YouthInsight
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2024 STEM Influencer Report – Parents

Prepared by YouthInsight for the
Department of Industry, Science and Resources

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Contents

Notes on interpreting the report

Significant differences – Differences between demographic groups cited in the report refer to statistically significant differences based on a 95% confidence interval. Charts in this report show statistically significant differences between subgroups using black or white arrows alongside the percentage results. If a difference is described as indicative, the difference is not statistically significant.

Weighted data and rounding – To ensure the survey results are representative of the population, weighting was applied to correct for under or over representation of the sample. Where the weighted population or proportions do not add up to 100%, this is due to rounding of decimal places up or down to the nearest whole number.

Multiple choice questions (MC) – Multiple choice questions will not add to 100% as respondents could select more than one answer. All multiple-choice questions have been labelled within the question text as MC.

Wave – When a survey is repeated multiple times, each occurrence is called a wave. The waves of this research are as follows:

- 2020 – wave 1
- 2022 – wave 2
- 2024 – wave 3

Parents – References to parents refer to the combination of all parents, legal guardians and carers of the child in question. References to fathers refer to parents, legal guardians and carers who have identified as men, while mothers are the parents, legal guardians and carers who have identified as women.

Child – Survey respondents were asked to answer the questions based on their oldest child who is currently either in primary or secondary school. A small subset of parents with children in higher education were also included. This approach was taken with the objective of setting a consistent randomised method of selecting a child. Also, by referring to the oldest child, we know the upper limit of the parents' experiences with the education system which is likely to highly influence their responses to the survey.

Non-binary respondents – Data was collected from respondents who did not identify with binary genders and also from parents who had children who did not identify with binary genders. While these respondents make up the overall sample size, due to low numbers, this report excludes any analysis based on these respondents.

CALD – People have been classified as CALD (Culturally and Linguistically Diverse) if they speak a language other than English at home.

Location / area – When we refer to location or metropolitan vs regional areas, we are referring to the location of the oldest child's school, not the home location of the parent.

Socioeconomic status – Low or high socioeconomic status (SES) has been determined by using the Australian Bureau of Statistics Socio-Economic Indexes for Areas (SEIFA) which ranks areas in Australia according to relative socioeconomic advantage and disadvantage into deciles. The indexes

are based on information from the five-yearly census. This survey employs the Index of Education and Occupation (IEO). Postcodes supplied by respondents have been mapped to the corresponding IEO decile. This report has grouped deciles one to five and classified this group as low SES and deciles six to ten as high SES.

STEM classifications: Below is a list outlining how STEM has been classified in this research report.

- **STEM definition in the context of this report:** STEM stands for science, technology, engineering and mathematics. In this survey, science refers to topics such as biology, chemistry, physics, and earth and environmental sciences. It does not include medicine, nursing, psychology or health sciences.
- **Technology** refers to topics related to information technology and programming, mechanics, electronics, and all other types of technology. Some technology courses could also be called engineering. There are many types of engineering, like aerospace and environmental engineering, and many types of mathematics, such as geometry, logic and statistics.
- **STEM subjects at primary school:** mathematics, science, technologies.
- **STEM subjects at secondary school:**
    - **General STEM subjects:** mathematics, biology, chemistry, earth and environmental science, physics, geography, design and technologies and digital technologies.
    - **Year 9-10 elective STEM subjects:** geography elective, agricultural technology, design and technology, food technology, graphics technology, industrial technology, information and software technology.
    - **Year 11-12 elective STEM subjects:** agriculture, biology, chemical world science, chemistry, computing applications, design and technology, earth and environmental science, earth and space science, electrotechnology (VET), engineering studies, geography, human society and its environment, industrial technology, information and digital technology (VET), information processes and technology, investigating science, living world science, marine studies, mathematics, mathematics advanced, mathematics extension, metal and engineering (VET), physical world science life skills, physics, science extension, software design and development.
- **STEM subjects at higher education:** agriculture, computing and information technology, engineering and technology, environmental studies, mathematics, biology, chemistry, physics, earth and environmental sciences.
- **STEM qualifications:** computing or information technology (IT), data analyst, engineering, mathematics, science.
- **STEM jobs / careers:**
    - **Qualifying jobs / careers:** computing or information technology (IT), data analysis, engineer, mathematician, scientist.
    - **Potential qualifying jobs / careers, depending on specific role:** entrepreneur, machinery operator or driver, professor, lecturer or teacher, public servant (includes Army, Airforce, Navy), technician or trade worker (mechanic, electrician, carpenter).

Executive summary

Building on from the Youth in STEM research tracking study, the Department of Industry, Science, and Resources has expanded the research to incorporate key influencers: parents, teachers and career advisors. These audience segments have been identified as key influencers of young people's choices when it comes to education and career selection. Understanding the perceptions and attitudes to STEM among these influencers can assist families, educators and policy makers in supporting girls to persist in STEM education and consider future STEM-related careers. This is the third wave of the influencer survey (i.e. the third time this survey has been conducted, after 2020 and 2022).

Separate online surveys were conducted among parents and educators (including teachers and career advisors) from August to October 2024 and reached a representative sample of 1,500 parents and 801 educators across the country. Respondents were sourced via an online panel and through a direct partnership with Education Services Australia. This report outlines the detailed findings from the parents' research in 2024 and compares with the previous waves (wave 1 in 2020 and wave 2 in 2022).

The survey found that parents' influence begins with the example set by their own employment and education circumstances. Beginning with employment, the survey revealed a disproportionately higher number of fathers to be in full-time work compared to mothers, who were more likely to be at-home parents. Similarly, a significantly higher proportion of fathers reported having higher education qualifications and when it came to STEM, the gap stretched even wider, with fathers being significantly more likely to have a STEM qualification compared to mothers.

As the number one influencer group for young people regarding education and career decisions, this foundational example of gender bias in STEM sets the theme around many of the findings in this study.

In addition, a new question was added for wave 3 in order to understand the perceived impact of AI on future careers and whether or not parents have spoken with, or plan to speak to, their children about the impact of AI on jobs.

The insights revealed in this report align closely to the findings uncovered in the Youth in STEM research and add an indispensable perspective of the young people's main influencer group. The insights help us understand the reasons behind some of the perceptions and attitudes of young people towards STEM. While the study is vastly detailed, this report focuses on a set of key metrics used to evaluate parents' understanding, attitudes and perceptions of STEM.

A summary of the findings for each of these key metrics is outlined below.

Summary of findings

The results presented in this section summarise key insights and differences between research waves. Arrows represent significant differences in comparison to the previous wave. between the current and previous wave.

Table 1: Key metrics across waves 1, 2 and 3.

Key metric	Wave 1	Wave 2	Wave 3
Awareness of STEM acronym	52%	▲61%	63%
Interest in STEM (in general)	78%	80%	77%
Perceived importance of STEM for future employment	86%	▼81%	▲84%
Expectation of child to pursue STEM	48%	45%	46%
Confidence in supporting child with STEM schoolwork	76%	78%	76%
Participation in STEM events / activities	50%	▲60%	▼55%

STEM awareness and understanding

The 2024 parent survey again sought to ascertain parents' understanding of STEM by determining whether respondents could identify the four subjects of the STEM acronym. The survey found that almost two in three parents (63%) were able to correctly identify all subjects, in line with the previous wave. A significantly lower proportion of Aboriginal and / or Torres Strait Islander parents (42%) correctly identified all four STEM subjects, also consistent with the previous wave.

The survey also tested parents' understanding of the types of jobs available for people with STEM qualifications. Positively, only one in ten reported that they didn't know what jobs were available. While the variation of responses was broad, engineer was the profession most highly associated with STEM, followed by scientist, teacher / lecturer / professor, and information technology.

Interestingly, among those who provided incorrect responses when asked to identify the subjects that make up the STEM acronym, engineering was the subject that caused most confusion. As per the previous wave, these results again indicate that while both parents and young people understand the connection between STEM skills and the engineering career, the actual understanding of what the STEM acronym stands for is less clear.

Life skills associated with STEM education

Parents were asked, unprompted, what broader life skills they believe STEM education provides to children. They were able to give up to five open-ended responses. While a few skills were mentioned much more frequently than others (i.e. problem solving, IT, critical thinking skills) overall, the range of responses to this question was very broad and with a long tail.

Only 12% percent of parents were unable to name *any* broader life skills associated with STEM education. These parents were more likely to be parents from regional and/or remote areas, lower SES areas, and those from non-CALD backgrounds.

Parents' interest in STEM

Consistent with last wave, three quarters of parents say they have a medium to high interest in STEM in general (77%). This was led by interest in technology (78%) and science (75%), followed by engineering (62%) and mathematics (58%). These results mean a third of all parents reported low or no interest in mathematics or engineering. This wave the data showed a significant decline in parents' interest in mathematics and engineering.

Fathers are more likely to be interested in STEM, with 84% saying they have a general interest in this area compared to 70% of mothers. This wave the data shows a significant decline in interest in mathematics among both mothers and fathers, plus a significant decline in interest in engineering among mothers.

Perceived importance of STEM for future employment

Parents generally have positive attitudes regarding the impact of STEM education on future employment and the economy. Consistent with results in previous waves, nine out of ten parents (91%) agree that a workforce with STEM skills is important for the Australian economy, and a similar proportion agree that most jobs will require a basic understanding of mathematics and science in the future (86%).

Unlike in wave 2, there were very few gender differences between fathers and mothers. The only significant difference was that fathers were more likely to agree that compared to other countries, Australia is doing a good job at teaching STEM, driven by a higher proportion of mothers who are unsure about this.

Like other parents surveyed, Aboriginal and / or Torres Strait Islander parents believe that STEM skills are important for their children to acquire a good job in the future. They are even more likely than other parents surveyed to agree that we need more emphasis on STEM education from an early age.

Parents' expectations

Parent's expectations of employment for their children further highlight the importance of studying STEM. One in five parents state they have no preference for the type of career their child pursues, a figure which has increased since wave 2. Overall, just fewer than half of parents would like their child to pursue a career in a STEM-related field. The career most sought out by parents for their children is within the field of computing / information technology, followed by engineering and medical doctor.

While this wave there are more parents saying they have no preference, we saw declines in preferences for their child to pursue being an architect, being a banker or working in finance and being an entrepreneur.

Consistent with the previous waves, preference for a STEM-related career is more common among fathers compared to mothers. The survey also found that parents of boys are more likely to want their child to pursue a STEM career compared to parents of girls.

Parents' confidence in supporting children with STEM schoolwork

The ability to support children with STEM related schoolwork continues to be a challenge for some parents. Three quarters of parents have some level of confidence to support their children with STEM-related schoolwork, however only one quarter of parents regard themselves as highly confident. Parents feel most confident in supporting their children with technology, science, and mathematics with a higher proportion of fathers claiming to be confident in supporting their children with STEM schoolwork compared to mothers.

The subject which parents feel least confident about is engineering, with almost half acknowledging they have low or no confidence in this area, but fathers feeling more confident than mothers.

The results also revealed that the age of the child plays a key role in the level of confidence parents have in supporting their children with STEM. Parents of children in years one to six reported the highest levels of confidence across all subjects compared to parents of secondary school and higher education, but only significantly higher when it comes to technology support.

Aboriginal and / or Torres Strait Islander parents reported slightly lower levels of confidence in supporting their child with homework / projects in science and mathematics, but slightly higher levels of confidence with technology and engineering.

Gender bias

The survey continues to shine a light on some complex gender biases among parents with regards to STEM careers and study. Consistent with the previous waves, results continue to show that half of parents agree that it is easier to engage boys with STEM compared to girls.

The majority of parents believe boys and girls are equally confident in STEM. However, when analysing individual subjects and the proportion of parents who believe there are differences in confidence levels between boys and girls, gender biases are clear.

The results confirm that parents' perceptions are aligned with those of young people, with a larger proportion believing that boys are more confident across all STEM subjects. Engineering recorded the largest gender skew, with three in five parents saying that boys are more confident in the subject compared to only 2% saying that girls are more confident. This gender skew is even stronger compared to wave 2, with parents feeling boys are suited to STEM subjects and girls to non-STEM subjects more than we have previously recorded.

Science was the most gender-neutral subject, with two thirds of parents saying that boys and girls are equally confident in the subject. However, there was still some gender bias, with a quarter saying that boys are more confident compared to only 8% saying that girls are more confident. However,

unlike in wave 2, this gender skew in perceived confidence in STEM towards boys was more evident among fathers, particularly for technology.

However, while clear gender biases are present in terms of parents' perceptions of engagement with STEM, the research also revealed that more than half of all parents do not believe gender plays any role in determining success in a STEM career. In addition, 7 in 10 parents disagree that boys are better suited to STEM careers than girls.

Parent and child interactions

When it comes to engagement, 86% of report having conversations with their children regarding STEM, significantly fewer than in wave 2 (89%). Only 2 in 5 (38%) parents report reported having discussions around STEM topics with their children at least once per week, significantly less frequently than in previous waves. Only 14% of parents say that they do not discuss STEM with their child at all, however this has increased since wave 2 (from 11%).

These conversations are most likely to relate to topics of interest to the child, how things work or are made, applying maths/real word equations, or technology e.g. computers, coding.

While there is no significant difference in the proportion of mothers vs fathers having conversations with their children about STEM (unlike in wave 2, where mothers were more likely), mothers and fathers tend to differ in terms of what they are having conversations about. Mothers are more likely to be discussing topics of interest to the child, how things work or are made, applying maths in the real world / doing equations and the environment / nature. On the other hand, fathers are more likely to talk to their children about STEM subjects at further education (e.g. university).

Both mothers and fathers have conversations with their children regarding technology such as computers and coding. These conversations are more likely to occur with parents of boys compared to parents of girls.

Generally, broader STEM related conversations are more likely to happen with primary school aged children than secondary school aged children, while parents of secondary school children are more likely to speak to them about STEM assignments, careers and further education.

Down from wave 2, just over half (55%) of parents surveyed reported participating in a STEM-related activity with their child in the past 12 months. Going to a science museum and watching a documentary were found to be the most common activities. The decline since wave 2 is driven by slightly fewer parents engaging with a variety of activities.

School perceptions

Consistent with the wave 1 findings, the media continues to play a big role in how STEM is portrayed to young people and according to 86% of parents it is generally presented in a positive manner. Three in five parents agree that there is a lack of women role models in STEM. Almost three quarters (73%) disagree that there is too much emphasis on getting girls into STEM – a view more common among mothers than fathers.

Just under half of parents (44%) agreed their child's school places a lot or quite a bit of emphasis on the teaching of STEM, down from the previous wave. Fathers were more likely than mothers to feel that their child's school places a lot or quite a bit of emphasis on the teaching of STEM. A perceived emphasis on STEM within the school was also higher in metropolitan schools than regional or remote schools and those in high SES areas.

However, over half of parents said they want their school to be doing more when it comes to STEM and as seen in previous waves, this was highest among parents who say their school currently places a lot of emphasis on STEM education.

Thoughts and conversations about AI

Two new questions added for wave 3 sought to understand the influence of the recent advances in artificial intelligence (AI). First, we asked whether or not they, as parents, believe that generative AI tools will have a significant impact on work and careers in the future. Almost 9 in 10 (86%) said yes, reflecting a majority feeling that AI is going to have an impact on jobs.

The survey also asked whether parents had spoken to their child about AI or the impact on their future careers. A third (33%) had already spoken to their children about this, while a further 45% planned to speak to them about this, adding to a total of 8 in 10 (78%).

Mothers were more unsure about whether they would speak to their children about this than fathers. Parents of children in secondary school, those in metro areas, those in higher SES areas and CALD parents were more likely than their counterparts to have spoken to their children about AI or its impact on jobs.

In conclusion

The insights presented in this report continue to track the nuanced perspectives of this key influencer group. The research provides the information necessary for policy makers to take a data driven approach in addressing the gender imbalance existent in STEM education and related careers. This research along with the Teachers & Careers Advisors research has also complemented the insights uncovered through the Youth in STEM study, providing much-needed context around young people's perceptions of STEM.

The Department will continue tracking key measures around STEM from both young people and their key influencers. The next round of research will be conducted in 2025 and will be the fifth wave of the Youth in STEM research.

Project background

Background

Building on from the Youth in STEM research, which was first commissioned for the STEM Equity Monitor in 2018 the Department of Industry, Science and Resources (DISR) has continued the collection and reporting of attitudes and perceptions of young Australians towards STEM. The objective of the research is to understand more about the perceptions of young Australians (12 to 25-year-olds) towards STEM skills and careers, particularly those of girls (women).

With the previous Youth in STEM research showing that girls' perceptions of, and engagement with, STEM are strongly influenced by parents, teachers and career advisors, DISR decided to expand the Youth in STEM research to provide insights into the attitudes and perceptions of these key influencer groups. From 2020 onwards, the Youth in STEM research have been tracking both the 12 to 25 year-old group of young people and the influencer group of parents and educators. Each survey is conducted biennially as below, with results released early the following year:

- 2018: People aged 12-25
- 2019: People aged 12-25
- 2020: Parents
- 2020: Teachers & Career Advisors
- 2021: People aged 12-25
- 2022: Parents
- 2022: Teachers & Career Advisors
- 2023: People aged 12-25
- 2024: Parents (current report)
- 2024: Teachers & Career Advisors (separate report)

The studies focus on any differences and similarities in data outcomes based on gender, as well as investigating the intersection of other demographics which may further influence STEM engagement and participation.

Given the substantial differences between the experiences and perspectives of parents and educators, the research was split into two surveys to enable more customisation of the questionnaire and to establish the key metrics by which to track these influencer cohorts.

This is the third wave of the Parents report. Key differences between the insights from this report and the Parents 2022 (wave 2) report have been noted.

Objectives

The principal objective of this study is to establish awareness and perceptions of STEM held by parents of young Australians and the influence they have over their children in deciding future education and career paths. The underlying theme of the research is to uncover key gender differences.

More specifically, the study aims to:

- Understand levels of awareness and understanding of STEM and associated skills among parents

- Evaluate key metrics such as interest, confidence to support children in STEM and perceived importance of STEM
- Understand parents' general attitudes towards STEM education and careers
- Assess difference in perceptions among a range of parent groups
- Understand behaviours which impact student disposition towards STEM
- Uncover gender biases in parents' perceptions.
- This wave, we have also included questions on the perceived impact of generative artificial intelligence (AI) on work and careers, and whether or not this is something parents speak to their children about.

Methodology

YouthInsight conducted a 20-minute online survey among a representative sample of parents of young people currently studying in Australia. Parents completed the survey via computer, tablet or mobile phone.

Sampling

The total unweighted sample for the parent survey in wave 3 was 1,500. YouthInsight collaborated with a professional online panel partner to obtain a nationally representative sample of Australian parents of young students. The sample was balanced to ensure it had representation of parents of children in primary and secondary schools and a smaller proportion of parents of students currently in higher education.

Sample quotas were placed on state, gender and school type (Government, Catholic, Independent and other). Sample sizes were boosted beyond general population levels for Aboriginal and / or Torres Strait Islander parents.

To ensure survey results were representative of the population, weighting was applied based on state and gender to correct for under or over representation of the sample for these variables.

We also weighted parent STEM background (education and employment) to ensure it was consistent across both waves. Proportions of parents with STEM backgrounds were also compared against the 2021 Census of Population and Housing as an external source, but no changes in weighting were applied based on this. In the Parents Survey, 26% of parents had STEM qualifications, compared to 25% in Census. However, in the Parents Survey, 21% of parents had STEM occupations, compared to 12% in Census. Note there is a difference in scope/definition of 'parent'. This survey includes parents of 12-25 year old children only, whereas Census includes parents of all ages of children, where the parent and child usually reside in the same household.

To determine socioeconomic status, the survey used Socio-Economic Indexes for Areas (SEIFA) developed by the Australian Bureau of Statistics (ABS). SEIFA ranks areas in Australia into ten equally sized groups according to relative socioeconomic advantage and disadvantage. These are known as socioeconomic deciles. The indexes are based on information from the five-yearly Census of Population and Housing. The data captured in the survey has been mapped to the Index of Education and Occupation (IEO).

Below are the summary tables of the unweighted sample and weighted population with applied weighting factors.

Table 2: Total unweighted sample and weighted population.

GENDER, AGE AND SCHOOL	UNWEIGHTED SAMPLE	UNWEIGHTED SAMPLE %	WEIGHTED POPULATION	WEIGHTED POPULATION %
Total	**1,500**	**100%**	**1,500**	**100%**
Parents' Gender				
Man	758	51%	748	50%
Woman	738	49%	748	50%
Other / non-binary	4	0%	4	0%
Gender of oldest child				
Boy	830	55%	830	55%
Girl	665	44%	665	44%
Non-binary / Other	5	0%	5	0
School type of oldest child (excludes higher education)				
Primary	560	39%	559	39%
Secondary	640	44%	647	45%
Combined (P-12) and other	240	17%	236	16%
School year level of oldest child				
Year 1 to 4	329	22%	329	22%
Year 5 to 6	273	18%	273	18%
Year 7 to 8	276	18%	276	18%
Year 9 to 10	293	20%	293	20%
Year 11 to 12	269	18%	269	18%
Higher education	60	4%	60	4%
School jurisdiction of oldest child (excludes higher education)				
Government	941	65%	944	65%
Catholic	298	21%	298	21%
Independent	173	12%	173	12%
Other	28	2%	28	2%

*Where weighted sample or proportions do not add up to 100%, this is due to rounding of decimal places up or down to the nearest whole number.

LOCATION AND SOCIOECONOMIC STATUS	UNWEIGHTED SAMPLE	UNWEIGHTED SAMPLE %	WEIGHTED POPULATION	WEIGHTED POPULATION%
State				
NSW	420	28%	482	32%
VIC	398	27%	390	26%
QLD	319	21%	299	20%
WA	152	10%	150	10%
SA	120	8%	105	7%
ACT	35	2%	30	2%
TAS	44	3%	30	2%
NT	12	1%	15	1%
Location of school				
Capital city / major metropolitan area	973	65%	979	65%
Regional or remote/rural	527	35%	521	35%
Socioeconomic status (SES)*				
Lower SES (Decile 1 - 5)	542	36%	533	36%
Higher SES (Decile 6 - 10)	948	63%	957	64%
Unknown	10	1%	0	0%

*Socioeconomic status (SES) - not all postcodes are available in the SEIFA index list.

