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Science Education Tracker

Technical Report
February 2017

THE
ROYAL
SOCIETY



Department for
Business, Energy
& Industrial Strategy

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Introduction

This report gives an account of the methodology and fieldwork for the 2016 Wellcome Trust Science Education Tracker (SET).

The SET is a new survey of young people in Years 10 to 13 conducted by Kantar Public on behalf of the Wellcome Trust with support from the Royal Society, the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Education (DfE). The survey provides evidence on key indicators for science activities, education and career aspirations among young people in England.

The SET survey has built on two previous studies conducted on behalf of the Wellcome Trust: the Wellcome Monitor Survey waves 1 and 2 conducted in 2009 and 2012¹. The first two waves of the Wellcome Monitor were large-scale face-to-face surveys of adults and young people aged 14+. Each of these studies included a sample of around 400 young people aged 14-19. From 2015 (Wave 3) the Monitor survey focused on adults (18+) only and a bespoke Science Education Tracker survey was established to focus on understanding young people's experience of science at school and how this influences decision-making around science-based subject and career choices. The survey represented a departure from the Monitor survey series in several respects: the survey moved from face-to-face interviewing to online self-completion; the sampling frame changed; and the sample size was substantially increased to allow more detailed analysis by school year cohorts and population subgroups.

Data and findings

The SET dataset is deposited with the UK Data Service (www.ukdataservice.co.uk) at the University of Essex. A report detailing the findings of the study is published by the Wellcome Trust.²

¹ <https://wellcome.ac.uk/what-we-do/our-work/public-views-medical-research>

² <http://dx.doi.org/10.6084/m9.figshare.4524551>

1. Sampling

The SET sample is a random sample of young people in school years 10 to 13 (aged 14-18) attending state schools in England. This chapter describes the process by which the sample was selected.

1.1 Sample sources

The SET sample was drawn from a combination of two sources:

- The **National Pupil Database (NPD)**, which covers pupils in state schools, including school sixth forms;
- The **Individualised Learner Record (ILR)**, which covers young people in other education institutions such as sixth form colleges and further education colleges.

Pupils in independent schools were not included.

At the time the sample was selected, the latest data available for the NPD and ILR applied to the 2014/15 academic year. From these data, school years 9 to 12 were selected on the basis that these would make up the vast majority of the target population of Years 10 to 13 in the 2015/16 academic year. As a result, there is a very limited amount of non-coverage for pupils who had joined the state school system for the 2015/16 academic year, for example, pupils who had moved from abroad or had previously attended an independent school. There is also limited non-coverage for young people not listed in any educational institution or work-based learning placement.³ Finally, a small number of young people (0.4% of those in the NPD or ILR) could not be included in the sample selection because they did not have a valid address in the sample frame. We estimate the total coverage of young people in school years 10 to 13 attending state schools in England to be above 95%.

1.2 Sample selection

In total, 8,125 young people were selected from the sample frame.

A systematic random selection of young people was made separately within each academic year to ensure a spread of responses across years proportionate to the population. More cases were selected from Years 9 and 10 as the expected response rates were lower for these year groups due to the need to gain parental permission for young people aged under 16.⁴

Prior to selection, the sample was sorted by the variables listed in Table 1.2. This was to ensure the sample proportionately matched the target population across these variables.

³ DfE (2016) indicates that 94.1% of young people at Year 12 were participating in education or work-based learning at the end of 2015. That would imply non-coverage in the SET sample of around six per cent of the oldest year group in the sample. The three younger year groups should not be affected by this as schooling would have been compulsory for those ages; young people would therefore be covered by the NPD (with the exception of those attending an independent school).

⁴ In fact, the final *achieved* response rates were no lower for these year groups than for young people in Years 12 and 13.

Table 1.1: Sample selection within academic years

Academic year 2015 / 2016	Selected from 2014 / 2015 academic year	Available sample	Number selected
Year 10	Year 9	535,493	2,225
Year 11	Year 10	547,573	2,050
Year 12	Year 11	560,119	1,950
Year 13	Year 12	560,342	1,950

Table 1.2: Additional variables included in stratification

Variable	Categories
Gender	Male Female
Science performance at school	<p>Years 10 / 11 – Key Stage 2 teacher assessed science Level:</p> <ul style="list-style-type: none"> • Level 3 or under • Level 4 • Level 5 <p>Years 12 / 13 – Key Stage 4 science results:</p> <ul style="list-style-type: none"> • Two or more science GCSEs (or equivalent) at A*-B • Two or more science GCSEs (or equivalent) at A*-C, but not A*-B • Not have two science GCSEs (or equivalent) at A*-C
Overall performance at school	<p>Years 10 / 11: Key Stage 2 total number of points</p> <p>Years 12 / 13: Key Stage 4 total GCSE and equivalents new style point score</p>
Region	Nine former GOR regions
Income Deprivation Affecting Children Index (IDACI)	IDACI score (0-1)
Establishment type	Un-banded version provided in the NPD at the school level

2. Questionnaire development and piloting

The questionnaire for the survey was developed by Kantar Public in consultation with Judith Bennett from the University of York and the project team at the Wellcome Trust. In this chapter we provide information on the initial development of the questionnaire, the cognitive and usability testing of the survey instrument and the pilot phase.

2.1 Initial questionnaire development

Qualitative focus groups were undertaken by EdComs Research in January / February 2016 with young people in Key Stage 4 (studying for GCSEs or equivalent qualifications), Key Stage 5 (studying for A levels or equivalent qualifications) or studying for other Further Educational or Vocational qualifications. Nine focus groups were conducted in order to better understand young people's perceptions of new subject areas being considered for the SET questionnaire. Topics discussed included:

- Perceptions and attitudes towards science in general;
- Science networks outside of school;
- Teacher expertise and the influence of teachers;
- Experience of science education;
- Careers.

The Wellcome Monitor questionnaires were then reviewed and assessed against the aims of the SET to identify areas for development, addition or possible continuity. Other existing studies were also reviewed in a similar way, including:

- King's College London ASPIRES and ASPIRES 2;
- Department for Education's Longitudinal Study of Young People in England;
- Department for Business, Innovation and Skills' Public Attitudes to Science triennial survey.

While consistency was maintained with the Wellcome Monitor or other studies where practical, some questions were adapted to be more effective for online data collection or to better align with the aims of the SET. Where gaps were identified in the existing research, new questions were created.

The survey instrument was further refined over the course of a series of meetings and workshops with the Wellcome Trust. A final desk review was undertaken before proceeding to cognitive and usability testing.

2.2 Cognitive and usability testing

To ensure that all new questions were thoroughly tested before their inclusion in the survey, Kantar Public conducted cognitive and usability testing over three phases. The first two phases focussed on question wording. The final phase was conducted using an online version of the questionnaire and focussed on the layout and usability of the survey across different devices, although this stage was also used as an additional check of question wording.

2.2.1 Overview of cognitive and usability testing method

The purpose of the **cognitive testing** was to assess survey questions to ensure they work as intended before being included in the main questionnaire. Cognitive testing provides valuable insight into how consistently questions are being interpreted, how clear and unambiguous questions are, and how easily respondents are able to give an answer. Interviews were carried out by members of the research team who asked survey questions to respondents. The researcher would then probe the respondent to discuss their response and investigate the thought processes involved in giving an answer.

The purpose of the **usability testing** was to assess how easy it is for respondents to complete the survey online. Researchers closely observed respondents as they completed the survey discussing any areas of difficulty or ways in which the survey experience could be improved. Although some interviews were conducted on laptops or tablets, the main focus of the usability testing was on a variety of smartphones as the layout and visibility of questions can be heavily affected by a small screen size.

The two rounds of cognitive testing were conducted in March 2016 followed by usability testing in April 2016. After each round, findings were discussed and changes were applied to be re-tested at subsequent phases.

The samples for the cognitive and usability stages consisted of young people drawn from across the relevant age spectrum, recruited by the Kantar Public qualitative recruitment team through a combination of face-to-face contacts and recruitment databases. Interviews were conducted in a mixture of settings: cognitive interviews were conducted in schools, FE colleges and in-home; usability interviews were conducted in Kantar Public offices.

A total of 31 interviews were conducted across the three phases (10 interviews at each of the cognitive testing phases and 11 at the usability phase). Interviews were conducted by members of the SET survey research team following an agreed probe guide, although researchers also used spontaneous probes to follow-up on any areas of confusion or miscomprehension. All respondents were provided with an incentive to thank them for their participation.⁵

The sample across the three stages represented a spread of students according to the characteristics in Table 2.1.

As a result of the detailed testing phases, a number of changes were made to the questionnaire which were implemented and re-scripted for inclusion at the pilot stage.

Table 2.2 outlines the structure of the final SET questionnaire. Some questions were only asked to half of respondents. Individuals in the sample were randomly allocated to one of two groups (A and B in Table 2.2) determining which questions they were asked.

⁵ Incentives were £5 or £10 for the cognitive testing phases and £40 for usability testing phase.

Table 2.1: Profile of cognitive / usability testing sample

Year group	13 in Years 10 / 11 18 in Years 12 / 13
Gender	10 male 21 female
Institution	14 at school 7 at school sixth form 10 at further education college
Course type	Mixture of A levels, GCSEs and BTECs
Total	31 interviews

Table 2.2: SET questionnaire

Section	Content	Respondents
Respondent details	Confirming respondents details	All respondents
Out of school activities	Visits to science museums and other science attractions; Engagement with science-related media	All respondents
School / college subjects	Perceptions of science and other subjects at school	All respondents (except one question for Group A only)
Current and future study	Subject choices at school / college; Intentions to study for Higher Education qualifications	All respondents
Learning styles	Importance of hard work and natural ability in achieving good exam results	Group B only
Science at school	Experience of studying science at school, especially focussing on practical work; Participation in extra-curricular science activities	All respondents in Years 10 / 11 ⁶

⁶ One question in this section was only asked to Group A, and one question was only asked to Group B. Two questions at the end of the section were asked to all respondents across all year groups.

Table 2.2: SET questionnaire (cont.)

Section	Content	Respondents
Science as a career	Careers advice; Interest in and perceptions about science-related careers; Work experience	All respondents
Science background	Science networks outside of school	All respondents
Demographics	Demographic information; Permission to link survey data to NPD data	All respondents
Biomedicine	Interest in and concerns about biomedical research	Group B only
Machine Learning	Awareness of digital technologies, including machine learning	Group A only
Scientific literacy	Science knowledge quiz	All respondents
Re-contact details	Permission to contact respondents to invite them to take part in future research	All respondents

2.3 Postal questionnaire

Once the SET questionnaire had been finalised, a paper version was developed. This was intended for respondents who were unable to access the survey online or who asked to complete the survey on paper. In the event, however, no respondents requested a paper questionnaire in either the pilot or main study fieldwork.

