

OpinionPanel

Report for Department for Business, Innovation & Skills:
Attitudes to Science:
Survey of 14-16 Year Olds

INTRODUCTION & METHODOLOGY



INTRODUCTION

Background

Since 2000, the Department for Business, Innovation and Skills (BIS) and its predecessor Departments have been responsible for funding the *Public Attitudes to Science* series of attitudinal surveys.

The survey aims to provide information about what the public thinks about science, scientists and science policy across the UK.

BIS was interested in also finding out the views of those aged 14-16, who are currently undertaking their GCSEs - a 'junior' version of the attitudes to science study. Therefore they commissioned a piece of research with OpinionPanel using *The Learner Panel*.

This report covers the following topics:

- General attitudes to science: 'the sciences', 'scientists' and agreement with attitudinal statements.
- Science in schools: favourite subject at school, plans after GCSEs, career

plans, science and engineering clubs, and science visitors.

- Science outside of schools: where learners have read or heard about science, places/events they have visited/took part in.

The Learner Panel

The Learner Panel is an online research platform, which is managed by the the Young People's Learning Agency (YPLA), co-funded with the Skills Funding Agency and Department for Business, Innovation and Skills (BIS) and operated by OpinionPanel.

The Learner Panel provides access to over 10,000 learners from across the education sector for quantitative and qualitative research. All panel members are currently participating in some form of education, learning or training, are aged 14 and over and are enrolled at schools, colleges and other training providers across England.

OpinionPanel is the independent research

business set up to represent the views of students and young people to social and market researchers, policy makers and recruiters. Founded in 2004, we own and manage the UK's largest specialist panel of students before, during and after their time at university: The Future Panel, The Student Panel, The Graduate Panel and, privately The Learner Panel for the YPLA. With over 120,000 members in total, OpinionPanel offers the largest panels of this kind in the UK, providing clients with genuinely valid and representative samples. We are a Market Research Society (MRS) Company Partner and all our research is anonymous, confidential and in line with the MRS Code of Conduct.

Any questions....

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METHODOLOGY

Methodology

The research was conducted via an online questionnaire

Sample definition and size

The sample included 500 learners aged 14-16 currently undertaking their GCSEs.

Sample selected from The Learner Panel.

Questionnaire

The questionnaire included 15 questions (some with multiple parts), the full questionnaire can be seen in the appendix. There were four open questions which have been coded and included in the results. The questionnaire took an average of 8 minutes to complete.

Incentives

All respondents received a £1 incentive in the form of a Bonusbond voucher.

Schedule

The fieldwork took place between 10th January 2010 and 15th January 2010.

SUMMARY



SUMMARY

Learners think about ‘the sciences’ in a different way to how they think about ‘scientists’

When learners think about ‘the sciences’ they tend to think about their school environment, and in particular the traditional sciences biology, chemistry and physics. Although some think much more widely to other more specialised areas and the impact science has on day-to-day life. However when they think about ‘scientists’ they tend to think about what scientists look like, their personality, positions they take and their importance in society.

Generally learners have positive attitudes about science, however there could be some issues with accessibility

81% of learners are amazed by the achievements of science, and generally learners see the subject as relevant, important and understandable. Learners are both interested in science and confident in their ability in this subject

area.

However females are not as positive about science as males, and learners from lower income backgrounds are not as positive as those from higher income backgrounds. In addition younger learners are more positive than older learners. Therefore there may still be some work to do in making science more within reach to these groups in particular.

Science is a popular lesson at school, however this does not necessarily make it an appealing career choice

16% of learners favourite subject is science, which makes it the most popular subject (followed by English - 12%, Art - 9% and Maths - 8%). The main appeal is that they find it interesting - the way it explains things, that it is relevant, logical and factual. However once again it is significantly more popular amongst males than females.

Almost half of all learners plan to study

science after their GCSEs. In particular those engaged in science through clubs and school visits are significantly more likely than those less engaged to consider studying it. Therefore encouraging more involvement in science at schools may promote further interest.

Just 5% of learners plan to go into a specifically science related career, although 25% in total want to go into careers that would demand a STEM (Science, Technology, Engineering and Maths) subject - eg, engineering, medical careers and veterinary care. In particular 14 year olds are interested in going into a science related career suggesting that it may be worth ensuring they continue to stay interested in science as they go through school.

SUMMARY

Provision of extra curricular activities linked to science could be improved

43% of learners either have no science or engineering clubs at their school, or do not know about them, and 28% of learners have never had visitors to their school to talk about science. At schools where there are clubs, only 38% have ever been, and the majority only once or twice.

Amongst learners whose favourite subject is science, 57% have no science or engineering clubs at their school or do not know about them - and these learners are most likely to be interested in going to them, again suggesting there may be under provision.

Learners are involved in science outside of school, however links through schools are still key

The most popular places where learners have read or heard about science is on TV news, in book and on other TV programmes, Just 5% of learners have not

heard or read about science anywhere outside of school.

The most popular event/venue linked to science is a science related activity at a school, community centre, or university outside of regular classes. However both this activity, and others specifically linked to science tend to be visited with schools showing the importance or ensuring schools are getting involved.

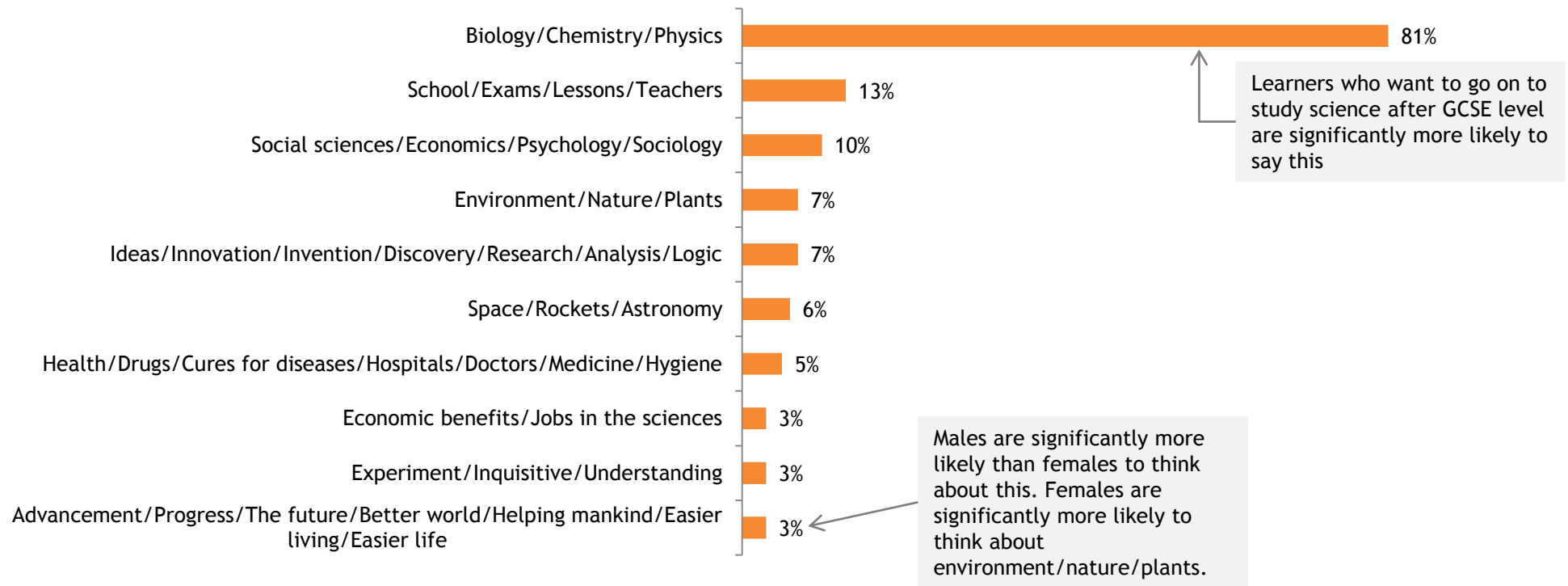
Parents also play an important role in engaging young people in science, learners are most likely to visit a science museum, science and discovery centre, or planetarium with their family.

ATTITUDES TO SCIENCE



“The Sciences”

Four-fifths of learner think biology/chemistry/physics when they think about “the sciences” showing the influence of what they know about science through school. This is the most popular response by far, with schools/exams/lessons/teachers the second most popular response. The following slide shows a selection of the verbatim responses.



Q1. When you think about “the sciences”, what comes into your mind?

Base: All learners (500)

I think about Biology, Chemistry and Physics as they are the primary sciences.

Technology, Human Life, Space, Wonderment, Cleverness, Biology, Chemistry, Physics, Forensic, Food, Sport, Well paid, Doctoral.

Our planet, our bodies, the environment around us, how useful science is to us as a skill and as a lesson.

Key theories as made by renowned scientists on issues concerning the earth, E.g. How was the earth made, and looking further into space and the solar system.

When you think about “the sciences”, what comes into your mind?

I love science. I love how it can explain so many day-to-day problems and answers. Also I got very interested in future science.

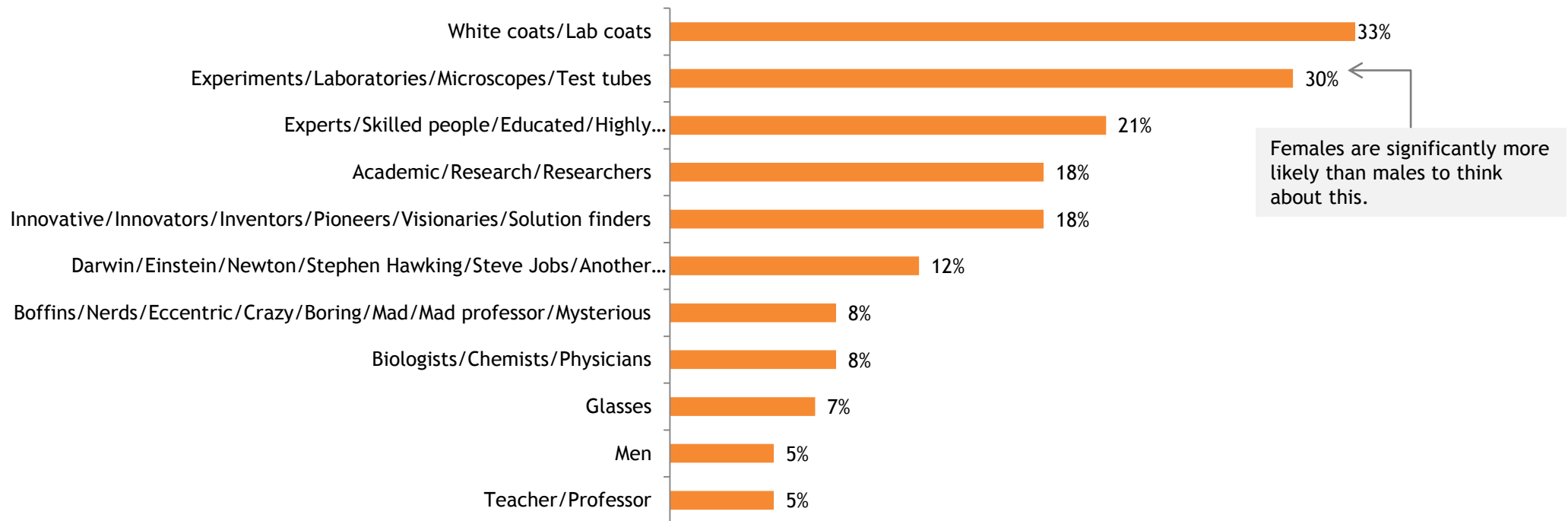
The sciences automatically makes me think Biology, Chemistry and Physics. I am currently studying all three at GCSE level. I enjoy science a lot and am very interested especially in Chemistry although I am better at Biology.