PARENT / GUARDIAN BACKGROUND	UNWEIGHTED SAMPLE	UNWEIGHTED SAMPLE %	WEIGHTED POPULATION	WEIGHTED POPULATION %
Country of birth				
Australia	1,185	79%	1,177	78%
Other	315	21%	323	22%
Aboriginal and / or Torres Strait Islander origin				
Non-Aboriginal and / or Torres Strait Islander	1,419	95%	1,418	95%
Aboriginal and / or Torres Strait Islander	81	5%	82	5%
CALD status (Culturally and Linguistically Diverse)				
Non-CALD	1,190	79%	1,183	79%
CALD	310	21%	317	21%

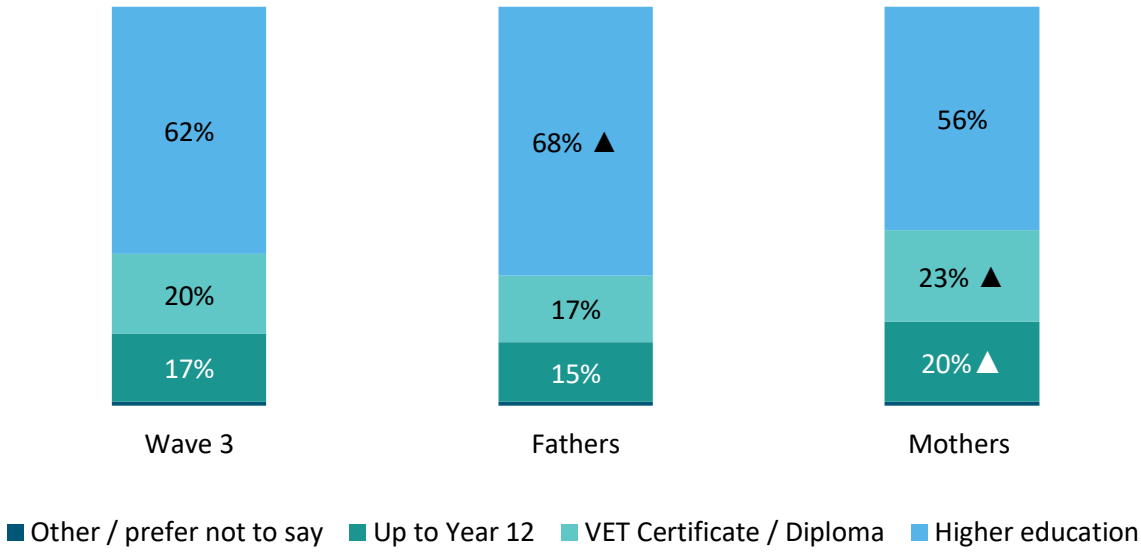
Parent profile

The influence parents have over their children's career decisions begins with the example set by their own employment and education situation. The survey revealed that 68% of fathers have higher education qualifications compared to 56% of mothers.

The survey also found that mothers were more likely to have a VET Certificate or Diploma compared to fathers (23% vs 17%, respectively).

Figure 1: Highest level of education.

Q. What's the highest level of education you have attained?



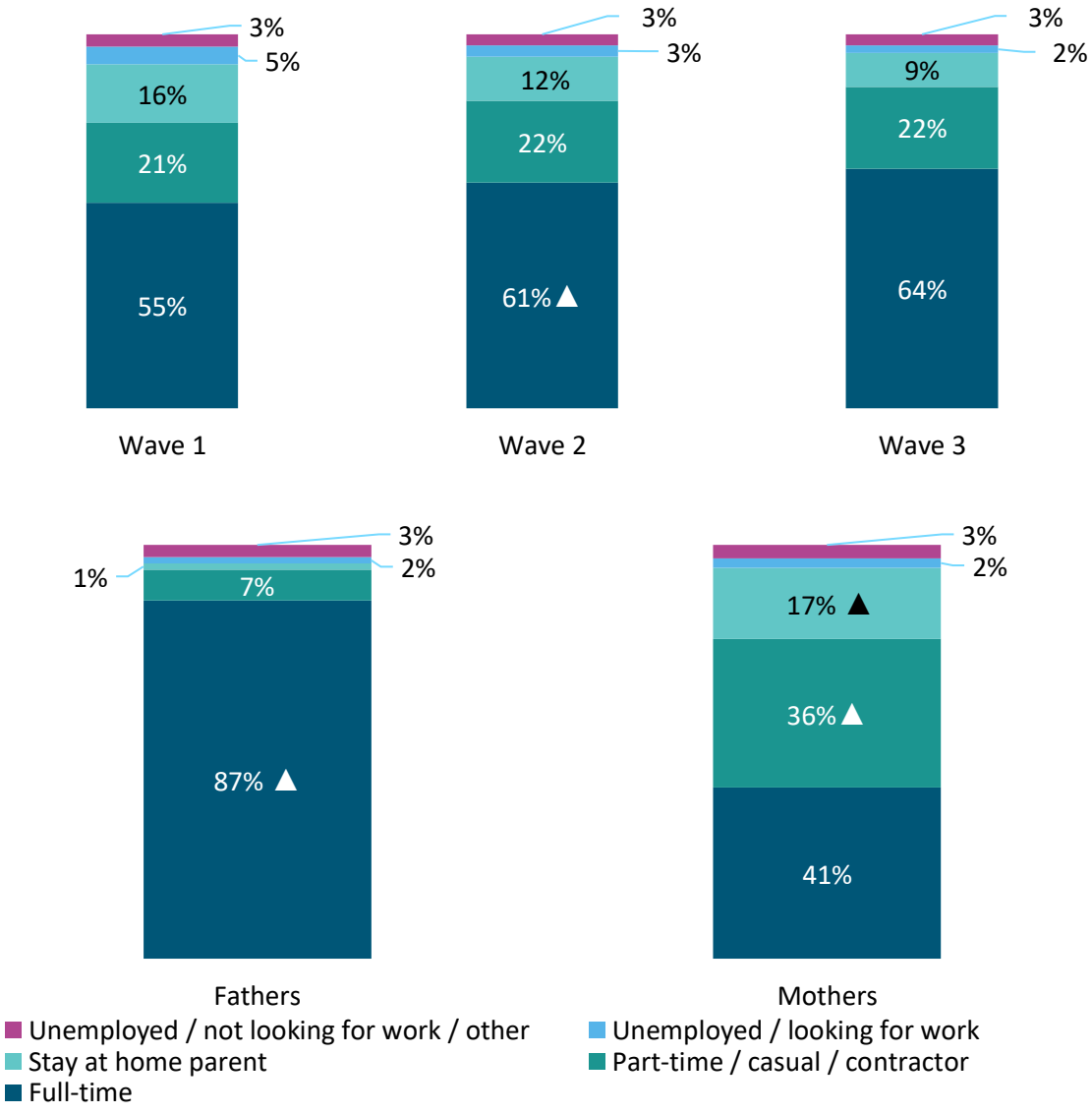
Base: unweighted total wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size). Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Consistent with previous waves, it was found that parents from metropolitan areas (70%) are more likely to have higher education qualifications compared to their regional or remote counterparts (47%). A similar trend is seen among parents from higher SES groups (70%) compared to those in lower SES groups (48%). Parents from CALD backgrounds (81%) are also more likely to have higher education qualifications compared to those from non-CALD backgrounds (57%).

This wave we observed a slightly higher proportion of parents in full-time work, up from 61% to 64%, continuing an upwards trend from 55% in wave 1. Furthermore, 87% of fathers reported being employed in full-time work compared to only 41% of mothers, who were significantly more likely to be full-time at-home parents compared to fathers (17% vs 1%). Overall, 94% of fathers were found to be employed compared to 77% of mothers.

Figure 2: Employment status.

Q. What is your employment status?



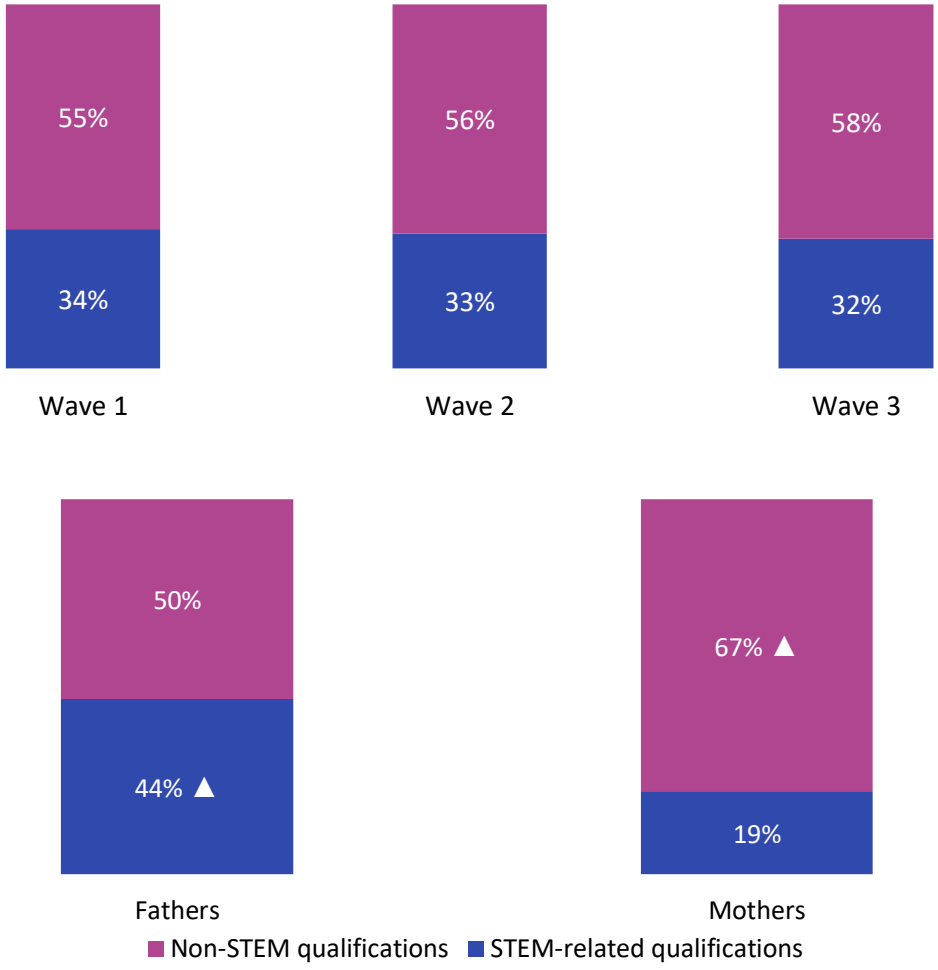
Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size). Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Despite this gender difference, there has been a significant increase in the proportion of mothers in employment this wave (77% up from 72%), while the data shows slightly fewer mothers reporting being stay at home parents (17% compared to 20%) or unemployed but looking for work (2% compared to 4%).

Among tertiary-qualified parents, it was found that fathers are significantly more likely to have STEM qualifications compared to mothers (44% vs 19%). This has the potential to influence children at a young age when it comes to gender affinities regarding STEM education.

Figure 3: Qualifications obtained (degree or certificate) among parents with tertiary qualifications.

Q. Have you or the child's other parent / primary carer (if applicable) completed a degree or certificate in any of the following areas? (MC)



Base: unweighted total with tertiary qualifications – wave 1 - 1,138, wave 2 – 1,168, wave 3 – 1,220, fathers – 636, mothers – 580 (non-binary parents not shown due to low base size – 4). Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number. Results shown are based on people who exclusively do not have STEM qualifications vs people who do, out of those who have tertiary qualifications.

Consistent with last wave, it was found that parents from metropolitan areas (37%) are more likely to have qualifications in STEM compared to their regional or remote counterparts (20%). A similar trend is seen among parents from higher SES groups (36%) compared to those in lower SES groups (23%). Parents from CALD backgrounds (41%) are also more likely to have STEM qualifications compared to those from non-CALD backgrounds (29%).

Parents were asked what they believe their child's favourite school subjects are, with the option of selecting up to three subjects. Among parents with primary school children, four in five (79%)

selected at least one STEM subject, consistent with last wave (82%). This was made up of 89% of parents of boys selecting a STEM subject, compared to 69% of parents of girls (down from 73% in wave 2). Mathematics ranked highest among parents of boys (61% vs 34% of parents of girls) while creative arts topped the list among parents of girls (61% vs 22% of parents of boys).

Similarly, among parents of secondary school students, 72% said their child's favourite subject was STEM related (no change from last wave, 70%). Four in five (79%) parents of boys selected at least one STEM subject as one of their child's top three subjects compared to 62% of parents of girls. According to parents of girls, the top subject was English (36% vs 17% of parents of boys). Mathematics topped the list among parents of boys, (40% of parents of boys vs 22% of parents of girls).

Furthermore, primary school students from families where at least one of the parents works in a STEM-related career are more likely to favour STEM subjects compared to families where neither of the parents work in STEM (88% vs 77%). Similar results are seen among secondary school students, where the likelihood that a student's favourite subject is related to STEM is higher if the parents work in this field (87% vs 68%).

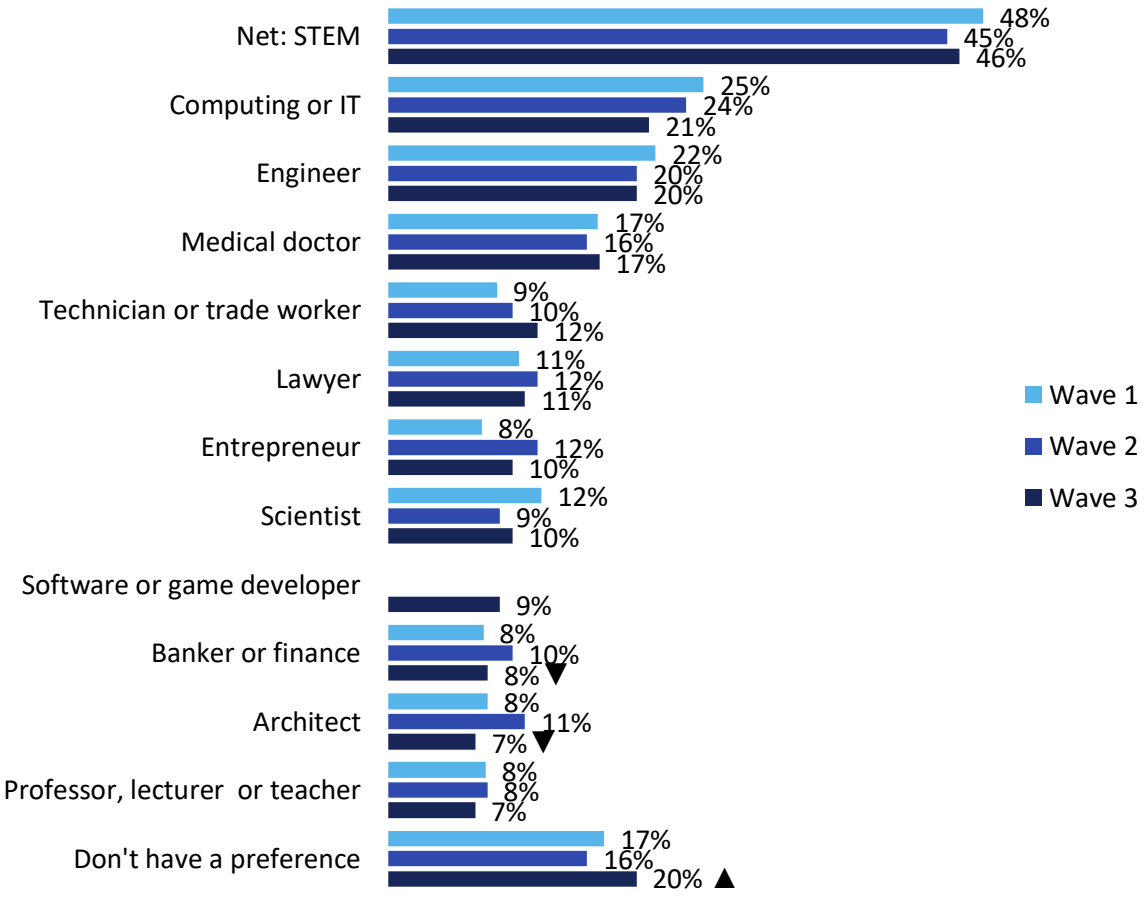
Parents' expectations

Overall, just fewer than half (46%) of parents would like their child to pursue a career in a STEM-related field, consistent with last wave. The career most sought out by parents for their children is within the field of computing / information technology (21%), closely followed by engineering (20%) and medical doctor (17%). However, 1 in 5 (20%) parents state they have no preference for the type of career their child pursues, a figure which has increased since wave 2 (from 16%).

While this wave there are more parents saying they have no preference, we saw declines in preferences for their child to pursue being an architect (from 11% to 7%) and being a banker or working in finance (from 10% to 8%).

Figure 4: Career preferences for oldest child. Showing top 10 careers only.

Q. From the professions listed, which are the top 3 professions you would most like the child to pursue? (MC)

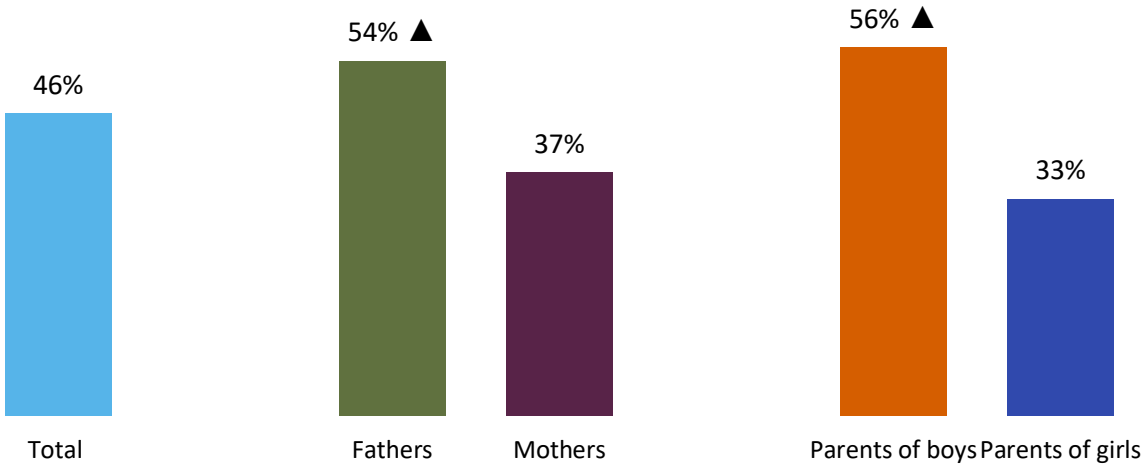


Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number. Note: software or game developer was a new code for wave 3.

Preference for a STEM-related career is more common among fathers (54%) compared to mothers (37%). The survey also found that parents of boys (56%) are more likely to want their child to pursue a STEM career compared to parents of girls (33%). These results are consistent with the previous waves.

Figure 5: STEM career preference for oldest child, split by gender of parent and gender of child.

Q. From the professions listed, which are the top 3 professions you would most like the child to pursue? (MC)



Base: unweighted total wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size). Parents of boys – 830, Parents of girls – 665 (not shown due to low base size: non-binary parents – 4, parents of non-binary children – 5). Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Below are other significant differences among key demographic groups.

Table 3: STEM career preference for eldest child: significant differences by audience.

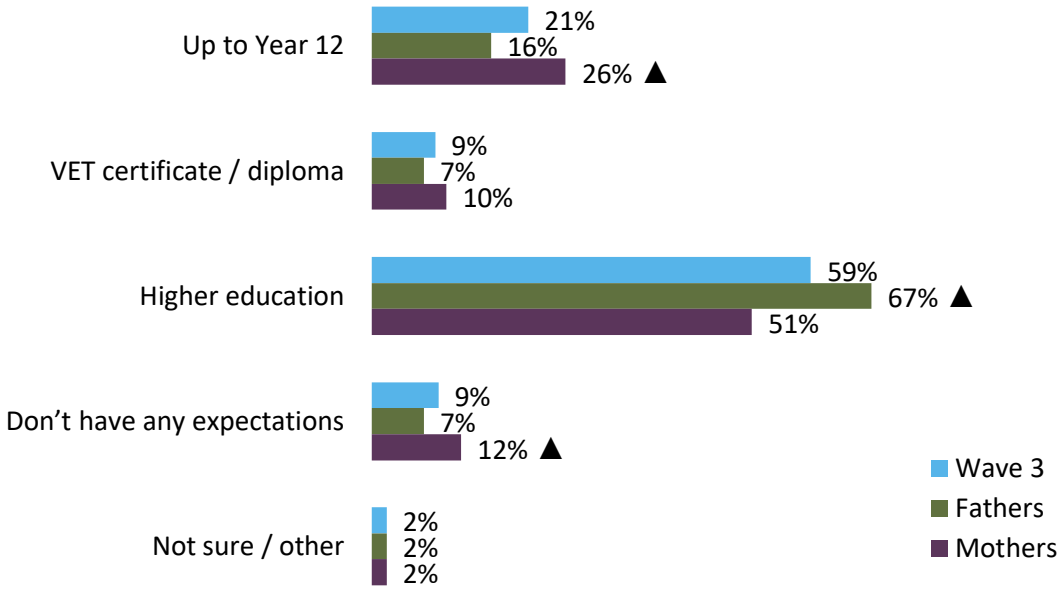
Q. From the professions listed, which are the top 3 professions you would most like the child to pursue? (MC)

Audience	WEIGHTED %
Socioeconomic status	
Lower SES (Decile 1 - 5)	40%
Higher SES (Decile 6 - 10)	▲49%
Location	
Metropolitan	▲50%
Regional / remote	37%
CALD	
Non-CALD	43%
CALD	▲56%

Three in five parents in Australia (59%) expect their children to attain a bachelor's degree or higher, significantly lower than in wave 2 (64%). There are differences between higher education expectations of mothers (51%) and fathers (67%) with mothers being more likely to say they have no expectations (12% vs 5%). However, there are no significant differences in the expected education levels of parents of either boys or girls (56% of parents of boys, vs 62% of parents of girls).

Figure 6: Expectations of the highest level of education their child will attain.