2.4 Pilot

Following the cognitive / usability testing, the questionnaire was finalised and tested in a larger-scale pilot, in which 212 young people completed the survey online. Further minor changes were made to the questionnaire after analysis of the pilot results. The pilot provided an opportunity to test the fieldwork processes, including investigating the impact of different incentive levels or types of letters on response rates (see section 2.4.3).

2.4.1 Pilot sample

The original intention had been to select the pilot sample using the same method to be used for the main stage; that is to select cases from the NPD / ILR. However, a delay in receipt of sample from the NPD meant that we were not able to access these records in time for the pilot. Therefore cases were selected from a 'lifestyle database' provider (Sample Answers), which allowed for quick delivery of a sample of parents with a child in the relevant age group.

A sample of 1,400 cases was selected from the database, with 350 within each of four age bands (15, 16, 17, 18) and representative by region within England.⁷ A screening question was included at the start of the questionnaire to ensure that only those in the correct year groups were able to complete the survey.

As a result, there were some differences between the pilot sample and the sample of the main SET survey which limited the strength of the conclusions that could be drawn about likely response rates and data quality in the main stage of fieldwork:

- All individuals in the pilot sample must have previously agreed for their contact details to be used by Sample Answers. The pilot sample should not therefore be considered truly representative of the target population;
- The pilot sample was of a lower quality than the main study sample which was selected from the NPD / ILR. Addresses in the pilot sample could be ineligible due to inaccurate or out-of-date details. The rate of ineligibility is unknown but estimated at 10-15%;
- Sample Answers were only able to provide contact details for individuals aged 18 or above. In order to sample younger ages, households were identified with at least one 14-17 year old living there. In these cases, the pilot survey invitation was sent to the named parent rather than directly to the young person;
- Contact was further complicated by the fact that some households contain more than one eligible young person and we had no control over which young person the named adult would give the invitation to in these situations;
- Given the data available for the sample, the pilot sample was only stratified by age and region. The sample for the main SET survey was more extensively stratified (see Section 1.2).

Despite these differences, we were able to carry out the pilot within the project timescale which allowed a detailed inspection of fieldwork processes and questionnaire data. We were also able to draw some overall conclusions about response rates and the effect of experiments on incentive value and branding (discussed further below).

2.4.2 Pilot fieldwork

Sampled individuals were sent a letter giving details about the survey and how to take part. Letters were sent directly to individuals aged 18 or above. For individuals aged under 18, letters were sent to the named parent identified in the sample.

The pilot survey was available online from May 11th 2016 to May 18th 2016. During this time, 212 surveys were completed. Based on the initial issued sample of 1,400 this represents a conversion rate of 15%. Table 2.3 details the conversion rate for key groups.

The relatively low conversion rate was in part due to the limited fieldwork period (only one week, compared with nine weeks for the main stage), the lack of contact details for young people under the age of 18 and the rate of ineligibility in the sample (see section 2.4.1). Nonetheless, the target of at least 200 completed surveys for the pilot was achieved.

⁷ The sample definition for the main survey was young people in Years 10-13. This would include some young people aged 14 or 19. 14 and 19 year olds were not included in the pilot sample to avoid sampling young people in the wrong school year (i.e. young people in Year 9, or who had moved beyond year 13).

2.4.3 Incentive and branding experiments

As part of the pilot, two experiments were conducted in order to test the impact on response of:

- Different incentive amounts;
- The use of official logos on the envelopes containing respondents' invitation letters.

For the incentives experiment, the sample was randomly allocated between two groups. One group was offered a £10 incentive for completing the survey, while the other was offered £15. Incentives were in the form of e-vouchers which could be claimed at the end of the survey.

For the use of logos, again the sample was randomly allocated between two groups, cut across the incentive cell groups, giving a 2*2 design. In the first group, the envelopes containing respondents' invitation letters were printed with the Wellcome Trust and Department for Education logos. Plain envelopes were used for the second group.

The sample was therefore divided into four experimental cells:

- £10 / logos;
- £10 / no logos;
- £15 / logos;
- £15 / no logos.

Table 2.3 shows the conversion rate for the two experiments. There was no evidence of higher response with a £15 incentive and there was also no significant difference in terms of the use of logos. Following this, it was decided that for the main survey £10 incentives would be offered and branded envelopes would be used.

Table 2.3: Pilot conversion rates

Sample group	Issued sample	Achieved sample	Conversion rate^{8*}
All	1,400	212	15%
AGE⁹			
Age 14 / 15	350	33	9%
Age 16	350	57	16%
Age 17	350	42	12%
Age 18	350	80	23%
INCENTIVE			
£10	700	104	15%
£15	700	108	15%
LOGOS ON ENVELOPES			
Logos	700	111	16%
No logos	700	101	14%
INCENTIVE / LOGOS			
£10 / logos	350	56	16%
£15 / logos	350	55	16%
£10 / no logos	350	48	14%
£15 / no logos	350	53	15%

⁸ Conversion rate is calculated as: achieved sample / issued sample. This corresponds to Response Rate 1, as calculated by the American Research Association for Public Opinion Research (2016).

⁹ In the pilot, all letters targeted to 14-17 year olds were sent to the parent. In the main survey, letters were only sent via the parent for sampled individuals aged under 16 (see Section 3.2.2).

3. Fieldwork

Main survey fieldwork was conducted between June 29th and August 31st. This period was chosen as it falls after the exam period and before the start of the new academic year. The following chapter gives further information on the fieldwork processes for the main survey.

3.1 Contact procedures

Contact was made with sampled individuals by post. The dates of mailings are given in Table 3.1.

All mailings were branded as The Pathways Survey and included the logo of the Wellcome Trust along with a 'Supported by Department for Education' logo. On the back of the letters was information on how the respondent was selected to be a part of the survey, our commitment to data confidentiality and anonymity, and details of how to contact the research team. Examples of mailings are given as appendices to this report.

3.1.1 Pre-notification letters

For all selected young people, two weeks before the start of fieldwork **pre-notification letters** were sent to both the young people and their parents informing them that they had been selected for the survey and that in the next couple of weeks they would receive further information about how to access the survey online. Contact details for Kantar Public were provided for any young people (or their parents) who wished to ask questions about the study or opt out of the survey.

3.1.2 Launch letters

At the start of the fieldwork period, survey **launch letters** were sent, including details about how to complete the survey online. Each young person was given a unique login, which was included in this letter.

Due to Market Research Society guidelines concerning the invitation of children, survey launch letters for young people under 16 were sent to the parent/guardian, rather than directly to the young person. Parents/guardians were asked to hand the letter on to the named young person if they were willing for them to take part in the survey. In this way, parents could refuse consent for their child to take part. For young people aged 16 or above, the launch letter was sent directly to the young person.

3.1.3 Reminder letters

During the fieldwork period, **reminder letters** were sent to young people who had not yet completed the survey. Rather than sending these reminders to all non-responders, reminders were focused on groups with lower levels of response. Further details are given in Section 3.3.

Each reminder letter included details for the young person to log in to the survey. As with the survey launch letter, all reminder letters for sampled individuals aged under 16 were addressed to the parent rather than the young person.

The second reminder consisted of a postcard, reminding young people (or their parents) about the study, followed by a letter a couple of days later. This intention was that the postcard would be more distinctive and as a result be more effective in cases where the original letters had not been opened. The letter included more details about the study and followed shortly after the postcard for any young people who no longer had their original letter.

Table 3.1: Fieldwork schedule

Stage	Number sent	Total no. of non-responders	Date
Pre-notification letters	8,125	-	June 16 th
<i>START OF FIELDWORK</i>			
Survey launch letters	8,125	-	June 29 th
First targeted reminder: Letter	2,990	5,296	July 13 th
Second targeted reminder: Postcard	1,478	4,530	July 26 th
Second targeted reminder: Letter	1,478	4,530	July 28 th
Third targeted reminder: Letter	844	4,215	August 10 th
<i>END OF FIELDWORK</i>			

3.1.4 Reminder emails

Email addresses were provided for some individuals sampled from the ILR. One reminder email was sent at the same time as the first reminder letter (where that individual had not yet completed the survey and a valid email address was available). The text of the email was similar to that used in the first reminder letter. The email also included a link direct to the survey. In total 489 emails were sent.

3.2 Reminder strategy and response maximisation

As described above, reminder letters were focused on groups with lower levels of response. Prior to each reminder being sent, response rates were calculated for each category within the stratification variable (see Section 1.2 for a description of sample stratification). This allowed us to identify the sample groups with the lowest levels of current response.

Non-responders were sorted into deciles based on their likelihood to respond.¹⁰ A proportion of non-responders was then selected from each decile to be included in the reminder (see Table 3.2). For example, for the third reminder, all individuals in the lowest response rate decile were selected for the reminder, as well as half of individuals in the second decile.

Following this process we were able to target resources on boosting response rates for the groups least likely to respond with the aim of achieving a more balanced final sample and reducing any non-response bias.

Table 3.2: Selection of individuals for survey reminders

Response deciles	Proportion of non-responding individuals selected for reminder		
	First reminder	Second reminder ¹¹	Third reminder
Least likely to take part (1)	100%	100%	100%
2	100%	100%	50%
3	100%	60%	0%
4	80%	0%	0%
5	65%	0%	0%
6	45%	0%	0%
7	20%	0%	0%
8	0%	0%	0%
9	0%	0%	0%
Most likely to take part (10)	0%	0%	0%

3.3 Incentives

Sample members were offered a £10 shopping voucher, which could be claimed after they had completed the survey. This £10 incentive was mentioned in all of the letters sent to young people and their parents to encourage them to take part in the survey. When they had completed the online questionnaire, respondents were directed to an online portal at which they could choose from a range of vouchers for stores including Amazon, iTunes, River Island and Boots.

¹⁰ An individual's 'likelihood to respond' was the same as the response rate for their category within the stratification variable.

¹¹ Cases selected for the second reminder received both the reminder postcard and the reminder letter.

3.4 Response

4,081 young people completed the survey, a response rate of 50%.¹²

Response rates varied between different groups and non-response weights were calculated to account for this. Data were weighted to the strata used at the sample selection stage to bring the data in line with the total population of young people. Although the sampling fraction varied for each academic year, a design weight was not required as academic year was controlled for within the non-response weighting. The weighting had a modest effect on the precision of estimates; the overall design effect due to weighting was 1.09.

After the weighting was applied, the distributions of demographic variables were compared with the population totals. It was agreed that no further weighting was required as the profile of the weighted sample was a good match for the population profile.

Table 3.3 gives the unweighted and weighted sample profiles, as well as the population profile.