Q1. When you think about “the sciences”, what comes into your mind?

Base: All learners (500)

“Scientists”

When learners were asked what comes to their mind when they think about “scientists” there is a larger range of responses than when they are asked about “the sciences”. They are more likely to think beyond the biology/chemistry/physics classification to a broader picture of what scientists look like, their positive role in society, their personality, level of intellect and examples of famous scientists. They often appear to draw a picture in their mind of a stereotypical scientist who is brainy and conducts experiments in a lab coat.



Q2. When you think about 'scientists', what comes into your mind?

Base: All learners (500)

“The Sciences”

People in long white coats and goggles holding test tubes.

People working in laboratories testing new chemicals. They work on computers looking at things like cells and DNA and looking through microscopes.

An intellectual genius who has one of the greatest imaginations in human history.

People who really want to learn the truth about everything. Making predictions, making theories, seeing if they are right or wrong. Doing experiments, to see if they can find out more from them.

When you think about 'scientists', what comes into your mind?

Intelligent but slightly eccentric people. Some doing good things e.g. finding cure for cancer.

Someone who develops new materials, objects, makes our day to day life easier, can impact our society, develops it.

Q2. When you think about 'scientists', what comes into your mind?

Base: All learners (500)

Attitude statements

Generally learners are very positive about science, with the majority amazed by the achievements of science, agreeing that everybody should take an interest in science, and believing that it is important to know about science in daily life. The majority also believe that people should be able to understand science and technology, and do not think that it is too specialised or difficult to be able to understand. This table shows the proportion saying they strongly agree or tend to agree and the mean score (where strongly agree = 5 and strongly disagree = 1).

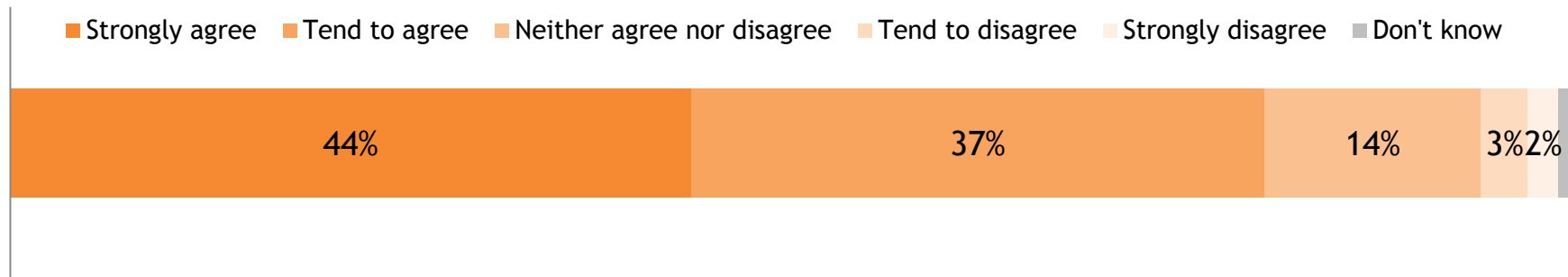
	Net: Agree	Mean
I am amazed by the achievements of science	81%	4.2
Science is such a big part of our lives that we should all take an interest	70%	3.8
It is important to know about science in my daily life	65%	3.7
Science and technology are too specialised for most people to understand it	27%	2.7
I don't think I'm clever enough to understand science and technology	17%	2.2
I don't understand the point of all the science being done today	10%	1.8

Q15. What do you think about the following statements about science?

Base: All learners (500)

I am amazed by the achievements of science

The statement which learners are most likely to agree with is ‘I am amazed by the achievements of science’, with just 5% disagreeing with this statement. In particular males, and those whose favourite subject at school is science are most likely to agree.



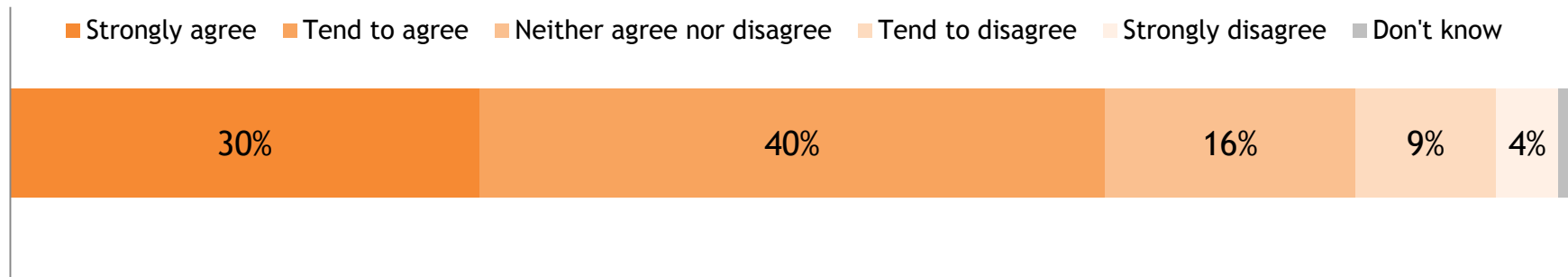
Gender	Favourite subject at school
<ul style="list-style-type: none"> •Males are significantly more likely than females to strongly agree. •52% of males strongly agree compared to 41% of females. 	<ul style="list-style-type: none"> •Learners whose favourite subject is science are significantly more likely than those who prefer other subjects to strongly agree. •66% of learners who prefer science strongly agree compared to 31% of learners who prefer history.

Q15d. What do you think about the following statements about science?: I am amazed by the achievements of science

Base: All learners (500)

Science is such a big part of our lives that we should all take an interest

Over two-thirds of learners agree that ‘science is such a big part of our lives that we should all take an interest’. This is particularly true among learners who are more engaged with science - those whose preferred subject at school is science, and those who attend science or engineering clubs.



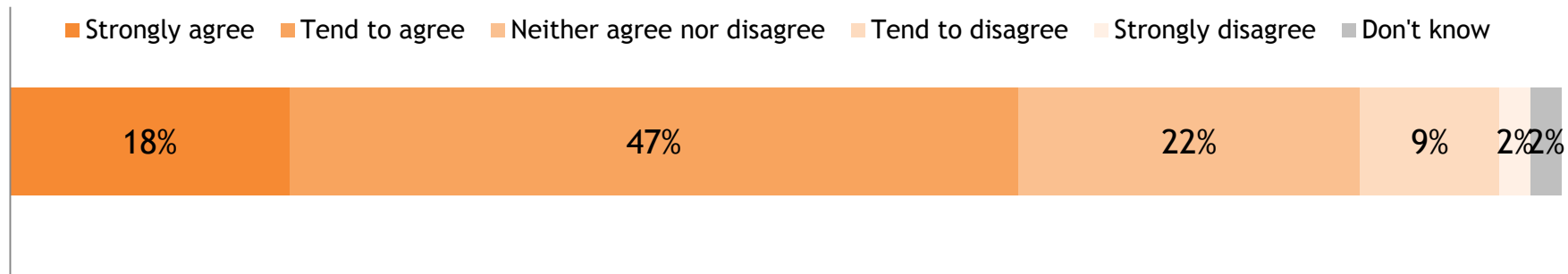
Attend science or engineering clubs	Favourite subject at school
<ul style="list-style-type: none"> •Those who have attended a science or engineering club are significantly more likely than those who haven't to agree. •76% of those who have attended a club agree, compared to 64% of those who have not attended a club. 	<ul style="list-style-type: none"> •Learners whose favourite subject is science are significantly more likely than those who prefer other subjects to strongly agree. •56% of learners who prefer science strongly agree compared to 20% of learners who prefer history.

Q15c. What do you think about the following statements about science?: Science is such a big part of our lives that we should all take an interest

Base: All learners (500)

It is important to know about science in my daily life

Two-thirds of learners agree that ‘it is important to know about science in my daily life’, however there is not as strong agreement with this statement when compared to ‘science is such a big part of our lives that we should all take an interest’. However learners who plan to study science post GCSE and from higher income backgrounds are significantly more likely to agree with this statement. On the previous slide a higher proportion agreed that everybody should take an interest in science, perhaps indicating a difference between taking a general interest in science and actually knowing taking a personal decision to learn more.



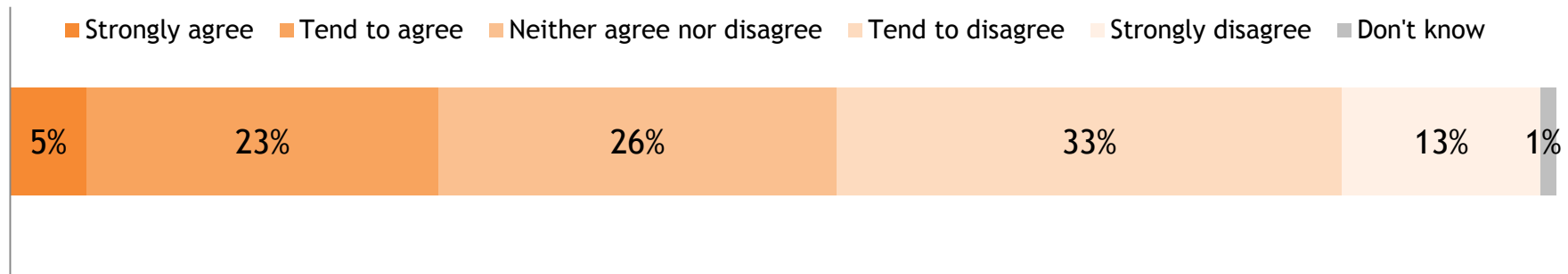
Plans after GCSEs	Social economic grade
<ul style="list-style-type: none"> •Those who plan to study science after their GCSEs are significantly more likely than those who don't to strongly agree. •28% of those who intend to study science strongly agree, compared to 9% of those who do not intend to study science. 	<ul style="list-style-type: none"> •Learners from higher income backgrounds (ABC1) are significantly more likely than those from lower income backgrounds (C2DE) to agree. •68% of learners from ABC1 backgrounds agree compared to 58% of learners from C2DE backgrounds.

