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# Public Attitudes to Science in Wales: November 2021

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# **Public Attitudes to Science in Wales: November 2021**

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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## **1. Introduction and objectives**

- 1.1 Understanding the public's perceptions and attitudes regarding the purpose and value of science has become a growing topic for researchers, policymakers and Governments. Public engagement on the value and relevance of science provides policy-making officials and Governments with an effective evidence-based way to connect with citizens, permitting their voice to be heard when shaping policy and planning Government initiatives.
- 1.2 The Welsh Government Office for Science commissioned Beaufort Research to conduct a survey of public attitudes towards science using the November 2021 Wales Omnibus. The survey sample reflects demographic characteristics of the Welsh population. The aims of the study were to better understand the Welsh public's attitudes toward, understanding of, and engagement with, science and science-related matters in Wales. The results are designed to help inform Welsh Government policy, research and public engagement work in relation to science.
- 1.3 This survey included some of the questions previously asked in a pilot survey in March 2020<sup>1</sup>. This pilot survey obtained a sample of 713 people, which was lower than anticipated due to the outbreak of COVID-19. Therefore, the Welsh Government wished to engage with a sample of the public again in November 2021, using this survey, to gain views from a larger number of the Welsh population to improve the reliability of findings relating to attitudes towards science in Wales.
- 1.4 Additionally, the March 2020 survey engaged with the public before the COVID-19 pandemic and it is likely that since then, attitudes towards science may have changed. Therefore, by surveying a sample of the Welsh public again, this will also better reflect public attitudes towards science in light of the COVID-19 pandemic.

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<sup>1</sup> [Public attitudes to science in Wales | GOV.WALES](#)

## **2. Methodology**

- 2.1 The survey was conducted on the Beaufort Wales Omnibus survey, which interviews a quota sample of 1,000 adults across Wales each wave and reflect the population in terms of key demographic characteristics. Further detail on this is provided in paragraph 2.4. A different set of adults is interviewed each wave although samples are matched in terms of these key demographic characteristics.
- 2.2 Up to March 2020 interviewing on the Wales Omnibus was conducted face-to-face via CAPI (Computer Aided Personal Interviewing). As a result of the COVID-19 public health crisis, interviewing switched to an online approach using the Cint™ online panel exchange platform. The 2021 survey was therefore conducted online, while the pilot survey in March 2020 had been carried out by interviewers in participants' homes. The change in data gathering approach to online self-completion interviews may have resulted in some changes in findings, due to mode effect, and these are highlighted where applicable in the report.
- 2.3 The Cint™ platform and its products comply with various industry standards including ISO 20252 - the international quality standard for market research services. Multiple data quality checks<sup>2</sup> are built into the Cint™ system and Beaufort builds in its own quality control questions and measures within the survey and excludes respondents who fail these checks.
- 2.4 The survey was subject to interlocking demographic quota controls<sup>3</sup> of age within gender. A further separate quota control was set on social grade<sup>4</sup> and

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<sup>2</sup> These checks are to ensure that real people are answering the survey questions, to prevent duplicate responses and ensure that sufficient attention is paid to questions to provide high quality data.

<sup>3</sup> Quota controls are target numbers of interviews set for specific demographic groups within the population, to help achieve a representative sample for the survey. Interlocking demographic quota controls means that the target incorporates two variables: age group within gender.

<sup>4</sup> Social grade is a classification system based on occupation developed for use on the National Readership Survey (NRS). Social grades are defined as follows:

**AB:** Higher and intermediate managerial, administrative and professional occupations

**C1:** Supervisory, clerical and junior managerial, administrative and professional occupations

**C2:** Skilled manual workers

interviews were undertaken with residents of every local authority in Wales. At the analysis stage, the data was weighted by age group, gender, local authority grouping and social grade. This ensures that the sample reflects Census 2011 figures and particular characteristics of the Wales population.

- 2.5 The questions for the Public Attitudes to Science survey were supplied to Beaufort by the Welsh Government Office for Science (see Annex A for the questionnaire).
- 2.6 Many of the questions used replicated those used in surveys on public attitudes to science done in other small English-speaking countries<sup>5</sup>. This was done with the intention of being able to compare internationally between Wales and other nations. However, undertaking any comparisons with other nations is outside the scope of this report.
- 2.7 Some questions from the March 2020 survey were repeated in the 2021 survey and, where possible, comparisons have been made with earlier data. Other questions were re-worded by the Welsh Government for the 2021 survey or were additions to the questionnaire, so some comparisons need to be treated with caution.
- 2.8 Changes made in 2021 to the statements included at questions 1 and 2 are detailed in Table 2.1 overleaf, with amended statements shaded in grey:

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**DE:** Semi-skilled and unskilled manual workers, state pensioners, casual and lowest grade workers, unemployed with state benefits only.

<sup>5</sup> These include the Science Foundations Ireland surveys in 2015 (SFI, 2015), New Zealand, (Nielson, 2014), Australia (CPAS, 2014) and UK? Department for Business Innovation and Skills (BIS, 2014).

**Table 2.1: Public attitudes to science – comparison of 2021 statements with 2020 statements**

<b>2021 statement</b>	<b>2020 statement</b>
Young people's interest in science & technology is essential for Wales' future prosperity	<i>Unchanged</i>
Growing science in Wales is essential for future prosperity	<i>Science in Wales is essential for future prosperity</i>
Science & technology are important for addressing key challenges affecting society	<i>Science &amp; technology are important for addressing key societal challenges</i>
Science & technology graduates are important for economic & social prosperity	<i>A consistent supply of science &amp; technology graduates is important for economic prosperity</i>
Research from the social sciences are increasingly important	<i>Findings from the social sciences are important</i>
Scientific advice should be used to inform all parts of government policy & decision making	<i>Scientific advice should be used to inform government policy &amp; decision making</i>
Science communication is important for the public	<i>Effective science communication is important for building trust &amp; credibility</i>
All citizens should have a good understanding of science	<i>Unchanged</i>
I would like to know more about science	<i>Unchanged</i>
I do not feel well informed about science	<i>I feel well informed about science and scientific research</i>
Science is not as important when addressing challenges affecting society	<i>Science is less important when addressing challenges affecting society</i>

- 2.9 Demographic questions are included as standard in the Wales Omnibus survey. The questionnaire was available in English or Welsh at the participant's choice.
- 2.10 Fieldwork for the November 2021 survey took place between **8 and 28 November** 2021. A total of 1,000 interviews were completed and analysed.
- 2.11 Full data tabulations from the survey have been provided to the Welsh Government in a separate technical report.
- 2.12 When survey data are tested for statistical significance, an assumption is made that the achieved sample represents a random sample of the relevant population. However, as the Wales Omnibus Survey uses proportional quota sampling (not random sampling), genuine statistical significance cannot,

strictly speaking, be established. Therefore, any findings in this survey should be deemed indicative of a difference in the population rather than definitive.