Table 3.3: Sample profile			
	Achieved SET sample		Population¹³
	Unweighted % of total	Weighted % of total	% of total
Academic year			
<i>Year 10</i>	27.9%	24.4%	24.4%
<i>Year 11</i>	26.7%	24.9%	24.9%
<i>Year 12</i>	23.0%	25.3%	25.3%
<i>Year 13</i>	22.4%	25.3%	25.3%
Gender			
<i>Male</i>	47.8%	51.1%	51.1%
<i>Female</i>	52.2%	48.9%	48.9%

¹² Response rate is calculated as: number of completed interviews / number of cases issued. This corresponds to Response Rate 1, as calculated by the American Research Association for Public Opinion Research (2016).

¹³ Population proportions are from the sample frame, with the exception of Ethnicity. The figures for ethnicity are taken from the 2016 School Census, for all students at state-funded secondary schools.

Table 3.3: Sample profile (cont.)

	Achieved SET sample		Population ¹⁴
	Unweighted % of total	Weighted % of total	% of total
Overall academic performance¹⁵			
<i>Low</i>	18.2%	23.8%	23.8%
<i>Medium</i>	52.1%	51.5%	51.5%
<i>High</i>	29.7%	24.7%	24.7%
Region			
<i>East Midlands</i>	9.1%	8.9%	8.8%
<i>East of England</i>	12.1%	11.8%	11.3%
<i>London</i>	13.5%	13.7%	14.4%
<i>North East</i>	4.8%	5.0%	4.8%
<i>North West</i>	13.3%	13.8%	13.7%
<i>South East</i>	17.0%	16.8%	15.8%
<i>South West</i>	9.8%	9.5%	9.6%
<i>West Midlands</i>	10.7%	10.7%	11.1%
<i>Yorkshire and The Humber</i>	9.6%	9.8%	10.2%
<i>Unclassified</i>	0.1%	0.1%	0.1%

¹⁴ Population proportions are from the sample frame, with the exception of Ethnicity. The figures for ethnicity are taken from the 2016 School Census, for all students at state-funded secondary schools.

¹⁵ This is based on total Key Stage 2 points (for Years 10 and 11) or Key Stage 4 GCSE and equivalents points (for Years 12 and 13). See Section 1.2 for further details.

Table 3.3: Sample profile (cont.)

	Achieved SET sample		Population ¹⁶
	Unweighted % of total	Weighted % of total	% of total
IDACI (decile)			
<i>1 (most deprived)</i>	10.1%	11.2%	9.8%
<i>2</i>	10.0%	10.8%	9.8%
<i>3</i>	9.8%	10.7%	9.8%
<i>4</i>	9.2%	9.5%	9.8%
<i>5</i>	9.6%	9.7%	9.8%
<i>6</i>	10.2%	9.9%	9.8%
<i>7</i>	10.5%	9.8%	9.8%
<i>8</i>	9.1%	8.4%	9.8%
<i>9</i>	9.9%	9.5%	9.8%
<i>10 (least deprived)</i>	11.5%	10.3%	9.8%
<i>Unclassified</i>	0.1%	0.1%	1.7%
Ethnicity			
<i>White</i>	77.6%	76.9%	76.3%
<i>Mixed</i>	4.4%	4.5%	4.7%
<i>Asian</i>	10.4%	10.7%	10.3%
<i>Black</i>	4.2%	4.3%	5.5%
<i>Chinese</i>	0.5%	0.5%	0.4%
<i>Other</i>	1.1%	1.1%	1.6%
<i>Unclassified</i>	1.8%	2.0%	1.2%

¹⁶ Population proportions are from the sample frame, with the exception of Ethnicity. The figures for ethnicity are taken from the 2016 School Census, for all students at state-funded secondary schools.

3.5 Interview lengths

The mean interview length was around 20 minutes and the median length around 18 minutes (Table 3.4). The survey was longer for younger respondents, with young people in Year 10 taking around five minutes longer on average than young people in Year 13.

Respondents did not have to complete the whole survey in one sitting. If a respondent quit the survey before the end, they were able to log in again and continue from the question they had previously reached. There were 42 respondents who did not complete the survey in their first sitting but did return to complete it some days later. These respondents are not included in the average survey lengths shown in Table 3.4.

Table 3.4: Average interview lengths¹⁷

	All respondents	Year 10	Year 11	Year 12	Year 13
Mean	20:07	22:51	21:10	18:15	17:37
Median	17:56	20:29	19:16	16:05	15:25

3.6 Device choice

There were no restrictions on the types of device respondents could use to complete the survey. The type of device a respondent used was automatically identified by the survey software. Most respondents took part using a PC or laptop, although one in four used a smartphone (Table 3.5). There was some variation by year group with young people in Year 13 the most likely to have used a smartphone.

Table 3.5: Devices used by respondents

	All respondents	Year 10	Year 11	Year 12	Year 13
PC / laptop	63.0%	64.9%	63.2%	62.5%	61.2%
Large tablet	10.7%	11.6%	12.0%	10.0%	8.9%
Medium tablet	1.2%	1.6%	1.7%	0.8%	0.5%
Smartphone	24.8%	21.7%	23.1%	26.4%	28.9%
Other device	0.2%	0.3%	0.0%	0.2%	0.4%
<i>Base</i>	<i>4,081</i>	<i>1,113</i>	<i>1,086</i>	<i>949</i>	<i>933</i>

¹⁷ 3.7% of responses are not included here. In these cases, there was more than one hour between the survey start and finish times. This included respondents who completed the survey in more than one sitting.

4. Data processing

This chapter gives details on the data processing conducted after fieldwork was completed.

4.1 Data processing

The survey was conducted using IBM Dimensions survey which limits the potential for missing values or data errors. For each question in the survey respondents were obliged to give an answer in order to move on to the next one; 'Don't know' and 'Prefer not to say' options were available to respondents.

4.1.1 Partial interviews and breakoffs

All respondents who completed the Demographics section of the survey were included in the final dataset. Five respondents completed the Demographics section but quit the survey before the final question. In all five cases, the respondent completed the vast majority of the survey.

There were 50 respondents who started the survey but did not complete it. In 17 of these cases, the respondent logged in to the survey but completed only one or two questions.

4.1.2 Coding

Coding was conducted using Ascribe software. A detailed coding plan was produced by the research team which briefed coders on what was required. A sample of coding from each question was checked by the research team to ensure that quality was maintained throughout.

The survey contained only one open-ended question which asked about which future careers in science that respondents may be interested in. As a starting point the code frame was developed by looking at a random sub-set of un-coded answers to find appropriate codes and then checked with previous waves of the Wellcome Monitor.

At questions where respondents were able to specify an 'other answer', these were reviewed and whenever possible back-coded to a pre-existing code. As a general rule, if a substantial number of respondents select a new code (five per cent of those eligible to answer) then a new code would be created.

4.2 Linking to NPD data

Where respondents gave permission, it was possible to link their survey answers to administrative data held by the NPD. 83% of respondents agreed for their data to be linked in this way. Their anonymous identification numbers were sent to the NPD team, who sent back the relevant administrative data.

A number of summary variables were then created by Kantar Public and merged with the survey dataset. These variables are described in Table 4.1.

Respondents who did not give permission to link their survey answers to NPD data were asked a series of follow up questions about subject qualifications they had achieved.

Table 4.1: Summary variables from NPD

Variable name	Level	Description
NPD_FSM	Individual	Whether individual eligible for free school meals
NPD_FSM_6yr	Individual	Whether individual has been eligible for free school meals in the last six years
NPD_Lang	Individual	Whether English is individual's first language
NPD_SEN	Individual	Whether individual has any Special Educational Needs provision
NPD_KS2_Sci_TA	Individual	Key Stage 2 National Curriculum level for science (teacher assessed)
NPD_KS2_Mat	Individual	Key Stage 2 National Curriculum level awarded for maths
NPD_KS2_Mat_TA	Individual	Key Stage 2 National Curriculum level for maths (teacher assessed)
NPD_KS2_Eng	Individual	Key Stage 2 National Curriculum level awarded for English
NPD_KS2_Eng_TA	Individual	Key Stage 2 National Curriculum level for English (teacher assessed)
NPD_KS4_Cat	Individual	Summary of Key Stage 4 attainment
NPD_KS4_Points	Individual	Total Key Stage 4 points achieved
NPD_KS4_CapPoints	Individual	Capped Key Stage 4 points achieved
NPD_SciScore	Individual	Total Key Stage 4 points achieved in science
NPD_SciCat	Individual	Summary of Key Stage 4 attainment in science
NPD_KS4_Bio	Individual	Key Stage 4 grade: Biology
NPD_KS4_Che	Individual	Key Stage 4 grade: Chemistry
NPD_KS4_Phy	Individual	Key Stage 4 grade: Physics

Table 4.1: Summary variables from NPD (cont.)

NPD_KS4_CSci	Individual	Key Stage 4 grade: Core science
NPD_KS4_ASci	Individual	Key Stage 4 grade: Additional science
NPD_KS4_AppSci	Individual	Key Stage 4 grade: Applied science
NPD_KS4_Eng	Individual	Key Stage 4 grade: English
NPD_KS4_Mat	Individual	Key Stage 4 grade: Maths
NPD_KS4_Stat	Individual	Key Stage 4 grade: Statistics
NPD_KS4_IT	Individual	Key Stage 4 grade: Information technology
NPD_KS4_Voc	Individual	Whether achieved BTEC or OCR Nationals Award and Certificate in science
NPD_KS4_VocHigh	Individual	Whether achieved equivalent of A*-B in BTEC or OCR Nationals Award and Certificate in science
SchoolCen_Sex	School	Gender of the pupils at the individual's school (male, female, mixed)
SchoolCen_Adm	School	Admissions policy of individual's school
SchoolCen_Rel	School	Religious character of individual's school
SchoolCen_5AC	School	Proportion of pupils at individual's school achieving at least five GCSEs (or equivalent) at A*-C including English and Maths
SchoolCen_5ACLow	School	Proportion of pupils with low prior attainment at individual's school achieving at least five GCSEs (or equivalent) at A*-C including English and Maths
SchoolCen_5ACMed	School	Proportion of pupils with middle prior attainment at individual's school achieving at least five GCSEs (or equivalent) at A*-C including English and Maths
SchoolCen_5ACHigh	School	Proportion of pupils with high prior attainment at individual's school achieving at least five GCSEs (or equivalent) at A*-C including English and Maths
SchoolCen_Lang	School	Proportion of pupils at individual's school for whom English is not first language
SchoolCen_FSM	School	Proportion of pupils at individual's school eligible for free school meals

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Appendix A: Pre-notification letters

Pre-notification were sent on June 16th. Letters were sent to:

- a) The sampled young person;
- b) Their parent.