Q15f. What do you think about the following statements about science?: It is important to know about science in my daily life

Base: All learners (500)

Science and technology are too specialised for most people to understand it

46% of learners disagree that ‘science and technology are too specialised for most people to understand it’ and a further 26% neither agree nor disagree. However it is still important to note that a significant minority (28%) do agree. Older learners (aged 16) are more likely to agree, which may suggest that their involvement with science is perhaps at a higher level and so more in depth and specialised.



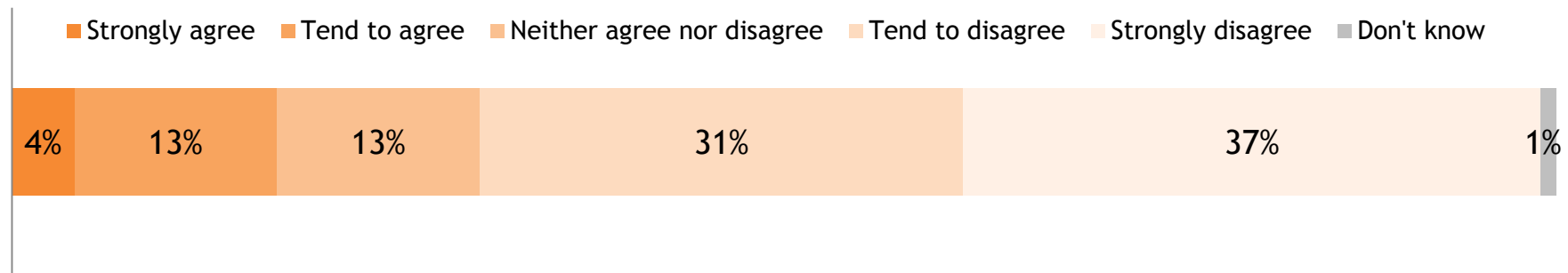
Plans after GCSEs	Age
<ul style="list-style-type: none"> •Those who do not plan to study science after their GCSEs are significantly more likely than those who do to agree. •34% of those who do not intend to study science agree, compared to 20% of those who do intend to study science. 	<ul style="list-style-type: none"> •Those aged 16 are significantly more likely to agree than those aged 14-15 •34% of learners aged 16 agree compared to 22% of learners aged 14-15.

Q15e. What do you think about the following statements about science?: Science and technology are too specialised for most people to understand it

Base: All learners (500)

I don't think I'm clever enough to understand science and technology 18

Over two-thirds of learners disagree with the statement 'I don't think I'm clever enough to understand science and technology'. In particular males and those from higher income backgrounds are more likely to disagree. It is somewhat concerning that learners from poorer backgrounds are less likely to consider themselves clever enough to understand, as it could indicate some barriers to science for learners from these backgrounds. A higher proportion of learners disagreed with this statement when compared to the previous statement, which indicates that they are more likely to think they can understand science and technology, than to think the general population can.



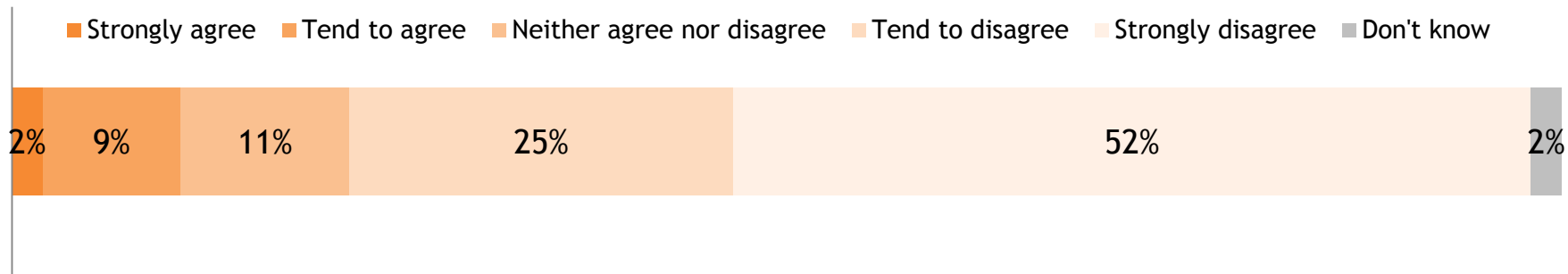
Gender	Social economic grade
<ul style="list-style-type: none"> •Males are significantly more likely than females to disagree •75% of males disagree, compared to 66% of females. 	<ul style="list-style-type: none"> •Learners from lower income backgrounds (C2DE) are significantly more likely than those from higher income backgrounds (ABC1) to agree. •24% of learners from C2DE backgrounds agree compared to 15% of learners from ABC1 backgrounds.

Q15b. What do you think about the following statements about science?: I don't think I'm clever enough to understand science and technology

Base: All learners (500)

I don't understand the point of all the science being done today

Three-quarters of learners disagree with the statement 'I don't understand the point of all the science being done today'. Learners who prefer science at school and learners from higher income backgrounds are more likely to disagree. Again, it is slightly concerning that learners from lower incomes are perhaps less engaged with science and not seeing the benefits to the same extent.



Favourite subject at school	Social economic grade
<ul style="list-style-type: none"> •Learners whose favourite subject is science are significantly more likely than those who prefer other subjects to strongly disagree •80% of learners who prefer science strongly disagree compared to 40% of learners who prefer PE. 	<ul style="list-style-type: none"> •Learners from higher income backgrounds (ABC1) are significantly more likely than those from lower income backgrounds (C2DE) to disagree. •81% of learners from ABC1 backgrounds disagree compared to 67% of learners from C2DE backgrounds.

Q15a. What do you think about the following statements about science?: I don't understand the point of all the science being done today

Base: All learners (500)

Summary - Attitudes to science

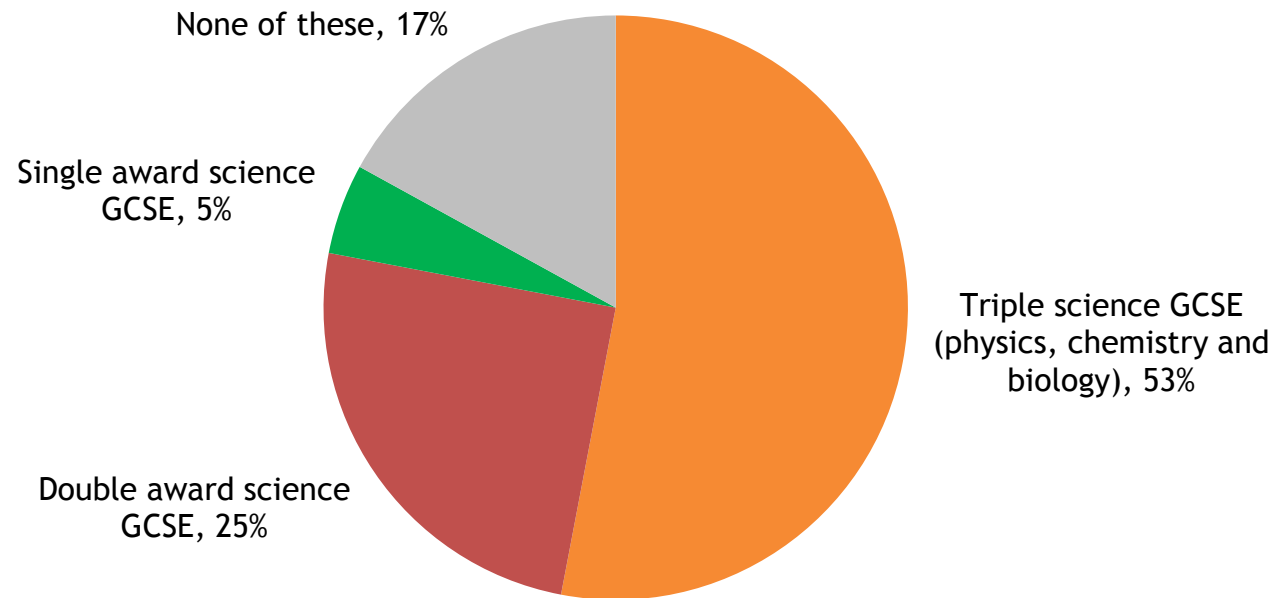
- When thinking about ‘the sciences’ the majority of learners think about the traditional sciences they study at school - biology, chemistry and physics. Although some think much more widely to other more specialised areas and the impact science has on day-to-day life.
- When thinking about ‘scientists’ they are more likely to think outside of the school environment. In particular many learners think about what scientists look like, their personality, positions they take and their importance in society.
- Overall, learners are positive about science: 81% are ‘amazed by the achievements of science’ and 70% agree that ‘science is such a big part of our lives that we should all take an interest.’
- Learners also want to be engaged in science and see it as accessible: just 11% agreed with the statement ‘I don’t understand the point of all of the science being done today’ and just 17% agreed with the statement ‘I don’t think I’m clever enough to understand science and technology.’
- There are however some differences by demographics. Males and learners from higher income families are generally more positive which could indicate some issues in terms of accessibility. Also older learners seem somewhat less positive, perhaps because science becomes more challenging and therefore slightly less accessible. Unsurprisingly those who currently enjoy science at school, attend science clubs and plan to do science in the future are also more positive about science.

SCIENCE IN SCHOOLS



What are learners currently studying?

Out of the main sciences, the one that the majority of learners we surveyed are studying is triple science. Just one person was doing an engineering diploma and so they do not appear in this chart. Those studying triple science are significantly more likely than those studying other types of science to plan to go on to study science after their GCSEs. The proportion selecting none of these may be over-represented here, this is higher than we would expect, and therefore perhaps an indication that some did not understand the terminology and so selected this category.