### **3. Research findings**

#### **Attitudes towards science and technology**

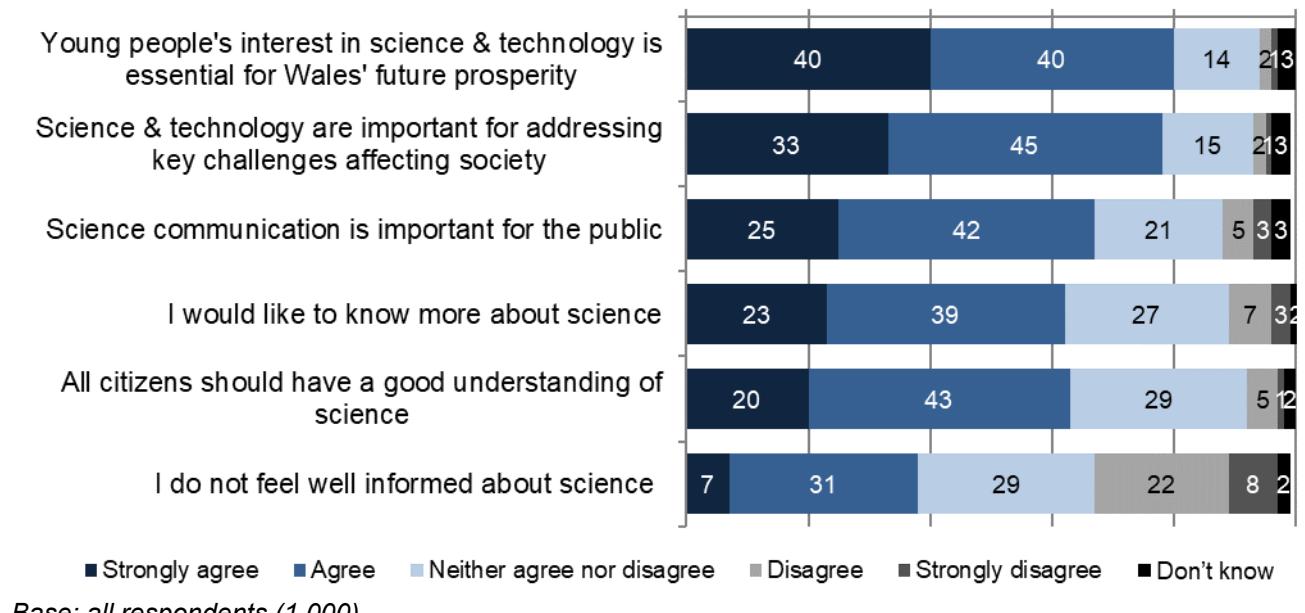
- 3.1 Participants were initially presented with statements about science and technology and asked to indicate the extent they agreed or disagreed with each. They could answer '*strongly agree*', '*agree*', '*neither agree nor disagree*', '*disagree*' or '*strongly disagree*'. '*Don't know*' was also included and in the 2021 self-completion survey was an option shown on screen.
- 3.2 Overall public attitudes to science and technology were positive. Nearly all statements were endorsed by<sup>6</sup> at least six in ten Welsh adults interviewed, although almost four in ten participants (38%) agreed that they '*do not feel well informed about science*' (see Figure 3.1 overleaf).
- 3.3 The highest agreement was evident for the statements '*Young people's interest in science and technology is essential for Wales's future prosperity*' and '*Science and technology are important for addressing key challenges affecting society*'. Around eight in ten of those interviewed (80% and 78% respectively) agreed with each of these statements. Around two-thirds of respondents agreed that '*Science communication is important for the public*', '*All citizens should have a good understanding of science*' and '*I would like to know more about science*' (with agreement at 67%, 63% and 62% respectively).
- 3.4 Disagreement levels were generally low, ranging between 3% for '*Young people's interest in science and technology is essential for Wales's future prosperity*' and '*Science and technology are important for addressing key challenges affecting society*', and up to 10% for '*I would like to know more about science*'. The proportion of participants disagreeing with the negative statement '*I do not feel well informed about science and scientific research*' was higher, however (at 30%).

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<sup>6</sup> Participants were considered to endorse or agree with a statement if they reported either strongly agreeing or agreeing with a statement.

- 3.5 Respondents in the ABC1 socioeconomic groups and those with first or higher degrees were more likely than respondents in the C2DE socioeconomic groups and those without degrees to agree with all the positive statements about science, and also to disagree with the negative statement. Male respondents were also more likely than female respondents to follow this response pattern.
- 3.6 On the whole older people surveyed (aged 55+) were more likely than respondents from other age groups to endorse the statements. The exceptions to this were for the dimension '*I would like to know more about science*' - 67% of 16-34s agreed with this statement, compared with 56% of those aged 55 and over – and for '*I do not feel well informed about science*', where there were no major differences evident by age.

**Figure 3.1: Public attitudes to science 2021 - 1 (%)<sup>7</sup>**

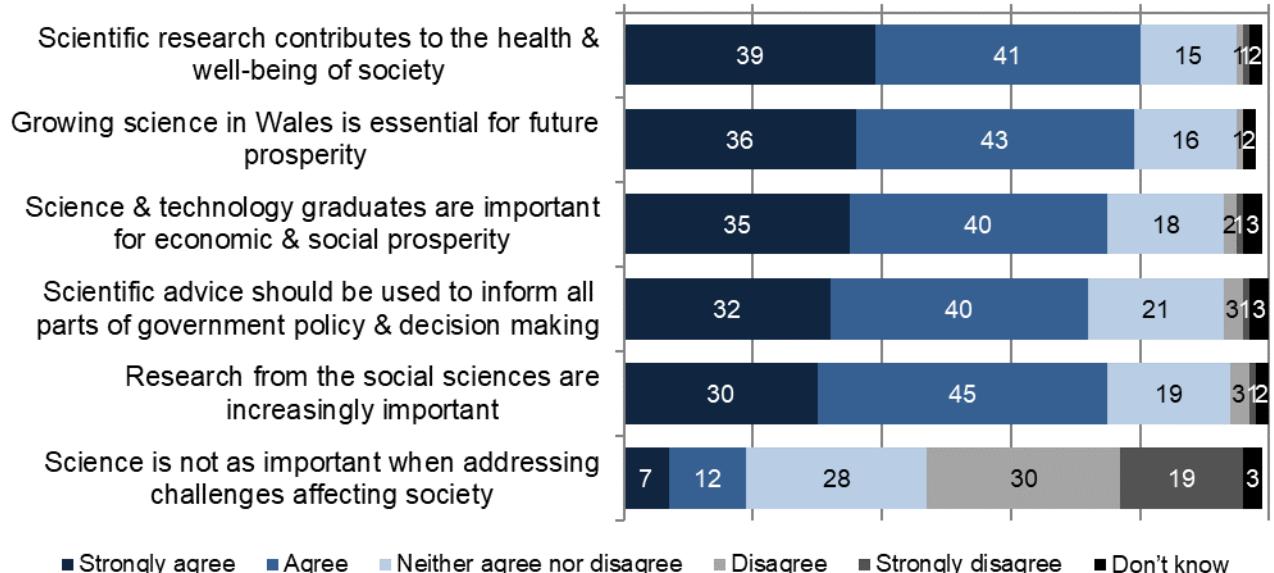


- 3.7 Agreement levels were also high with the second set of statements in the survey, with the exception of the negative statement '*Science is not as important when addressing challenges facing society*' (see Figure 3.2 overleaf). This suggests that the sample generally had positive attitudes towards these areas of science.