Both the young person and the parent versions are given in this appendix, along with the FAQs which were printed on the reverse of each letter.



20005

Dear

We need your help!

We are writing to you today to invite you to take part in Pathways: a brand new survey for young people in Years 10-13. The survey covers your experience of life at school, college or employment in the past year, your plans for next year and beyond, and your views about a range of other important issues that affect young people today.

This major survey will reach over 3,000 young people across England and will be used by the Government and other bodies to help improve education and careers advice for young people in England. The study is on behalf of the Wellcome Trust - an international charitable foundation - with support from the Department for Education and the Department for Business, Innovation and Skills among others.

As a thank you, you will be rewarded with a £10 e-voucher immediately after completing. You can choose from a range of high street or online shops such as Amazon, River Island & iTunes.

How can I access the survey?

We will write to you again in the next couple of weeks with details on how to complete the short survey.

Answers to some common questions are listed on the back as well as relevant contact details if you have any further questions.

Many thanks,

P. Matthews

Peter Matthews
Survey Manager
Pathways Survey Team



TNS BMRB



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PATHWAYS



Why me?

You have been selected to represent thousands of others like you in England – that's why it's critical that you take part and give your views.



Who is it for?

The study is on behalf of the Wellcome Trust - an international charitable foundation - with support from the Department for Education and Department for Business, Innovation and Skills.

The research is being carried out by TNS BMRB, an independent research company that specialises in public policy research. <http://www.tns-bmrb.co.uk/>



What is it for?

This major study will reach over 3,000 young people across England and will be used to inform research and policy decisions on education and careers advice for young people in England. By giving your opinion you will be influencing decisions that will affect the lives of thousands of young people across the country.



How can I complete the survey?

You will be able to access the survey on your laptop, tablet or smartphone.



Where did you get my contact details from?

Your contact details were randomly taken from one of two sources, either the National Pupil Database (NPD) or the Individualised Learner Record database (ILR). These databases are maintained by The Department for Education and the Skills Funding Agency (an executive



agency of the Department for Business, Innovation & Skills) respectively. The databases have been used as they are a reliable source of details such as name, address and date of birth.

We have received approval to use the contact details only for this study. We won't be using them for any other purposes, nor will we share them with anyone else. Information about the NPD & IRL can be found at the following locations:

www.gov.uk/national-pupil-database-apply-for-a-data-extract.

www.gov.uk/government/collections/individualised-learner-record-ilor



Is the survey confidential?

Yes. Your answers will be collected by TNS BMRB, the company carrying out the study. The final data will not include your name and address. The answers from your questionnaire will then be put together with the answers collected from 3,000 other young people. Together they will be used to find out about young people of your age.



How do I collect the e-voucher?

Once you have completed the survey you will be directed to the Perks website where you can use the survey login details to sign in and choose from a range of different shopping vouchers.



I have further questions about this study, who can I contact?

If you have any questions or concerns, please contact us at Freephone 0800 015 0302 or email us at pathways@tns-bmrb.co.uk.





20005

Dear Parent or Guardian of

Your child has been selected to take part in the Pathways survey: an important new research project for young people in England. I am writing to you today in order to give you some information about the study.

In around two weeks' time your son or daughter will be asked to complete a short survey online. The survey includes questions about your child's education to date, their career plans and broader questions on topics such as new technologies.

Around 3,000 randomly-selected young people across England will be taking part in order to produce information which will be used by organisations such as charities and government departments to improve education and careers advice for young people in England.

The Pathways survey is being conducted by TNS BMRB, an independent research company, on behalf of the Wellcome Trust with support from the Department for Education & Department for Business, Innovation & Skills.

The survey will last around 15-20 minutes. As a thank you for their time, we will provide all young people with a £10 e-voucher which can be used in a range of high street shops.

On the other side of the letter are some common questions but if you have any additional questions, please do contact Martin Shanahan on Freephone 0800 015 0302 or email us at pathways@tns-bmrb.co.uk.

What will happen next?

You do not need to do anything. **In the next two weeks we will send a further letter inviting your child to take part.** This will also provide information on how to access the survey online.

Many thanks,

P. Matthews

Peter Matthews
Survey Manager
Pathways Survey Team




TNS BMRB



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PATHWAYS



What happens if my child takes part?

If your child is able to take part, we will thank them with a £10 voucher which they can use online at a range of high street shops. The survey itself will take around 15-20 minutes to complete.




How did you get my child's details?

Your child's contact details were randomly taken from one of two sources, either the National Pupil Database (NPD) or The Individualised Learner Record database (ILR). These databases are maintained by The Department for Education and the Skills Funding Agency (an executive agency of the Department of Business, Innovation & Skills) respectively. The databases have been used as they are a reliable source of details such as name, address and date of birth.

We have received approval to use the contact details only for this study. We won't be using them for any other purposes, nor will we share them with anyone else. Information about the NPD & IRL can be found at the following locations:

www.gov.uk/national-pupil-database-apply-for-a-data-extract.

www.gov.uk/government/collections/individualised-learner-record-ilor



What will happen with my child's answers?

Your child's answers and personal details will be kept in the strictest confidence and stored electronically on a secure server. All answers and data will be anonymised and combined with the responses from over 3000 young people so that no one taking part can be identified by their answers.

Details of our commitment to data security can be found at the following link:

www.tns-bmrb.co.uk/about-us/information-security



Who are TNS BMRB?

TNS BMRB are an independent research company who undertake projects for a range of government departments, charities and universities. We have extensive experience in conducting surveys among young people. TNS BMRB are bound by the MRS Code of Conduct – a set of agreements that ensure research is conducted in an ethical and safe manner.



What if I don't want my child to take part?

You can opt out of the survey by contacting us on Freephone 0800 015 302 or by emailing us at pathways@tns-bmrb.co.uk. Please include the reference number located on the top right of the letter.



Appendix B: Launch letters

Launch letters were sent on June 29th. Letters were sent directly to young people aged 16 or above. For young people under 16, letters were sent to their parent with a covering letter asking the parent to pass it on to their child.

The FAQs printed on the reverse of the letters were the same as used for the pre-notification letters (see Appendix A).



20005

Dear |

We need your help!

We wrote to you around two weeks ago, telling you about Pathways: a brand new survey for young people in England. The survey covers your experience of life at school, college or employment; your plans for next year and beyond; and your views about a range of other important issues that affect young people today.

The survey will only take around 15-20 minutes to complete and as a thank you, you will be rewarded with a £10 e-voucher immediately after completing. You can choose from a range of high street or online shops such as Amazon, River Island & iTunes.

The details you need are below:

.....
Web link: www.pathwaysuk.co.uk

ID:

Password:

Simply go to the website, use the log in details and then at the end you will get your voucher!

Answers to some Frequently Asked Questions can be found on the reverse of this letter.

.....
Thank you again for your help!

P. Matthews

Peter Matthews
Survey Manager
Pathways Survey Team



TNS BMRB



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20005

Dear Parent or Guardian of

We wrote to you around two weeks ago, informing you that your child has been selected to take part in a new survey called Pathways.

We are writing to you again as the survey is now open and your son or daughter can complete the questionnaire online. As a reminder, your child will receive a £10 e-voucher which can be used in a range of high street shops to thank them for their participation.

What do I have to do?

All you have to do is hand the letter included in the envelope to your son or daughter – this includes key information about the survey and their unique login details to complete the survey online.

As I mentioned before, the survey will ask a range of questions on education, career plans and broader areas such as new technologies.

The Pathways survey is being conducted by TNS BMRB, an independent research company, on behalf of the Wellcome Trust with support from the Department for Education & Department for Business, Innovation & Skills.

On the other side of the letter are some common questions but if you have any additional questions, please do contact Martin Shanahan on Freephone 0800 015 302 or email us at pathways@tns-bmrb.co.uk.

Many thanks,

P. Matthews

Peter Matthews
Survey Manager
Pathways Survey Team



TNS BMRB



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Appendix C: First reminder letter

The first reminder letter was sent on July 13th. Letters were sent directly to young people aged 16 or above and to the parents of young people aged under 16. The FAQs printed on the reverse of the letters were the same as used for the pre-notification letters (see Appendix A).

Young person (if aged 16 or above)



20005

Dear

We recently invited you to take part in the Pathways survey. Already hundreds of young people across England have made their voices heard and we hope you will be able to do so too.

The survey only takes around 15-20 minutes and as a thank you for your time, we will give you a £10 e-voucher which can be used in shops such as Amazon, River Island & iTunes.

Simply go to the website, use the login details and then at the end you will get your voucher!

Web link: www.pathwaysuk.co.uk

ID:

Password: _____

No one else can take your place so we really hope you can take part.

Answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmrb.co.uk.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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20005

Dear Parent or Guardian of

We recently invited your son or daughter to take part in the Pathways survey. Already hundreds of young people across England have made their voices heard and we hope your child will be able to do the same.

If you are happy for your child to take part, please pass this letter on to them so they can complete the survey online.

The survey lasts around 15-20 minutes and as a thank you each participant will get a £10 e-voucher that can be used in shops such as Amazon, River Island and iTunes.

Your child can simply go to the website below, use the login details and at the end of the survey they can claim their e-voucher!

.....
Web link: www.pathwaysuk.co.uk

ID:

Password: _____
.....

The Pathways survey is being conducted by TNS BMRB, an independent research company, on behalf of the Wellcome Trust with support from the Department for Education and the Department for Business, Innovation & Skills.

Answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmr.com.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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Appendix D: Second reminder letters

The second reminder letter was sent on July 28th. Letters were sent directly to young people aged 16 or above and to the parents of young people aged under 16. The FAQs printed on the reverse of the letters were the same as used for the pre-notification letters (see Appendix A).

Young person (if aged 16 or above)



20005

Dear

We just wanted to remind you that there is still time to take part in the Pathways survey.

The survey only takes around 15-20 minutes and can be completed on your PC, laptop, tablet or smartphone. As a thank you for your time, at the end of the survey we will give you a £10 e-voucher which can be used in shops such as Amazon, River Island & Boots.

Simply go to the website, use the login details and then at the end you will get your voucher!

.....
Web link: www.pathwaysuk.co.uk

ID:

Password:
.....

Your participation is entirely voluntary but we really hope you can take part.

Answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmrb.co.uk.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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20005

Dear Parent or Guardian of

We just wanted to remind you that there is still time for your son or daughter to take part in the Pathways survey.

The survey only lasts around 15-20 minutes and can be completed on a PC, laptop, tablet or smartphone. As a thank you, at the end of the survey each participant will get a £10 e-voucher that can be used in shops such as Amazon, River Island and Boots.

If you are happy for your child to take part, please pass this letter on to them so they can complete the survey online.