Q. What is the highest level of education you expect the child to attain when they grow up?



Base: unweighted total wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size). Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Other key differences in expectations are seen among parents from metropolitan areas compared to regional or remote areas. Two thirds of parents from metropolitan areas (67%) expect their children to have a higher education compared to 43% in regional or remote areas.

Similarly, parents from high SES areas are more likely to expect their children to have a higher education compared to parents from low SES areas (66% vs 45%). Likewise, parents with CALD backgrounds are more likely than parents of non-CALD backgrounds to expect higher education (82% vs 53%).

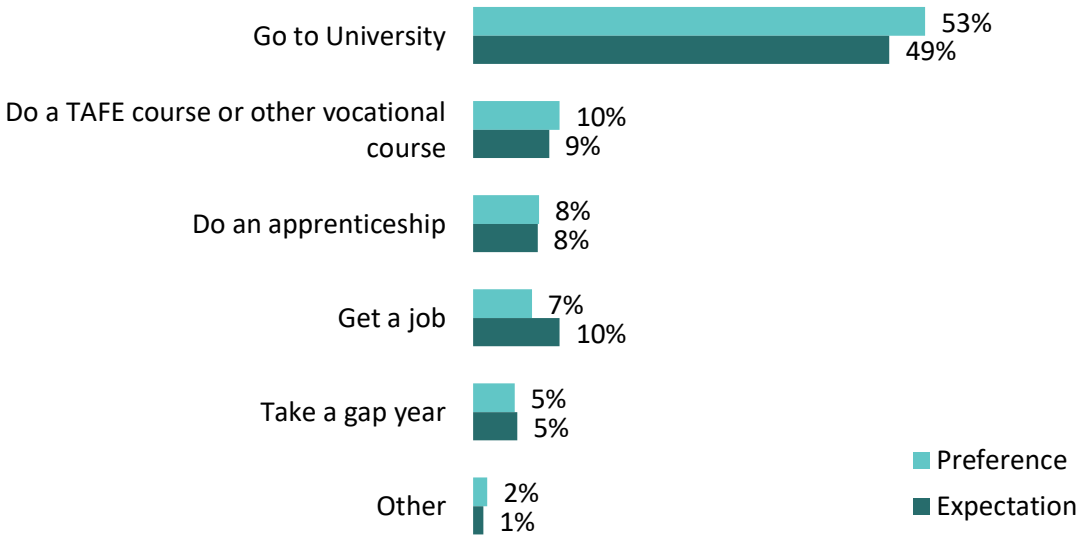
For the second time since tracking began we asked questions around preference and expectations of the industry or career that their child will pursue. The top preference was for their children to go to university (53%) followed by TAFE or college (10%), doing an apprenticeship (8%), getting a job (7%) and taking a gap year (5%).

Expectations/intentions were mostly aligned with preference, however the proportion of parents who expected their children to go to university (49%) was slightly lower than the proportion who would like them to do this (53%). Also, parents were more likely to expect their children to get a job than to say they would like them to do this, perhaps reflecting a perspective among some parents that they wish they could support their children financially more than they can.

Compared to wave 1, parents were less likely to say that their child intended to get a job this wave (10% vs 13% in wave 2).

Figure 7: Preference and expectations of the pathway the child will pursue.

Q. From the following list, what do you want the child to do after they finish high school? / And from what you know, what is the child intending to do after school?



Base: unweighted parents of children in high school, wave 3 – 838. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

When it comes to gender differences, fathers were more likely than mothers to say that their preference was that their child will go to university, than mothers (62% vs 44%). Unlike last wave, parents of girls were not significantly more likely to say they would prefer them to go to university than parents of boys (55% vs 52%).

Parents' understanding and perceptions of STEM

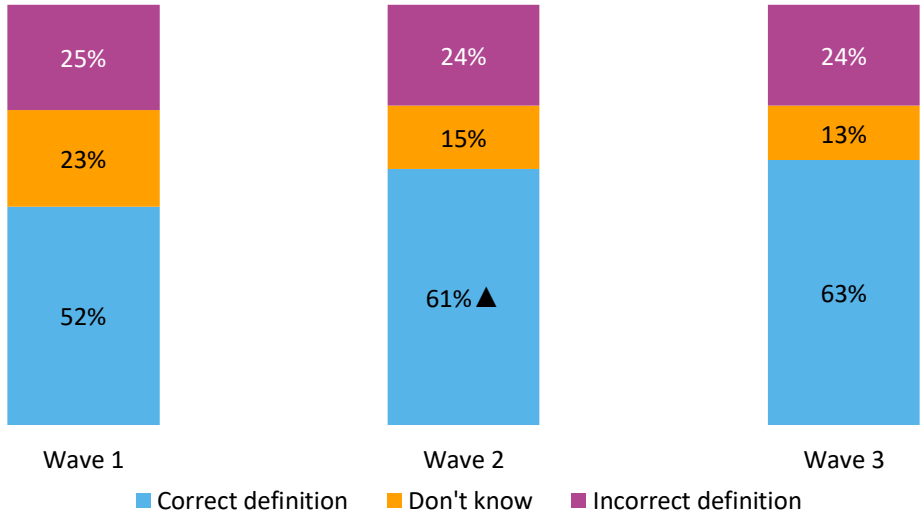
Awareness and understanding

To get an indication of their understanding of STEM, parents were asked what they believe the acronym 'STEM' stands for. Three in five parents (63%) were able to identify all four subjects, in line with wave 2 and significantly higher than wave 1.

The difference between the proportion of mothers and fathers who correctly spelt out the acronym was not significant (64% of fathers vs 61% of mothers).

Figure 8: Understanding of the term 'STEM' (coded).

Q. Please tell us what you believe the term 'STEM' stands for.



Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Below are some of common responses mistakenly offered in the place of 'engineering':

- Science Technology **Entertainment** Mathematics
- Science Technology **Extension** Mathematics
- Science Technology **Exercise** Mathematics
- Science Technology **Environment** Mathematics
- Science Technology **Education** Mathematics
- Science Technology **English** Mathematics
- Science Technology **Electronics** Mathematics
- Science Engineering **Economics** Mathematics
- Science Technology **Emerging Materials**

Below are other significant differences among key demographic groups.

Table 4: Proportion correctly identifying all four STEM subjects: significant differences by audience.

Q. Please tell us what you believe the term 'STEM' stands for. (% Correct)

Audience	WEIGHTED %
Socioeconomic status	
Lower SES (Decile 1 - 5)	58%
Higher SES (Decile 6 - 10)	▲66%
Location	
Metropolitan	▲66%
Regional / remote	56%
Parent STEM job	
At least one parent in STEM job	▲74%
Neither parent in STEM job	60%
Parental STEM qualifications	
STEM qualifications	▲71%
No STEM qualifications	60%

Life skills associated with STEM education

Parents were asked, unprompted, what broader life skills they believe STEM education provides to children. They were able to give up to five open-ended responses. While a few skills were mentioned much more frequently than others (i.e. mathematics, IT, science and problem solving), overall, the range of responses to this question was very broad.

The broader life skills mentioned by at least 1% of respondents are presented in the list below. The results below are ordered based on the responses with the most mentions to the responses with the least mentions.

- Problem solving
- IT / Technology / Computer skills
- Critical / logical / independent thinking
- Creativity
- Analysing / reasoning / analytical thinking
- Science (Inc. Biology, Chemistry, Physics)
- Maths / Numeracy / Statistics
- General skills / life skills
- Broad knowledge / skills / understanding
- Teamwork / collaboration
- Engineering
- Better / good job opportunities or salary
- Communication
- Real life / real world skills
- Hands on / practical skills
- Resilience / Adaptability / Perseverance
- Money / accounting / finance / economics
- Innovation
- Research / using data
- Curiosity
- Logical thinking
- How things work / how things are made
- Design
- Decision making
- English / Literacy / Writing

Overall, only 12% were unable to name any broader life skills associated with STEM education. These parents were more likely to be parents from regional and/or remote areas (16% vs 11% metropolitan), lower SES areas (17% vs 10% for high SES areas) and non-CALD backgrounds (14% vs 8% for CALD backgrounds).

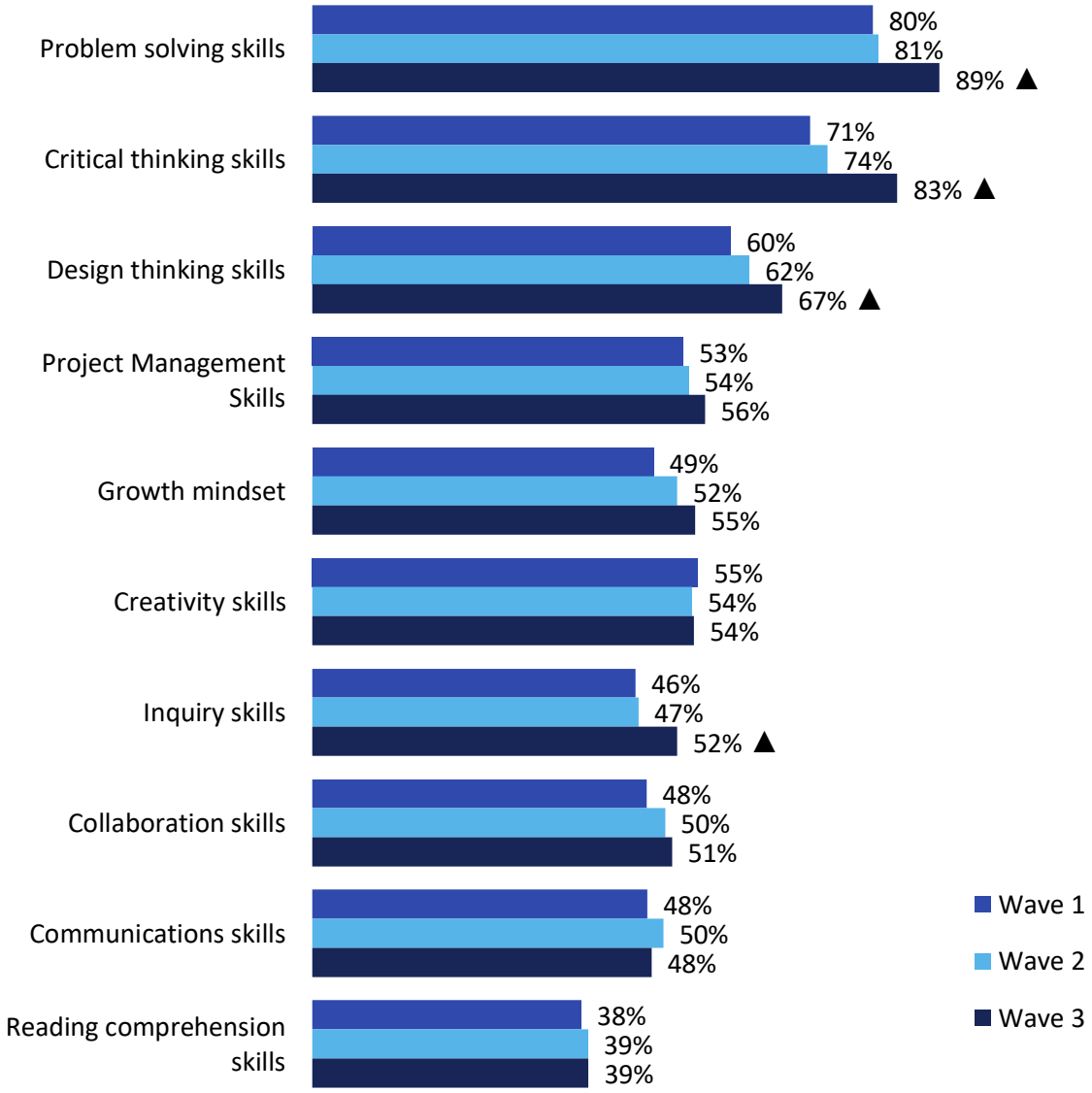
Parents were then asked a similar closed-ended question about the other skills which can be developed through the study of STEM, and the results revealed a clearer understanding of these life skills. Consistent with the previous wave, problem solving had the highest acknowledgment, with four in five parents (89%) connecting it to STEM education, even more so than in wave 2 (81%). Critical thinking (83%) and design thinking skills (67%) ranked second and third, respectively.

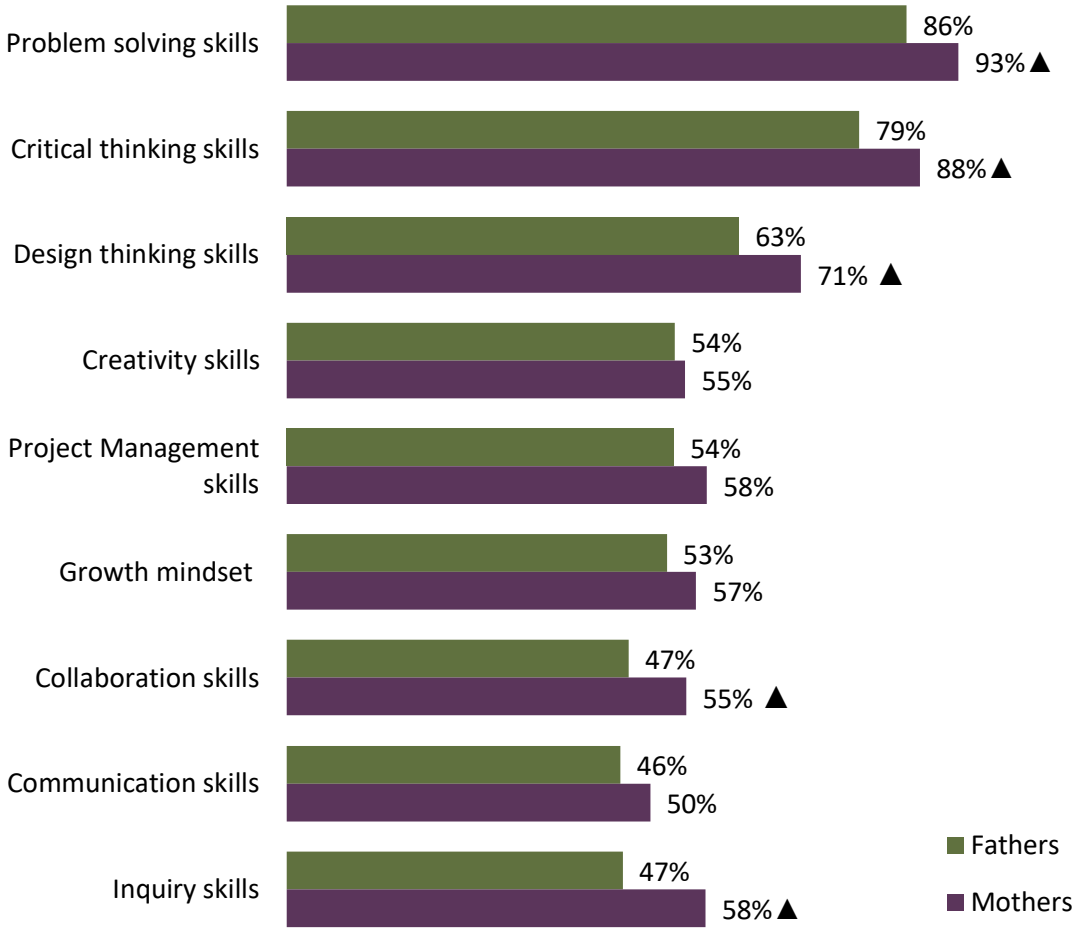
Other skills linked to STEM education, such as project management, creativity, communication and inquiry, had lower associations, with only around half of parents seeing them as skills which can be learnt through STEM.

Mothers were more likely to associate some life skills such as problem solving (93% vs 86% for fathers), critical thinking (88% vs 79% for fathers), design thinking (71% vs 63% for fathers), inquiry (58% vs 47% for fathers) and collaboration (55% vs 47% for fathers) with STEM compared to fathers. However, they were also more likely to associate hand-eye co-ordination with STEM compared to fathers (34% vs 24% for fathers).

Figure 9: Top life skills that parents associate with STEM.

Q. Besides skills directly related to science, technology, engineering and mathematics, which of the below skills do you believe are developed through the study of STEM? (MC)





Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

Parents' attitudes towards STEM

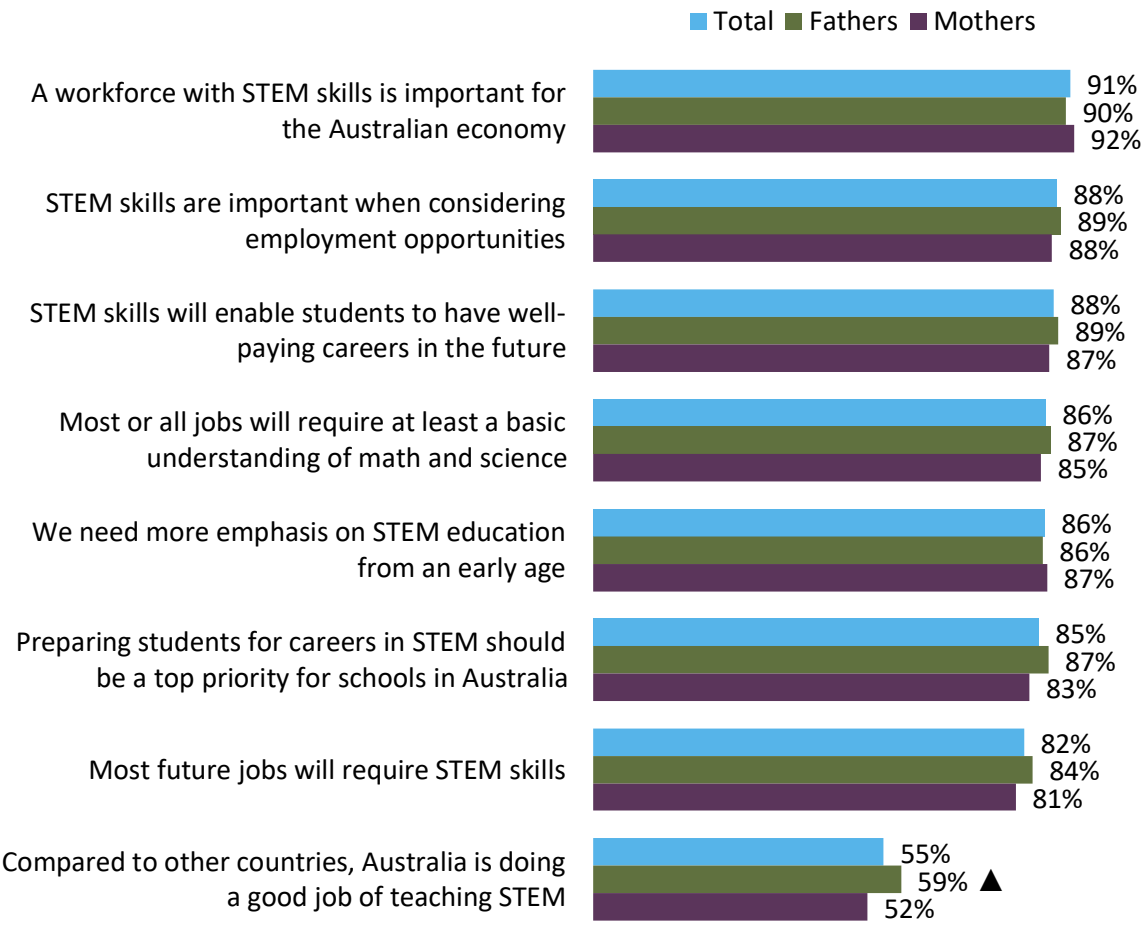
Parents generally have positive attitudes towards the impact of STEM education on future employment and the economy. Consistent with wave 1 results, nine out of ten parents (91%) agree that a workforce with STEM skills is important for the Australian economy, while a similar proportion agree that most jobs will require a basic understanding of mathematics and science in the future (86%).

Unlike in wave 2, there were very few gender differences between fathers and mothers. The only significant difference was that fathers were more likely to agree that compared to other countries, Australia is doing a good job at teaching STEM (59% of fathers, vs 52% of mothers), driven by a higher proportion of mothers who are unsure about this (31% vs 20% of fathers).

Almost half (45%) of parents either do not know, or do not agree that compared to other countries, Australia is doing a good job of teaching STEM.

Figure 10: Perceptions about STEM education and its impact on future work (net: slightly / strongly agree).

Q. How much do you agree or disagree with the following statements about STEM education and its impact on future work and the economy?