<sup>7</sup> Figures may not add to 100% due to rounding

- 3.8 Between seven and eight in ten survey participants agreed with each of the positive statements, with agreement ranging from 72% to 80%. The highest level of ‘strongly agree’ was evident for ‘*Scientific research contributes to the health and well-being of society*’ (at 39%). Men and ABC1s surveyed were on the whole more likely than women and C2Des surveyed to strongly agree with each statement, and also to strongly disagree with the negative one.
- 3.9 Older participants aged 55 and over were more likely than their younger counterparts to endorse all the positive statements – there was higher agreement with every positive statement about science among respondents in this age group than among 16-34s and 35-54s.
- 3.10 Disagreement was generally very low (between 2-4%) but was high for the negative statement ‘*Science is not as important when addressing challenges affecting society*’. Almost half those interviewed (49%) disagreed with this statement, compared with fewer than one in five (19%) agreeing.

**Figure 3.2: Public attitudes to science 2021 - 2 (%)**



Base: all respondents (1,000)

- 3.11 Figure 3.3 compares levels of agreement (that is, the aggregate of those ‘agreeing strongly’ and ‘agreeing’) between 2020 and 2021 surveys. Please note that the wording of many statements was changed in 2021, which will affect comparability and means that comparisons between the surveys need

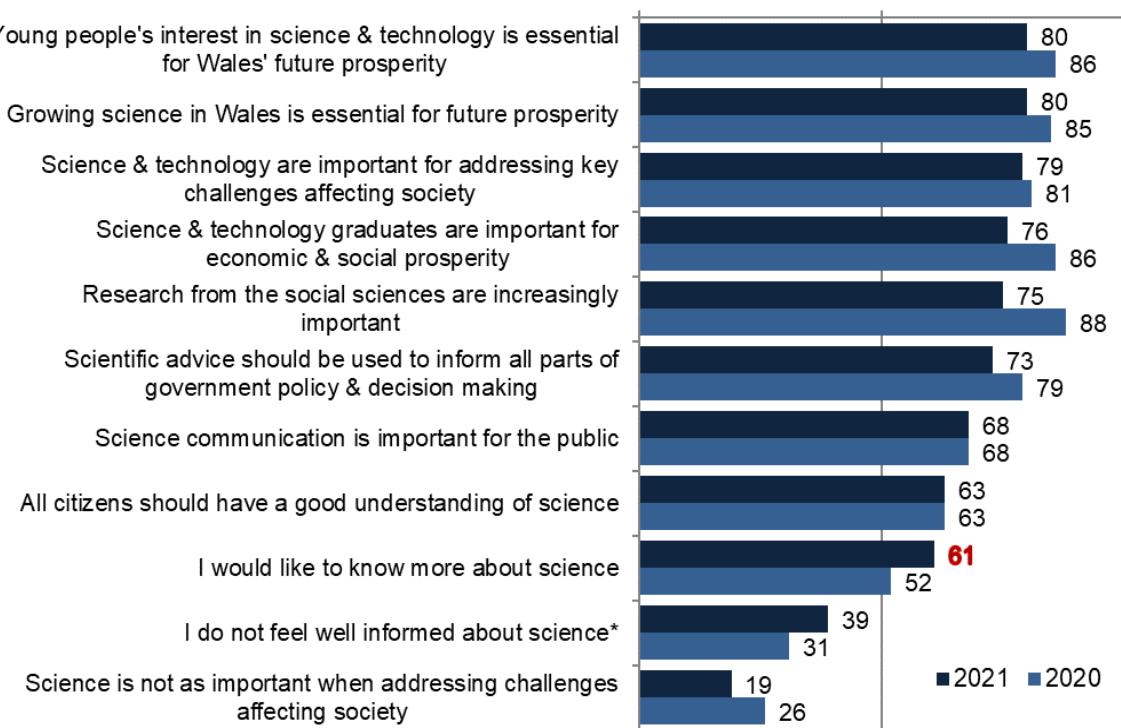
to be treated with caution. For example, the 2020 statement '*I feel well informed about science and scientific research*' was inverted to become a negative statement for the 2021 survey – '*I do not feel well informed about science*'. The changes made are listed in section 2.8 above. Additionally, these comparisons cannot be generalised to the population level and indicates a change of opinion between the two samples.

- 3.12 Furthermore, the change in interviewing mode from an interviewer-administered personal interview to a self-completion online interview may have resulted in some differences in findings – this is discussed below.
- 3.13 Looking at overall levels of agreement between the two surveys, agreement has decreased slightly on almost every positive dimension. For example, 80% of participants in 2021 agreed that '*Young people's interest in science and technology is essential for Wales's future prosperity*', compared with 86% in 2020. The exception is for the statement '*I would like to know more about science*', where agreement has risen in 2021 to 61%, from 52% in 2020 (shown in red and in bold in Figure 4.3).
- 3.14 While overall agreement has dropped, the proportion strongly agreeing with each positive dimension (where broadly comparable) has risen in 2021. The fall in overall agreement is therefore due to fewer participants in 2021 answering 'agree' and more answering 'neither agree nor disagree', rather than to an increase in negative responses. This difference is likely to be a result of the change in methodology between the 2020 and 2021 surveys. In a self-completion survey, there is less social desirability bias, i.e. participants are arguably more able to answer honestly and without fear of being judged by an interviewer<sup>8</sup>, so may be more likely to choose an answer on the mid-point of the scale. The changes to the wording of many of the statements in 2021 also mean any comparisons need to be treated with caution.

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<sup>8</sup> Participants tend to assume that an interviewer expects them to have opinions, rather than have no strong opinion or knowledge of topics, therefore participants feel more comfortable in answering 'neither agree or disagree' when there is no interviewer present to 'judge' their answers.

