	Extended Project Qualification (EPQ)
☐	CREST Award
☐	Duke of Edinburgh
☐	Nuffield Research Placements
☐	British Olympiad
☐	Other:
☐	I have not participated in any additional training or qualifications

12. Please tell us about any particular course or other activity which you think was most helpful to you in developing the practical skills you need at university.

13. Are you considering a career in science or science-related field?

Select one.

○	Yes
○	No
○	Don't know yet

14. Are you hoping to carry out an independent research project as part of your degree (e.g. a Masters dissertation, Industrial placement, extended laboratory project/ fieldwork)?

Select one.

○	Yes
○	No
○	Don't know yet

3 Higher Education student survey – Year 2

About your university

Please note that questions in bold with a * are compulsory.

*1. Name of university (*Required)

*2. In which nation is your university? (*Required)

Select one.

○	England
○	Northern Ireland
○	Scotland
○	Wales

*3. Which subject are you studying at university? (Select all the options which apply) (*Required)

Select all that apply.

☐	Biological Science (including Life Sciences, Plant Biology and Animal Sciences)
☐	Chemistry
☐	Physics (including Astronomy)
☐	Other:

About your experiences before university

We would like to know how well your experiences of practical science during your post-16 education prepared you for experimental work in the first year of your degree.

(Typical examples of post-16 education are Scottish Highers, A Levels, International Baccalaureate Diploma Programme. If you entered university from an international school, or from a foundation course, please reflect on the courses you took when answering the questions.)

4. Thinking about each of the practical skills listed below, how well prepared do you feel in using them at university? (Select one option per row)

Select one per row.

	Not at all prepared	*Somewhat unprepared*	*Somewhat prepared*	*Very well prepared*	*Don't know*
Confidence to work in a science laboratory	○	○	○	○	○
Confidence to undertake experiments in an outdoor context	○	○	○	○	○
Ability to solve problems independently in a practical context	○	○	○	○	○
Ability to follow laboratory instructions	○	○	○	○	○
Ability to understand laboratory and/or fieldwork instructions	○	○	○	○	○
Ability to understand the theory behind the scientific method	○	○	○	○	○
Competence in scientific methods and practices, specifically: Planning experiments	○	○	○	○	○
Competence in scientific methods and practices, specifically: Use of scientific equipment	○	○	○	○	○
Competence in scientific methods and practices, specifically: Time management	○	○	○	○	○
Competence in scientific methods and practices, specifically: Note-taking	○	○	○	○	○

Competence in scientific methods and practices, specifically: Scientific report-writing	○	○	○	○	○
Ability to use mathematical concepts and skills in a practical context, for example, for data analysis	○	○	○	○	○
Ability to follow laboratory Health and Safety regulations	○	○	○	○	○
Ability to use IT tools in the laboratory or in the field, e.g. for making measurements	○	○	○	○	○
Ability to use IT tools for analysing and presenting data obtained in own experiments	○	○	○	○	○
Communication, team-working and presentation skills when working in a laboratory or in the field	○	○	○	○	○
Ability to use specialist laboratory and/or fieldwork equipment e.g. glassware in chemistry, an oscilloscope in physics or a microscope in biology	○	○	○	○	○
Ability to apply specialist methods and techniques when carrying out experiments or fieldwork	○	○	○	○	○

5. Have there been any laboratory or fieldwork activities in your degree course so far that you have felt unable to do well in because you didn't have the right practical skills?

Select one.

○	Yes	(Answer question number 5.1.)
○	No	

5.1 If yes, please give an example.

6. Overall, how do you rate the quality of the practical science teaching in your post-16 education as preparation for laboratory courses and/or fieldwork in your first year at university?

Select one.

○	Poor preparation
○	Prepared me fairly poorly
○	Prepared me neither poorly nor well
○	Prepared me fairly well
○	Very good preparation
○	Don't know

About you

7. What is your gender?

Select one.

○	Male
○	Female
○	Prefer not to say

8. What type of school/college did you attend for your post-16 education? (Select all the options which apply)

Select all that apply.

☐	Local authority state-funded school/college
☐	Academy
☐	Free school
☐	Independent school/college
☐	Further Education college
☐	International school/college
☐	University foundation course
☐	Other:

9. In which nation did you study for your post-16 qualifications? *

Select one.