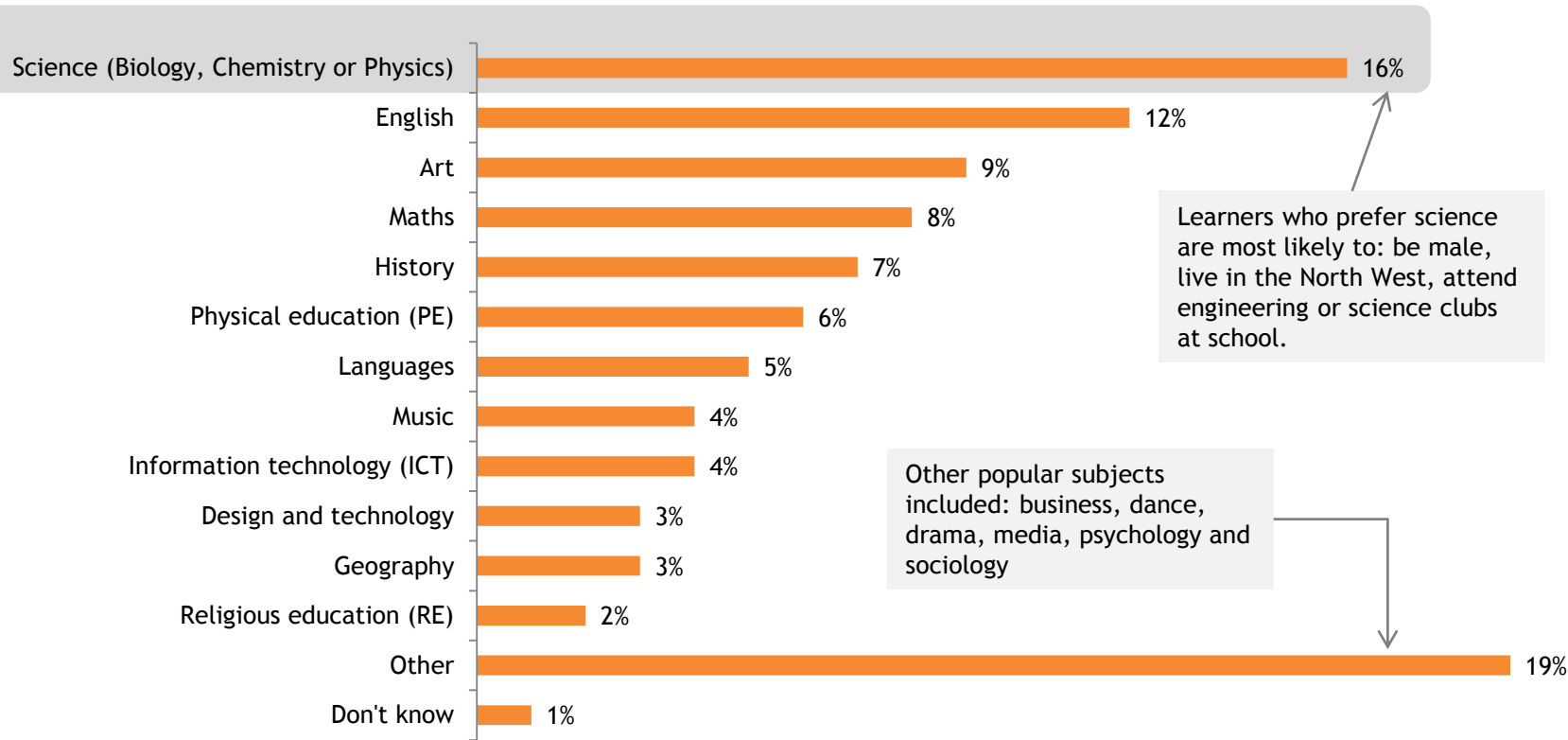


Q9. Which, if any, of the following subjects are you studying now?

Base: All learners (500)

Favourite subject

Science is the most popular subject at school, the preferred subject among 16% of learners. Learners do however like a mix of subjects, with English, Art and Maths also popular. 23% of males chose science as their favourite subject compared to 13% of females. Males are also more likely to prefer ICT, whereas a higher proportion of females than males prefer Art.



Learners who prefer science are most likely to: be male, live in the North West, attend engineering or science clubs at school.

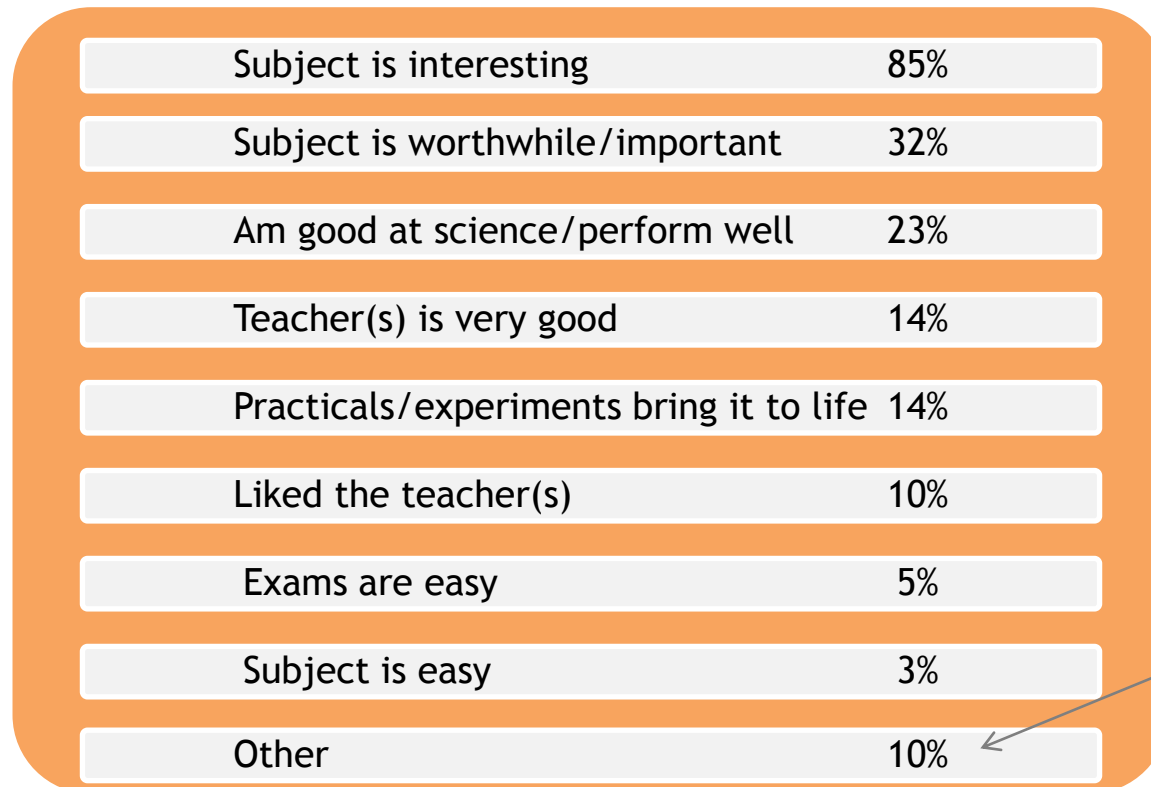
Other popular subjects included: business, dance, drama, media, psychology and sociology

	Male	Female
Science (Biology, Chemistry or Physics)	23%	13%
English	10%	13%
Art	3%	11%
Maths	9%	8%
History	7%	7%
Physical education (PE)	4%	7%
Languages	5%	5%
Music	10%	2%
Information technology (ICT)	5%	4%
Design and technology	0%	4%
Geography	4%	3%
Religious education (RE)	2%	2%
Other	18%	19%
Don't know	0%	1%

Q3a. Which, if any of these, is your favourite subject at school or college?
 Base: All learners (500)

Why science?

Amongst those who prefer science, the key reason is because they find the subject interesting - in many cases they like that it explains how things work, is logical, factual and varied. In addition a third like the subject because it is worthwhile, they see it makes a difference and has an impact on the world around them. A selection of verbatim comments are shown on the following slide.



Among those who gave other reasons, a few mentioned that they wanted to study science as it was relevant to the career they intend to pursue, or what they want to study at university

Q4. Why do you say science is your favourite subject at school or college?

Base: All who said that science is their favourite subject (79)

Why science?

I am fascinated by discovering the intricacies of the way things work, and reducing them to their fundamentals in order to predict and quantify all kinds of phenomena.

Because science helps you to understand and explain things that go on in the world and because of science people have saved peoples' lives and done things no one would think were possible

Its really interesting, and it's changing all the time as we make new discoveries. And I love to do the experiments!

Because it is the subject(s) of which I receive the best grade in. And I also get along well with all 3 teachers that I have for it.

Why do you say science is your favourite subject at school or college?

I love how you can do theory work with it or you can do hands on work. There is so much variety that comes with science and it feels important and worth while. It is something where you will almost certainly find an area you love and you can cover so much that I find it really interesting and as though I am learning something beneficial.

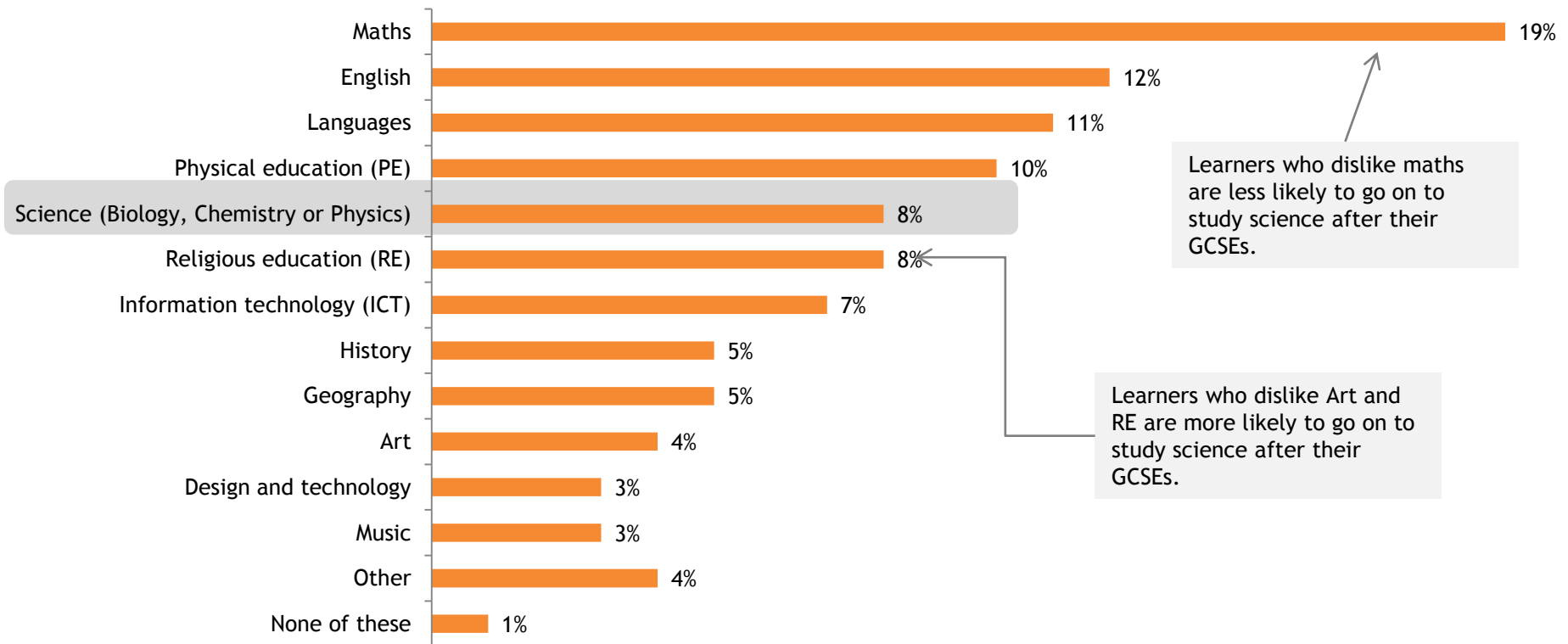
My teacher for physics really is the one who's made me love science, he's not a classic strict, boring teacher. He lets you talk and chat, but also is really enthusiastic about physics and science, he makes us learn in a fun, non-textbook way.