**Figure 3.3: Public attitudes to science 2021 cf. 2020 (% agreeing)**



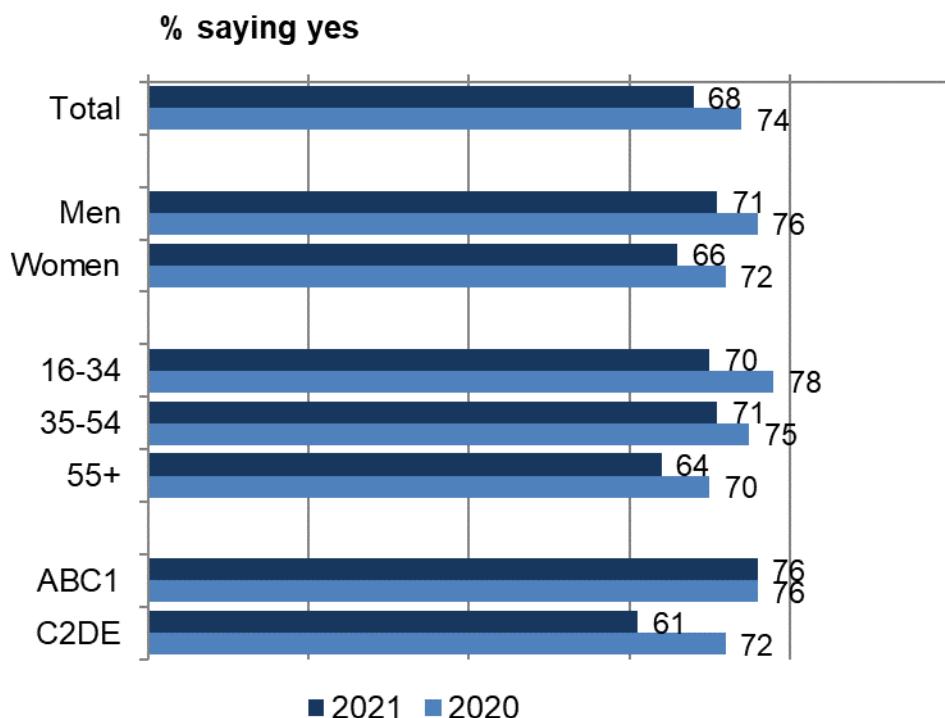
\*Results shown for 2020 are for proportion disagreeing, since statement was worded positively when first asked

Base: all respondents (2021 - 1,000; 2020 - 713)

### Views on whether the Welsh Government should invest more in science research, innovation and education

- 3.15 Almost seven in ten respondents in 2021 (68%) thought the Welsh Government should invest more in science research, innovation and education - 5% did not agree, while 26% answered 'don't know' (see Figure 4.4). ABC1s (at 76%), those with first or higher degrees (at 77% and 79% respectively) and men (at 71%) were most likely to be of this opinion.
- 3.16 The proportion who thought that the Welsh Government should invest more in science has reduced slightly from the 2020 level (74%). There is no change in the proportion disagreeing (5%) but an increase in those answering 'don't know' (now at 26% from 21% in 2020). For the reasons discussed above, this is likely to be a mode effect related to the change in data gathering approach.

**Figure 3.4: Opinions on whether Welsh Government should invest more in science research, innovation and education\*, 2021 cf. 2020**

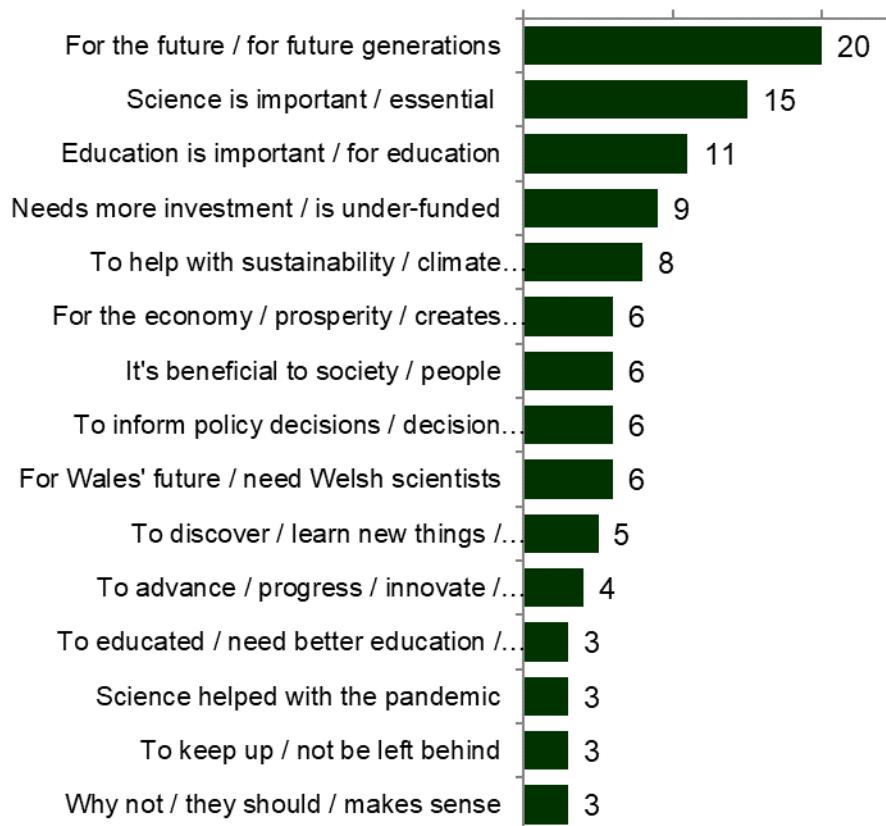


\* Question wording in 2020 was slightly different - 'Do you think the Welsh Government should invest more in scientific research, education and innovation?'

Base: all respondents (2021 – 1,000; 2020 - 713)

- 3.17 Respondents were then asked an open question on why they felt the Welsh Government should, or should not, invest more in science research, education and innovation. All verbatim responses provided by participants were reviewed and grouped into themes for the purpose of analysis. Each answer was coded to one or more themes as appropriate.
- 3.18 The most common reasons given by those in favour of more investment in science focused around its importance for the future and for future generations, and the importance of science per se (mentioned by around one in five (20%) and one in seven (15%) of those in this group). Around one in ten mentioned education generally being important (at 11%), that science was under-funded and in need of investment (9%) and that more investment was needed to help deal with climate change / global warming (8%) (see Figure 3.5 overleaf).

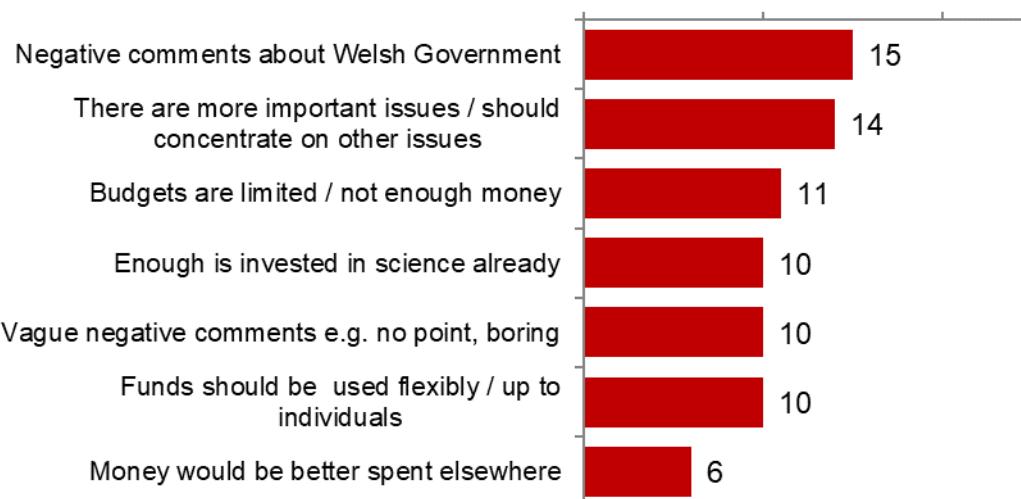
**Figure 3.5: Main unprompted reasons for believing Welsh Government should invest more in science research, innovation and education 2021 (%)**



*Base: those saying Welsh Government should invest more in scientific research, innovation and education (688)*

- 3.19 Those of the opposite opinion were most likely to either make general negative comments about the Welsh Government or to say that there were more important areas or issues that needed funding.
- 3.20 Please note that the base size here is small (with only 44 answering) so percentages should be treated with caution.