○	England
○	Northern Ireland
○	Scotland
○	Wales
○	Other

10. Please state which Post-16 science qualifications you have.

	Level/Qualification e.g. A-Level, Higher, IB	*Subject e.g. Physics*
1		
2		

3		
4		
5		
6		
7		

11. Have you participated in training or studied for any of the qualifications in the list below? (Select all options which apply to you)

Select all that apply.

☐	BTEC and other level 3 vocational qualifications
☐	Extended Project Qualification (EPQ)
☐	CREST Award
☐	Duke of Edinburgh
☐	Nuffield Research Placements
☐	British Olympiad
☐	Other:
☐	I have not participated in any additional training or qualifications

12. Please tell us about any other course or activity which you found helpful in developing practical science skills valuable at university.

13. Are you considering a career in science or science-related field?

Select one.

○	Yes
○	No
○	Don't know yet

14. Are you hoping to carry out an independent research project as part of your degree (e.g. extended laboratory project/ fieldwork, industrial placement, a Masters-level dissertation)?

Select one.

○	Yes
○	No
○	Don't know yet

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 £25 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.

15. Please select whether you would like to participate in the free prize draw to win a £25 Amazon gift voucher.

Select one.

○	Yes, I would like to participate in the free prize draw to win a £25 Amazon gift voucher.	(Answer question number 15.1.)
○	No thanks, I would not like to participate	

15.1 My email address is:

4 Higher Education student survey – Year 3

Practical Work in Science - Higher Education Student Survey

Page 1: Science Practical Work Survey - Higher Education Student Survey

Dear Science Student,

We are seeking the views, opinions and experiences about practical work held by first year undergraduate students in Higher Education institutions within the United Kingdom. The survey forms part of a three-year study of science practical work in education being carried out annually in schools, colleges and Higher Education institutions in all four UK nations. The study is led by Durham University's School of Education and is funded by the Gatsby Charitable Foundation, with a contribution from the Wellcome Trust.

We would like to know your views, opinions and experiences of practical science in a short questionnaire taking 5 – 10 minutes to complete.

We will not identify you or your university in any reports. Your answers will not be seen by your department. Taking part is voluntary. You may choose not to take part at any time.

All information given to us, including all personal details, will be treated in the strictest of confidence in accordance with the Data Protection Act. 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.

To participate in the free 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 January to notify you if you have won one of five £25 Amazon gift vouchers. The email address will not be used to identify you within the survey data and will not be used for marketing purposes.

Receiving responses from as many students as possible at each university provides the study with much richer data, so please do pass the link to the survey on to your peers if you think that they have not received it.

If you have any questions about the survey, please contact research@cem.dur.ac.uk.

Many thanks for your support of the study.

Vanessa Kind, Helen Cramman, Kirsty Younger, Helen Gray and Paivi Eerola

Durham University School of Education

To start the 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.

Page 2: About your university

1. Name of your university? ✱ *Required*

2. In which nation is your university? ✱ *Required*

- ○ England
- ○ Northern Ireland
- ○ Scotland
- ○ Wales

3. Which subject are you studying at university? Select all the options which apply. ✱ *Required*

- ☐ Biological Science (including Life Sciences, Plant Biology and Animal Sciences)
- ☐ Chemistry
- ☐ Physics (including Astronomy)
- ☐ Other

3.a. If you selected Other, please specify:

Page 3: About your experiences before university

We would like to know how well your experiences of practical science during your post-16 education prepared you for experimental work in the first year of your degree.

(Typical examples of post-16 education are Scottish Highers, A Levels, International Baccalaureate Diploma Programme. If you entered university from an international school, or from a foundation course, please reflect on the courses you took when answering the questions.)

4. Thinking about each of the practical skills listed below, how well prepared do you feel in using them at university? Select one option per row.

	Not at all prepared	Somewhat unprepared	Somewhat prepared	Very well prepared	Don't know
Confidence to work in a science laboratory	○	○	○	○	○
Confidence to undertake experiments in an outdoor context	○	○	○	○	○
Ability to solve problems independently in a practical context	○	○	○	○	○
Ability to follow laboratory instructions	○	○	○	○	○
Ability to understand laboratory and/or fieldwork instructions	○	○	○	○	○
Ability to understand the theory behind the scientific method	○	○	○	○	○
Competence in scientific methods and practices, specifically: Planning experiments	○	○	○	○	○
Competence in scientific methods and practices, specifically: Use of scientific equipment	○	○	○	○	○
Competence in scientific methods and practices, specifically: Time management	○	○	○	○	○

4.a. Thinking about each of the practical skills listed below, how well prepared do you feel in using them at university? Select one option per row.