Q4. Why do you say science is your favourite subject at school or college?

Base: All who said that science is their favourite subject (79)

Least favourite subject

Science is the least preferred subject among 8% of learners. The most disliked subject is maths - with a fifth selecting this as their least favourite subject.

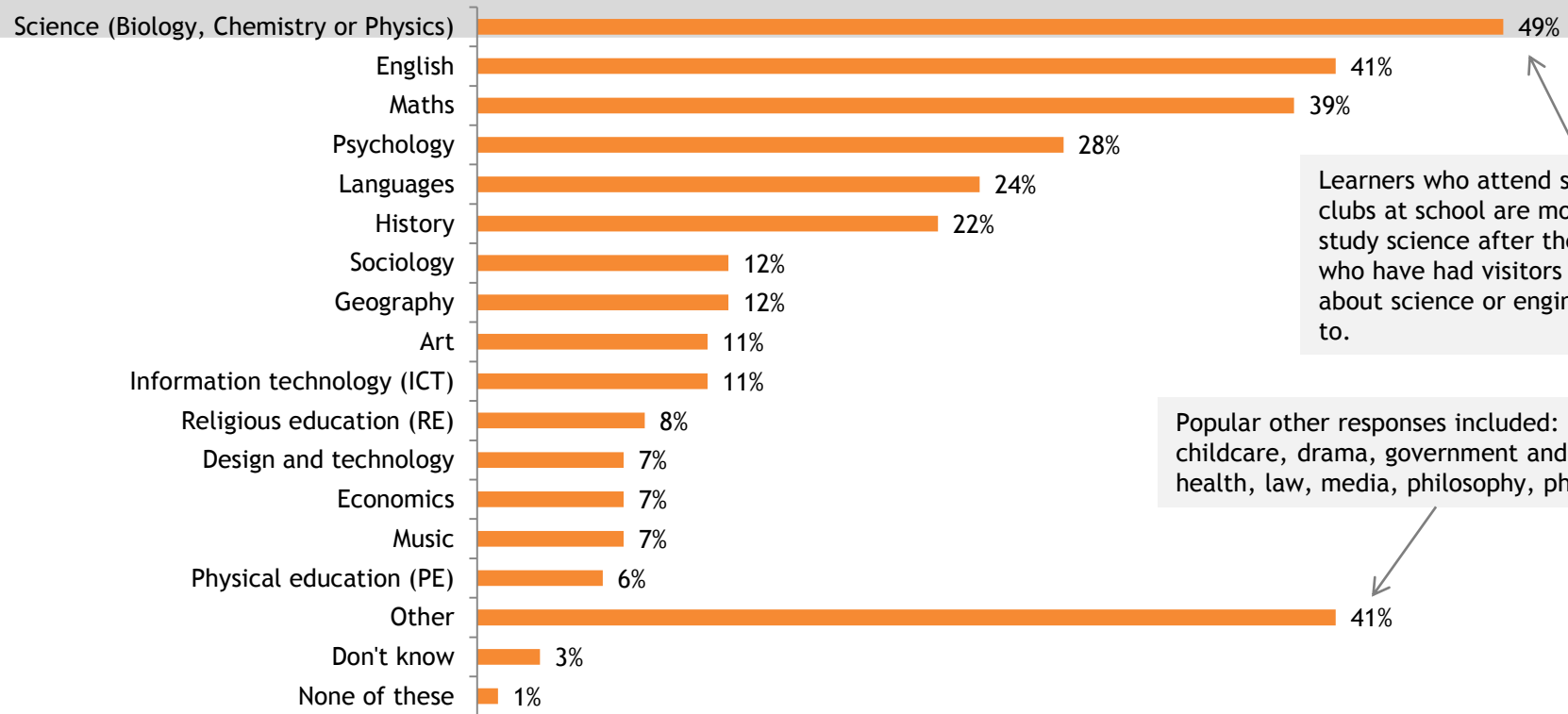


Q3b. Which, if any of these, is your least favourite subject at school or college?

Base: All learners (500)

Plan to study after GCSEs

The most popular subjects that learners want to study after their GCSEs are the more traditional subjects: The three Sciences, English and Maths. In particular learners whose favourite subject at GCSE level is science or maths are more likely to want to continue to study science. Also those who are more engaged with science - either through clubs or science visitors at their schools are more likely to want to study science.



Learners who attend science and engineering clubs at school are more likely to plan to study science after their GCSE's. Also those who have had visitors to their school to talk about science or engineering are more likely to.

Popular other responses included: business, childcare, drama, government and politics, health, law, media, philosophy, photography.

Q10. Which of the following subjects, if any, do you intend to study after your GCSEs or equivalent?

Base: All learners (500)

Future careers

Most respondents have at least some idea of the area, or areas they would most like to work in, just 5% don't know. However, as the verbatims on the following slide show, a lot of learners are keeping their options open with a few areas they are interested in. The most popular career area among all learners, and those whose favourite subject is science is medical/health. Those who currently enjoy science are also more likely to want to go into science related careers and veterinary careers. A selection of verbatim comments of those who are interested in science and areas linked to science are shown on the following slide.

Area	All	Favourite subject = Science
Medical/ Health	12%	29%
Teaching, education, training	8%	5%
Law/ Legal occupations	7%	6%
Entertainment/ Media	7%	0%
Business and financial	6%	1%
Science related	5%	14%
Arts, design	5%	0%
Engineering	4%	6%
Humanities and Languages	4%	3%
Public Sector	4%	1%
Performance Art	4%	1%
Social care and service	4%	3%
Journalism	4%	0%
Veterinary/ Animal Care	4%	9%

Other areas which more than 1% of learners are interested in are: psychology, architecture and hospitality.

Learners who are interest in working in a science related career are more likely to: be younger (aged 14), and those whose favourite subject currently is science or maths.

Q11. What job area are you most interested in working in after you leave school/college?

Base: All learners (500); learners whose favourite subject is science (79)

Future careers

I am extremely interested in becoming a doctor. I really enjoy science and am currently about to do work experience in a hospital.

I am mostly interested in a career in Engineering as it incorporates the aspects of studying that I enjoy: Maths, Physics and Chemistry. I am possibly also considering a career in teaching, based on one of these subjects.

I would like to work with animals, I would really like to work with primates. Maybe be a zoo keeper.

Working as a veterinarian or equine nutritionist. Hopefully something that combines Science, Psychology and horses.

What job area are you most interested in working in after you leave school/college?

Astronomy, as I would like to become an astronaut, to work in one of the space stations.

Science, specifically physics/astronomy oriented. Would also be interested in a computing oriented job, as long as science was involved. I would prefer to work on a public project as opposed to for a private company.

I would like to be a doctor, and if I don't do as well at A-level as I had hoped I will either go into journalism or become a nurse.

Either something or medicine or engineering, but I never get the opportunity to see what it is like.

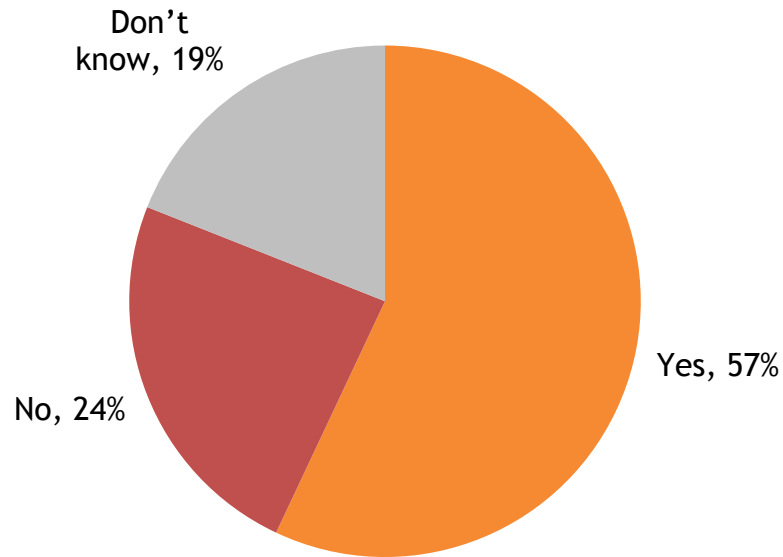
Q11. What job area are you most interested in working in after you leave school/college?

Base: All learners (500)

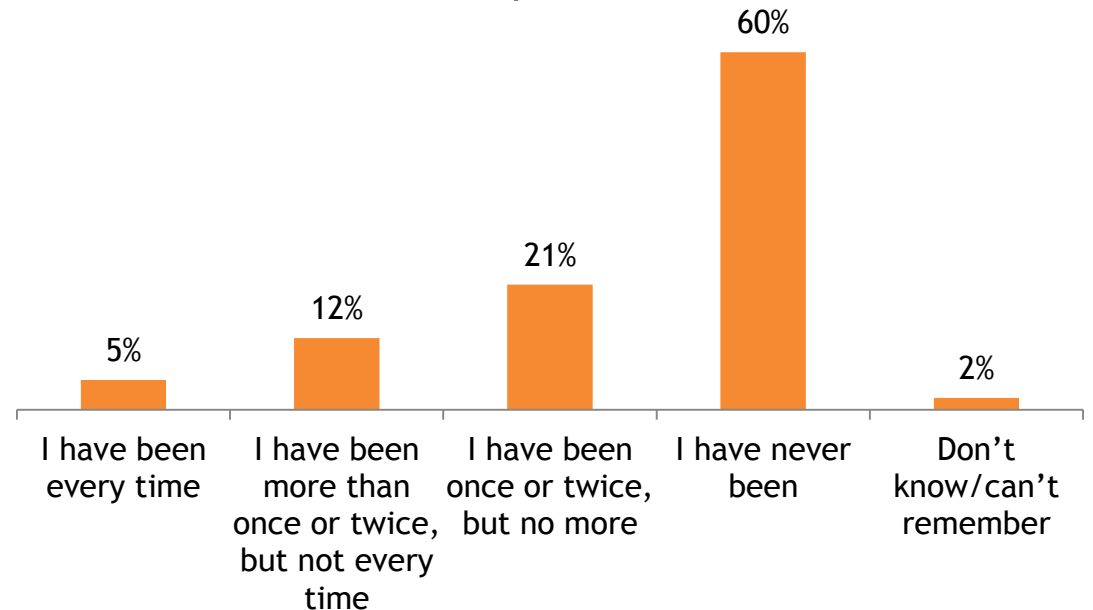
Science and engineering clubs

57% of learners have science or engineering clubs at school. This proportion is lower amongst learners whose favourite subject is science (just 43%) which could suggest that there is under-provision. It may also be that those who enjoy science are more aware that there is not a club because they have investigated it whereas some others may assume there is one. A low proportion of learners frequently attend science or engineering clubs.