Base: unweighted total wave 3 – 1,500, fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

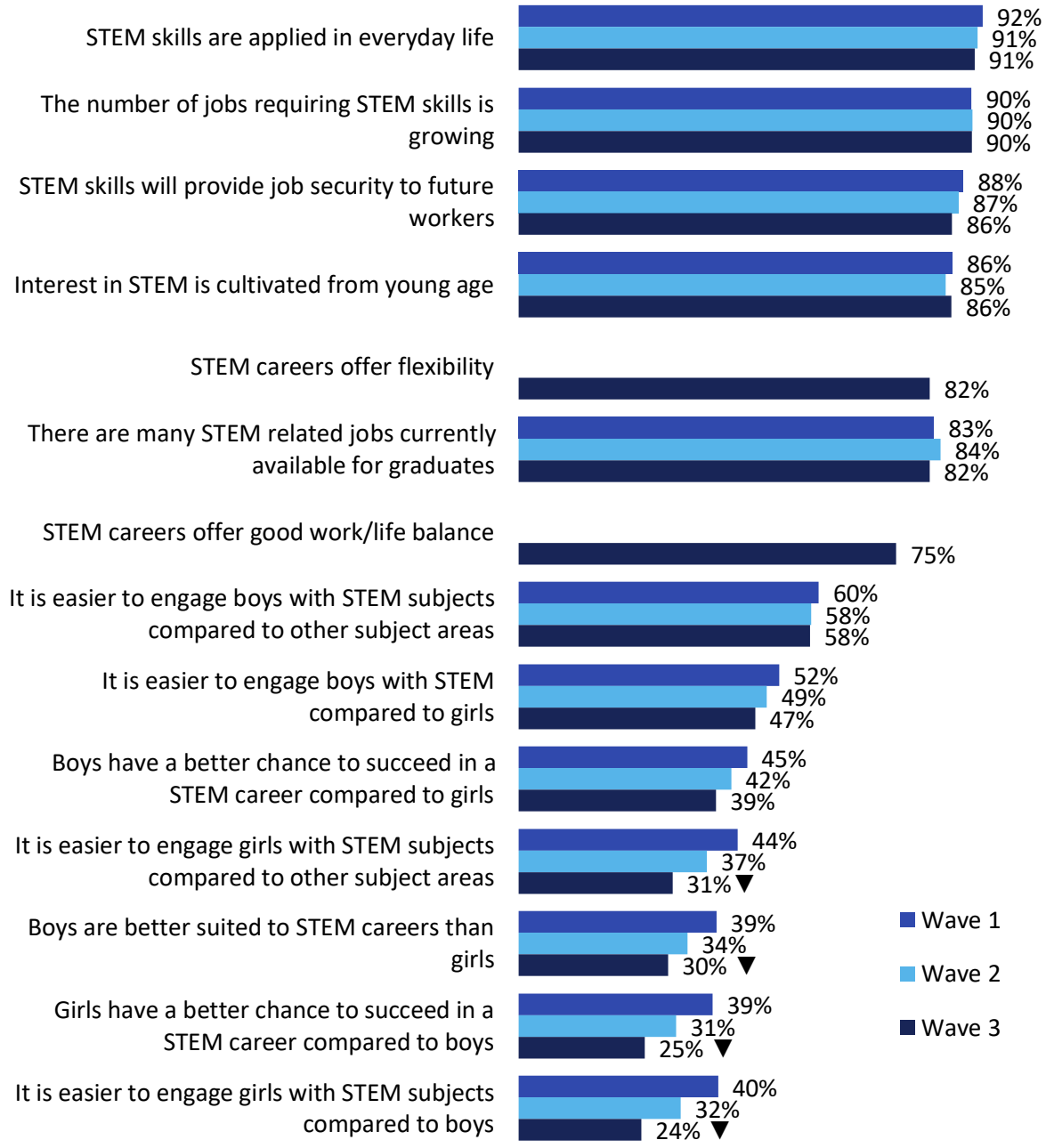
Consistent with previous waves, most parents in Australia understand that STEM skills are applicable in everyday life (91%) and recognise the increasing demand for these skills in the workforce (90%). Nearly nine in ten (86%) believe STEM skills will offer job security. When it comes to evaluating differences in ease of engagement between genders, half of parents agree that it is easier to engage boys with STEM compared to girls (47%) while only 24% agree that it is easier to engage girls with STEM than boys. Significantly fewer agree that it is easier to engage girls with STEM compared to boys this wave than last wave (24% vs. 32%).

In terms of engagement with STEM compared to other school subjects, the majority of parents (58%) agree that it is easier to engage boys with STEM subjects compared to other subject areas, while only 31% feel the same for girls. Significantly fewer agree that it is easier to engage girls with STEM compared to other subject areas this wave than last wave (31% vs. 37%).

However, while clear gender biases are present in terms of parents' perceptions of engagement with STEM, the research also revealed that more than half of all parents do not believe gender plays any role in determining success in a STEM career (61% disagree that boys have a better chance at succeeding in STEM compared to girls and 75% disagree with the same statement regarding girls). In addition, 70% of parents disagree that boys are better suited to STEM careers than girls.

Figure 4: Perceptions about STEM skills and how they can impact future careers (net: slightly / strongly agree).

Q. How much do you agree or disagree with each of these statements about STEM skills and how they can impact future careers?



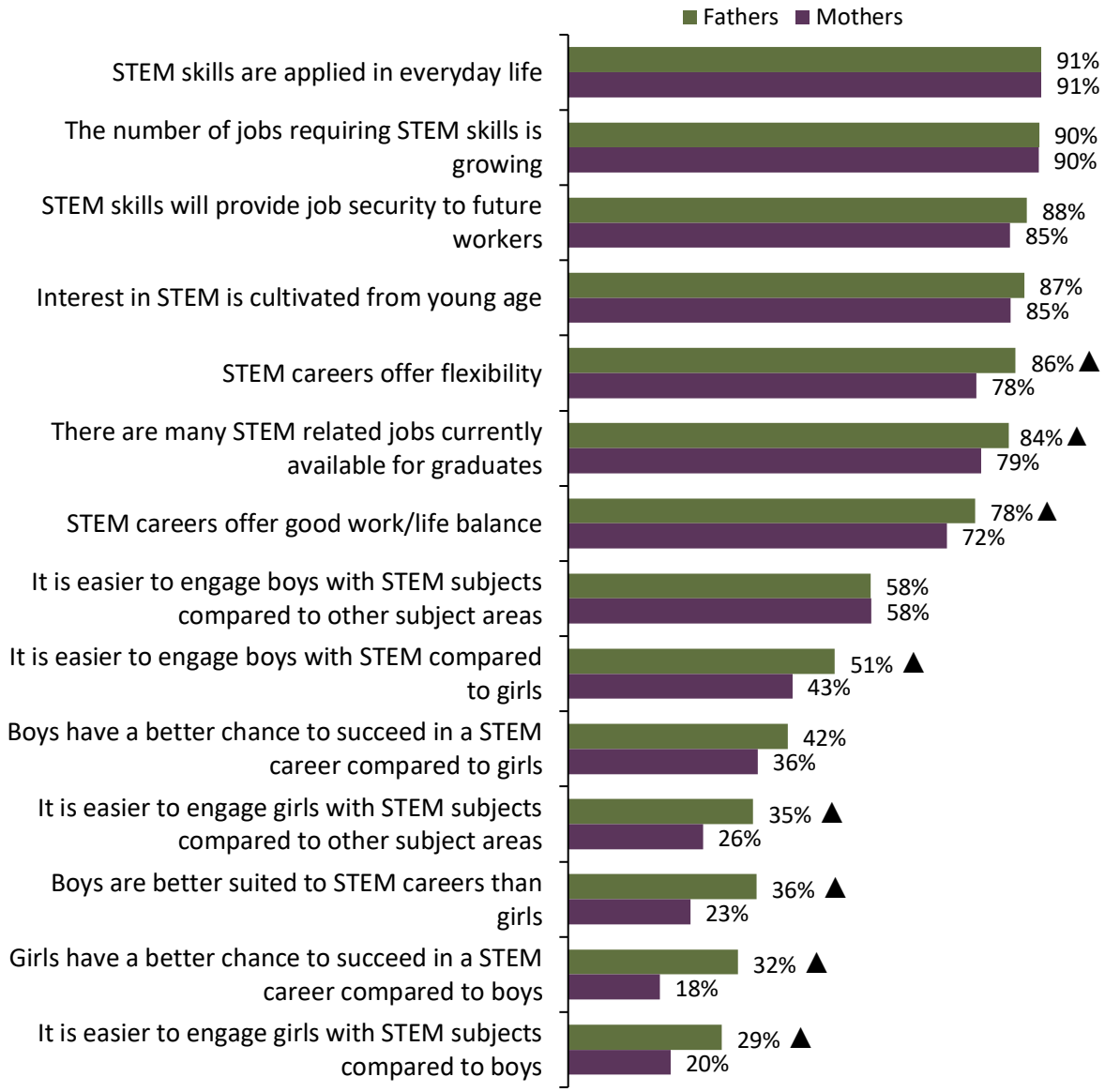
Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number. Note: two new answer codes were shown in wave 3.

Unlike in wave 2 where mothers had more of a gender bias than fathers, the wave 3 survey results indicate that both mothers and fathers have a bias towards boys, although the bias is somewhat stronger for mothers.

Two in five (42%) of fathers believe that boys have a better chance to succeed in STEM compared to girls, while fewer fathers (32%) believe the same for girls. In contrast, 36% of mothers agree that boys have a better chance of success compared to only 18% believing the same about girls.

Figure 5: Perceptions about STEM skills and how they can impact future careers (net: slightly / strongly agree).

Q. Below is a list of statements about STEM skills and how they can impact future careers. How much do you agree or disagree with each of these statements?



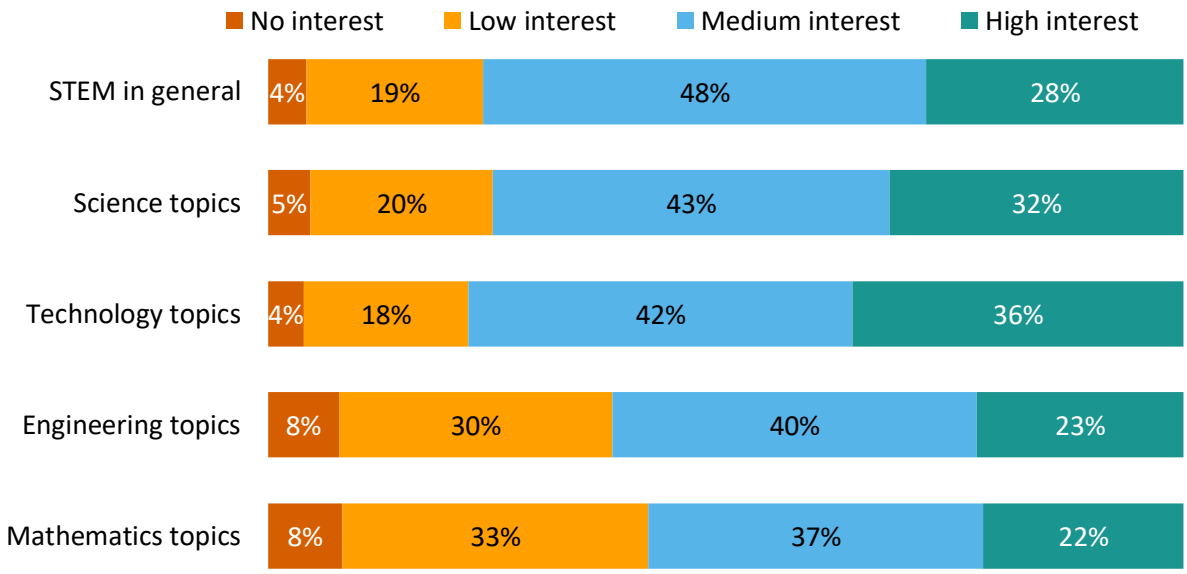
Base: unweighted fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

Parents' interest in STEM

There is a high interest in STEM among parents with three quarters (77%) saying they have a medium to high interest in STEM in general. Technology (78%) and science (75%) ranked as the most popular subjects. However, two in five parents have low or no interest in mathematics (42%) and engineering (38%). The data shows a significant decline in parent interest in mathematics (from 65% to 58%) and engineering (68% to 62%).

Figure 6: Interest in STEM and individual STEM subjects.

Q. How interested are you in topics related to STEM and each of the individual STEM subjects?



STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Med - high interest	77%	75%	78%	62%	58%
Low - no interest	23%	25%	22%	38%	42%

STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Med - high interest – W1	78%	76%	79%	66%	67%
Med - high interest – W2	80%	77%	81%	68%	65%
Med - high interest – W3	77%	75%	78%	▼62%	▼58%

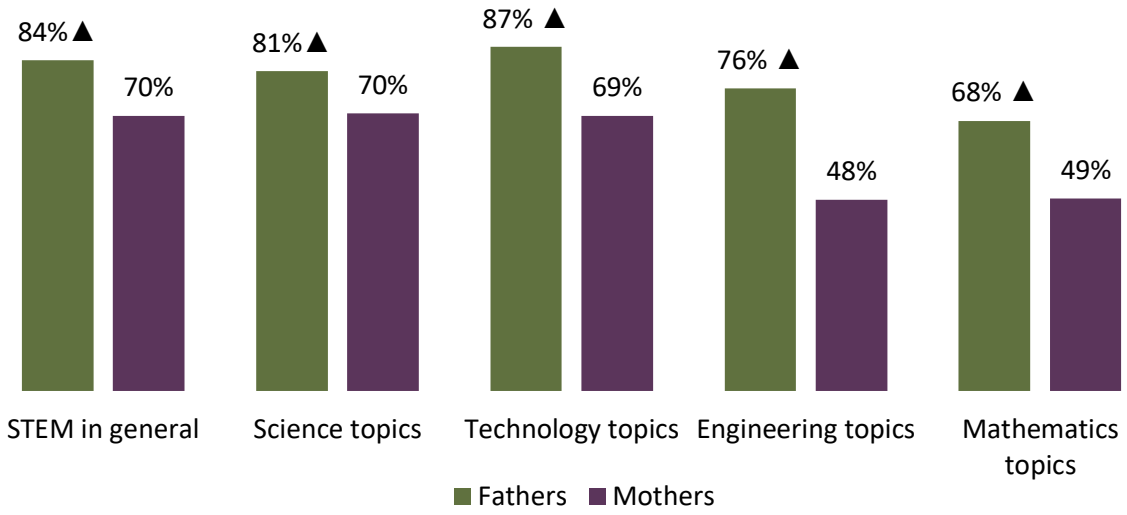
Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

As may be expected, interest in STEM in general and each of the individual STEM subjects is significantly higher among parents with STEM qualifications or families with at least one parent in a STEM job.

Fathers are significantly more likely to be interested in STEM, with 84% saying they have a general interest in this area compared to 70% of mothers.) This wave the data shows a significant decline in interest in mathematics among both mothers (from 56% to 49%) and fathers (from 75% to 68%), plus a significant decline in interest in engineering among mothers (from 57% to 48%).

Figure 14: Interest in STEM and individual STEM subjects (net: medium / high interest).

Q. How interested are you in topics related to STEM and each of the individual STEM subjects?



Base: unweighted fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

Below are other significant differences in interest in STEM in general among key demographic groups.

Table 5: Interest in STEM in general: significant differences by audience (net: medium / high interest).

Q. How interested are you in topics related to STEM and each of the individual STEM subjects?

Audience	WEIGHTED %
Socioeconomic status	
Lower SES (Decile 1 - 5)	73%
Higher SES (Decile 6 - 10)	▲79%
Location	
Metropolitan	▲79%
Regional / remote	72%
CALD	
Non-CALD	74%
CALD	▲86%

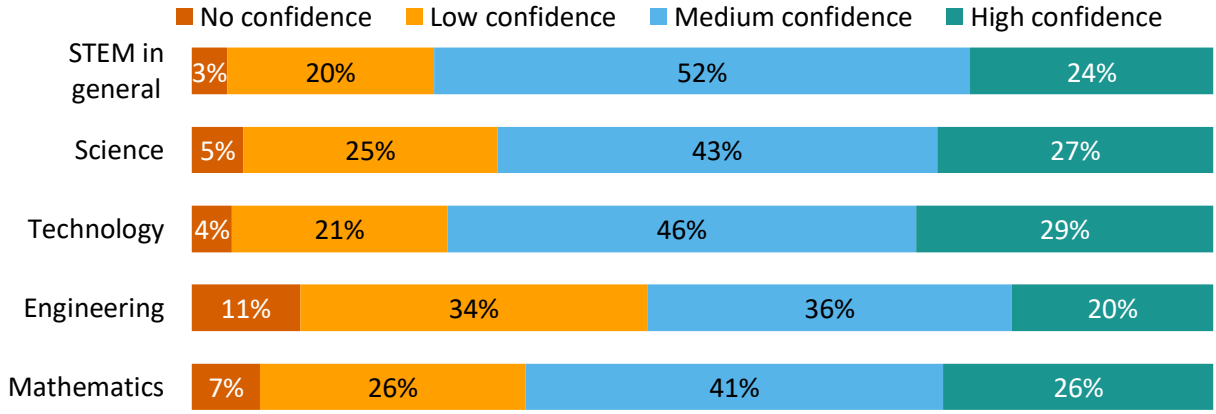
Parents' confidence in supporting children with STEM schoolwork

Three quarters of parents have some level of confidence to support their children with STEM-related schoolwork (76% - STEM in general), however, less than one quarter (24%) say that they are highly confident. Parents feel most confident in supporting their children with technology (75%), science (70%), and mathematics (67%). The subject which parents feel least confident with is engineering, with almost half (45%) acknowledging they have low or no confidence in this area.

This wave the data shows a significant decline in confidence with supporting children with both science (from 74% to 70%) and engineering (from 63% to 55%).

Figure 15: Confidence in supporting children with STEM homework / projects.

Q. How confident would you feel if you had to support the child with homework / projects related to STEM?



STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Med - high confidence	76%	70%	75%	55%	67%
Low - no confidence	24%	30%	25%	45%	33%

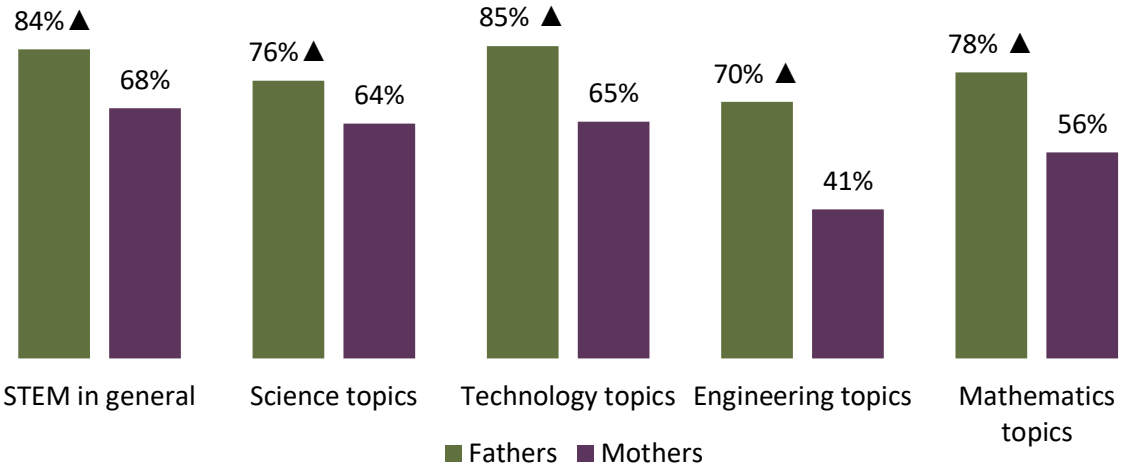
STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Med - high confidence – W1	76%	71%	73%	61%	72%
Med - high confidence – W2	78%	74%	77%	63%	71%
Med - high confidence – W3	76%	▼70%	75%	▼55%	67%

Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Across parent genders, 84% of fathers say they are confident to support their children with STEM in general compared to only 68% of mothers. Fathers were also more confident than mothers when it came to supporting with all four specific STEM subjects.

Figure 7: Confidence in supporting children with STEM homework / projects (net: medium / high confidence).

Q. How confident would you feel if you had to support the child with homework / projects related to STEM?



Base: unweighted fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

The age of the child plays a key role in the level of confidence parents have in supporting their children with STEM. Parents of children at primary level reported the highest levels of confidence across all subjects compared to parents of secondary school and higher education. Technology (80%), science (72%), and mathematics (71%) recorded the highest levels of confidence among parents of children at primary level, although the only statistically significant difference was for technology (80% vs 71% of parents of secondary students). Engineering remains the subject where parents feel least confident.

Below are other significant differences in confidence in 'STEM in general' among key demographic groups.

Table 6: Confidence in supporting children with homework / projects of 'STEM in general': significant differences by audience (net: medium / high confidence).

Q. How confident would you feel if you had to support the child with homework / projects related to STEM?

Audience	WEIGHTED %
Socioeconomic status	
Lower SES (Decile 1 - 5)	72%
Higher SES (Decile 6 - 10)	▲79%
CALD	
Non-CALD	75%
CALD	▲83%

Reasons for low confidence in supporting children with STEM schoolwork

Among parents who are not confident in supporting their children with STEM-related schoolwork, the primary concern is that they do not understand enough about the subject themselves. This perception was highest regarding engineering (70%). On average, almost half of parents (47%) also have concerns that what they learnt at school is different to what children learn now. A third are worried about not knowing how to teach the subjects in the correct way (average of 35%) or telling their children the wrong answers (average of 33%).

Mothers are more likely to say they do not understand enough about the subject of engineering, science and mathematics compared to fathers.

Table 7: Reasons for not feeling confident in supporting child with STEM work.

Q. Why don't you feel confident supporting your child with [STEM subject]? (MC)

Reasons for low confidence supporting child with STEM subjects	Science	Technology	Engineering	Mathematics	Average
I don't understand enough about the subject myself	60%	60%	70%	50%	60%
What I learnt at school is different to what children learn now	53%	49%	35%	51%	47%
I wouldn't know how to teach it the way it's meant to be taught (i.e. in line with the Australian curriculum)	36%	34%	30%	38%	35%
I'm worried I will tell them the wrong answers	34%	30%	30%	39%	33%
I find it hard to comprehend the requirements of the homework/projects	21%	27%	21%	28%	24%
I don't have the time to go through the requirements of the homework/projects	15%	14%	13%	14%	14%
Other	1%	1%	1%	2%	1%

Base: unweighted Wave 3 parents who do not feel confident with science – 458, technology – 382, engineering – 682, mathematics – 499.

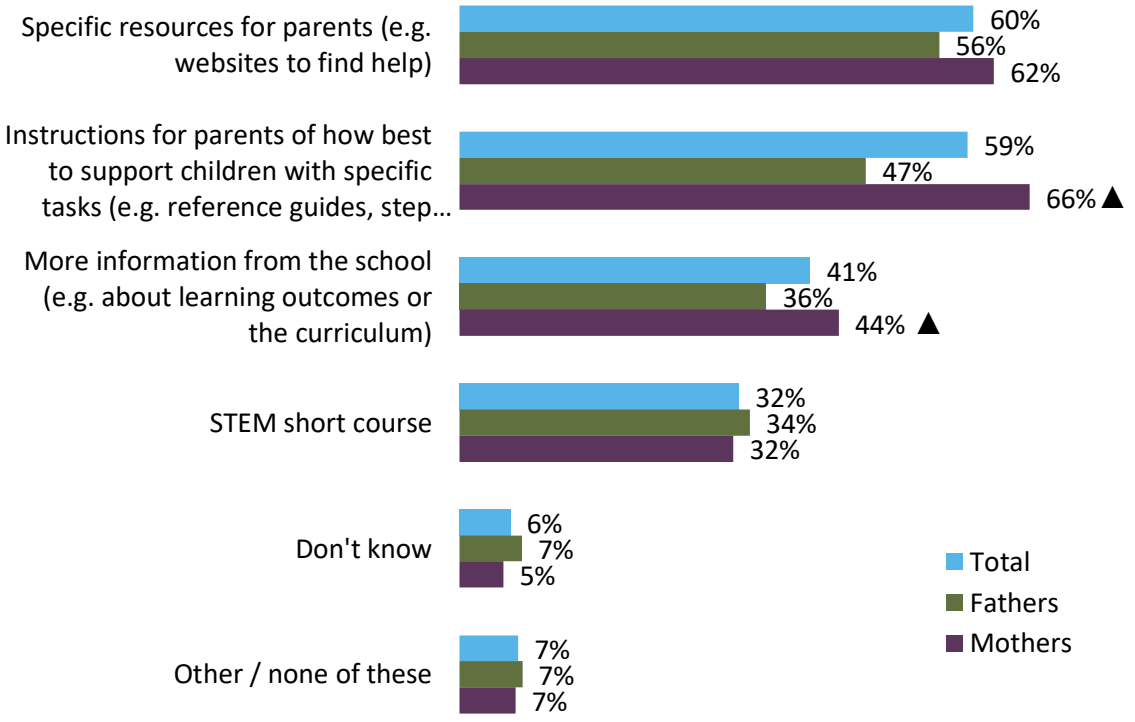
Among parents who claimed to have low confidence in supporting their children with homework / projects related to STEM, useful support could be in the form of specific resources for parents (60%), and instructions from the school about how they can best support their child with specific tasks (59%). Specific resources for parents ranked as the top need for fathers (56%) while mothers most wanted instructions from schools (66%).