**Figure 3.6: Main unprompted reasons for believing Welsh Government should not invest more in science research, innovation and education 2021 (%)**



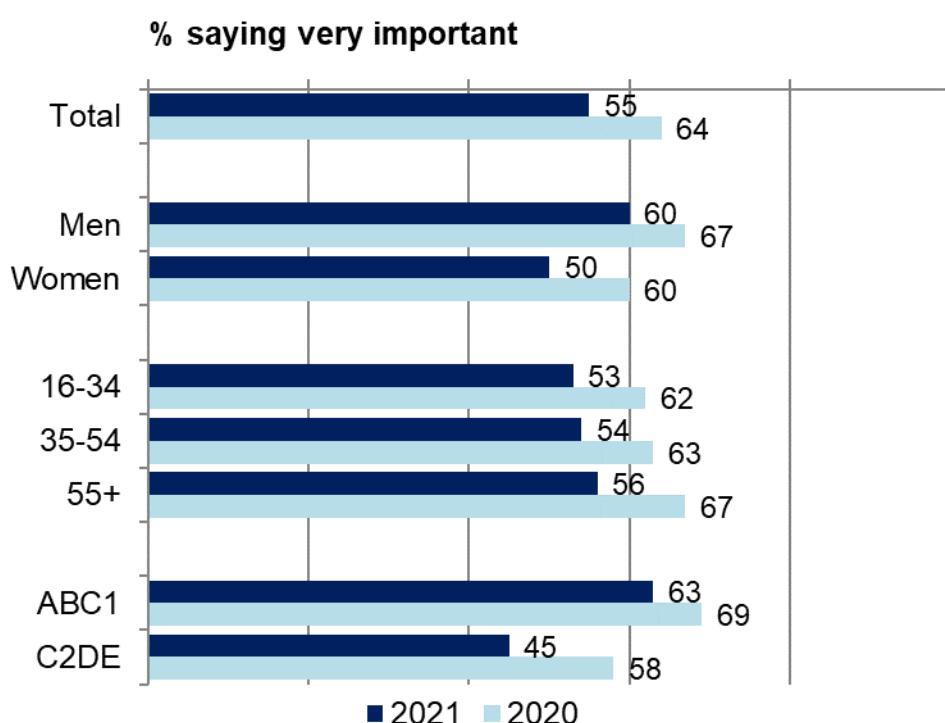
*Base: those saying the Welsh Government should not invest more in scientific research, innovation and education (44) NB small base size*

### **Perceptions of the importance of providing future generations with a good scientific education**

- 3.21 The great majority of Welsh adults interviewed in 2021 (82%) thought it was important that future generations were provided with a good scientific education – 55% felt it was ‘very important’ and another 27% that it was ‘somewhat important’. Of the remainder, 10% felt it was ‘neither important nor unimportant’ while only 8% regarded it as being unimportant – 3% saying ‘somewhat unimportant’ and 5% ‘very unimportant’ (see Figure 3.7 overleaf).
- 3.22 Respondents in the ABC1 social grades were much more likely to regard it as being ‘very important’ than those in the C2DE socioeconomic groups (at 63% compared with 45% respectively). Men surveyed were also more likely to feel it was ‘very important’ than women surveyed (at 60% compared to 50%). Of the different age groups interviewed, over 55s were most likely to feel it was important to some extent (at 85%, compared to 77% of 16-34s and 82% of 35-54s).

3.23 Comparing the 2021 results with those from 2020, the proportion of respondents regarding it as important that future generations are provided with a good scientific education has fallen (to 82% from 94%), while there have been increases in the proportion at the mid-point of the scale (10% in 2021 saying ‘neither important nor unimportant’, from 5% in 2020) and in the proportion saying it is unimportant (now 8% from 1% in 2020). As discussed above, these are likely to be a result of the change of data gathering approach.

**Figure 3.7: Importance of providing future generations with a good scientific education, 2021 cf. 2020**



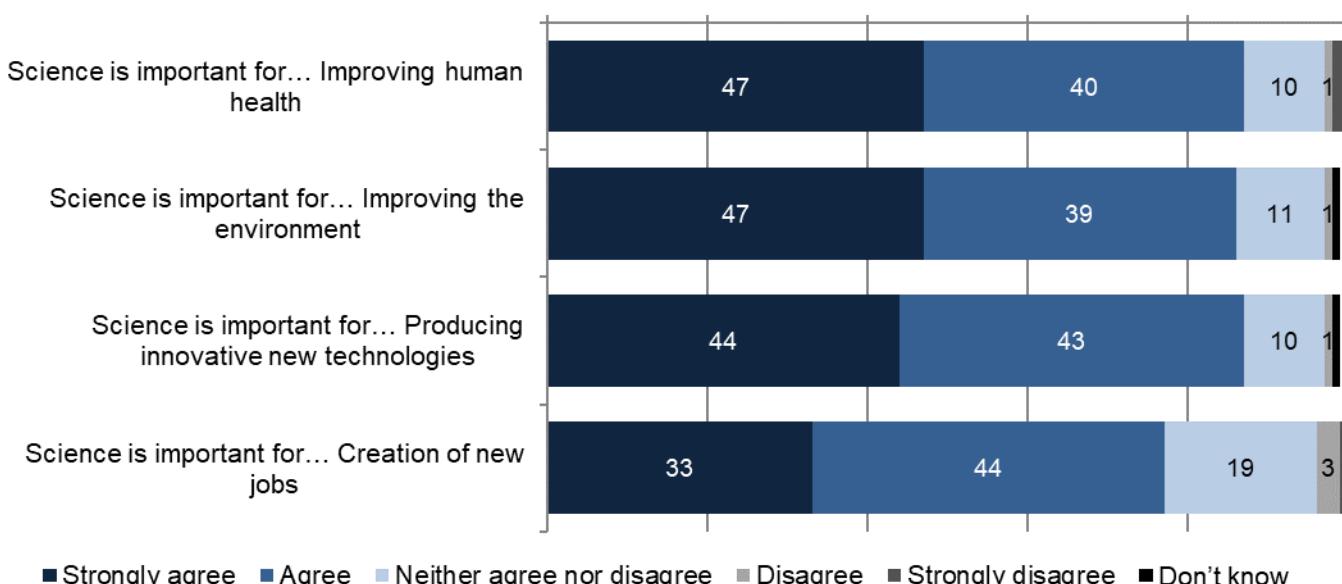
Base: all respondents (2021 – 1,000; 2020 - 713)

#### **Perceived importance of science in different areas**

- 3.24 The survey included questions on perceptions of the importance of science in the following areas:
- Improving human health
  - Improving the environment
  - Producing innovative new technologies, and
  - Creation of new jobs.