Your child can simply go to the website below, use the login details and at the end of the survey they can claim their e-voucher!

.....
Web link: www.pathwaysuk.co.uk

ID:

Password:
.....

The Pathways survey is being conducted by TNS BMRB, an independent research company, on behalf of the Wellcome Trust with support from the Department for Education and the Department for Business, Innovation & Skills.

This survey is entirely voluntary and answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmrb.co.uk.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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Appendix E: Third reminder letters

The third reminder letter was sent on August 10th. Letters were sent directly to young people aged 16 or above and to the parents of young people aged under 16. The FAQs printed on the reverse of the letters were the same as used for the pre-notification letters (see Appendix A).

Young person (if aged 16 or above)



20005

Dear

You still have one last chance to take part in the Pathways survey and claim your £10 e-voucher.

Your opinion is really important to us and you can still take part in the survey until **Monday August 22nd**.

The survey only takes around 15-20 minutes. As a thank you for your time, we will give you a £10 e-voucher at the end of the survey which can be used in shops such as Amazon, River Island & Boots.

Simply go to the website, use the login details and then at the end you will get your voucher!

Web link: www.pathwaysuk.co.uk

ID:

Password:

Your participation is entirely voluntary but we really hope you can take part. If you have already completed the survey, please just ignore this letter.

Answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmrb.co.uk.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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20005

Dear Parent or Guardian of

We hope you don't mind us writing to you one last time to encourage your son or daughter to take part in the Pathways survey. The survey is a chance for your child to make their voice heard on a range of topics including their experiences at school and their plans for the future.

The survey will be available until **Monday August 22nd**. Your child's opinions are really important to us so we hope they can find the time to take part.

It only lasts around 15-20 minutes and each participant will get a £10 e-voucher that can be used in shops such as Amazon, River Island and Boots.

If you are happy for your child to take part, please pass this letter on to them so they can complete the survey online.

Your child can simply go to the website below, use the login details and at the end of the survey they can claim their e-voucher!

.....
Web link: www.pathwaysuk.co.uk

ID:

Password:
.....

This survey is entirely voluntary and answers to some Frequently Asked Questions can be found on the reverse of this letter. If you have any other questions or concerns, you can contact us at Freephone 0800 015 0302 or pathways@tns-bmrb.co.uk.

Thanks for your help!

P. Matthews

Peter Matthews
Survey Manager



TNS BMRB



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Appendix F: Reminder postcards

The reminder postcard was sent on July 26th, shortly before the second reminder letter. Postcards were sent directly to young people aged 16 or above and to the parents of young people aged under 16.

Young person (if aged 16 or above)



POST MARK

Firstname Surname
Address line 1
Address line 2
Address line 3
County
Postcode



TNS BMRB

Dear

We recently invited you to take part in the Pathways survey. Already hundreds of young people across England have made their voices heard and we hope you will be able to do so too.

The survey only takes around 15-20 minutes and as a thank you for your time, we will give you a £10 e-voucher which can be used in shops such as Amazon, River Island & iTunes.

Web link: www.pathwaysuk.co.uk

ID:

Password:

If you have any questions or concerns, please contact Martin Shanahan at Freephone 0800 015 0302 or email us at pathways@tns-bmrb.co.uk.

Thanks for your help!

Peter Matthews
Survey Manager



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POST MARK

Firstname Surname
Address line 1
Address line 2
Address line 3
County
Postcode



TNS BMRB

Dear Parent or Guardian of

We recently invited your child to take part in the Pathways survey. Already hundreds of young people across England have made their voices heard and we hope your son or daughter will be able to do so too.

The survey only takes around 15-20 minutes and as a thank you for their time, they will receive a £10 e-voucher which can be used in shops such as Amazon, River Island & iTunes.

Simply hand them this card and they will be able to access the survey using the details below.

Web link: www.pathwaysuk.co.uk

ID:

Password:

If you have any questions or concerns, please contact Martin Shanahan at Freephone 0800 015 0302 or email us at pathways@tns-bmrb.co.uk.

Thanks for your help!

Peter Matthews
Survey Manager



Department
for Education

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Appendix G: Questionnaire

RESPONDENT DETAILS AND HOUSEHOLD INFORMATION

ASK ALL

Intro

Welcome to the Pathways survey.

All of your answers will be kept completely confidential. If there is any question that you don't know the answer to or you don't wish to answer, just click Next to move on to the next one.

ASK ALL

RespDet (single code)

First, we need to make sure we have the correct details for you.

Are these correct?

SCRIPTING NOTE: Display respondent's name and address from sample

<RESPONDENT NAME>

<RESPONDENT ADDRESS>

1 Yes

2 No

ASK IF RESPONDENT DETAILS ARE NOT CORRECT // IF RespDet = 2

RespDetC (open ended)

What are the correct details?

<RESPONDENT NAME>

<ADDRESS>

ASK ALL

Year (single code)

Which academic year are you in?

If you are no longer in school or college, which year would you be in if you were still studying?

- 1 Year 9, or below [Respondents answering code 1 were screened out of the survey]
- 2 Year 10
- 3 Year 11
- 4 Year 12
- 5 Year 13, or above

ASK ALL

RespEmail (open ended)

Once you have finished the survey, you will be able to choose your £10 e-voucher.

What is your email address?

ASK ALL

HHComp (multi-code)

Who lives with you in your home?

Choose all that apply.

HELP:

Sometimes people live in two different homes; this may be because their parents live in different places and they spend time in both homes. If this applies to you please answer for the home you live in most of the time.

- 1 Mother

- 2 Father
- 3 Mother's partner
- 4 Father's partner
- 5 Foster mother
- 6 Foster father
- 7 Grandparent(s)
- 8 Brother(s) (include half, step, foster brothers)
- 9 Sister(s) (include half, step, foster sisters)
- 10 Other relative(s)
- 11 Other non-relative(s)
- 12 I live in a care home (*single code*)
- 97 None of these / I live on my own (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

OUT OF SCHOOL ACTIVITIES

ASK ALL

SciVisit (multi-code)

Which of these have you been to in the last 12 months?

Choose all that apply. Think about trips with family and friends, school trips or trips abroad.

- 1 A science museum, science centre or planetarium
- 2 A historical or cultural museum
- 3 An art gallery
- 4 A theatre
- 5 A zoo or aquarium
- 6 A science festival or event
- 7 A science talk / lecture out of school
- 97 None (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF VISITED SCIENCE MUSEUM // IF *SciVisit* = 1

SciVisWho (multi-code)

Who was with you the last time you visited a science museum, science centre or planetarium?

Choose all that apply.

- 1 Mother (including foster, step-mother)
- 2 Father (including foster, step-father)
- 3 Other family member
- 4 Friend(s)
- 5 School / college
- 96 Other person
- 97 No one / I was alone (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF VISITED HISTORICAL/CULTURAL MUSEUM // IF SciVisit = 2

CulVisWho (multi-code)

Who was with you the last time you visited a historical or cultural museum?

Choose all that apply.

- 1 Mother (including foster, step-mother)
- 2 Father (including foster, step-father)
- 3 Other family member
- 4 Friend(s)
- 5 School / college
- 6 Other person
- 97 No one / I was alone (single code)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK IF VISITED SCIENCE MUSEUM/SCIENCE CENTRE // IF SciVisit = 1

SciVisFreq (single code)

How often do you go to science museums, science centres or planetariums?

- 1 At least once a month
- 2 Several times a year
- 3 About once a year
- 4 Less often
- 98 Don't know
- 99 Prefer not to say

ASK ALL

SciMedia (multi-code)

Which of these have you done in the last 12 months outside of school?

Choose all that apply.

- 1 Read about science (e.g. in a book, newspaper or online)
- 2 Watched science-related programmes / videos on TV or online (factual or fictional)
- 3 Listened to a podcast or radio programme about science
- 97 None (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

SCHOOL / COLLEGE SUBJECTS

ASK ALL

YPEconAc (single code)

Which of these best describes what you have been doing this past academic year (September 2015 to July 2016)?

If you moved from one place to another mid-year choose the one you spent most time at.

- 1 School
- 2 Sixth form attached to school
- 3 Sixth form college (not attached to school)
- 4 Further Education College
- 5 Paid work
- 6 Government training scheme / Apprenticeship
- 96 Something else (please tell us what)
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE A

SchSubEnj (drag and drop)

At school, which of these subjects [do/did] you enjoy the most?

Rank your answers with 1 being the subject you [enjoy/enjoyed] the most and 7 the subject you [enjoy/ enjoyed] the least.

[NOTE: Text-fills are 'do' and 'enjoy' if in Year 10, otherwise 'did' and 'enjoyed'.]

- 1 English
- 2 Maths
- 3 Biology
- 4 Chemistry
- 5 Physics
- 6 History

- 7 Foreign languages
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE A

SchSubJob (drag and drop)

Thinking about young people in general, which of these subjects is most useful to help someone get a job?

Rank your answers with 1 being the most likely to lead to a job and 7 being the least likely.

- 1 English
- 2 Maths
- 3 Biology
- 4 Chemistry
- 5 Physics
- 4 History
- 5 Foreign languages
- 98 Don't know
- 99 Prefer not to say

ASK ALL

SciInt (single code)

How interesting do you find science lessons at school?

If you no longer study science, think back to when you were studying it.

HELP: By Science, we mean Biology, Chemistry and Physics

- 1 Very interesting
- 2 Fairly interesting
- 3 Not very interesting
- 4 Not at all interesting

- 98 Don't know
- 99 Prefer not to say

ASK ALL

SciEnc (single code)

What has encouraged you to learn science?

Choose all that apply.

- 97 Nothing has encouraged me (*single code*)
- 1 It's easier than other subjects
- 2 I get good marks
- 3 I find science interesting
- 4 It's relevant to real life
- 5 Having a good teacher
- 6 Encouraged by family / friends
- 7 Fits with my future study / career plans
- 8 I like doing practical work / experiments
- 9 I enjoy the maths involved
- 96 Something else (please tell us what)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK ALL

SciDis (single code)

And what has put you off learning science?

Choose all that apply.

- 97 Nothing has put me off (*single code*)
- 1 It's more difficult than other subjects
- 2 I don't get good marks
- 3 I don't find science interesting

- 4 My friends are not interested in science
- 5 Having a bad teacher
- 6 Doesn't fit with my future study / career plans
- 7 I don't like practical work / experiments
- 8 Science isn't creative enough
- 9 I find the maths difficult
- 96 Something else (please tell us what)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

CURRENT AND FUTURE STUDY

ASK IF YEAR 10 or 11

CurSub (multi-code)

Which of the following subjects have you been studying at GCSE?

Choose all that apply.