More information from the school and STEM short courses ranked lower, with 41% and 32% of parents selecting these options respectively. Mothers were more likely to want more information from the school (e.g. about learning outcomes or curriculum) (44% vs 36% of fathers), as well as parents of children in primary school (46%) compared to parents in secondary school (37%).

Compared to wave 2, parents were more likely to want more specific resources for parents (e.g. websites to find help) (60% vs 52% in wave 2).

Figure 17: Preferred tools to increase confidence in supporting child with STEM work.

Q. Which of the below would you be likely to use increase your confidence to support with homework / projects related to STEM? (MC)



Base: unweighted Those not confident in supporting child with STEM work: total wave 3 – 864, fathers – 349, mothers – 513 (non-binary – 2. Not included due to small base size).

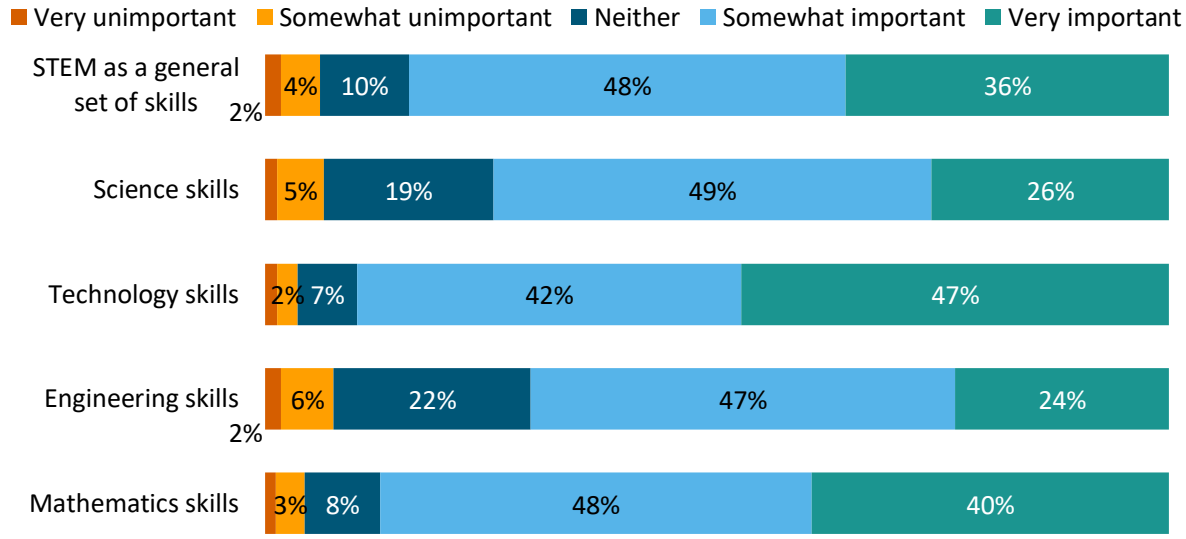
Perceived importance of STEM for future employment

The proportion of Australian parents who believe that STEM skills are important for their children to acquire a good job in the future is 84%, which has increased from a dip in wave 2 (81%). This is driven by increases in perceived importance of technology (from 87% to 90%) and mathematics (from 83% to 87%).

Perceived importance is highest for technology (90%), followed by mathematics (87%), science (75%) and engineering (71%).

Figure 8: Perceived importance of STEM skills for future career.

Q. In your opinion, how important is it for the child to have STEM skills in order to acquire a good job in the future?



STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Somewhat - very important	84%	75%	90%	71%	87%
Somewhat - very unimportant	6%	6%	4%	8%	4%

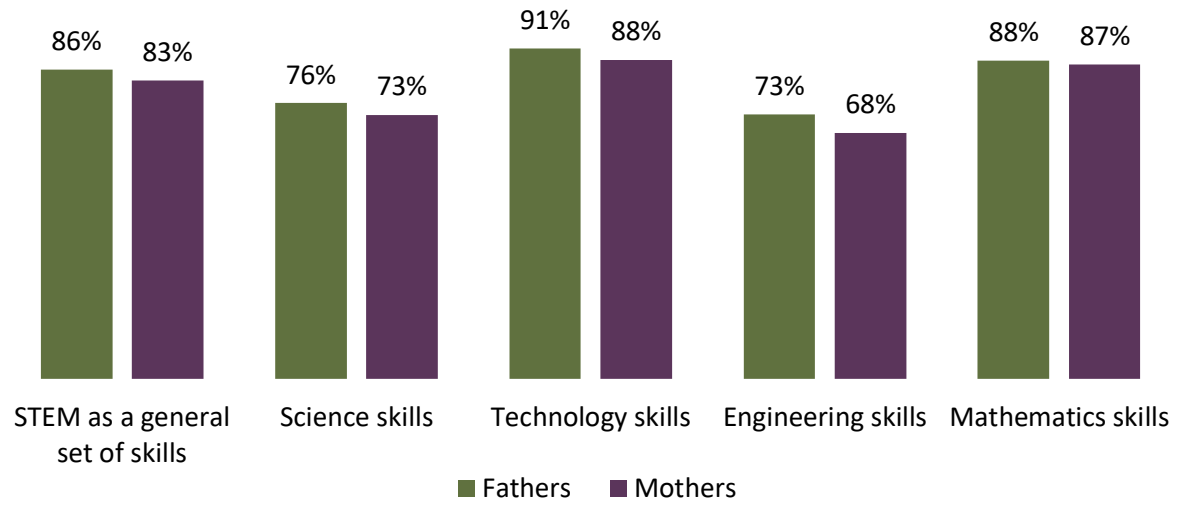
STEM subjects	STEM in general	Science topics	Technology topics	Engineering topics	Mathematics topics
Somewhat – very important – W1	86%	81%	89%	75%	89%
Somewhat – very important – W2	81%	76%	87%	72%	83%
Somewhat – very important – W3	▲84%	75%	▲90%	71%	▲87%

Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

There is no significant difference in the overall perceived importance of STEM skills for children to secure good jobs in the future between fathers (86%) and mothers (83%). The data for wave 3 shows no significant differences in perceived importance of any specific STEM skill by parent gender either, unlike in wave 2 where fathers had a higher perceived importance of engineering than mothers.

Figure 19: Perceived importance of STEM skills for future career (net: somewhat / very important).

Q. In your opinion, how important is it for the child to have STEM skills in order to acquire a good job in the future?



Base: unweighted fathers – 758, mothers – 738 (non-binary – 4. Not included due to small base size).

Parents of boys were found to be more likely than parents of girls to believe that engineering skills are important (74% vs 67%). Parents in metropolitan areas were more likely see the importance of STEM skills overall (86% vs 80% for those parents in regional/rural areas), and to see the importance of skills in all specific STEM subjects except mathematics compared to parents in regional or remote areas.

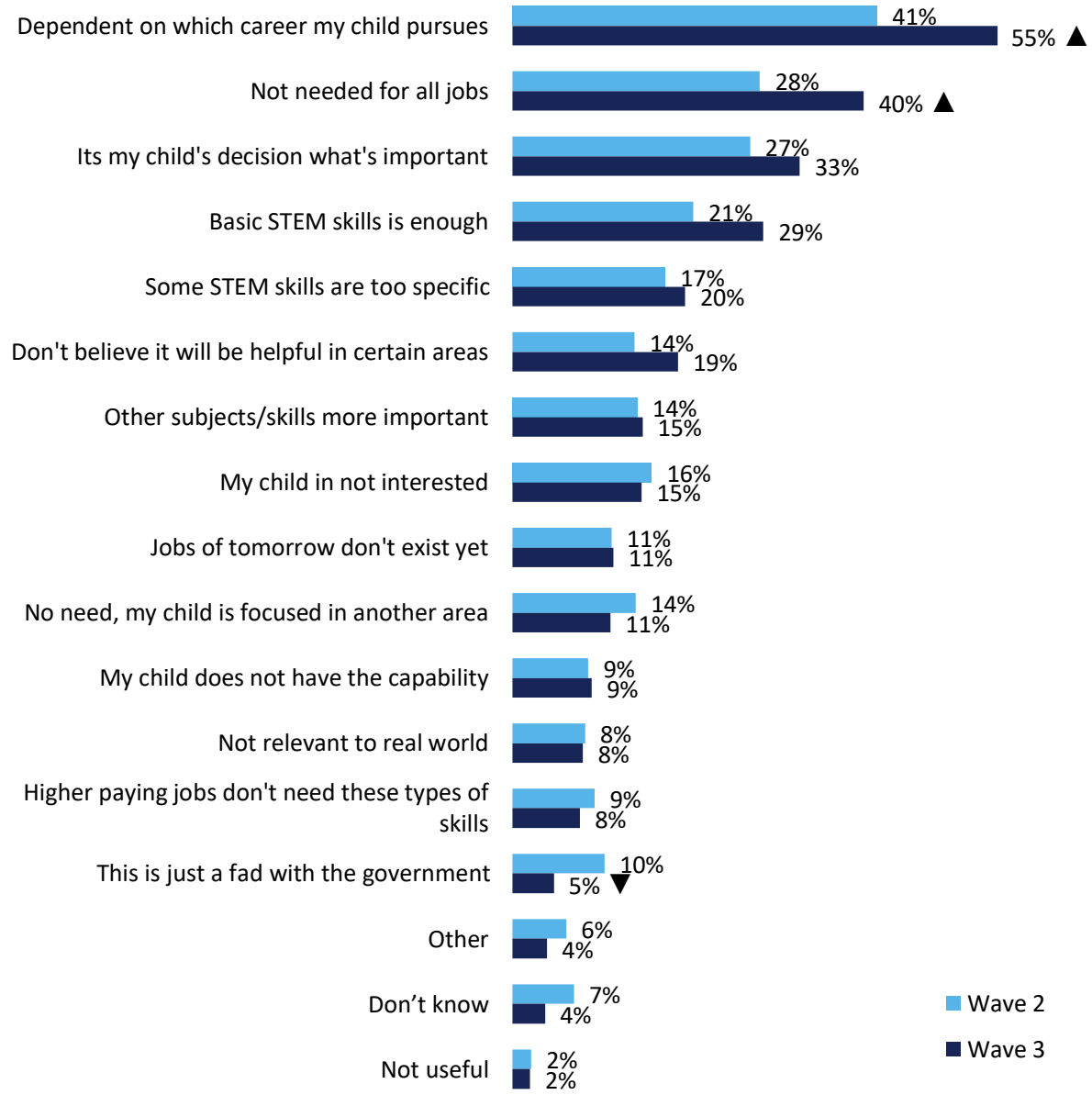
Parents with a CALD background also had higher perceptions of the importance of science, engineering and mathematics compared to non-CALD parents. Parents from higher SES areas compared to parents from lower SES areas had higher perceptions of the importance of technology skills, an improvement from wave 2 where there were significant differences in perceived importance of STEM as a general set of skills as well as skills in all four specific subjects.

Among those who believe STEM skills are not important, the majority say this is because it depends on which career their child pursues (55%), these skills are not needed for all jobs (40%) or that it's their child's decision what is important (33%).

This wave, the data shows an increase in the proportion of parents who said it's not important to acquire STEM skills because it is dependent on which career their child pursues (from 41% to 55%) and that STEM skills are not needed for all jobs (from 28% to 40%). Positively, there has also been a decline in the proportion of parents agreeing that STEM skills are not important because STEM is a government fad (from 10% to 5%).

Figure 9: Reason(s) for believing STEM skills are not important.

Q. Why do you believe it's not important for your child to acquire STEM skills? (MC)



Base: unweighted parents that selected any STEM skill as 'unimportant' – wave 2 – 203, wave 3 – 207.

Parent and child interactions

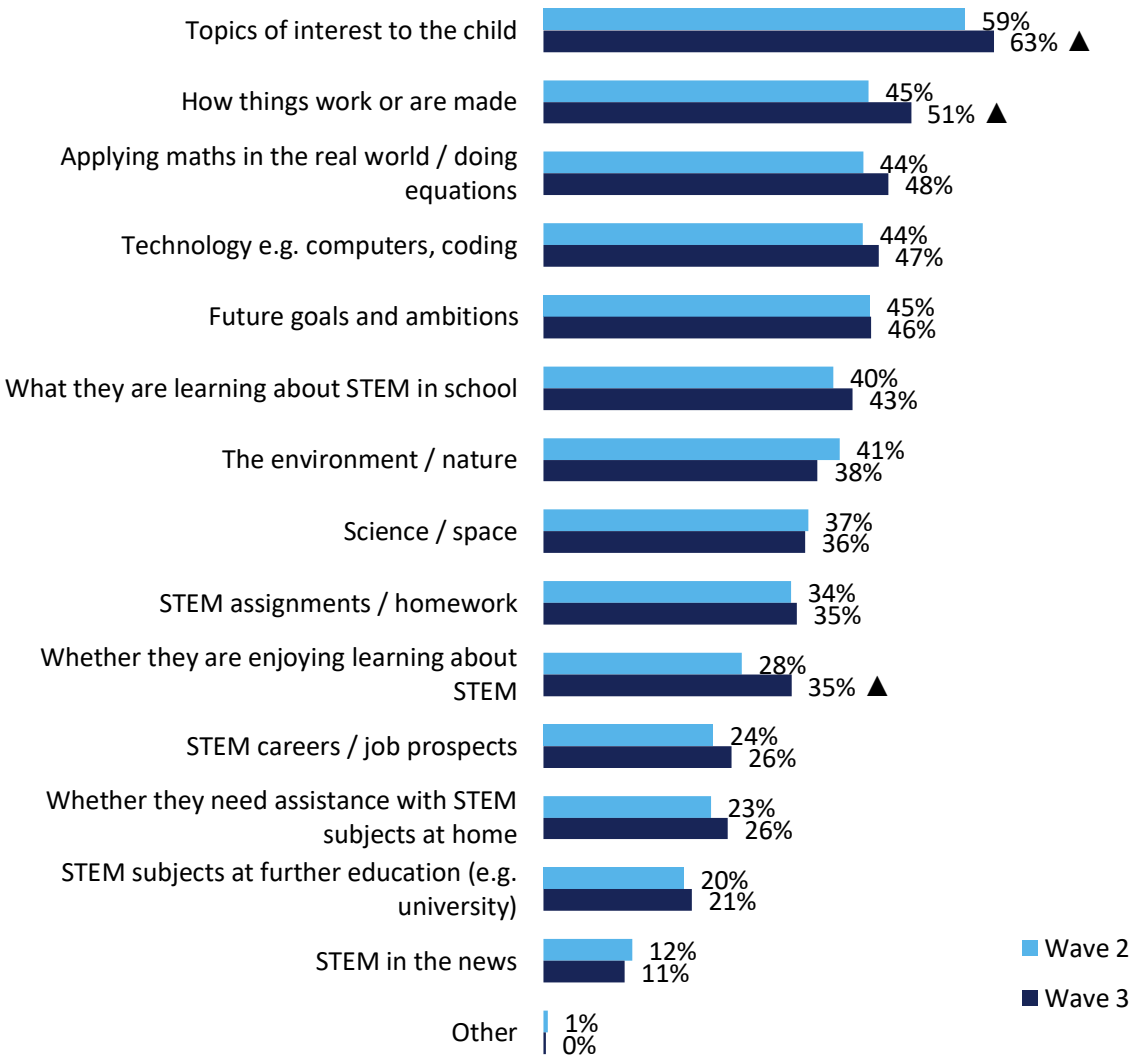
Just under nine in ten parents report having conversations with their children regarding STEM (86%), significantly fewer than in wave 2 (89%).

These conversations are most likely to relate to topics of interest to the child (63%), how things work or are made (51%), applying maths/real world equations (48%), or technology e.g. computers, coding (47%).

This wave there has been an increase in reported conversations about topics of interest to the child (from 59% to 63%), how things work or are made (from 45% to 51%) and whether they are enjoying learning about STEM (from 28% to 35%).

Figure 10: STEM-related topics that parents discuss with their children.

Q. When you have conversations about STEM with the child, what sort of things do you discuss? (MC)



Base: unweighted parents that have conversations about STEM with their child – wave 2 - 1,277, wave 3 – 1,186.

While there is no significant difference in the proportion of mothers vs fathers having conversations with their children about STEM (unlike in wave 2, where mothers were more likely), mothers and fathers tend to differ in terms of what they are having conversations about. Mothers are more likely to be discussing topics of interest to the child (71% of mothers vs 55% of fathers), how things work or are made (55% vs 47% of fathers), applying maths in the real world / doing equations (52% vs 44% of fathers) and the environment / nature (42% vs 34% of fathers). On the other hand, fathers are more likely to talk to their children about STEM subjects at further education (e.g. university) (24% of fathers vs 17% of mothers).

Both mothers (49%) and fathers (44%) have discussions with their children regarding technology such as computers and coding. These conversations are more likely to occur with parents of boys (52%) compared to parents of girls (40%).

Parents in regional and rural areas are more likely to discuss environment and nature (44% vs 35% for parents from metropolitan areas). However, those from metropolitan areas are more likely to discuss STEM careers or job prospects (29% vs 21%) and STEM subjects at further education (24% vs 14%) compared to parents from regional and rural areas.

Generally, broader STEM related conversations are more likely to happen with primary school aged children than secondary school aged children, while parents of secondary school children are more likely to speak to them about STEM assignments, careers and further education.

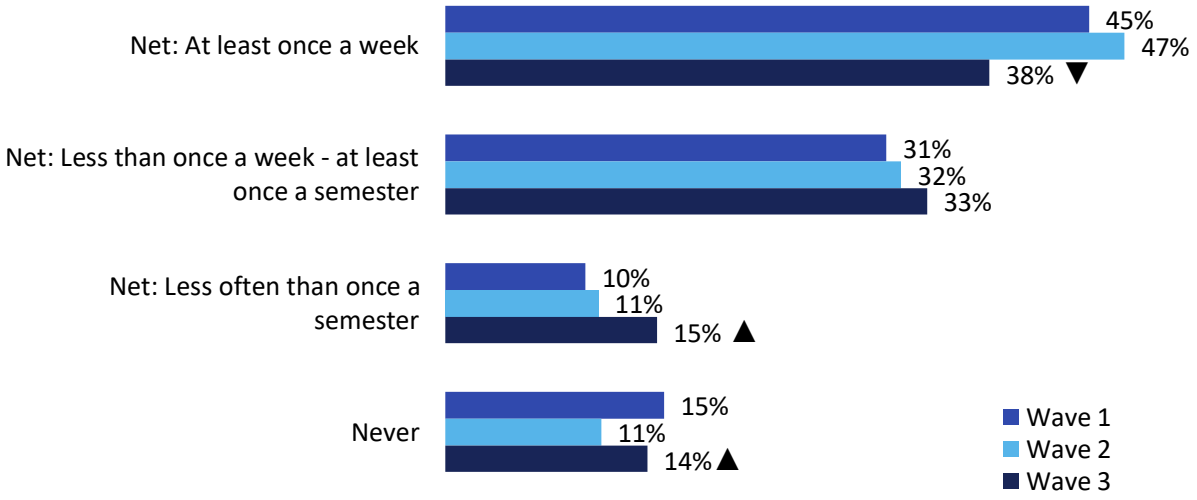
Frequency of STEM discussions

Only 2 in 5 (38%) parents report reported having discussions around STEM topics with their children at least once per week, significantly less frequently than in previous waves (wave 1 – 45%, wave 2 – 47%). A further 33% discuss STEM at least once per semester and 15% discuss it less frequently. Only 14% of parents say that they do not discuss STEM with their child at all, however this has increased since wave 2 (from 11%).

Weekly conversations occurred equally across both fathers and mothers (39% and 37% respectively) as well as among parents of boys and girls (39% vs 36%). Weekly conversations were more likely to occur with parents of primary school aged children (43% vs 34% for parents of secondary school aged children), and with parents with a CALD background (47%) compared to a non-CALD background (35%).

Figure 11: Frequency of conversations with their child about STEM topics.

Q. On average, how often do you have conversations with your child about topics related to STEM?



Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

STEM conversations were also found be more frequent among families where at least one parent holds STEM qualifications (49%) compared to those who do not hold STEM qualifications (34%), and those where at least one parent holds a job in STEM (52% vs 34%).