Does your school or college have any science or engineering clubs?



How often, if at all, have you been to any of the science or engineering clubs at your school or college since September?

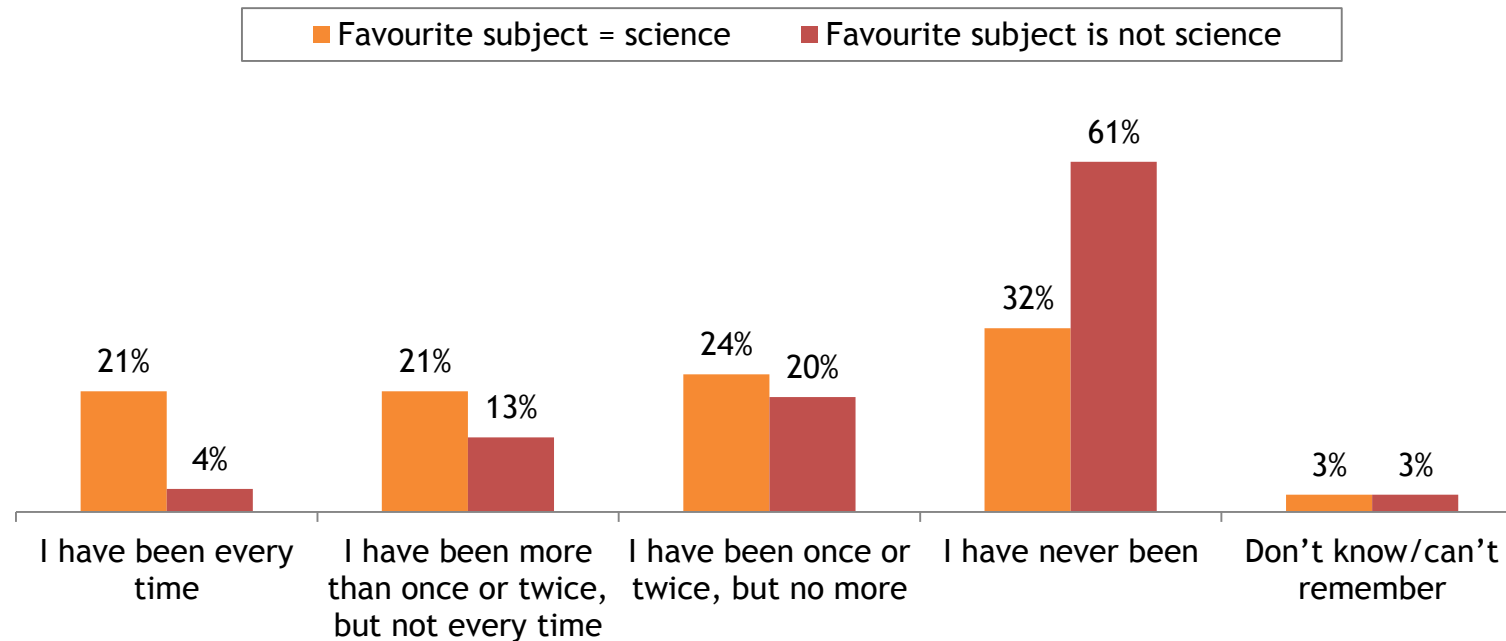


Q5/Q6. Does your school or college have any science or engineering clubs? These might be at lunch time, or after school/How often, if at all, have you been to any of the science or engineering clubs at your school or college since September?

Base: All learners (500), All those whose school/college have a science or engineering club (286)

Science and engineering clubs

65% of learners whose favourite subject is science have been to science or engineering clubs, compared to 37% of learners whose favourite subject is not science, and 38% of all learners. Learners whose favourite subject is science are significantly more likely to have been to the science and engineering clubs every time, and significantly less likely to have never been at all.



Q6. How often, if at all, have you been to any of the science or engineering clubs at your school or college since September?

Base: Learners whose favourite subject is science (34); learners whose favourite subject is not science (200)

Visitors to school

On average, visitors go to schools to talk about science or engineering approximately once every year or two (or at least this is how many times learners recall having visitors). However among half of all learners, visitors have only been to their school once, or never.



Q7. How, often, if at all, do visitors come into your school to talk to you about science or engineering that is happening in the real world?

Base: All learners (500)

Summary - Science in schools

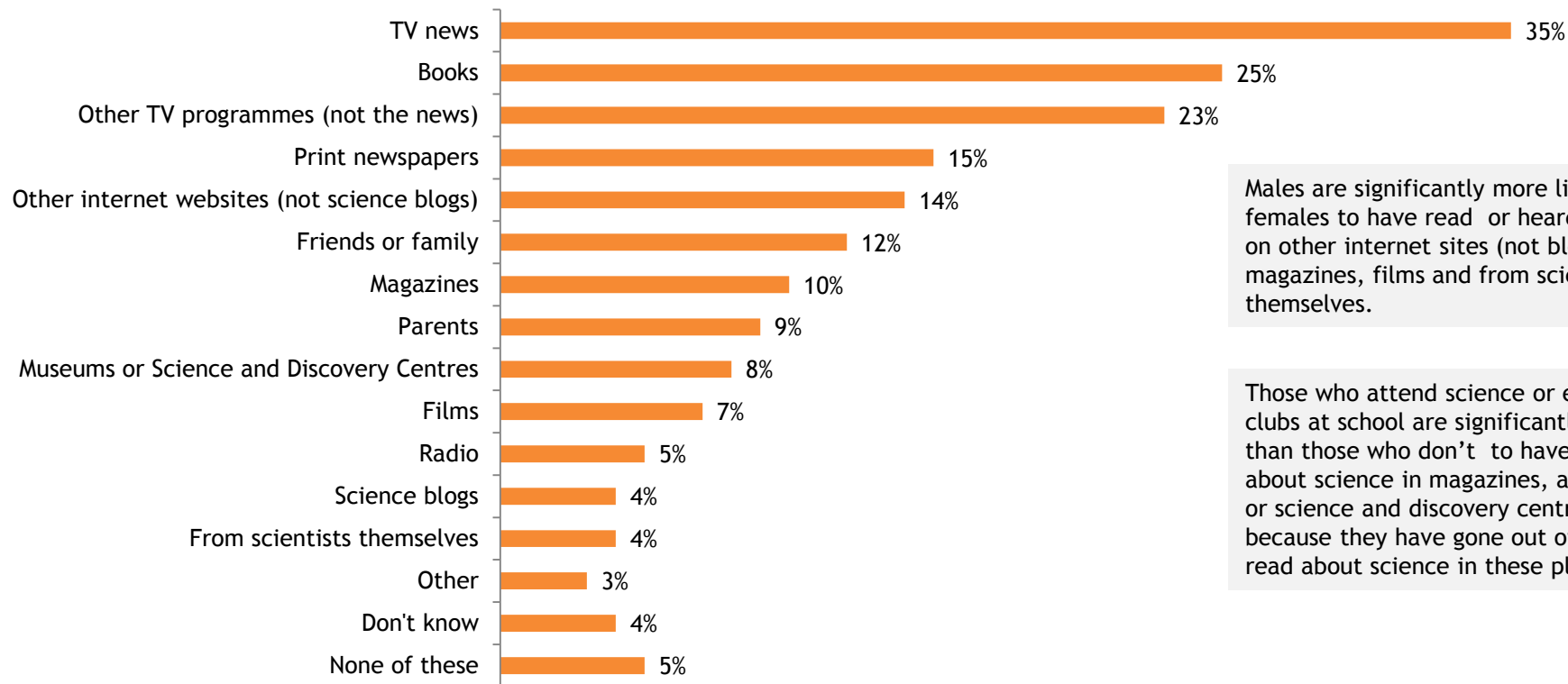
- 16% of learners' favourite subject at school is science, making it the most popular subject. In particular, science is popular among males, 23% of males say that science is their favourite subject.
- The main appeal of science is that it is interesting - they like how it explains why things are the way they are and also that it is relevant to their life. Very few liked science because they find it easy, and indeed many actually like it because of the intellectual challenge that it represents.
- 8% of learners least favourite subject at school is science, and the subject which the highest proportion of learners (19%) dislike is maths. Learners tend to like/dislike certain types of subjects - so those who dislike science are more likely to like art and history.
- 49% of learners intend to study science after their GCSEs, making it the most popular choice. In particular, learners who are more engaged in science at school are more likely to consider studying science subjects after their GCSEs. Also those who enjoy maths and science currently, are unsurprisingly more likely to want to continue studying science.
- STEM (Science, Technology, Engineering and Maths) careers are popular choices, including medical/health care which is the most popular choice (12% want to go into this area).
- Younger learners (aged 14) are significantly more likely than those aged 15-16 to be considering a science related career, therefore demonstrating the importance of keeping them engaged as they progress through school.
- Generally, learners are not especially connected with extra-curricular activities linked to science. This could be partly a result of lack of provision - 43% of learners either have no science or engineering clubs at their school, or do not know about them, and 28% of learners have never had visitors to their school to talk about science. At schools where there are clubs, only 38% have ever been, and the majority only once or twice. Those who are interested in science, and currently say it is their favourite subject are significantly more likely to go to clubs frequently.

SCIENCE OUTSIDE OF
SCHOOL



Where people hear about science

Learners were asked to select up to two places where they had read or heard about science outside of school. On average they mentioned 1.7 places. The most popular place where they have heard about science is in TV news. Those more engaged in science, either through clubs or visitors to school are generally more likely to have read or heard about science in more places.



Males are significantly more likely than females to have read or heard about science on other internet sites (not blogs), magazines, films and from scientists themselves.