- 3.25 Science was considered important by the great majority of Welsh adults surveyed in each of these areas, ranging from almost nine in ten agreeing that it was important for '*Improving human health*' (87%), '*Producing innovative new technologies*' (87%) and '*Improving the environment*' (86%) to almost eight in ten for '*Creation of new jobs*' (77%). Participants were more likely to strongly agree that science was important for the first three dimensions than for the '*Creation of new jobs*' (see Figure 3.8 below).
- 3.26 Of the social class groups surveyed, ABC1s were more likely than C2DEs to strongly agree (as well as to agree in total) that science was important in each of these areas. Older respondents aged 55+ were also slightly more likely than respondents aged 54 and under to strongly agree with every dimension.

**Figure 3.8: Perceived importance of science 2021 (%)**

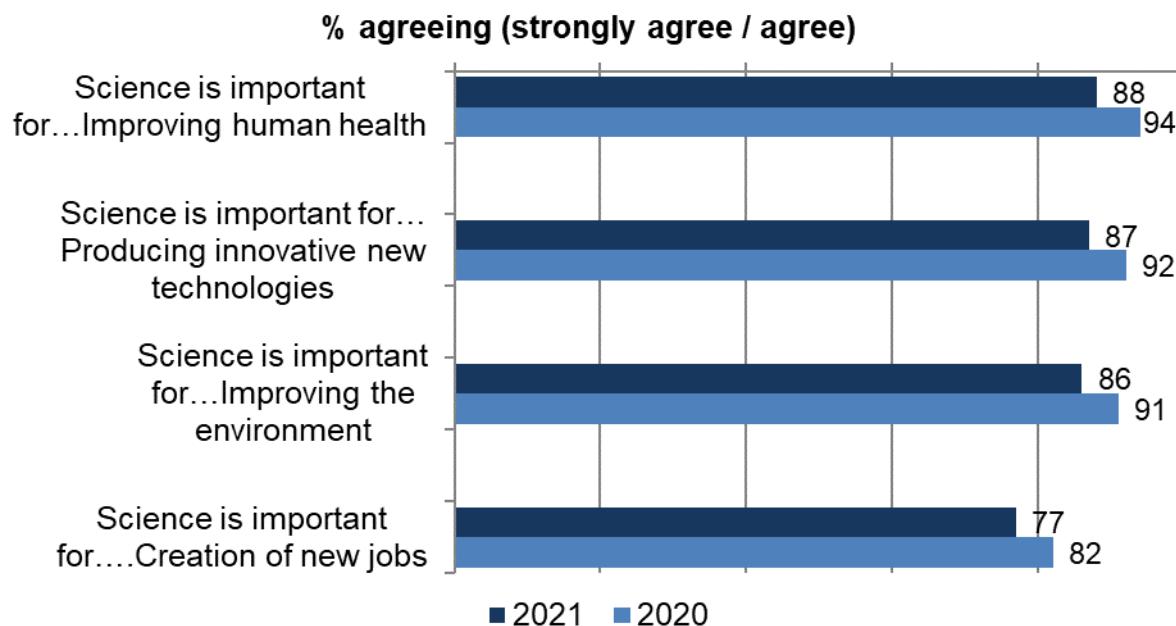


Base: all respondents (1,000)

- 3.27 Looking at results over time, the pattern of results in 2021 is unchanged from 2020 and endorsement remains high, but overall agreement levels have fallen back on each of the dimensions (see Figure 3.9 overleaf).
- 3.28 As with earlier measures, this is due to an increase in the proportion of respondents at the mid-point of the scale (answering 'neither agree nor

disagree'), likely to be a result of the change in methodology to an online self-completion survey.

**Figure 3.9: Perceived importance of science, 2021 cf. 2020 (%)**



Base: all respondents (2021 – 1,000; 2020 - 713)

#### Interest in seeing more public scientific information on certain topics

- 3.29 A new question was added to the 2021 survey which asked participants how interested they would be in seeing more public scientific information on a range of different topics. They were able to give a response between 1 to 10, where 1 was not at all interested and 10 was very interested. The mean scores for each dimension (excluding any 'don't know' responses) have been calculated and are shown in Table 3.1 overleaf. The red text highlights which age group had the highest mean score for each topic (out of the three age groups: 16-34, 35-54 and 55+).
  
- 3.30 Interest was high amongst respondents in receiving more public scientific information on all the topics presented, with the highest mean scores (8 out of 10) for '*Renewable energy*' and '*Cancer*' and the lowest scores (but still of almost 7 out of 10) for '*Artificial intelligence*' and '*Genetically modified food*'.

- 3.31 Interest in more information about '*Renewable energy*' was high across respondents in all age groups, but differences were evident on other topics. Younger respondents aged 16-34 were most likely to be interested in scientific information about the topics of '*Mental health*', '*Climate change*', '*Decarbonisation*', '*Obesity*', '*Genetically modified food*' and '*Artificial intelligence*'. Older respondents aged 55 and over, in contrast, were most likely to be interested in scientific information about health topics such as '*Cancer*', '*Heart disease*', '*COVID-19*' and '*Stroke*'.
- 3.32 Those surveyed in the ABC1 socioeconomic groups were more interested in receiving public scientific information on every topic than those in the C2DE groups.

**Table 3.1: How interested would you be in seeing more public scientific information on each of the following?**

Bases:	Mean score*			
	Total 1,000	16-34 342	35-54 338	55+ 320
Renewable energy	8.01	7.92	<b>8.05</b>	<b>8.05</b>
Cancer	8.00	7.93	7.90	<b>8.13</b>
Mental health	7.87	<b>8.31</b>	7.94	7.49
Environmental pollution	7.87	<b>7.91</b>	7.85	7.85
Climate change	7.84	<b>8.01</b>	7.80	7.75
Heart disease	7.76	7.57	7.76	<b>7.91</b>
Decarbonisation (e.g. reducing greenhouse gases that cause global warming)	7.67	<b>7.71</b>	7.60	7.68
COVID-19	7.65	7.57	7.53	<b>7.82</b>
Stroke	7.54	7.51	7.46	<b>7.64</b>
Ageing society	7.29	7.13	7.17	<b>7.51</b>
Obesity	7.12	<b>7.43</b>	7.10	6.90
Genetically modified food	6.91	<b>7.30</b>	6.74	6.76
Artificial intelligence	6.81	<b>7.22</b>	6.79	6.50

\* Mean score scale: Very interested = 10, Not at all interested = 1; excludes 'don't knows'

### Impact of COVID-19 pandemic on opinions of science

- 3.33 Another new question added in 2021 examined whether the public who were surveyed were more or less likely to agree with certain statements about science as a result of the COVID-19 pandemic or whether their opinion was

unchanged. The response options available were ‘*much more likely to agree*’, ‘*a little more likely to agree*’, ‘*my opinion hasn’t changed*’, ‘*a little less likely to agree*’ and ‘*a lot less likely to agree*’.