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Computer Science / Computing
- 6 ICT
- 7 Electronics / Engineering
- 8 Design and Technology
- 9 Geology
- 10 Psychology
- 97 None of these (single code)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK ALL

GCSESci (single code)

Which science course [did you take / are you taking] in Year 10 and 11?

HELP: Triple Science GCSE: Biology, Chemistry and Physics, or Core Additional and Further Additional Science

[NOTE: Text-fill is 'are you taking' if in Year 10, otherwise 'did you take.']

- 1 Single Science GCSE
- 2 Double Science GCSE
- 3 Triple Science GCSE

- 96 Another science course (e.g. BTEC)
- 98 Don't know
- 99 Prefer not to say

ASK IF NOT STUDY TRIPLE SCIENCE // IF GCSESci <> 3

TripSciSch (single code)

When you were choosing your GCSE options, did your school offer Triple Science?

HELP: Triple Science GCSE: Biology, Chemistry and Physics, or Core Additional and Further Additional Science

- 1 Yes, offered to all students
- 2 Yes, offered to some students
- 3 No, not offered
- 98 Don't know
- 99 Prefer not to say

ASK IF TRIPLE SCIENCE NOT OFFERED BY SCHOOL // IF TripSciSch = 3

TripSciNo (single code)

Would you have wanted to study Triple Science if your school had offered it?

HELP: Triple Science GCSE: Biology, Chemistry and Physics, or Core Additional and Further Additional Science

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF NOT STUDY TRIPLE SCIENCE BUT IT WAS OFFERED BY SCHOOL // IF TripSciSch = 1 or 2

TripSci (single code)

At the time, did you want to study [Single Science / Double Science / this science course] or would you have preferred to take Triple Science?

HELP: Triple Science GCSE: Biology, Chemistry and Physics, or Core Additional and Further Additional Science

[NOTE: Text-fill is 'Single Science' if GCSESci = 1, 'Double Science' if GCSESci = 2, else 'this science course'.]

- 1 Yes, I wanted to study this course
- 2 No, I would have preferred Triple Science
- 98 Don't know
- 99 Prefer not to say

ASK IF NOT STUDY TRIPLE SCIENCE BUT IT WAS OFFERED BY SCHOOL // IF TripSciSch = 1 or 2

TripSciWhy (multi-code)

Why didn't you [want to {IF TripSci = 1}] study Triple Science?

Choose all that apply.

- 1 Not interested in studying Triple Science
- 2 Prioritised other subjects
- 3 Timetabling / didn't fit with other subjects
- 4 Not needed for my future plans / career
- 5 Didn't achieve the level / grade I needed
- 6 Thought it would be too difficult / lacked confidence
- 7 Too much extra work
- 8 Wasn't in the right set
- 9 Teacher(s) advised me not to
- 10 Parent(s) advised me not to
- 96 Another reason (please tell us why)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF YEAR 12 or 13

Comp1213 (single code)

Did you study Computer Science or Computing at GCSE?

Don't include ICT.

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF DIDN'T STUDY COMPUTER SCIENCE GCSE // IF Comp1213 = 2 OR CurSub <> 5

CompSciWhy (multi-code)

Just to check, why didn't you study Computer Science or computing?

Choose all that apply.

- 1 School didn't offer the subject
- 2 Not interested in subject
- 3 Prioritised other subjects
- 4 Timetabling / didn't fit with other subjects
- 5 Not needed for future plans
- 6 Thought it would be too difficult / lacked confidence
- 7 Teacher(s) advised me not to
- 8 Parent(s) advised me not to
- 96 Another reason (please tell us why)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK IF YEARS 10 or 11

FutL3Qu (single code)

Now for some questions about your future study plans.

After Year 11, are you planning to study for further qualifications in any subject, for example A levels or an NVQ level 3?

- 1 Yes
- 2 No
- 3 Maybe
- 99 Prefer not to say

ASK IF YEAR 11 and FutL3Qu = 1 or 3 // In Year 11 and considering studying for further qualifications

P16Sub (single code)

Have you chosen your subjects for Year 12 yet?

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF CONSIDERING STUDYING FOR FURTHER QUALIFICATIONS AFTER YEAR 11 AND NOT ALREADY CHOSEN SUBJECTS // IF FutL3Qu = 1 or 3 and P16Sub <> 1

FutL3Sub (grid)

How likely are you to study A levels, NVQ level 3 or a similar qualification in...

- ... Maths?
- ... Biology?
- ... Chemistry?
- ... Physics?
- ... Computer Science?
- ... Another science subject (e.g. Psychology, Engineering, Geology, Applied Science) ?

- 1 Definitely
- 2 Likely
- 3 Unlikely
- 4 Definitely not

- 5 Don't know yet
- 99 Prefer not to say

ASK IF YEAR 11 AND CHOSEN SUBJECTS FOR YEAR 12 // IF P16Sub = 1
Y12SubL3 (multi-code)

Are you intending to study any of the following subjects in Year 12?

Choose all that apply.

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (single code)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK IF YEAR 12 or 13 AND AT SCHOOL SIXTH FORM, SIXTH FORM COLLEGE OR FE
COLLEGE // IF Year 12 or 13 and YPEconAc = 1, 2, 3 or 4

L3Qual (multi-code)

Have you been studying towards any of these qualifications in Year 12 or 13?

Choose all that apply.

- 1 AS levels / A levels
- 2 International Baccalaureate (IB)
- 3 NVQ level 3 / GNVQ Advanced

- 4 BTEC National Certificate / ONC / OND
- 5 City and Guilds Advanced Craft or Part III / RSA Advanced Diploma
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF YEAR 12 OR 13 AND STUDYING AS LEVELS, A LEVELS, IB OR VOCATIONAL LEVEL 3
// IF L3Qual = 1, 2, 3, 4 or 5

CurSubL3 (multi-code)

Have you been studying any of these subjects in Year 12 or 13?

Choose all that apply.

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF IN YEAR 12 OR 13 AND IN SCHOOL SIXTH FORM COLLEGE OR FE COLLEGE; OR IN
YEAR 11 AND CHOSEN SUBJECTS FOR YEAR 12 // IF ((YEARS 12 or 13) and YPEconAc = 1,
2, 3 or 4)) or (P16Sub = 1)

OptSub (single code)

Were you able to choose all the subjects you wanted for Year 12?

- 1 Yes

- 2 No, there were some subjects I would have preferred to choose
- 98 Don't know
- 99 Prefer not to say

ASK IF UNABLE TO TAKE SOME SUBJECTS // IF OptSub = 2

SciOptSub (multi-code)

Did you want to take any of these subjects in Year 12?

[NOTE: Only codes mentioned by the respondent at Y12SubL3 or at CurSubL3 are displayed]

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (single code)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK ALL

FutHEQu (single code)

Are you thinking about going on to study for a higher education qualification in any subject?

- 1 Yes, a university degree
- 2 Yes, another HE qualification (e.g. HNC, HND, Higher Education Diploma)
- 3 No
- 4 Undecided

99 Prefer not to say

ASK IF CONSIDERING STUDYING FOR HE EDUCATION DEGREE // IF FutHeQu = 1, 2 or 4

FutHESu (multi-code)

Are you thinking about studying for a degree or other higher education qualification in any of these subjects?

This might be in combination with other subjects. Choose all that apply.

- 1 Biology
- 2 Chemistry
- 3 Computer Science / Computing
- 4 Engineering
- 5 Environmental Science
- 6 Maths (including Statistics)
- 7 Medicine / Dentistry
- 8 Other health subjects (e.g. Nursing, Pharmacy, Sports Science)
- 9 Physics
- 10 Psychology
- 11 Veterinary Science
- 96 Another science subject (please tell us which)
- 95 A non-science subject
- 98 I don't know / haven't decided which subject (*single code*)
- 99 Prefer not to say (*single code*)

LEARNING STYLES

ASK IF SAMPLE B. ASK ONLY HALF OF SAMPLE B (AT RANDOM)

LStyleSci_A / LStyleMat_A / LStyleEng_A (sliding scale)

Some people say that how well someone does in exams is mostly down to their natural ability, while others say it is mostly down to how hard they work.

Thinking about young people in general, tell us what you think for each of the following subjects.

[NOTE: For each subject, there was an 11-point sliding scale labelled 'Natural ability' on the left, 'How hard you work' on the right, and 'Both equally important' in the middle.]

- 1 English
- 2 Maths
- 3 Science
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE B AND NOT ASKED PREVIOUS QUESTION (*LStyleSci_A / LStyleMat_A / LStyleEng_A*)

LStyleSci_B / LStyleMat_B / LStyleEng_B (sliding scale)

Some people say that how well someone does in exams is mostly down to how hard they work, while others say it is mostly down to their natural ability.

Thinking about young people in general, tell us what you think for each of the following subjects.

[NOTE: For each subject, there was an 11-point sliding scale labelled 'How hard you work' on the left, 'Natural ability' on the right, and 'Both equally important' in the middle.]

- 1 English
- 2 Maths
- 3 Science
- 98 Don't know
- 99 Prefer not to say

SCIENCE AT SCHOOL

ASK IF YEAR 10/11

SciLes (single code drop down list)

Over the last school year, how many hours of science lessons (Biology, Chemistry, Physics) did you have each week on average?

- 1 0.5 hours
- 2 1 hour
- 3 1.5 hours
- 4 2 hours
- 5 2.5 hours
- 6 3 hours
- 7 3.5 hours
- 8 4 hours
- 9 4.5 hours
- 10 5 hours
- 11 5.5 hours
- 12 6 hours
- 13 6.5 hours
- 14 7 hours
- 15 7.5 hours
- 16 8 hours or more
- 98 Don't know
- 99 Prefer not to say

ASK IF YEAR 10/11

PracQuan (grid)

Apart from when you were preparing for exams, about how often did you do the following in science lessons?

- ... Watch a teacher demonstration of a practical
- ... Watch a video of a practical
- ... Hands-on practical work

... Analyse data / write up results of practical work

- 1 At least once a week
- 2 At least once a fortnight
- 3 At least once a month
- 4 Once every couple of months
- 5 Less often
- 6 Never
- 98 Don't know
- 99 Prefer not to say

ASK IF YEAR 10/11

PracQual (multi-choice)

Have you done any of these kinds of work in science lessons in the last year?

Choose all that apply.

- 1 Fieldwork
- 2 Designed and carried out an experiment / investigation
- 3 A practical project lasting more than one lesson
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF YEAR 10/11 AND SAMPLE A

PracRes (single code)

Which of these best applies to you?

- 1 I would have preferred to do **more** practical work
- 2 I would have preferred to do **less** practical work
- 3 I was happy with the amount of practical work we did
- 98 Don't know
- 99 Prefer not to say

ASK IF YEAR 10/11 AND SAMPLE A

PracWhy (single code)

When doing practical work, how often would you say that you just followed the instructions without understanding the purpose of the work?