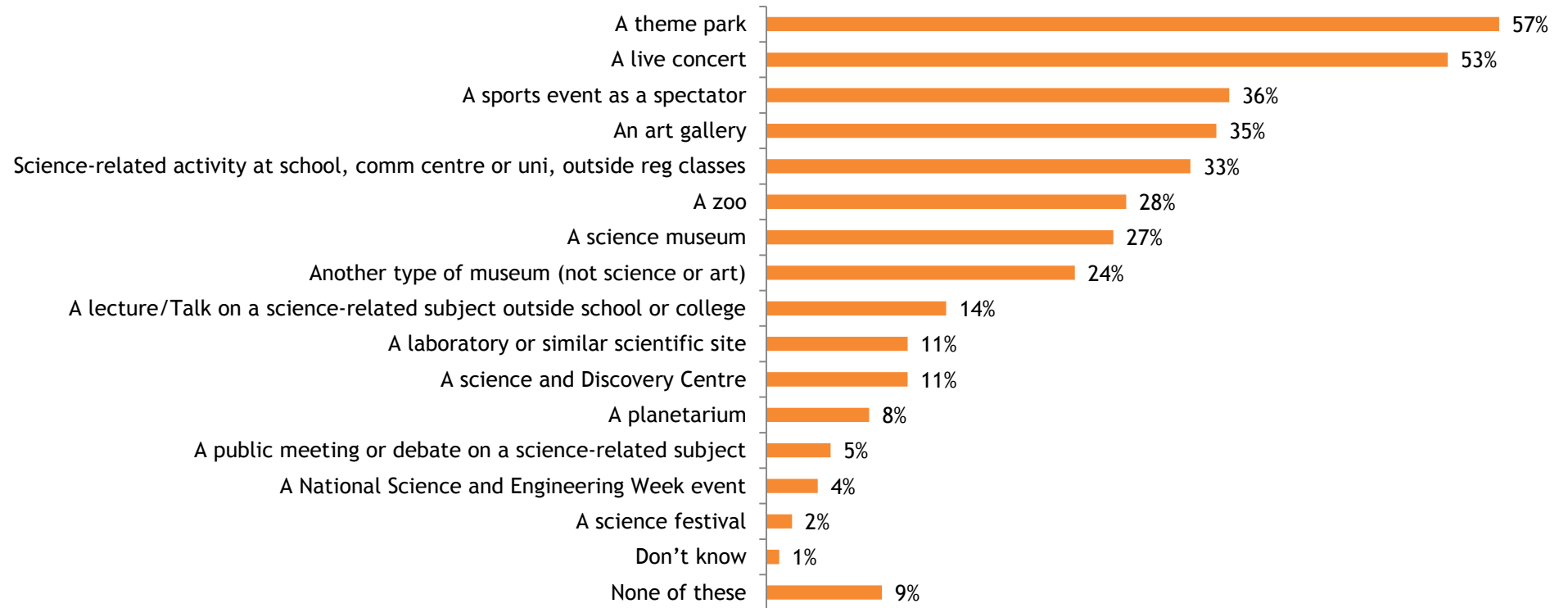
Those who attend science or engineering clubs at school are significantly more likely than those who don't to have read or heard about science in magazines, and at museums or science and discovery centres. Perhaps because they have gone out of their way to read about science in these places.

Q8. Outside school, where, if anywhere, have you heard or read about science in the last month?

Base: All learners (500)

Visits to venues and events

On average learners have attended or visited 3.5 events or attractions from the list. The most popular are theme parks and live concerts. The most popular of the science related activity/event is a science -related activity at a school, community centre or university outside of class, which is still in the majority of cases linked to the school. The following slide shows the key differences in attendance between different types of learners.



Q13. Which, if any, of the things on this list have you visited or attended in the last 12 months?

Base: All learners (500)

Visits to venues and events

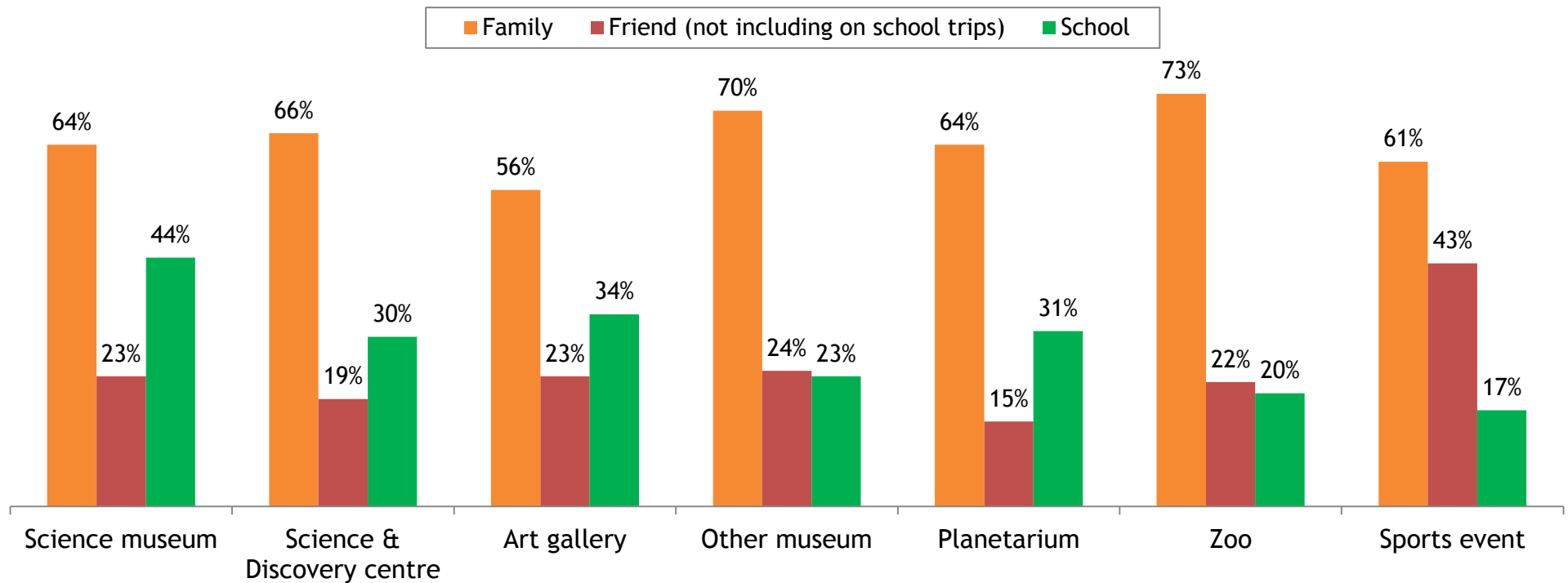
Background	Differences
Gender	Females are significantly more likely than males to have been to an art gallery, a science or discovery centre, an other type of museum, a live concert or the zoo.
Age	Younger learners are significantly more likely than older learners to have visited an event during National Science and Engineering week. Older learners on the other hand are more likely to have been to a live concert or a lecture/talk on a science related subject outside of school.
Ethnicity	On average, white learners have attended more events, and visited more places than non-white learners. In particular they are significantly more likely to have been to an art gallery, an other type of museum or a live concert.
SEG	On average, learners from higher income background have attended more events, and visited more places than learners from lower income backgrounds. In particular they are significantly more likely to have been to a science and discovery centre, an art gallery or a live concert.
Favourite subject	Learners whose favourite subject at school is science are more likely to have attended science related events or been to science related venues.
Attendance of clubs	Learners who have attended science or engineering clubs have on average visited more places, and attended more events than those who have never been to a science or engineering club. In particular they are more likely to have attended science related events and venues.

Q13. Which, if any, of the things on this list have you visited or attended in the last 12 months?

Base: All learners (500)

Venues/events - with family

This slide shows the venues/events which the majority of learners visited with their family. This generally covers museums, galleries and day trips which have an education element of some sort. In the case of the science museum, science and discovery centre, art gallery and planetarium at least 30% visited these places with schools. Learners from lower income backgrounds were more likely to have gone to a science museum with school (67% compared to 57% with family).

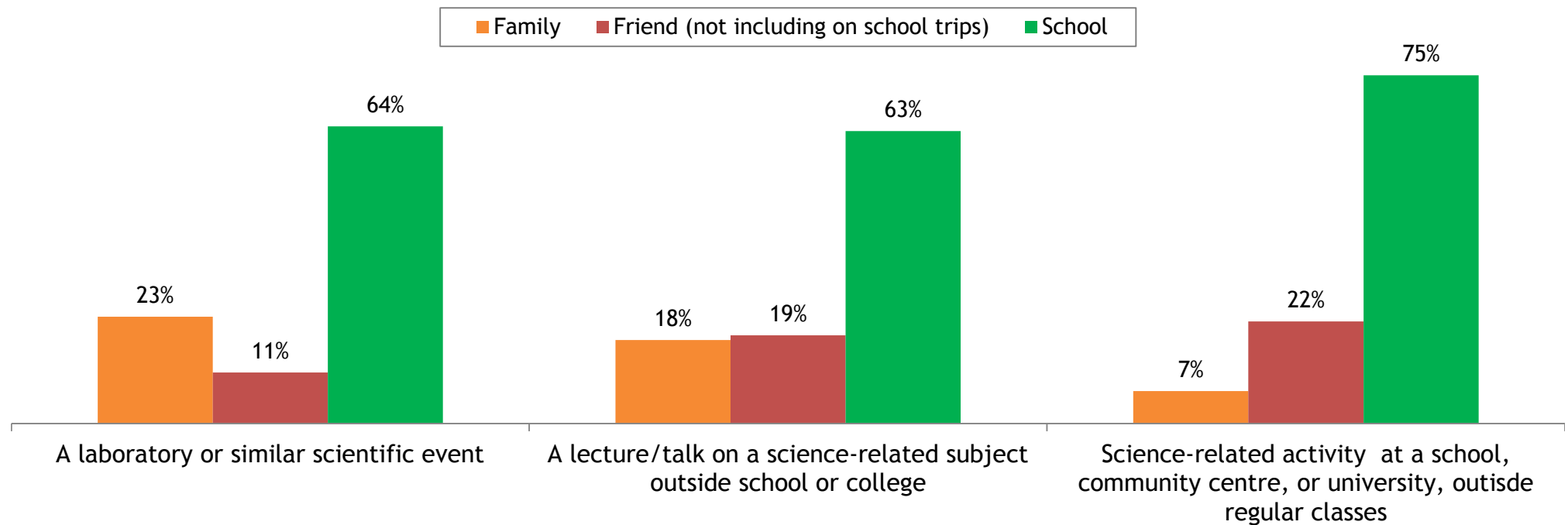


Q14. And on your last visit to this event, did you go with any of the following groups of people?

Base: All those who have visited: science museum (133); science & discovery centre (53); art gallery (173); other museum (122); planetarium (39); zoo (138); sports event (181)

Venues/events - with school

This slide shows the events/venues which the majority of learners attended with their school. These are all educational science based events. Generally a low proportion of learners attend with family or friends. In the case of a science related activity at a school, community centre or university 11% of those who plan to study science after GSCSE level have been with their family, compared to 0% of those who do not plan to continue studying science which could suggest they persuade their family to go or that their family encourage their interest in science.