Assisting with assignments and homework

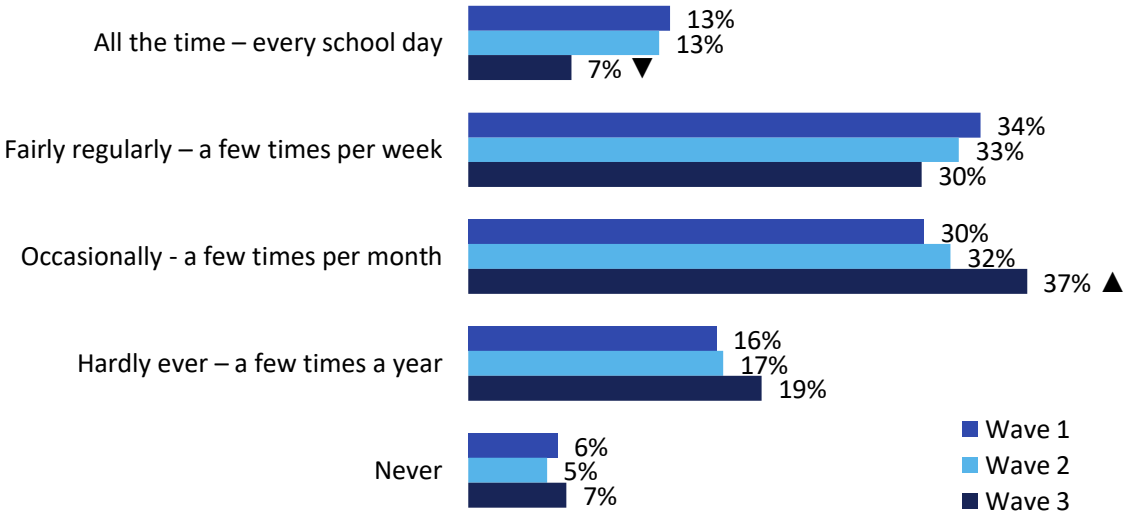
Two in five parents (37%) assist with assignments or homework at least once a week or more often, significantly less often than in both wave 1 (47%) and wave 2 (45%). This is driven by lower frequency help from both fathers and mothers.

The occurrence of weekly assistance is significantly higher among parents of primary school children (51%) compared to parents of secondary school children (27%).

Just under two in five (37%) parents help their child a few times a month (up from 32% in wave 2), leaving a quarter (26%) who rarely or never assist with homework or assignments, highest among parents of students in tertiary education (47%) and secondary (30%) compared to only 19% of parents of children in primary school.

Figure 12: Frequency of helping oldest child with assignments and homework.

Q. How often do you help the child with assignments and homework?

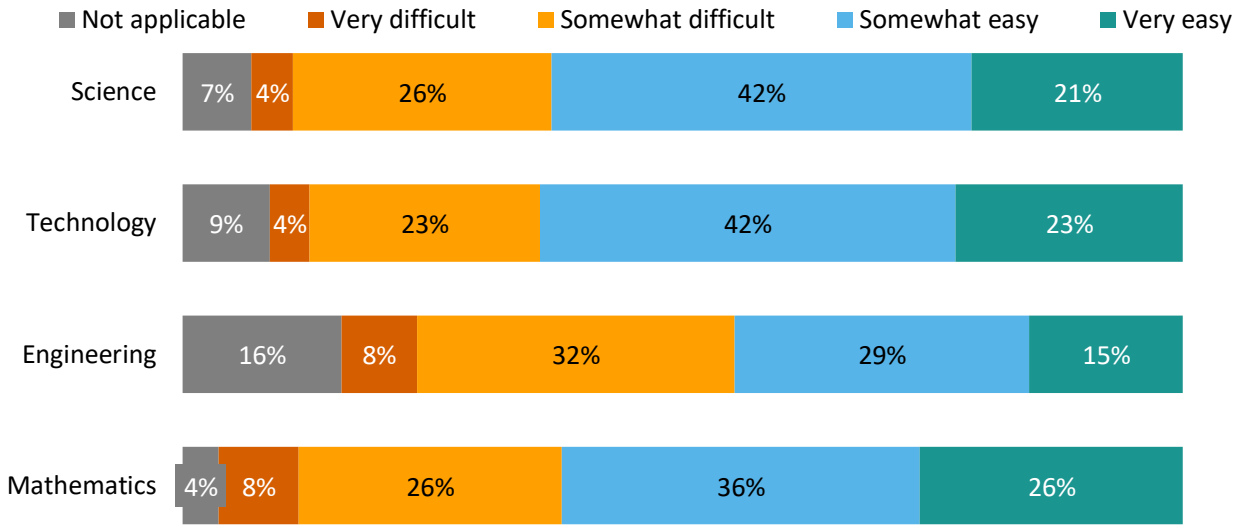


Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Of those who assist their children, three in five find it an easy task to assist with science (63%), technology (64%) and mathematics (62%). This drops to less than half (45%) of parents for engineering, reflecting earlier results regarding the lower confidence in supporting with engineering versus other STEM subjects.

Figure 13: Ease of helping children with STEM homework or assignments.

Q. How easy or difficult do you find helping the child on assignments and homework related to STEM subjects?



STEM subjects	Science topics	Technology topics	Engineering topics	Mathematics topics
Somewhat - very easy	63%	64%	45%	62%
Somewhat - very difficult	30%	27%	39%	34%

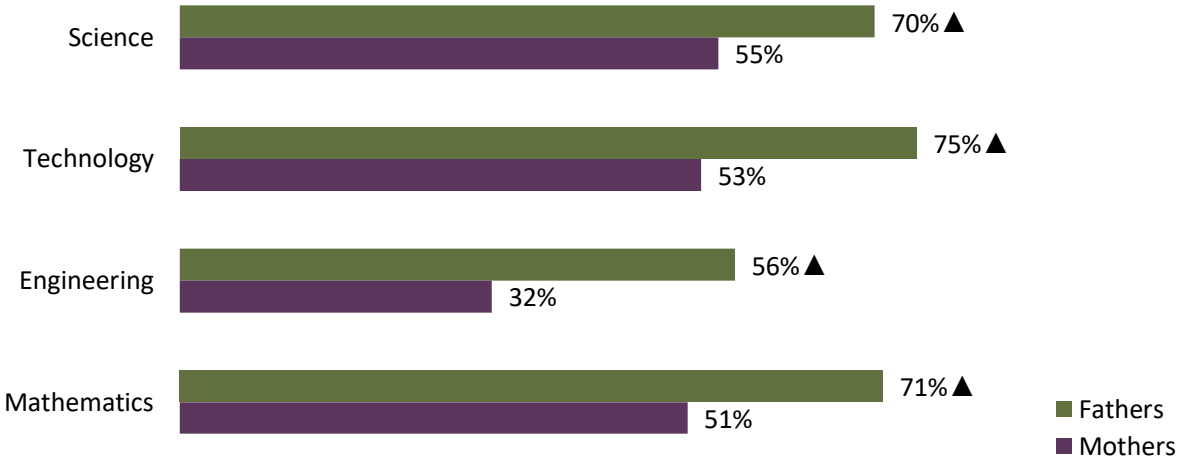
STEM subjects	Science topics	Technology topics	Engineering topics	Mathematics topics
Somewhat - very easy – wave 1	62%	62%	46%	63%
Somewhat - very easy – wave 2	64%	65%	50%	63%
Somewhat - very easy – wave 3	63%	64%	▼45%	62%

Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Fathers were more likely than mothers to say it is somewhat or very easy to help their child with assignments and homework on all STEM subjects.

Figure 14: Ease of helping children with STEM homework or assignments, split by STEM subject (net: somewhat / very easy).

Q. How easy or difficult do you find helping the child on assignments and homework related to STEM subjects?



Base: unweighted parents who assist their children with homework / assignments monthly or more, fathers – 587, mothers – 511 (non-binary parents not shown due to low base size – 4).

Intuitively, families with at least one parent in a STEM job and those with a STEM qualification were more likely to find it easy to teach all STEM subjects than their counterparts. Other significant differences between other audiences include:

Table 8: Ease of helping children with STEM homework or assignments by audience (net: somewhat / very easy): significant differences by audience.

Q. How easy or difficult do you find helping the child on assignments and homework related to STEM subjects?

Audience	Science	Technology	Engineering	Mathematics
Socioeconomic status				
Lower SES (Decile 1 - 5)	58%	61%	39%	59%
Higher SES (Decile 6 - 10)	▲65%	66%	▲48%	64%
Location				
Metropolitan	▲66%	66%	▲48%	▲65%
Regional / remote	58%	60%	39%	57%

Emphasis on STEM at the child's school

Just under half of parents (44%) agreed their child's school places a lot or quite a bit of emphasis on the teaching of STEM, down from 48% in wave 2 and 50% in wave 1. A third (36%) agreed that there is some emphasis on STEM but not much. Very few (6%) said there is no emphasis on STEM at the school and 15% were unsure.

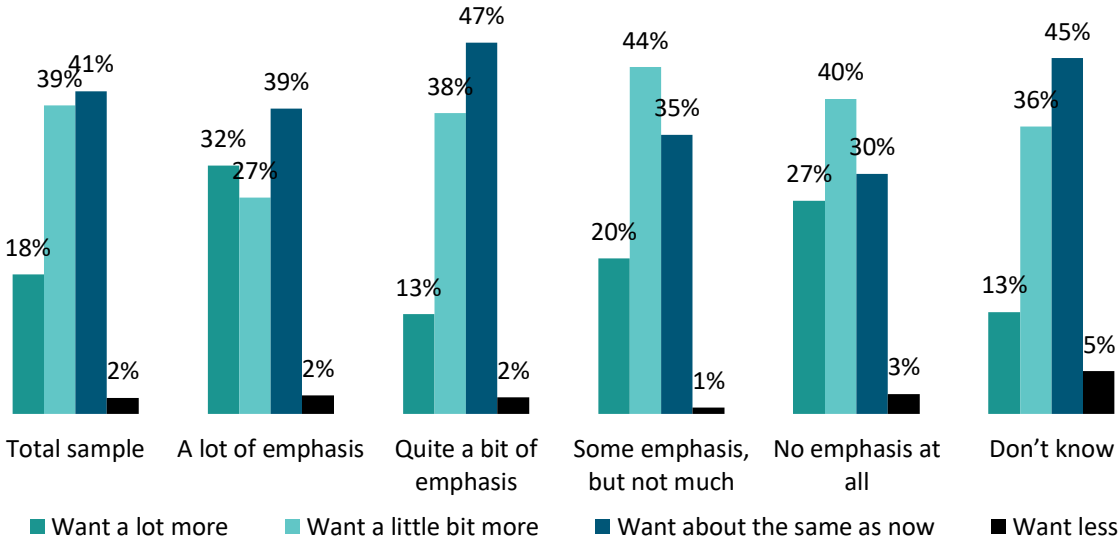
Fathers (48%) were more likely than mothers (40%) to feel that their child's school places a lot or quite a bit of emphasis on the teaching of STEM. An emphasis on STEM within the school was also higher in metropolitan schools (48%) than regional or remote schools (37%) and those in high SES areas (46% vs 39% in low SES areas).

When asked whether they would like to see their school doing more or less to engage their child in STEM, 57% of parents said they want their school to be doing more, consistent with previous waves. Two in five (41%) are happy with the current level of engagement and only 2% wanted their school to do less. There were no differences in opinions by parent gender or gender of the child.

As seen in previous waves, the appetite for greater STEM engagement through the school is highest from parents who say their school currently places a lot of emphasis on STEM education. These parents may have a greater interest in STEM education for their children and / or value what STEM education can provide their child.

Figure 15: Preference for school's future emphasis on STEM by school's current STEM emphasis.

Q. Would you like the child's school to be doing more or less to engage your child in STEM? / Q. How much emphasis does the child's school put into the teaching of STEM?



	Wave 1	Wave 2	Wave 3
Net: Want school to do more	57%	59%	57%

Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500.

Parents were then asked in an open-ended style question to explain the reasons why they feel the school should do more to engage their child with STEM. The major themes that emerged included:

Too much focus on other areas such as arts or sport which are less important than STEM

"I feel as though there's a lot less focus put on STEM. And more of other avenues such as sport, arts, religion etc."

"The school needs to develop future technologists that requires more science and less arts. It needs to emphasise what young adults could achieve in these future roles. I don't feel the school does enough."

"I feel like the school spend too much time on English and social type sciences when they should be putting a lot more time into the sciences and critical thinking."

STEM offers more opportunities and is important for the future of my child

"STEM is the future."

"It encourages children to think and problem solve and it is so ingrained into so many employment opportunities."

"Because it is the way of the future and our children need these skills. They will become basic skills in the future."

Engagement with STEM needs to be improved

"There is always more that can be done to engage and involve kids."

"I believe they could do more hands-on activities to engage the students in learning more about STEM, projects etc."

"More fun activities to encourage young girls into that area for planting seeds for future careers."

Currently schools lack the time/skills/resources, curriculum does not have space

"Recruiting better quality teachers who know their subject well and can teach kids well along with motivating them to pursue STEM subjects."

"More should be done for the kids who excel and enjoy science. There should be more options for extra curricular activities for those kids."

"Current curriculum doesn't allow for all students to find their favourite STEM topics or outlets to find one that suits them. Instead they are told this will suit them."

"I personally feel that school is behind (entire curriculum) is behind from where it should be. There is less structure and hence teachers spend a lot of time on things other than teaching."

STEM should be encouraged from an early age

"The school does minimal STEM. My child in year 1 never knew what stem was 3 weeks ago."

"The Education system should be based on STEM. So the children will start to learn from the early stages."

"I think the STEM subjects should be started at younger age and in their everyday homework."

There is a lack of STEM homework or projects

"My child seems to have little homework related to STEM."

"I don't see my son bringing much in the way of homework coming home. I'd like to see them assigning more in order to practice more."

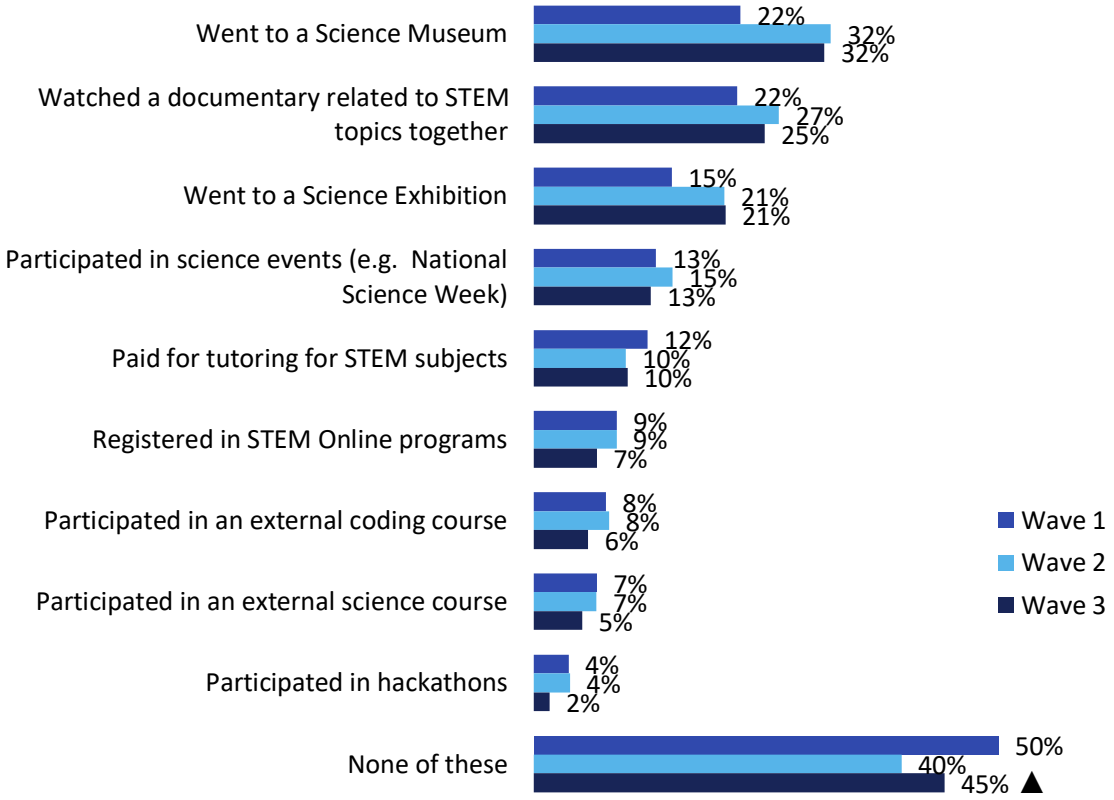
"Students should be given extra classes for STEM related homework. More emphasis should be given on the job prospects of STEM subjects."

Involvement in STEM activities

Down significantly from wave 2 (60%), just over half (55%) of parents surveyed reported participating in a STEM-related activity with their child in the past 12 months. Going to a science museum (32%) and watching a documentary (25%) were found to be the most common activities. The decline since wave 2 is driven by slightly fewer parents engaging with a variety of activities.

Figure 27: Participation in STEM-related activities in past 12 months.

Q. Which of the below activities have you been involved in with the child over the past 12 months? (MC)



Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Fathers were more likely to have participated in a STEM-related activity with their child (62%) than mothers (49%). Parent of children in primary school were also more likely (63%) compared to parents of children in secondary school (49%).

Other significant differences in participation in any STEM-related activity between audiences include:

Table 9: Participation in any STEM-related activities in past 12 months: significant differences by audience.

Q. Which of the below activities have you been involved in with the child over the past 12 months?

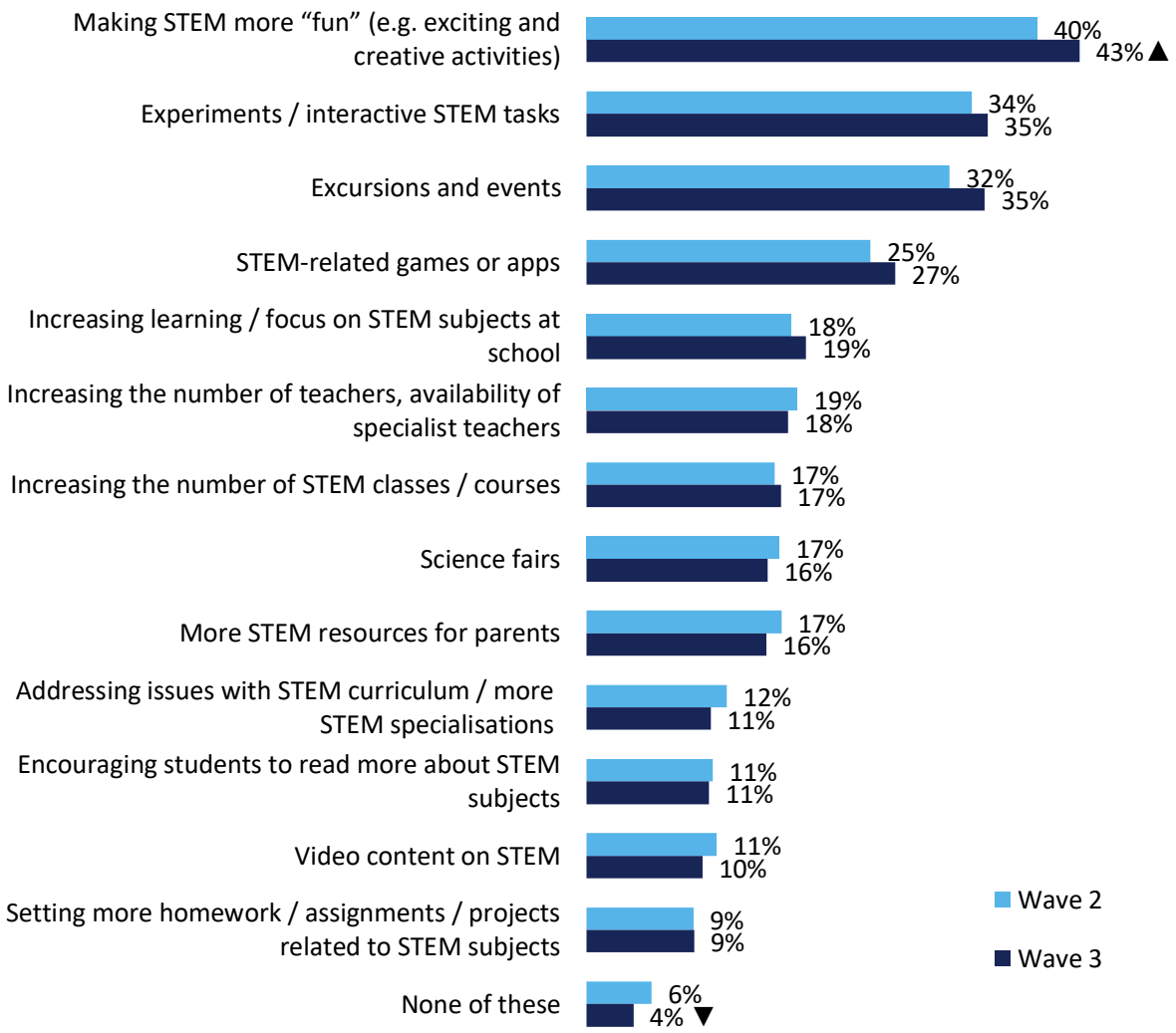
Audience	WEIGHTED %
Socioeconomic status	
Lower SES (Decile 1 - 5)	46%
Higher SES (Decile 6 - 10)	▲60%
Location	
Metropolitan	▲59%
Regional / remote	49%
CALD	
Non-CALD	52%
CALD	▲67%

How to increase engagement with STEM

In 2022 a new question was added to the survey to understand how parents think engagement with STEM could be increased. This wave, two in five parents thought that making STEM more fun with exciting and creative activities was required (43%, up from 40% in wave 2), while 35% of parents felt that experiments and interactive tasks would help improve engagement. The same proportion (35%) felt that excursions and events would help improve engagement with STEM.

Figure 28: Suggestions that will increase children's engagement with STEM.

Q. Which of the following things do you think would help increase the child's engagement with STEM? (MC – Top 3)



Base: unweighted total wave 2 – 1,508, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Mothers are more in favour of more experiments or interactive STEM tasks (39% vs 32% for fathers) and excursions and events (41% vs 29% for fathers). On the other hand, fathers were more in favour of video content (13% vs 7% for mothers), encouraging students to read more about STEM (14% vs 8% of mothers) and setting more homework, assignment or projects related to STEM (12% vs 7% of mothers).

Parents were then asked in an open-ended style question to explore other ideas for improving engagement in STEM related study. The major themes that emerged included:

More engagement between parents and schools regarding STEM

"It would be very helpful if the teachers could share the learning timetable with parents so that we could tag along the syllabus with our kids at home."

"Any high quality resources that can be offered to parents would be greatly appreciated."

"Engage parents as well on STEM subject resources so that they can provide the required resources to kids."