- 1 A lot
- 2 Sometimes
- 3 Occasionally
- 4 Never
- 98 Don't know
- 99 Prefer not to say

ASK ALL

STEMPrac (multi-code)

In the last three years, have you taken part in any of the following activities related to Science, Computer science, Engineering or Maths?

Choose all that apply.

- 1 Science EPQ (Extended Project Qualification)
- 2 Science CREST Award
- 3 Science / Engineering / Computing / Maths club
- 4 Big Bang Fair
- 5 Another science fair / event
- 6 Taking part in a science challenge / competition
- 7 A talk at school from a STEM Ambassador
- 8 A talk at school from someone in a science-related job
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF ANY CODE 1-8 AT STEMPrac // IF STEMPrac = 1, 2, 3, 4, 5, 6, 7 or 8

STEMInf (single code)

Taking part in these activities has ...

- 1 ...encouraged me to study Science, Computer science, Engineering or Maths
- 2 ...put me off studying these subjects
- 3 ...made no difference whether or not I would study any of these subjects
- 98 Don't know
- 99 Prefer not to say

SCIENCE AS A CAREER

ASK ALL

CarAdv (multi-code)

Have you ever received any information or advice from any of these sources about what you may do for a career in the future?

Choose all that apply.

- 1 Friends
- 2 Family
- 3 Someone working in a related area
- 4 Careers advisor at school / college
- 5 Teacher at school / college
- 6 Searching online
- 7 Presentations by employers
- 8 Careers fair / event
- 96 Another person or organisation (please tell us who) Text box
- 97 None (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK ALL

CarSure (single code)

Do you have some idea about what jobs or careers you are interested in?

- 1 Yes, I have a firm idea
- 2 Yes, I have some idea
- 3 I have little / no idea
- 98 Don't know
- 99 Prefer not to say

ASK ALL

CarInt (single code)

Are you interested in a future career that involves Science, Computer science, Engineering or Maths?

- 1 Very interested
- 2 Fairly interested
- 3 Not very interested
- 4 Not at all interested
- 98 Don't know
- 99 Prefer not to say

ASK IF INTERESTED IN SCIENCE CAREER // IF CarInt = 1 or 2

CarWht (open ended)

What careers involving Science, Computer science, Engineering or Maths might you be interested in?

ASK IF INTERESTED IN SCIENCE CAREER // IF CarInt = 1 or 2

CarWhy (multi-choice)

Why are you interested in a career involving Science, Computer science, Engineering or Maths?

Choose all that apply.

- 1 I enjoy the subject(s)/ would enjoy the career
- 2 I'm good at the subject(s)
- 3 Wide range of career options
- 4 I can see how the subject(s) relate to the real world
- 5 A teacher advised me
- 6 My parents advised me
- 7 I want to help others
- 8 These careers are well paid
- 9 I know someone working in a related job
- 10 I'm interested because of illness / health condition of someone I know
- 97 Another reason (please tell us what)

- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF NOT INTERESTED IN SCIENCE CAREER // IF CarInt = 3 or 4

CarWhyNo (*multi-choice*)

Why are you not interested in careers involving Science, Computer science, Engineering or Maths?

Choose all that apply.

- 1 Don't enjoy the subject(s) / would not enjoy these careers
- 2 Prefer other subjects
- 3 Not good at these subjects
- 4 A teacher advised me not to
- 5 My parents advised me not to
- 6 These careers are not well paid
- 7 Narrow range of career options
- 8 I have other career plans
- 97 Another reason (please tell us what)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK ALL

SciCar (*grid*)

How much do you agree or disagree with the following statements?

Careers that use science...

- ... Are suitable for someone like me.
- ... Are difficult to get into.
- ... Require high grades.
- ... Are boring.
- ... Are more suited to men than women.

- ... Are open to anyone who has the ability regardless of their background.
- ... Make a useful contribution to society.

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly disagree
- 99 Prefer not to say

ASK ALL

WorkExp (multi-code)

Have you ever done any work experience?

Choose any that apply.

- 1 Yes, with an employer involved in Science, Computer Science, Engineering or Maths
- 2 Yes, in another area
- 3 No (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF DONE WORK EXPERIENCE IN SCIENCE // IF WorkExp = 1

WorkExpArr (multi-code)

Thinking about your most recent work experience with an employer involved in Science, Computer science, Engineering or Maths, how was this arranged?

Choose all that apply.

- 1 I arranged it myself
- 2 I arranged it through my family / friends
- 3 It was arranged through my school
- 96 Other (please tell us how)

- 98 Don't know
- 99 Prefer not to say

ASK ALL

WorkExpWant (single code)

Have you ever wanted to do work experience in Science, Computer science, Engineering or Maths, but not been able to do so?

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF UNABLE TO DO WORK EXPERIENCE IN SCIENCE // IF WorkExpWant = 1

WorkExpWhy (multi-code)

Why were you unable to do this work experience?

Choose all that apply.

- 1 Couldn't find relevant opportunities
- 2 Didn't know how to find opportunities
- 3 Didn't have the right contacts
- 4 Was too young
- 5 Applied through my school / college but was unsuccessful
- 6 Applied directly to an employer, but was unsuccessful
- 7 School didn't offer work experience
- 8 Didn't apply because places were limited
- 96 Another reason (please tell us what)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

SCIENCE NETWORKS

ASK ALL

SciCapIntro

Next we are going to ask some questions on what you think about medical science and other scientific issues.

ASK ALL

TalkSci (single code)

How much do you talk about health, medicine or other scientific issues with people outside of school?

This could be online, face-to-face or on the phone. It could be with your friends or family.

- 1 Often
- 2 Sometimes
- 3 Occasionally
- 4 Never
- 98 Don't know
- 99 Prefer not to say

ASK ALL

SocNSci (single code)

Apart from your doctor, do you know anyone with a medical or science-related job that you could talk to about health, medicine or other scientific issues outside of school?

- 1 No
- 2 Yes, one or two people
- 3 Yes, three or four people
- 4 Yes, at least five people
- 98 Don't know
- 99 Prefer not to say

ASK IF LIVING WITH PARENTS, PARENT'S PARTNER OR FOSTER PARENT(S) // IF HHComp = 1, 2, 3, 4, 5 or 6

IntYPPar (single code)

Would you say your parents are interested in science?

- 1 Yes, mother interested
- 2 Yes, father interested
- 3 Yes, both parents interested
- 4 No, neither parent interested
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE A

SciUse (grid)

Understanding science is important for...

- ... Me in my future career
- ... Me in my everyday life
- ... Society in general

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly disagree
- 99 Prefer not to say

ASK IF SAMPLE B

SciHear (single code)

How interested are you in finding out more from scientists about the research they are conducting?

- 1 Very interested

- 2 Fairly interested
- 3 Not very interested
- 4 Not at all interested
- 98 Don't know
- 99 Prefer not to say

DEMOGRAPHICS

ASK ALL

DemIntro

You only have a few minutes of the survey left.

Next, we need a bit more information about you. This will help us to see how experiences and opinions vary between different groups of young people.

ASK ALL

Sex (single code)

Are you male or female?

- 1 Male
- 2 Female
- 99 Prefer not to say

ASK ALL

Rel (single code)

What is your religion?

- 1 No religion
- 2 Christian (including Church of England, Catholic, Protestant and all other Christian denominations)
- 3 Buddhist
- 4 Hindu
- 5 Jewish
- 6 Muslim
- 7 Sikh
- 96 Any other religion (please tell us which religion)
- 98 Don't know
- 99 Prefer not to say

ASK IF ANY RELIGION GIVEN // IF Rel = 2, 3, 4, 5, 6, 7, 96

ChAttend (single code)

Apart from such special occasions as weddings, funerals and baptisms, about how often nowadays do you attend services or meetings connected with your religion?

- 1 Once a week or more
- 2 About once a fortnight
- 3 About once a month
- 4 About twice a year
- 5 About once a year
- 6 Less often or never
- 7 Varies too much to say
- 98 Don't know
- 99 Prefer not to say

ASK ALL

LifeEarth (single code)

People also have different views about the origin of life on earth. Which of the following comes closest to your view about the origin and development of life on earth?

- 1 Humans and other living things were created by God and have always existed in their current form
- 2 Humans and other living things evolved over time, in a process guided by God
- 3 Humans and other living things evolved over time as a result of natural selection, in which no god played a part
- 98 Don't know
- 99 Prefer not to say

ASK ALL

Ethnic (single code)

What is your ethnic group?

Choose one option that best describes your ethnic group or background.

White

- 1 English / Welsh / Scottish / Northern Irish / British
- 2 Irish
- 3 Gypsy or Irish Traveller
- 4 Any other White background Text box

Mixed / multiple ethnic groups

- 5 White and Black Caribbean
- 6 White and Black African
- 7 White and Asian
- 8 Any other mixed / multiple ethnic background

Asian / Asian British

- 9 Indian
- 10 Pakistani
- 11 Bangladeshi
- 12 Chinese
- 13 Any other Asian background Text box

Black / African / Caribbean / Black British

- 14 African
- 15 Caribbean
- 16 Any other Black / African / Caribbean background

Other ethnic group

- 17 Arab
- 96 Any other ethnic group
- 98 Don't know
- 99 Prefer not to say

ASK ALL

Disab (multi-code)

Have you yourself, or has someone close to you, ever had a serious illness, medical condition or disability?

Please include any conditions which have lasted or are likely to last at least 12 months and which, without treatment, would limit one's ability to carry out normal day-to day activities.

Please choose all that apply.

- 1 Yes, myself
- 2 Yes, close family member
- 3 Yes, close friend
- 4 No, no one (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK ALL

GenFamil (single code)

Has a doctor ever advised you, or any member of your immediate family, of a serious genetic condition in your family?

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF LIVING WITH MOTHER / FOSTER MOTHER / FATHER'S PARTNER // IF HHComp = 1, 4 or 5

UniMum (single code)

Did your [mother / father's partner / foster mother] go to university?

[NOTE: If HHComp = 1 use 'mother', else if HHComp = 4 use 'father's partner', else if HHComp = 5 use 'foster mother']

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF LIVING WITH FATHER / FOSTER FATHER / MOTHER'S PARTNER // IF HHComp = 2, 3 or 6

UniDad (single code)

Did your [father / mother's partner / foster father] go to university?

[NOTE: If HHComp = 2 use 'father', else if HHComp = 3 use 'mother's partner', else if HHComp = 6 use 'foster father']

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK ALL

SciPar (multi-code)

Does anyone in your family work as a scientist or in a job using science or medicine?

Choose all that apply.