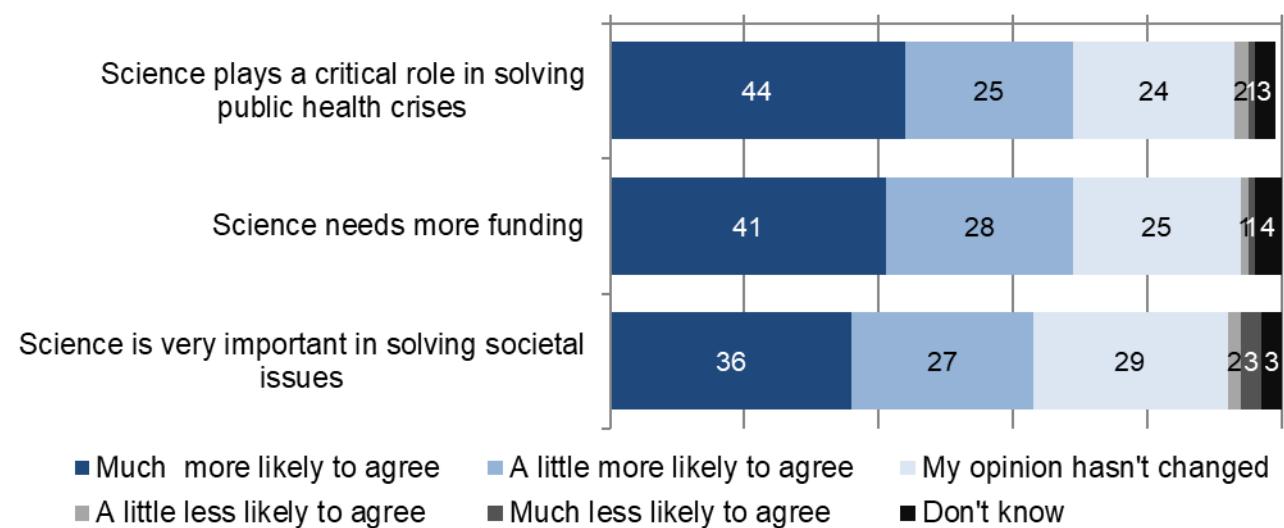
3.34 The overall impact of COVID-19 on public opinions of science appears to be positive, responses from the sample surveyed indicate that:

- Almost seven in ten of those interviewed (69%) said they were more likely to agree that ‘*Science plays a critical role in solving public health crises*’ because of their experience of the COVID-19 pandemic.
- The same proportion (69%) felt they were now more likely to agree that ‘*Science needs more funding*’.
- Lastly, over six in ten (63%) said they were more likely as a result of COVID-19 to agree that ‘*Science is very important in solving societal issues*’.

3.35 The proportions saying that they were less likely to agree with any of the statements as a result of the COVID-19 pandemic were very small; sizeable proportions (between 24% - 29%) said their opinion had not changed, however (see Figure 3.10 overleaf).

3.36 Respondents in the ABC1 socioeconomic groups were more likely than those in the C2DE groups to say that COVID-19 had made them more likely to agree with each of the statements about science.

**Figure 3.10: Whether more or less likely to agree with statements about science as a result of COVID-19 pandemic - 2021 (%)<sup>9</sup>**



Base: all respondents (1,000)

- 3.37 This gives an indication of the changes in attitudes towards science as a result of the COVID-19 pandemic, but these findings should be treated carefully as this question asked participants to compare their current views retrospectively with their views before the COVID-19 pandemic.

### Sources of information used for science and research

- 3.38 The last question in the survey examined different channels used by the public surveyed for information about science and research and the frequency of use of each for this purpose. Respondents were presented with a list of possible channels of information and were asked how often they used each, if at all, for information about science and research<sup>10</sup>.
- 3.39 The most commonly used information sources were general news websites and public TV and radio, which almost eight in ten Welsh adults (79% and 78%) said they ever used for information about science and research. 34% of participants said they used general websites frequently for such information

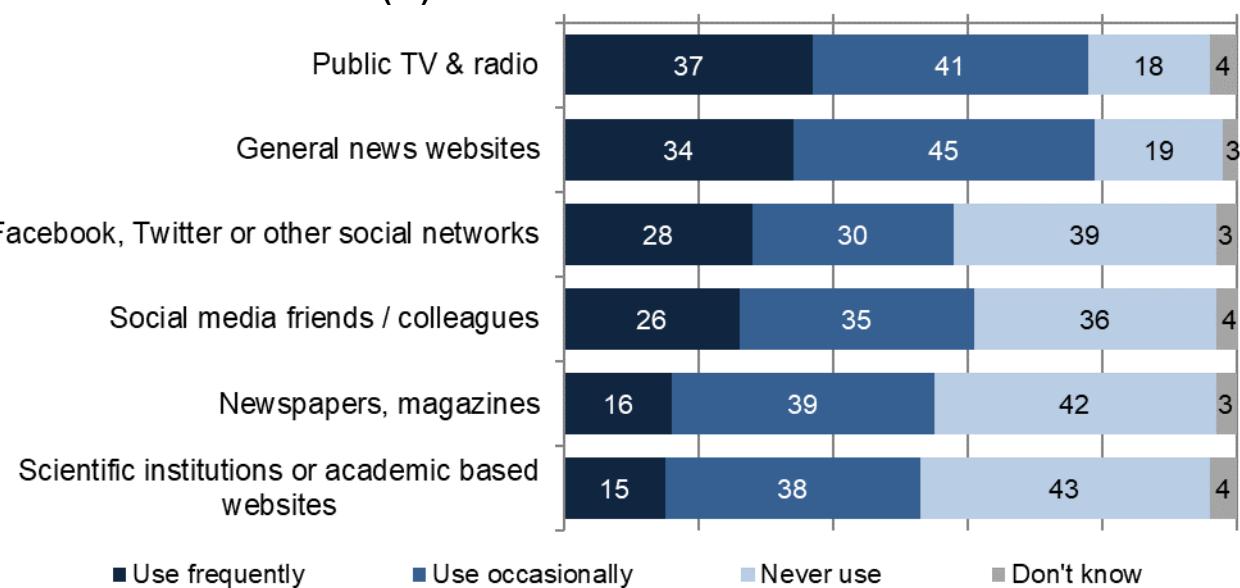
<sup>9</sup> Figures may not add to 100% due to rounding

<sup>10</sup> It is possible there may be some misattribution here because of the way the question was worded. Some respondents may have answered on the basis of how often they used each channel per se, rather than used specifically for information about science and research.

and 45% occasionally, while the corresponding figures for TV and radio were 37% frequently and 41% occasionally (see Figure 3.11 overleaf).