"I feel schools could educate parents better on STEM and resources available."

Building more connection between STEM and the real world and careers

"Linking it to careers."

"Role models in STEM careers."

"Guest speakers (including parents) invited to share about their STEM careers."

"Ask the kids how they want to learn and make it about real life as much as possible."

As much hands-on / fun / interactive learning as possible

"I think if it was more hands on, more interesting my daughter would be engaged and consider it for a career."

"I think a science fair or similar, where perhaps the children run the fair and conduct demonstrations would be a great exercise."

"My kids love 3D printing, they're a bit young to design things, but they love collaborating with me to design things to print for them. All their friends get excited about printing things too."

"Take your child to a science museum, planetarium, or natural history museum to help them intuitively understand and explore STEM fields with authentic exhibits and interactive experiences."

STEM careers

Jobs associated with STEM qualifications

The survey tested parents' understanding of the types of jobs available for people with STEM qualifications. Only one in ten (10%) reported that they didn't know what jobs were available (which has declined since 19% in wave 1).

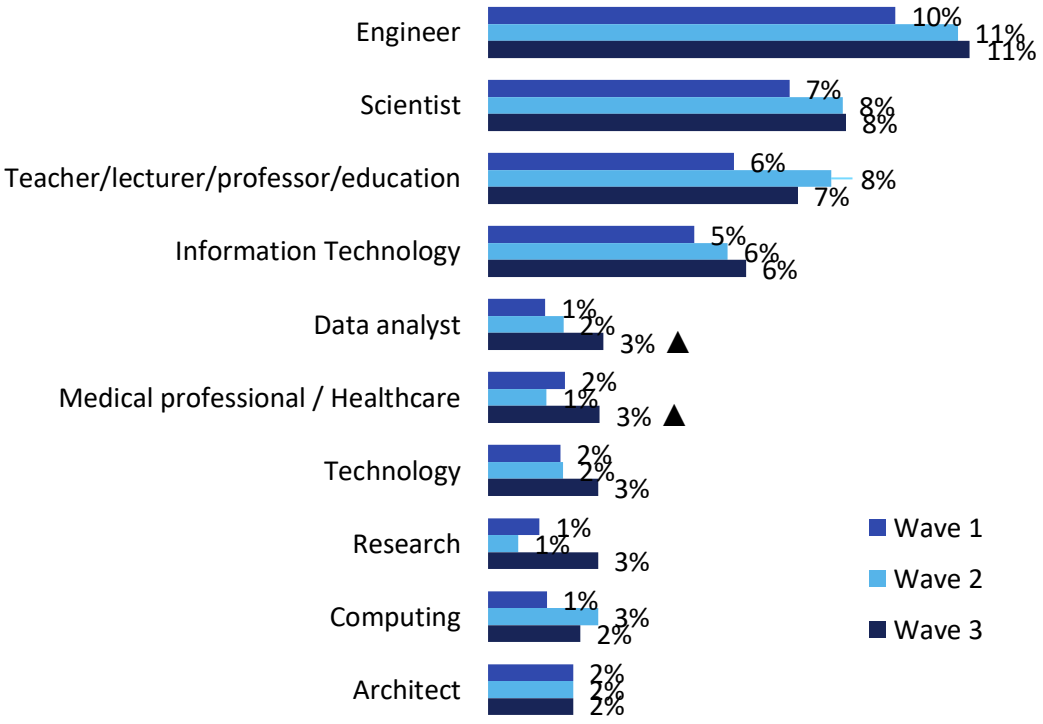
While the variation of responses was broad, engineer (11%) was the profession most highly associated with STEM, in line with last wave. This was followed by scientist (8%), teacher / lecturer / professor (7%) and information technology (6%).

This wave we saw more parents mentioning data analysts (3% up from 2%) and medical professionals (3% up from 1%), researchers (3% up from 1%).

Interestingly, among those who provided incorrect responses when asked to identify the subjects that make up the STEM acronym, engineering was the subject that caused most confusion. As per the previous waves, these results again indicate that while both parents and young people understand the connection between STEM skills and the engineering career, the actual understanding of what the STEM acronym stands for is less clear.

Figure 29: Unprompted jobs associated with STEM.

Q. What type of jobs do you think people would be able to get if they have a STEM related degree or certificate? (OE)



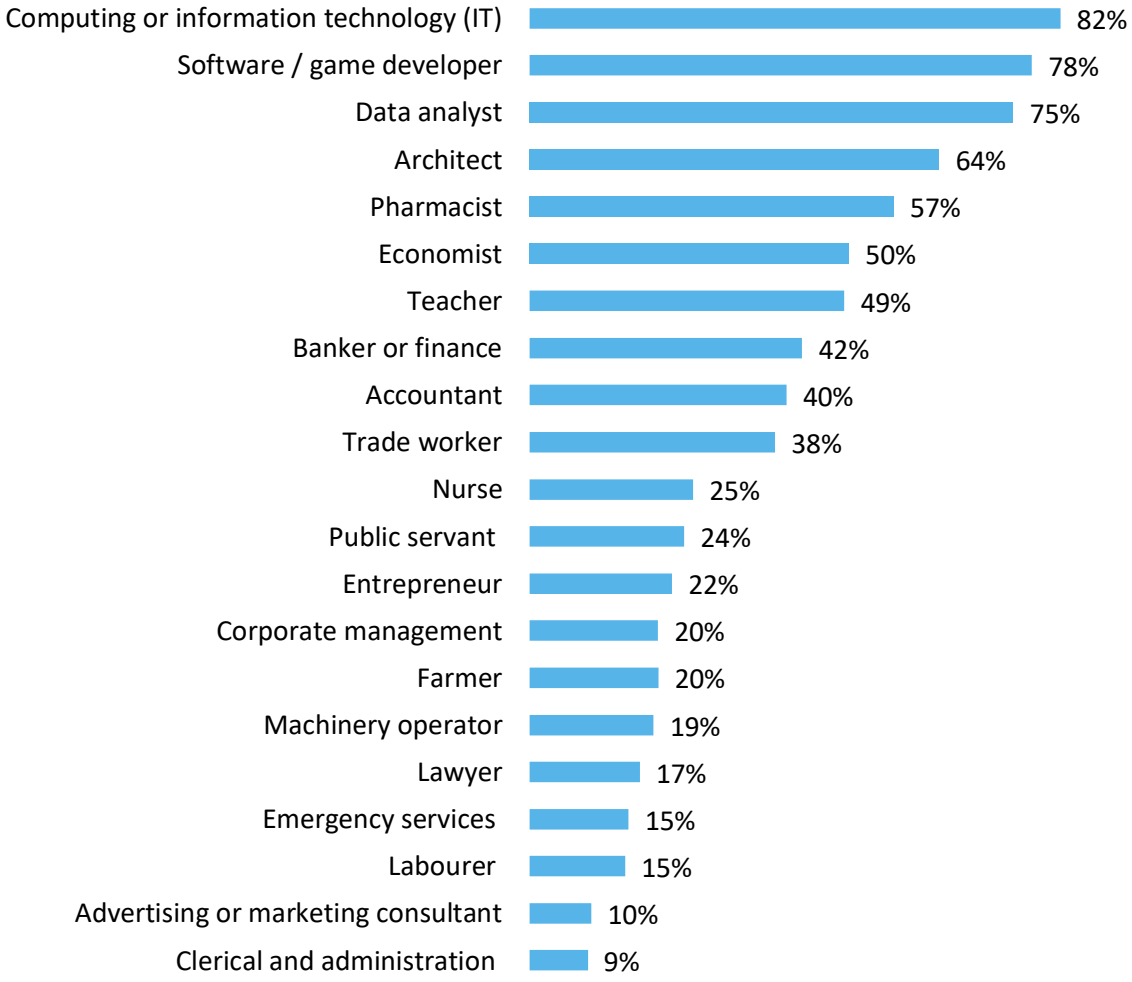
Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

While most parents agree that all future jobs will require STEM skills, when asked about a range of existing careers, STEM skills were not seen as a must-have for most jobs. The career which most parents agreed would require STEM skills was computing / information technology (82%) followed by software or game developer (78%), data analyst (75%), architect (64%) and pharmacist (57%). For all other careers, around half of parents or less believe STEM skills would be an essential requirement.

This wave we saw an increase in the proportion saying that STEM skills are essential (must-have) for computing or IT roles (82% up from 78%) and to be a data analyst (75% up from 71%). We saw a decline in the proportion saying that STEM skills are essential to be a nurse, entrepreneur, to work in corporate management, as a lawyer, to work in emergency services or in clerical or administration roles.

Figure 30: Careers believed to require STEM skills (% must-have).

Q. How essential do you think STEM skills are to the following careers? (MC)



Base: unweighted total wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Gender bias

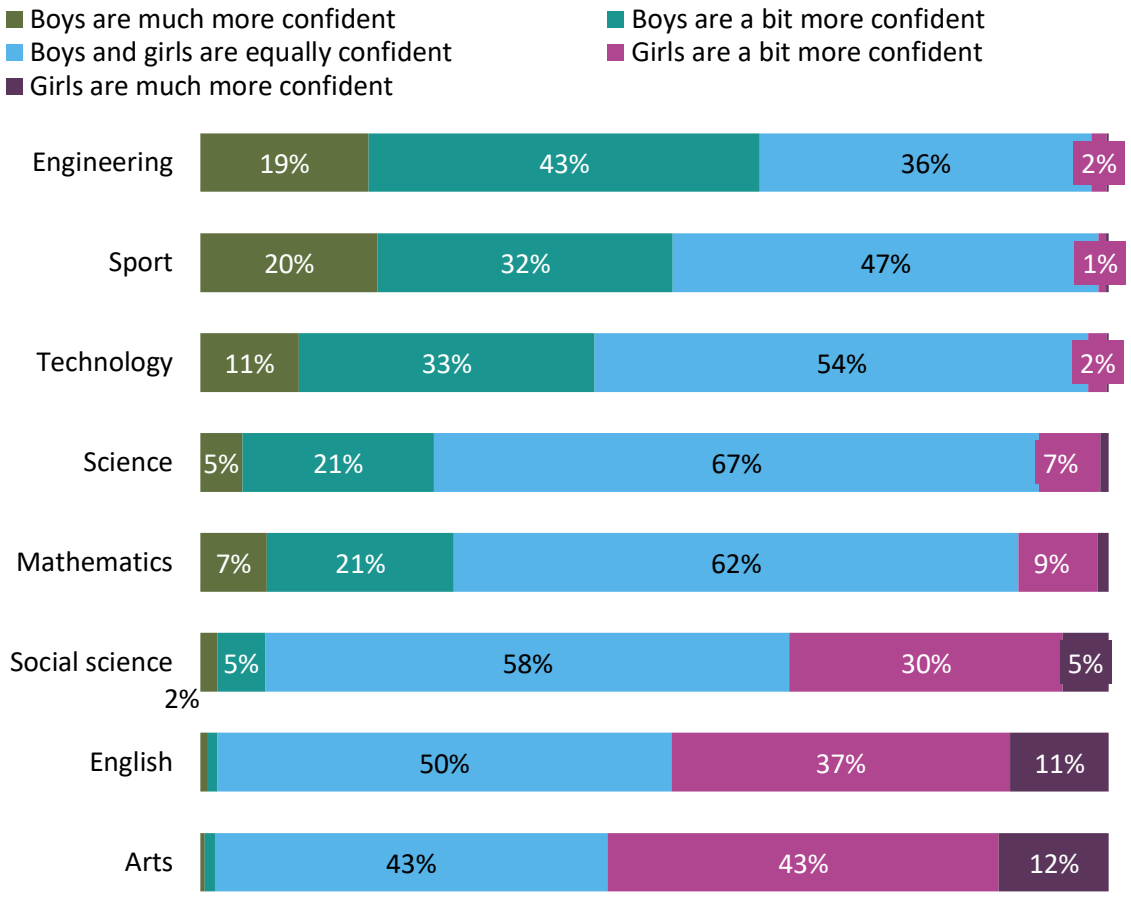
Overall, the majority of parents (average of 52% across all STEM subjects), believe boys and girls are equally confident in STEM. However, when analysing individual subjects and the proportion of parents who believe there are differences in confidence levels between boys and girls, gender biases are clear.

The results confirm that parents' perceptions are aligned with those of young people, with a larger proportion believing that boys are more confident across all STEM subjects. Engineering recorded the largest gender skew, with three in five (62%) of all parents saying that boys are more confident in the subject compared to only 2% saying that girls are more confident. This gender skew is even stronger compared to wave 2, with parents feeling boys are suited to STEM subjects and girls to non-STEM subjects more than we have previously recorded.

Science was the most gender-neutral subject, with 67% of parents saying that boys and girls are equally confident in the subject. However, there was still some gender bias, with 26% saying that boys are more confident compared to only 8% saying that girls are more confident. However, unlike in wave 2, this gender skew in perceived confidence in STEM towards boys was more evident among fathers, particularly for technology (47% of fathers believed boys are more confident in this subject, compared to 39% of mothers).

Figure 31: Perceptions of boys' and girls' confidence in certain subjects.

Q. In your opinion, who do you believe is more confident in the following subjects?



Subjects	Net: boys are more confident	Net: girls are more confident
Arts	2%	55%
English	2%	48%
Social science	7%	35%
Mathematics	28%	10%
Science	26%	8%
Technology	43%	2%
Sport	52%	1%
Engineering	62%	2%
NET: STEM	69%	16%
NET: Non-STEM	55%	71%

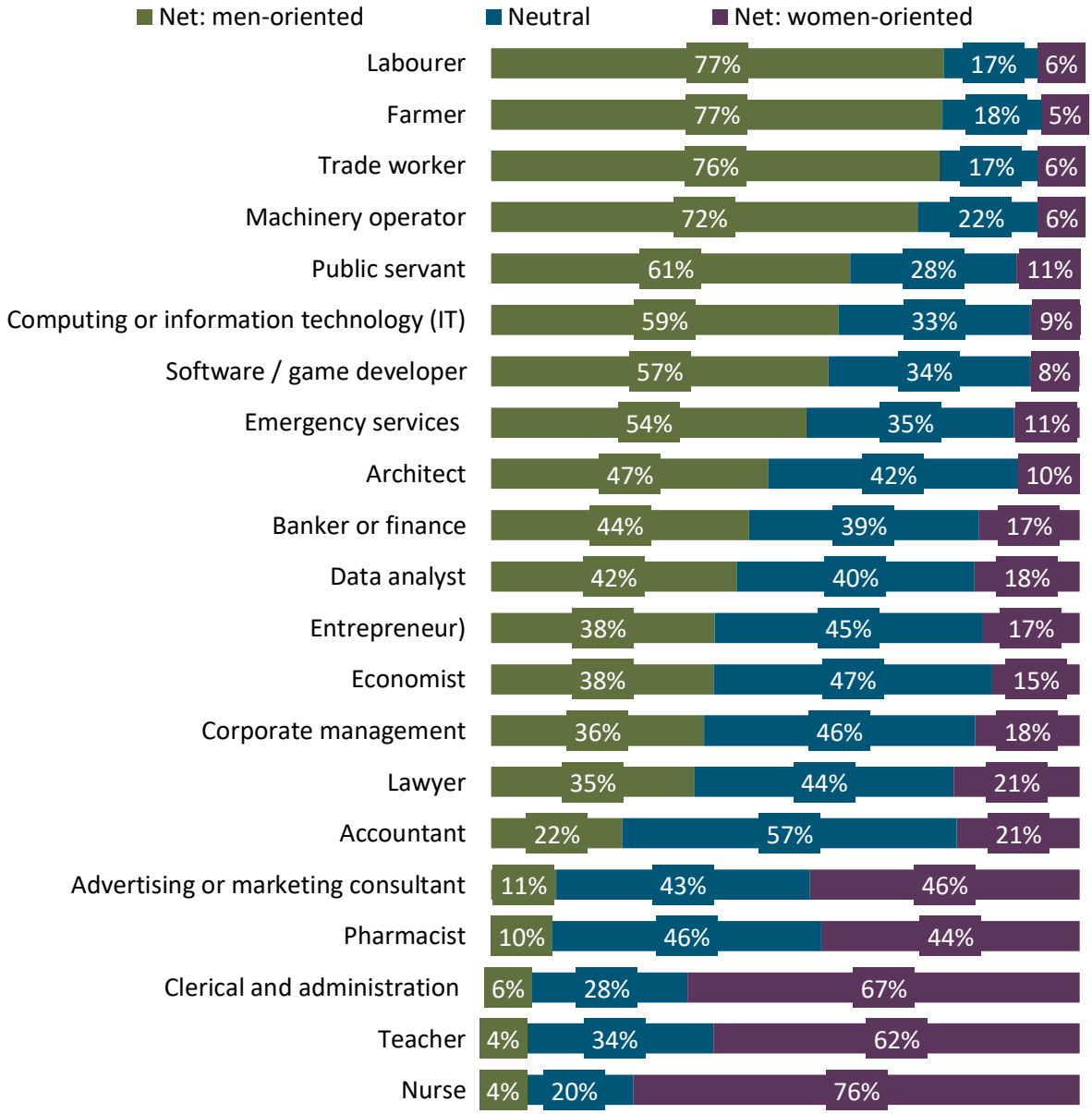
Base: unweighted total wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Gender bias was also seen in parents' perceptions of whether jobs are more for men or for women. A large proportion of corporate and labouring jobs were seen to be orientated more towards men. This was a view equally shared by mothers and fathers.

In wave 3, accountant, economist and corporate management were the professions with the least gender bias, followed by entrepreneur and lawyer. The roles most skewed towards women were nurse, teacher and administration. Labourer, farmer, trader worker and machinery operator were the roles most skewed towards men.

Figure 16: Perceived gender orientation of certain jobs.

Q. Of these jobs, which ones do you think are more for men, more for women or for both?



Base: unweighted total wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

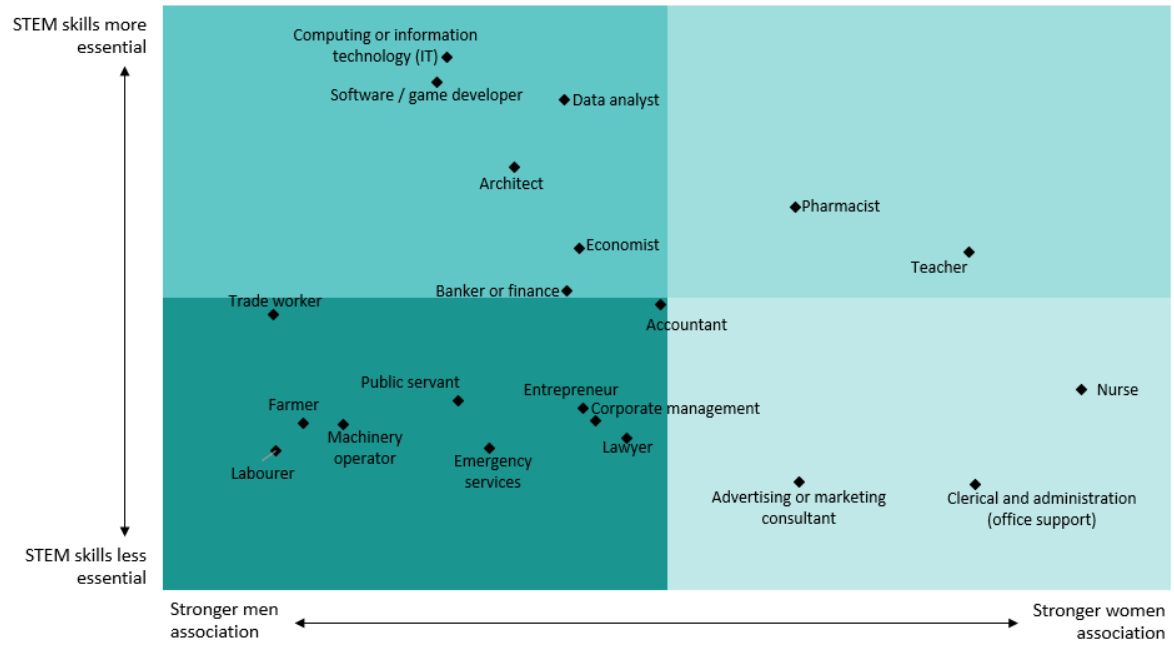
By cross tabulating parents' perceptions of how essential STEM skills are for careers and gender occupation associations, most jobs where STEM skills are deemed a necessity are also more skewed to men (e.g. computing or information technology, software / game developer and data analyst).

Conversely, the most gendered roles, particularly those for women, are roles where STEM skills are deemed not important. Pharmacist and teacher were the only two occupations where STEM skills are seen as more essential and skewed towards women. These findings are strikingly similar to the associations among educators in the Teachers & Career Advisors research.

The matrix remains largely consistent across waves.

Figure 33: Matrix of occupations plotted by gender association and perceived requirement of STEM skills.

Q. Thinking about what you know, do you think these jobs are more for boys, more for girls or for both? / Q. How essential do you think STEM skills are to the following careers?



Base: unweighted total wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

The impact of the media

Consistent with the wave 1 findings, the media continues to play a big role in how STEM is portrayed to young people and according to 86% of parents (up from 83% in wave 2), it is generally presented in a positive manner. Three in five parents agree that there is a lack of women role models in STEM (63%), although this is down significantly from wave 2 (68%).