- 1 Mother
- 2 Father
- 3 Sibling(s)
- 4 Other family member (living with you)
- 96 Other family member (not living with you)
- 97 No, no-one (single code)
- 98 Don't know (single code)
- 99 Prefer not to say (single code)

ASK ALL

NPDConsent (single code)

The Department for Education holds information about your education. This includes the schools you've been to, the subjects and exams you've done, if you have a special educational need and if you have been eligible for free school meals.

Can we have your permission to link this information to your survey answers?

Your information will remain confidential.

HELP: The Department for Education holds information about your education. This includes the schools you've been to, the subjects and exams you've done, if you have a special educational need and if have been eligible for free school meals.

We would like to add this information to your answers from this survey to create a more accurate picture of your life and experiences. This information will only be used for research purposes.

Your information is confidential and this means that your name and address will never be included in the results. Your education record will be placed on a secure website, without your name and address, so that researchers can only use it for research purposes.

To add this information we need your permission to create a link between your education information and the survey answers you've just provided.

1 Yes

2 No

ASK IF REFUSED NPD LINK // IF NPDConsent = 2

Age (single code)

How old are you?

1 13 or younger

2 14

3 15

4 16

5 17

6 18

7 19 or older

98 Don't know

99 Prefer not to say

ASK IF REFUSED NPD LINK // IF NPDConsent = 2

PstQual (multi-code)

Have you passed any of these qualifications?

Please choose all that apply. Do not include qualifications if you are still waiting for the results.

- 1 GCSEs / IGCSEs
- 2 As levels
- 3 A levels (final year) / A2s
- 4 International Baccalaureate (IB)
- 5 NVQ level 1 / GNVQ Foundation / BTEC First Certificate / RSA stage I-III / City and Guilds Part 1 / Junior Certificate
- 6 NVQ level 2 / GNVQ Intermediate / BTEC First Diploma / RSA Diploma / City and Guilds Craft or Part II
- 7 NVQ level 3 / GNVQ Advanced / BTEC National Certificate / ONC / OND / City and Guilds Advanced Craft or Part III / RSA Advanced Diploma
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF PASSED A LEVELS/A2 AND REFUSED NPD CONSENT // IF PstQual = 3

PstLev3A (multi code)

Have you passed A levels or A2s in any of these subjects?

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (*single code*)
- 98 Don't know (*single code*)

99 Prefer not to say (*single code*)

ASK IF PASSED AS LEVELS AND REFUSED NPD CONSENT // IF PstQual = 2

PstLev3As (multi-code)

Have you passed AS levels in any of these subjects?

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF PASSED LEVEL 3 VOCATIONAL QUALIFICATION AND REFUSED NPD CONSENT // IF

PstQual = 7

PstLev3Voc (multi-code)

Have you passed any level 3 vocational qualification (e.g. NVQ) in any of these subjects?

HELP: Level 3 vocational qualifications include:

- NVQ Level 3
- GNVQ Advanced
- BTEC National Certificate
- ONC / OND
- City and Guilds Advanced Craft or Part III
- RSA Advanced Diploma

- 1 Biology
- 2 Chemistry
- 3 Physics
- 4 Applied Science / Environmental Science / Sports Science / Science in Society
- 5 Maths / Further Maths (including Statistics)
- 6 Computer Science
- 7 Electronics / Engineering
- 8 Geology
- 9 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF PASSED GCSEs AND REFUSED NPD LINK // IF PstQual = 1

PstGCSE (*multi-code*)

Have you passed GCSEs at grades A*-C in any of these subjects?

- 1 Maths
- 2 Biology
- 3 Chemistry
- 4 Physics
- 5 Applied Science / Environmental Science / Sports Science / Science in Society
- 6 Computer Science / Computing
- 7 ICT
- 8 Electronics / Engineering
- 9 Design and Technology
- 10 Geology
- 11 Psychology
- 96 Another science subject (please tell us what)
- 97 None of these (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF REFUSED NPD LINK // IF NPDConsent = 2

ConfPC (open ended)

What is your postcode?

BIOMEDICAL

ASK IF SAMPLE B

BiolIntro

You're nearly at the end where you can choose your e-voucher.

Next are a few questions about medical science and medical research. That is, research that aims to discover how the body works, understand the causes of diseases, or test and develop new treatments.

ASK IF SAMPLE B

Biolnt (single code)

In general, how interested are you in medical science and medical research?

HELP: Medical research aims to discover how the body works, understand the causes of disease, or test and develop new treatments.

- 1 Very interested
- 2 Fairly interested
- 3 Not very interested
- 4 Not at all interested
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE B

BiolntSp (multi-code)

Are you interested in any of these areas of medical research?

Choose all that apply.

- 1 How the brain works
- 2 How the body works
- 3 How genes work
- 4 Obesity

- 5 Mental health issues
- 6 Development of new drugs, vaccines and treatments
- 7 Diseases which affect the developing world
- 8 Ethics of medical research
- 9 How medical research is conducted
- 96 I'm interested in another area of medical research (please tell us what)
- 97 None (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF SAMPLE B

BioRes (multi-code)

In the past year, have you tried to find out any information about any of the following?

Choose all that apply.

- 1 Medical advice (e.g. cures, symptoms, prevention)
- 2 Information on medical research projects, trials or experiments
- 3 Information about medical careers
- 96 Something else to do with medical science (please tell us what)
- 97 None (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF SAMPLE B AND LOOKED FOR MEDICAL SCIENCE INFORMATION // IF BioRes = 1, 2, 3 or 96

BioResHow (multi-code)

How did you look for this information?

Choose all that apply.

- 1 Searching online
- 2 Talking to a doctor

- 3 Talking to a teacher
- 4 Talking to other people
- 5 Reading book(s)
- 6 Attending a lecture or talk
- 96 Something else (please tell us what)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

ASK IF SAMPLE B

BioConsMed (single code)

Imagine a doctor asks your permission to use your medical records in a medical research study.

Would you give permission?

- 1 Yes, definitely
- 2 Yes, probably
- 3 Probably not
- 4 Definitely not
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE B

BioConsDNA (single code)

Now imagine a doctor asks your permission to use information from your genes / DNA in a medical research study.

Would you give permission?

- 1 Yes, definitely
- 2 Yes, probably
- 3 Probably not
- 4 Definitely not
- 98 Don't know

99 Prefer not to say

ASK IF SAMPLE B

BioCon (single code)

Would you have any concerns about information from your genes / DNA being used in a medical research study?

- 1 Yes
- 2 No
- 98 Don't know
- 99 Prefer not to say

ASK IF SAMPLE B AND HAS CONCERNS ABOUT MEDICAL RESEARCH STUDY OR DON'T KNOW// IF BioCon = 1 OR DK

BioConWhy (multi-code)

What concerns would you have?

- 1 Confidentiality / privacy
- 2 What the research is used for
- 3 How the genetic information would be collected
- 4 Not knowing enough about the research
- 5 Not understanding the research
- 6 Not trusting organisations that conduct this kind of research
- 96 Another concern (please tell us what)
- 97 No concerns (*single code*)
- 98 Don't know (*single code*)
- 99 Prefer not to say (*single code*)

MACHINE LEARNING

ASK IF SAMPLE A

MLIntro

You're nearly at the end where you can choose your e-voucher.

Next are a few questions about technology.

ASK IF SAMPLE A

MLAware (multi-code)

Machine Learning is when machines or computers are able to adapt, learn and make recommendations or decisions on their own without a human giving them ongoing instructions.

Have you seen or heard anything about...

SCRIPTING NOTE: Respondents asked four out of eight statements (chosen at random)

- ... Computers that can recognise speech and answer questions
 - ... Driverless vehicles which can adapt to road and traffic conditions
 - ... Facial recognition computers which can learn identities through CCTV to catch criminals
 - ... Computer programmes which show you websites or advertisements based on your web browsing habits
 - ... Computers which analyse medical records to help diagnose patients
 - ... Robots which can make their own decisions and can be used by the armed forces
 - ... Robots that can adapt to the home environment for example helping to care for older people
 - ... Computers which can make investments in the stock market by adapting to the financial market
-
- 1 Seen / heard a lot about this
 - 2 Seen / heard a little about this
 - 3 Not seen / heard anything about this
 - 98 Don't know
 - 99 Prefer not to say

ASK IF SAMPLE A

MAtt (grid)

Would you trust a machine or computer to...

... Recommend a movie you would enjoy watching?

... Control a car in which you were travelling?

... Provide care for an elderly relative in their home?

1 Yes

2 No

98 Don't know

99 Prefer not to say

SCIENTIFIC LITERACY

ASK ALL

QuizIntro

And finally, a quick quiz about science. For each of the following statements, please say whether you think it is true or false..

This is NOT a test. You can find out the answers at the end of the survey.

ASK ALL

Quiz (grid)

- ... Electrons are smaller than atoms.
- ... All radioactivity is man-made.
- ... All plants and animals have DNA.
- ... More than half of human genes are identical to those of mice.
- ... The cloning of living things produces genetically identical copies.
- ... Lasers work by focusing sound waves.
- ... By eating a genetically modified fruit, a person's genes could also become modified.
- ... The oxygen we breathe comes from plants.
- ... It is the mother's genes that determine the sex of the child.
- ... One kilogram of lead has the same mass on Earth as it does on the moon.

- 1 Definitely true
- 2 Probably true
- 3 Probably false
- 4 Definitely false
- 8 Don't know

RE-CONTACT DETAILS

ASK ALL

Contact (single code)

Thank you for your help. You can claim your e-voucher in a few moments.

The Wellcome Trust may want to do follow up interviews with some people who have taken part in this study. In case they wanted to contact you, would it be alright for us to pass on your details to them – that is, your name, address, email address, telephone number and some of the answers you have given today?

1 Yes

2 No

ASK IF AGED 16 OR ABOVE AND AGREED FOR DETAILS TO BE PASSED ON TO WELLCOME TRUST // IF AGE > 15 AND Contact = 1

RespTel (open ended)

What is your phone number?

ASK IF AGREED FOR DETAILS TO BE PASSED ON TO WELLCOME TRUST // IF Contact = 1

HHTel (open ended)

What is your household telephone number?

ASK IF AGE < 16

ParName (open ended)

We sent your parent(s) a letter giving them information about this survey. We asked them to pass the letter on to you so that you could log in to the survey.

For our records, please tell us the name of the person who gave you this letter or told you about the survey.

ASK ALL

Findings (single code)

Would you like us to send you the findings of this survey when they are published next year?

- 1 Yes
- 2 No, thanks

ASK ALL

EOI

Thank you, you have been a great help. This is the end of the survey.

Please click on this link to claim your e-voucher:

pathways.perksplus.com

You will need your login details:

Reference number [ID]

Token: [password]