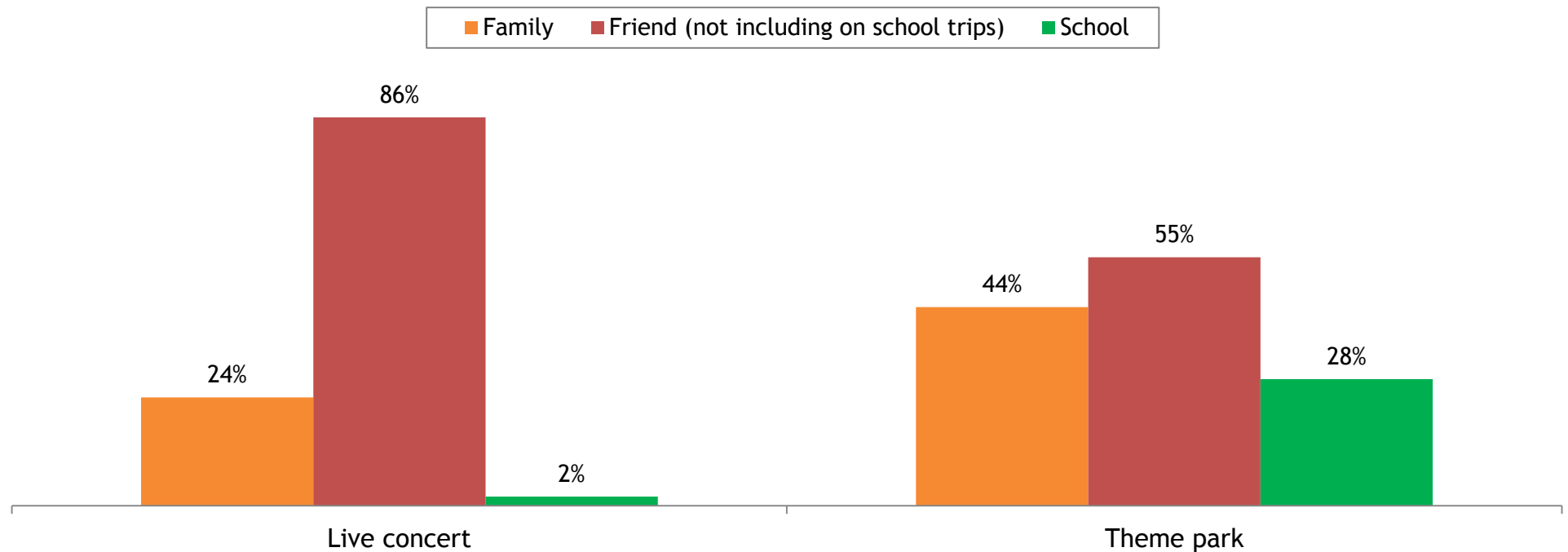


Q14. And on your last visit to this event, did you go with any of the following groups of people?

Base: All those who have visited: a lab or similar (56); a lecture/talk on science outside of school/college (72); a science related activity at a school, community centre, or university, outside regular classes (163)

Venues/events - with friends

This slide shows the venues/events which the majority of learners attend with their friends. In the case of the live concert, the vast majority attend with friends, whereas in the case of theme parks there is a mix of learners going with family, friends and school. In particular 90% of those aged 16 went to live concerts with friends, compared to 74% of those aged 14 and 87% of those aged 15.



Q14. And on your last visit to this event, did you go with any of the following groups of people?

Base: All those who have visited: a live concert (264); a theme park (284)

Summary - Science outside of schools

- The most popular places that learners have read about science is on TV news, in books and on other TV programmes. Just 5% have not heard or read about science in any of the places on the list, showing that learners are engaged in science outside of school.
- The most popular events or venues amongst learners are theme parks and live concerts, both attended by more than 50% of learners in the past 12 months.
- The most popular event or venue linked to science is a science related activity at a school, community centre, or university outside of regular classes. This activity tends to be visited by learners along with their school. Other popular activities linked to science include visiting the zoo or a science museum.
- Few learners have taken part in a public meeting or debate on a science related subject, a national science and engineering week event or a science festival.
- There are however differences in attendance according to the background of the learner: by gender, age, ethnicity, and social economic grade. Females, white learners, and those from higher income backgrounds are more likely to have visited a number of venues/events. Also those more interested in science and more engaged in science are more likely to have attended venues or events specifically related to science.
- Learners attend most events/venues with their family, and in particular the majority go to museums, galleries, and other educational day trips with their family. This shows the importance of parental influence in getting learners more engaged in science. They are however more likely to go to very specifically science related events with their school (e.g. A laboratory or similar scientific event or a science related activity outside of regular classes). They are most likely to visit a theme park or live concert with their friends.

APPENDIX

QUESTIONNAIRE

Intro screen:

Thank you for your help with this survey.

Please read each question carefully and fill in the answer which applies to you. We are interested in finding out what young people think about a range of educational and social issues.

For most questions you simply tick the box next to the answer that describes you best. If you don't know, tick the "don't know" box. **This is not a test**; we are interested in your honest answers and opinions only.

Ask all

Q1. When you think about "the sciences", what comes into your mind?
Blank answer box (open-ended)

Coding (post fieldwork - do not script):
Advancement/Progress/The future/Better world/Helping mankind/Easier living/Easier life
Animal experiments
Archaeology

Biology/Chemistry/Physics
Boffins/Nerds/Eccentric/Crazy/Mad/Mad professor/Mysterious
Bombs/War/Destruction of mankind
Boring/Dull
Laboratory/Labs
Bunsen burners
Test tubes/Chemicals
Chemical reaction
Communications/Phones
Computers/IT
Difficult/Difficult to understand
Disliked at school/Horrible teacher
Economic benefits/Jobs in the sciences
Engineering
Environment/Nature/Plants
Experiment/Inquisitive/Understanding
Fiction/Science fiction
Food/Food production
Genetics/DNA/GM food/GM crops
Health/Drugs/Cures for diseases
/Hospitals/Doctors/Medicine/Hygiene
Ideas/Innovation/Invention/Discovery/
Research/Analysis/Logic
Important/Necessary
Nanotechnology
New appliances/New technology

Preserving our heritage
School/Exams/Lessons/Teachers
Science festival/Science Museum/centre
Social sciences/Economics/Psychology
/Sociology
Space/Rockets/Astronomy
Test-tube babies/IVF
Understanding human behaviour/Society
White coats/Lab coats
Other - specify
Don't know
Nothing
(MP)

QUESTIONNAIRE

Ask all

Q2. When you think about “scientists”, what comes into your mind?

Blank answer box (open-ended)

Coding (post fieldwork - do not script):

Academic/Research/Researchers

Beards

Biologists/Chemists/Physicians

Boffins/Nerds/Eccentric/Crazy/Boring/

Mad/Mad professor/Mysterious

Darwin/Einstein/Newton/Stephen

Hawking/Steve Jobs/Another named scientist

Doctors/Surgeons

Don't like/Not my type of person

Experiments/Laboratories/Microscopes/

Test tubes

Experts/Skilled people/Educated/Highly

educated/Brainy/Clever/Intelligent/

Smart

Glasses

Hardworking/Committed/Persistence/

Long hours/Dedicated

Innovative/Innovators/Inventors/Pioneers

/Visionaries/Solution finders

Men

My Dad/My father

My family

My Mum/My mother

Old

Teacher/Professor

Unemotional/Logical/Cool/Level-headed

Well paid/Good career prospects

White

White coats/Lab coats

Other - specify

Don't know

Nothing

(MP)

Ask all

Q3. Which, if any of these, is your favourite subject at school or college?

And which is your least favourite?

Single response per column

Rows:

English

Design and technology

Geography

History

Information technology (ICT)

Languages

Maths

Science (Biology, Chemistry or Physics)

Art

Music

Physical education (PE)

Religious education (RE)

Other (please specify)

Don't know

None of these

Columns:

Favourite

Least favourite

QUESTIONNAIRE

Ask all answering code 8 (science) as favourite at q3

Q4. Why do you say science is your favourite subject at school or college?

Blank answer box (open-ended)

Coding (post fieldwork - do not script):

Good textbooks

Exams are easy

Liked the teacher(s)

Practicals/experiments bring it to life/like doing them

Subject is easy

Subject is interesting

Subject is worthwhile/important/can see the point of it

Teacher(s) is very good

Am good at science/perform well

Other - specify

Don't know

(MP)

Ask all

Q5. Does your school or college have any science or engineering clubs?

These might be at lunch time, or after school.

Single response

Yes

No

Don't know

Ask if yes at Q5

Q6. How often, if at all, have you been to any of the science or engineering clubs at your school or college since September?

Single response

I have been every time

I have been more than once or twice, but not every time

I have been once or twice, but no more

I have never been

Don't know/can't remember

Ask all

Q7. How, often, if at all, do visitors come into your school to talk to you about science or engineering that is happening in the real world? Visitors include people such as STEM ambassadors, or people who work in industry or universities

Single response

Regularly (more than once a term)

Fairly often (about once a year)

Not that often (about once every 2 to 3

years)

Not at all often (once since I've been at the school)

Never

Ask all

Q8. Outside school, where, if anywhere, have you heard or read about science in the last month?

Multiple response, up to two codes

Books

From scientists themselves

Friends or family

Films

Magazines

Museums or Science and Discovery

Centres

Print newspapers

Radio

Science blogs

Other internet websites (not science blogs)

TV news

Other TV programmes (not the news)

Other

Don't know

None of these

Parents

QUESTIONNAIRE

Ask all

Q9. Which, if any, of the following subjects are you studying now?

Single response

Triple science GCSE (physics, chemistry and biology)

Double award science GCSE

Single award science GCSE

Engineering Diploma

None of these

Ask all

Q10. Which of the following subjects, if any, do you intend to study after your GCSEs or equivalent?

Multiple response

English

Design and technology

Geography

History

Information technology (ICT)

Languages

Maths

Science (Biology, Chemistry or Physics)

Art

Music

Physical education (PE)

Religious education (RE)

Economics

Psychology

Sociology

Other (please specify)

Don't know

None of these

Ask all

Q11. What job area are you most interested in working in after you leave school/college?

Open question

Ask all

Q13. Which, if any, of the things on this list have you visited or attended in the last 12 months?

Multiple response. Code null for none of these. Reverse codes

A science museum

A science and Discovery Centre

An art gallery

Another type of museum (not science or art)

A National Science and Engineering Week event

A science festival

A laboratory or similar scientific site

A live concert

A theme park

A planetarium

A zoo

A lecture/Talk on a science-related subject outside school or college

A public meeting or debate on a science-related subject

A science-related activity at a school, community centre or university, outside regular classes

A sports event as a spectator

Don't know

None of these

Ask for each answer at q12

Q14. And on your last visit to <insert statement at Q13>, did you go with any of the following groups of people?

Multiple response, Code null for none of these

Family

Friends (not including on school trips)

School

Don't know

None of these

QUESTIONNAIRE

Ask all

Q15. What do you think about the following statements about science? For each of the statements, please could you tell me the extent to which you agree or disagree?

Single response, each statement on a new page

Strongly agree
Tend to agree
Neither agree nor disagree
Tend to disagree
Strongly disagree
Don't know

I don't understand the point of all the science being done today
I don't think I'm clever enough to understand science and technology
Science is such a big part of our lives that we should all take an interest
I am amazed by the achievements of science
Science and technology are too specialised for most people to understand

it

It is important to know about science in my daily life

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