	Not at all prepared	Somewhat unprepared	Somewhat prepared	Very well prepared	Don't know
Competence in scientific methods and practices, specifically: Note-taking	○	○	○	○	○
Competence in scientific methods and practices, specifically: Scientific report-writing	○	○	○	○	○
Ability to use mathematical concepts and skills in a practical context, for example, for data analysis	○	○	○	○	○
Ability to follow laboratory Health and Safety regulations	○	○	○	○	○
Ability to use IT tools in the laboratory or in the field, e.g. for making measurements	○	○	○	○	○

Ability to use IT tools for analysing and presenting data obtained in own experiments	○	○	○	○	○
Communication, team-working and presentation skills when working in a laboratory or in the field	○	○	○	○	○
Ability to use specialist laboratory and/or field work equipment e.g. glassware in chemistry, an oscilloscope in physics or a microscope in biology	○	○	○	○	○
Ability to apply specialist methods and techniques when carrying out experiments or fieldwork	○	○	○	○	○

5. Have there been any laboratory or fieldwork activities in your degree course so far that you have felt unable to do well in because you didn't have the right practical skills?

- ○ Yes
- ○ No

5.a. If yes, please give an example.

6. Overall, how do you rate the quality of the practical science teaching in your post-16 education as preparation for laboratory courses and/or fieldwork in your first year at university?

- ○ Poor preparation
- ○ Prepared me fairly poorly
- ○ Prepared me neither poorly or well
- ○ Prepared me fairly well
- ○ Very good preparation
- ○ Don't know

Page 4: About you

7. What is your gender?

- ○ Male
- ○ Female
- ○ Other
- ○ Prefer not to say

8. What type of school/college did you attend for your post-16 education? Select all the options which apply.

- ☐ Local authority state-funded school/college
- ☐ Academy
- ☐ Free school
- ☐ Independent school/college
- ☐ Further Education college
- ☐ International school/college
- ☐ University foundation course
- ☐ Other

8.a. If you selected Other, please specify:

9. In which nation did you study for your post-16 qualifications?

- ○ England
- ○ Northern Ireland
- ○ Scotland
- ○ Wales
- ○ Other

10. Please state which post-16 science qualifications you have. Select all that apply.

	Biology	Chemistry	Physics	Maths	Further Maths	Other Science	Other	If you selected Other, please specify:
A Level	☐	☐	☐	☐	☐	☐	☐	
AS Level	☐	☐	☐	☐	☐	☐	☐	

Advanced Higher	☐	☐	☐	☐	☐	☐	☐	
Higher	☐	☐	☐	☐	☐	☐	☐	
International Baccalaureate	☐	☐	☐	☐	☐	☐	☐	
Other	☐	☐	☐	☐	☐	☐	☐	

11. Have you participated in training or studied for any of the qualifications in the list below? Select all options which apply to you.

- ☐ BTEC and other Level 3 vocational qualifications
- ☐ Extended Project Qualification (EPQ)
- ☐ CREST Award
- ☐ Duke of Edinburgh
- ☐ Nuffield Research Placements
- ☐ British Olympiad
- ☐ I have not participated in any additional training or qualifications
- ☐ Other

11.a. If you selected Other, please specify:

12. Please tell us about any other course or activity which you found helpful in developing practical science skills valuable at university.

13. Are you considering a career in science or science-related field?

- ○ Yes
- ○ No

- Don't know yet

14. Are you hoping to carry out an independent research project as part of your degree (e.g. extended laboratory project/ fieldwork, industrial placement, a Masters-level dissertation)?

- Yes
- No
- Don't know yet

Page 5: 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 £25 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.

15. Please select whether you would like to participate in the free prize draw to win a £25 Amazon gift voucher.

- ○ Yes, I would like to participate in the free prize draw to win a £25 Amazon gift voucher
- ○ No thanks, I would not like to participate

15.a. My email address is:

Please enter a valid email address.

Page 6: Thank you

If you have any questions about the survey, please contact research@cem.dur.ac.uk.

Durham University

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