- 3.40 Around six in ten adults surveyed said they obtained information about science and research from social media friends / colleagues<sup>11</sup> and from Facebook, Twitter or other social networks (at 61% and 58% respectively). Around one in four said they used each of these channels frequently for this purpose (at 26% and 28% of each). Just over half those interviewed said they used newspapers and magazines, and scientific institutions or academic based websites as sources for information about science and research (at 55% and 53% respectively). In each case around one in six (16% and 15%) said they used this source frequently for such information.
- 3.41 Other sources mentioned unprompted by small proportions of people surveyed were journals (2%), Google / search engines (2%), family / friends, and university (at 1% each).

**Figure 3.11: Frequency of use of different sources for information about science and research 2021 (%)<sup>12</sup>**



Base: all respondents (1,000)

<sup>11</sup> This was intended to include social media posts, status updates or articles/stories shared by a connection on social media that is reciprocal. Note: this definition was not shared with respondents so we can not be sure respondents interpreted it in this way.

<sup>12</sup> Figures may not add to 100% due to rounding

## **4. Conclusions**

- 4.1 The 2021 survey demonstrates that public attitudes to science in Wales are generally positive, as indicated by responses by the sample of the population surveyed. As in 2020, statements which positively associated science with increasing economic prosperity and addressing societal challenges had the highest level of agreement. There is also strong support for providing future generations with a good scientific education.
- 4.2 What's more, the COVID-19 pandemic appears to have increased the public's favourability towards science. Most of those interviewed said they were now more likely to agree that '*Science plays a critical role in solving public health crises*' and that '*Science is very important in solving societal issues*' due to their experience of the public health crisis.
- 4.3 While most of the public surveyed in 2020 felt that the Welsh Government should invest more in science research, innovation and education (and continued to do so in 2021), almost seven in ten of those interviewed in 2021 said they were now more likely to agree that '*Science needs more funding*' as a result of the COVID-19 pandemic.
- 4.4 The study suggests there is growing interest among the public in learning more about science. Agreement with the statement '*I would like to know more about science*' increased from 52% in 2020 to 61% in 2021. This was against the normal pattern of results, which saw agreement fall back from 2020 on most measures, as a result of the different data collection methodology used in the 2021 survey.
- 4.5 Moreover, interest was high in seeing more public scientific information on a wide range of topics amongst the public surveyed. Interest was particularly high in the topics of '*Renewable energy*' and '*Cancer*' across all age groups surveyed. Older respondents (aged 55 and over) were most likely to be interested in scientific information on health topics such as '*Cancer*' and '*Heart disease*', while younger respondents (aged 16-34) were most likely to be interested in '*Mental health*' and '*Climate change*'.

- 4.6 The survey indicates that certain groups within the population surveyed have more favourable opinions of science and technology and feel more knowledgeable about the subject than others. Of the population surveyed, men, those with a higher level of education and those in the upper ABC1 socioeconomic groups tended to be in greater agreement with the positive statements relating to science than was the case with women surveyed, respondents without degrees and respondents in the less affluent C2DE socioeconomic groups. Older respondents aged 55 and over were also generally more likely to hold favourable views about science than younger people. In contrast, women surveyed and respondents in the C2DE socioeconomic groups were most likely to agree they '*do not feel well informed about science*'.
- 4.7 This suggests that future Welsh Government communications and resources about the importance of science and scientific research should be targeted at women, younger people, those without university educations and those in the C2DE socioeconomic groups. Naturally any information would need to be worded and presented in an appropriate, user-friendly way for each group and to use the most effective communication channels to reach each group.

## Annex A – Survey Questionnaire

### B02110-4 Perceptions of Science Survey 2021 FINAL

- 1) The following are some statements about science and technology. Please indicate how much you agree or disagree with them. For these statements there is no right or wrong answer, we are just interested in your opinion. (randomised)

<b>Science and technology are important for addressing key challenges affecting society</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Young people's interest in science and technology is essential for Wales' future prosperity</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>I do not feel well informed about science</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>All citizens should have a good understanding of science</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>I would like to know more about science</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Science communication is important for the public</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree

- 2) Here are some statements about science and technology. Please indicate how much you agree or disagree with them. For these statements there is no right or wrong answer, we are just interested in your opinion. (randomised)

<b>Science and technology graduates are important for economic and social prosperity</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Scientific research contributes to the health and well-being of society</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree

<b>Research from the social sciences* are increasingly important</b> <i>Social science is the study of society and the way people behave. It can help explain how society works - from the causes of unemployment or what helps economic growth, to how and why people vote, or what makes people happy. It provides vital information for governments, policymakers and others.</i>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Growing science in Wales is essential for future prosperity</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Science is not as important when addressing challenges affecting society</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree
<b>Scientific advice should be used to inform all parts of government policy and decision making</b>	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly disagree

**3) Do you think the Welsh Government should invest more in science research, innovation and education?**

- i) Don't Know/Neutral
- ii) Yes
- iii) No

**ASK IF YES OR NO AT Q3**

**4) Why do you say that?**

WRITE IN

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**5) Do you think that providing future generations with a good scientific education is...? (invert)**

- i) Very important
  - ii) Somewhat important
  - iii) Neither important nor unimportant
  - iv) Somewhat unimportant
  - v) Very unimportant
-

**6) To what extent do you agree or disagree with the following statements:  
Science is important for... (randomised)**

Improving human health	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Improving the environment	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Creation of new jobs	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Producing innovative new technologies	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree

**7) On a scale of 1 to 10, how interested would you be in seeing more public scientific information on each of the following?  
(order of items to be randomised and scale will be inverted)**

	10 - Very interested	9	8	7	6	5	4	3	2	1 – Not at all interested
Cancer										
Decarbonisation (e.g. reducing greenhouse gases that cause global warming)										
Covid-19										
Stroke										
Climate change										
Heart disease										
Mental health										
Obesity										
Environmental pollution										
Renewable energy										
Genetically modified food										
Renewable Energy										
Artificial intelligence										
Ageing society										

**8) As a result of the COVID-19 pandemic, are you now more or less likely to agree with the following statements, or has your opinion remained unchanged? (randomised)**

	Much more likely to agree	A little more likely to agree	My opinion hasn't changed	A little less likely to agree	Much less likely to agree
a) Science plays a critical role in solving public health crises	1	2	3	4	5
b) Science needs more funding	1	2	3	4	5
c) Science is very important in solving societal issues	1	2	3	4	5

**9) Please tell us how often you use each of these sources for information about science and research?**

- a. Public TV & Radio
- b. Newspapers, magazines
- c. General news websites
- d. Scientific institutions or academic based websites
- e. Facebook, Twitter or other social networks
- f. Social media friends / colleagues
- g. Other – free text insert

Scale for each: Use frequently / Use occasionally / Never use / Don't know