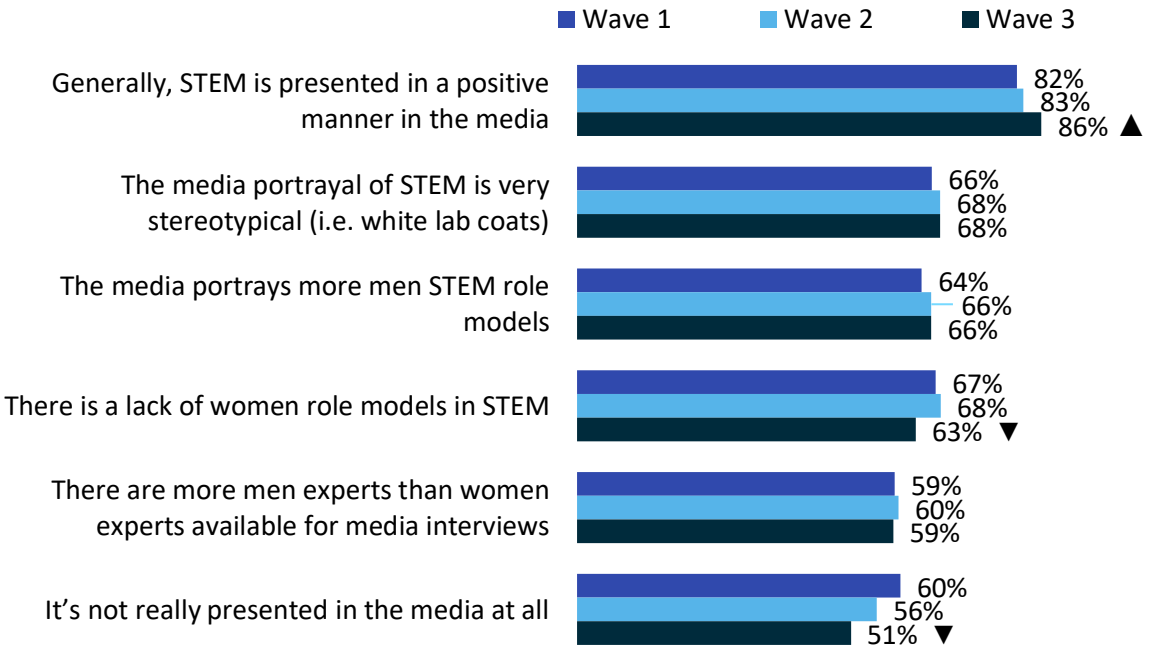
Almost three quarters (73%) disagree that there is too much emphasis on getting girls into STEM – a view more common among mothers (78%) than fathers (68%). The majority of parents acknowledge the unbalanced gender divide in STEM, with 59% agreeing that there are more men experts than women experts available for media interviews. Parents have split views (45% agree and 55% disagree) on whether the media shows conflicting messages about the importance of STEM.

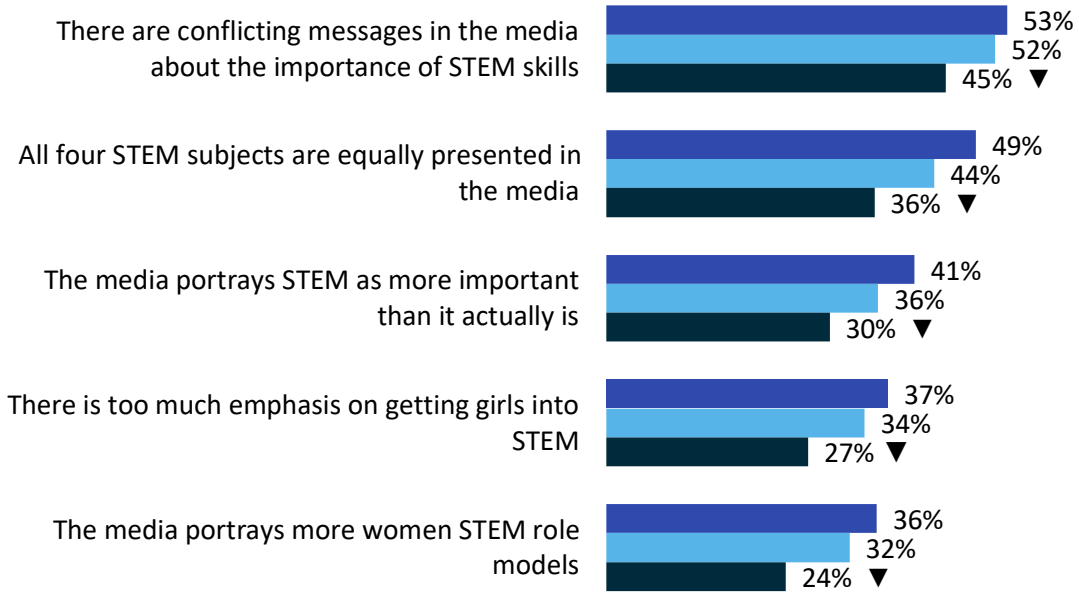
There have been positive shifts in many attitudes about STEM in the media since wave 2. Compared to the previous wave, the proportion of parents who agree that STEM is presented in a positive manner in the media has increased, from 83% to 86%, fewer parents think that there is a lack of women role models (63% vs 68%), fewer think it is not presented in the media at all (51% vs 56%), fewer think there are conflicting messages about the importance of STEM skills (45% vs 52%), that the media portrays STEM as more important than it actually is (30% vs 36%) and that there is too much emphasis on getting girls into STEM (27% vs 34%).

However, we have seen a decrease in the proportion of parents agreeing that all four STEM subjects are equally presented in the media (from 44% to 36%), perhaps reflecting the impact of recent advances in technology such as AI.

Figure 34: Agreement with statements related to gender bias of STEM in the media (net: somewhat / strongly agree).

Q. Please indicate how much you agree or disagree with the following statements about how STEM is currently presented to young people in the media (e.g. in television, social media, books etc.)





Statements about media portrayal of STEM	Net: somewhat / strongly disagree	Net: somewhat / strongly agree
Generally, STEM is presented in a positive manner in the media	14%	86%
The media portrayal of STEM is very stereotypical (i.e. white lab coats)	32%	68%
The media portrays more men STEM role models	34%	66%
There is a lack of women role models in STEM	37%	63%
There are more men experts than women experts available for media interviews	41%	59%
It's not really presented in the media at all	49%	51%
There are conflicting messages in the media about the importance of STEM skills	55%	45%
All four STEM subjects are equally presented in the media	64%	36%
The media portrays STEM as more important than it actually is	70%	30%
There is too much emphasis on getting girls into STEM	73%	27%
The media portrays more women STEM role models	76%	24%

Base: unweighted total wave 1 – 1,483, wave 2 – 1,509, wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Thoughts and conversations about AI

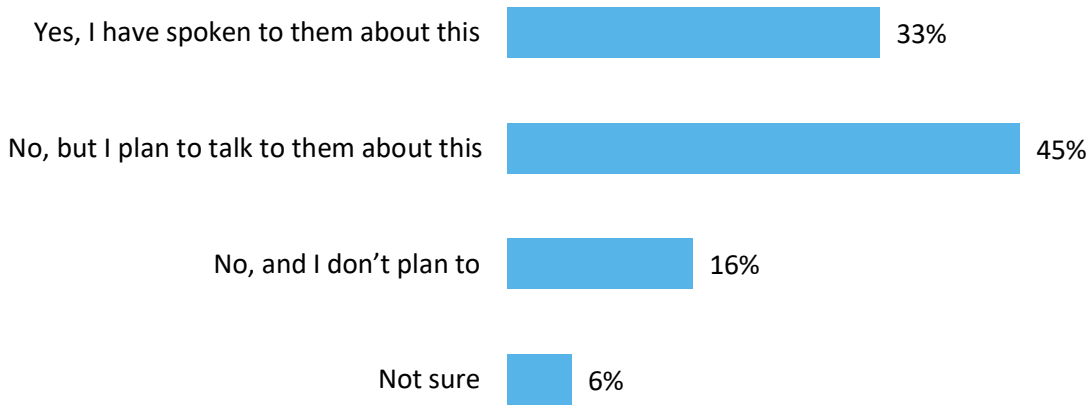
Two new questions added for wave 3 sought to understand the influence of the recent advances in artificial intelligence (AI). First, we asked whether or not they, as parents, believe that generative AI tools will have a significant impact on work and careers in the future. Almost 9 in 10 (86%) said yes, reflecting a majority feeling that AI is going to have an impact on jobs. Eleven percent were unsure and a final 3% said no, they did not think there would be an impact.

Some audiences were more likely to believe in this impact: parents of children in primary school, those in metro areas, CALD parents and those who had completed higher education.

The survey also asked whether parents had spoken to their child about AI or the impact on their future careers. As seen in the chart below, 33% had already spoken to their children about this, while a further 45% planned to speak to them about this, adding to a total of 8 in 10 (78%). Only 16% of parents did not plan to speak to their children about AI, with a final 6% being unsure.

Figure 34: Conversations had with children about AI or its impact on careers.

Q. Have you ever talked to your child/children about AI or the impact on their future careers?



Base: unweighted total wave 3 – 1,500. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

There were some differences by demographics, with mothers being more likely than fathers to be unsure about whether they will speak to their child about this (7% vs. 4%). Parents of children in secondary school were more likely to have spoken to their child about this than parents of children in primary school (39% vs 21%), while parents of children in primary school were more likely to say they hadn't but they plan to speak to their children about this in the future (57% vs 40% of secondary).

Those in metro areas were more likely to have spoken or plan to speak to their child about this than those in regional or rural areas (80% vs 74%). Those in higher SES areas were the same, compared to those of lower SES (81% vs 73%). Finally, CALD parents were also more likely to have done this or plan to compared to non-CALD parents (86% vs 76%).

Previous STEM experience also had an impact on likelihood to discuss AI with their children, with those who had STEM qualifications or families with at least one parent in a STEM job being more likely to have discussed this with their child.

Aboriginal and / or Torres Strait Islander parent differences

Parent profile

Below is a breakdown of the Aboriginal and / or Torres Strait Islander parent profile. It is important to note that with no gender quotas placed on this cohort, there was a larger proportion of Aboriginal and / or Torres Strait Islander men (60%) compared to women (40%). This gender skew is this inverse of that achieved in wave 2 (although similar to wave 1) and needs to be taken into consideration when analysing the results, as gender is a key driver of differences in perceptions towards STEM among parents.

It is also important to note that the total unweighted sample size for Aboriginal and / or Torres Strait Islander parents was 81. This sample size is sufficiently robust for analysis purposes at a total level, but not robust enough for some sub-segment analysis.

In relation to parental education, parents who identified as Aboriginal and / or Torres Strait Islander were more likely to report the highest level of education as year 12 (32%) vs those who did not (16%). Parents who identified as Aboriginal and / or Torres Strait Islander were also less likely to report having taken part in higher education (51%) vs those who did not (63%). A third (32%) reported having qualifications related to STEM, up from 17% in wave 2, however it is likely that this can be explained by the gender skew towards women rather than a change over time.

Table 10: Aboriginal and / or Torres Strait Islander parent profile.

GENDER, AGE AND SCHOOL	UNWEIGHTED SAMPLE	UNWEIGHTED SAMPLE %	WEIGHTED POPULATION	WEIGHTED POPULATION %
Total	81	100%	82	100%
Gender				
Man	49	60%	49	60%
Woman	32	40%	33	40%
Non-binary	0	0%	0	0%
States and territories				
NSW	28	35%	32	39%
VIC	25	31%	25	30%
QLD	11	14%	10	13%
WA	5	6%	5	6%
SA	5	6%	4	5%
ACT	2	2%	2	2%
TAS	4	5%	3	3%

GENDER, AGE AND SCHOOL	UNWEIGHTED SAMPLE	UNWEIGHTED SAMPLE %	WEIGHTED POPULATION	WEIGHTED POPULATION %
NT	1	1%	1	2%
Region of child's school				
Capital city / major metropolitan area	49	60%	50	62%
Regional and remote / rural	32	40%	31	38%
Socioeconomic status (SES)*				
Low SES (Decile 1 - 5)	39	48%	41	50%
High SES (Decile 6 - 10)	41	51%	40	49%
Unknown	1	1%	0	0%
Highest level of education*				
Primary / secondary school	27	33%	26	32%
Vocational education and training	14	14%	14	17%
Higher education	40	79%	42	51%
STEM qualifications (among those with tertiary education) *				
STEM-related	25	31%	26	32%
Not STEM-related	56	69%	55	68%

Where weighted sample or proportions do not add up to 100%, this is due to rounding of decimal places up or down to the nearest whole number. *Highest level of education and STEM qualifications shown is based on the respondents' answer and not both parents. Socioeconomic status (SES) - not all postcodes are available in the SEIFA index list.

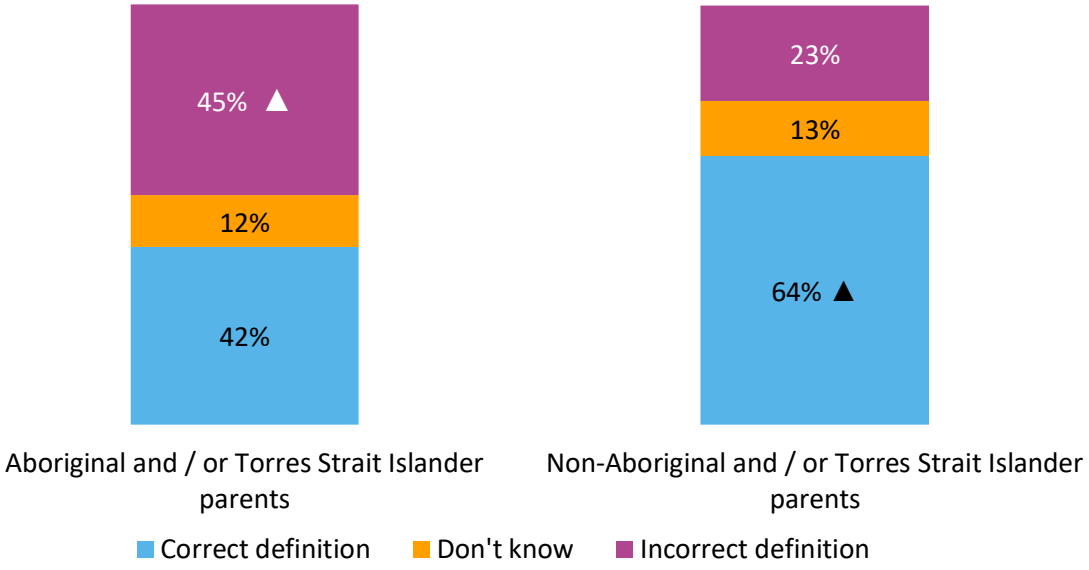
Parental desire for their children to pursue a STEM career is higher among Aboriginal and / or Torres Strait Islander parents (57%) compared to non-Aboriginal and / or Torres Strait Islander parents (45%), however, expectations of attainment of education generally do not differ.

Awareness and understanding of STEM

A significantly lower proportion of Aboriginal and / or Torres Strait Islander parents (42%) correctly identified all four STEM subjects, compared to other parents surveyed (64%). This is consistent with wave 2. There was no significant difference in the proportion of correct responses between Aboriginal and / or Torres Strait Islander fathers and mothers.

Figure 17: Understanding of the term 'STEM' (coded).

Q. Please write below what you believe the term 'STEM' stands for.

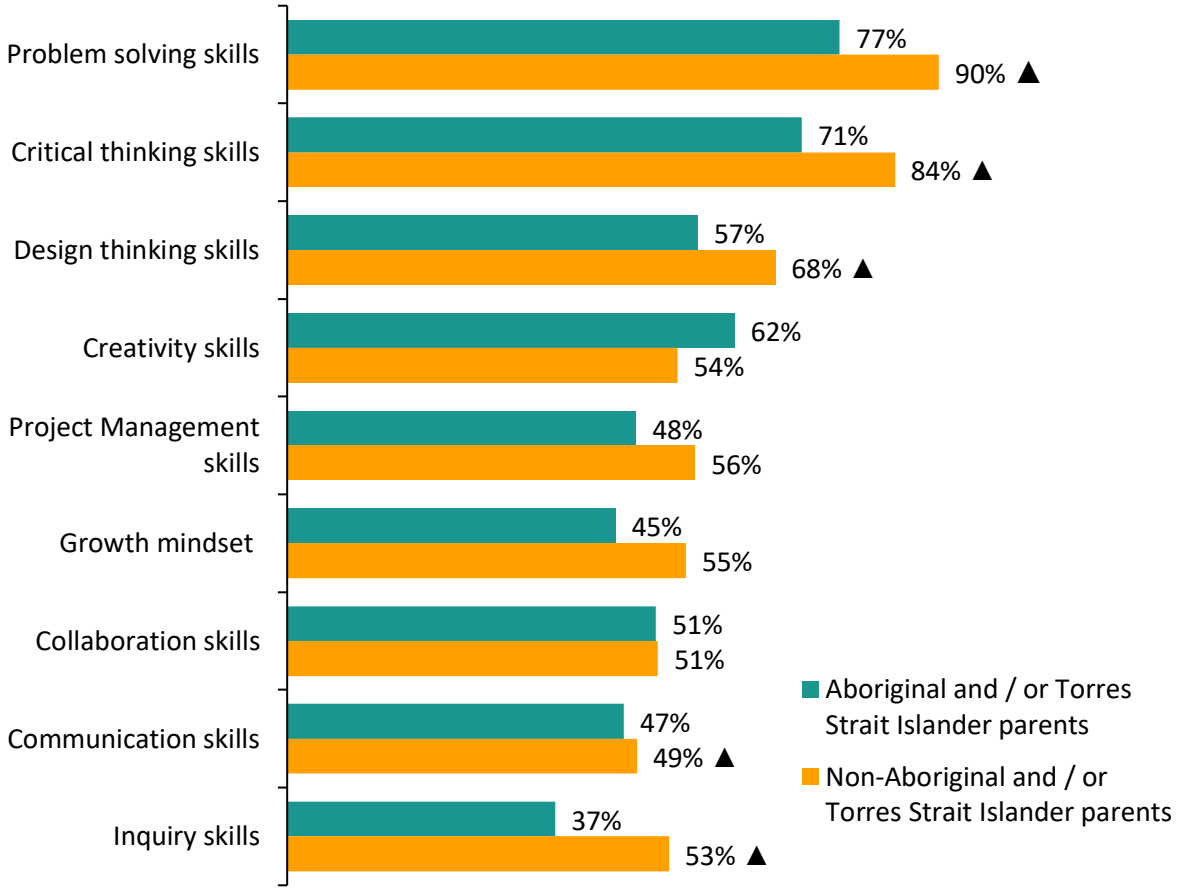


Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419. Weighted percentages may not add up to 100% due to rounding of decimal places to the nearest whole number.

Aboriginal and / or Torres Strait Islander parents were just as likely as other parents surveyed to identify the core skills that make up STEM (99% vs 98% of other parents).

Figure 36: Life skills that parents associate with STEM.

Q. Besides skills directly related to science, technology, engineering and mathematics, which of the below skills do you believe are developed through the study of STEM? (MC)



Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419.

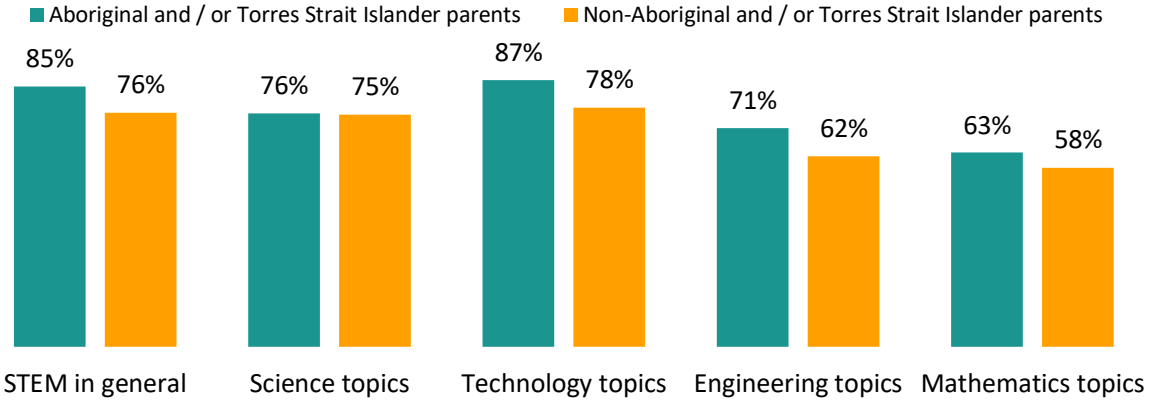
The survey also assessed parents' perceptions of how essential STEM skills are for a range of careers. Aboriginal and / or Torres Strait Islander parents were more likely to believe STEM skills are a must-have for careers not directly associated to STEM such as being a public servant, corporate management, machinery operator, lawyer or office support.

Interest in STEM

Although not significant, Aboriginal and / or Torres Strait Islander parents had slightly higher interest in all STEM subjects individually as well as STEM in general. This is inconsistent with previous waves where Aboriginal and / or Torres Strait Islander parents reported higher interest in science and technology only.

Figure 37: Interest in STEM and individual STEM subjects (net: medium / high interest).

Q. How interested are you in topics related to STEM and each of the individual STEM subjects?



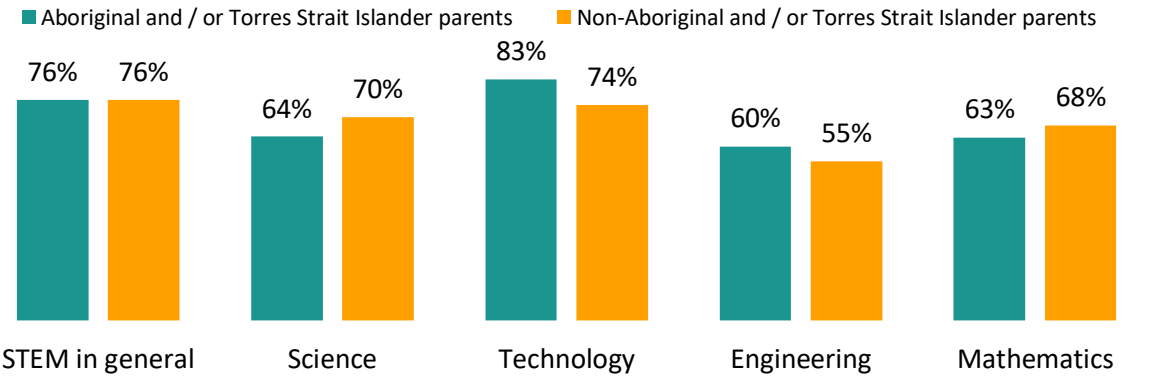
Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419.

Confidence in supporting with STEM schoolwork

Compared to other parents surveyed, Aboriginal and / or Torres Strait Islander parents reported slightly lower levels of confidence in supporting their child with homework / projects in science (64%) and mathematics (63%), but slightly higher levels of confidence with technology (83%) and engineering (60%).

Figure 38: Confidence in supporting children with STEM homework / projects (net: medium / high confidence).

Q. How confident would you feel if you had to support the child with homework / projects related to STEM?



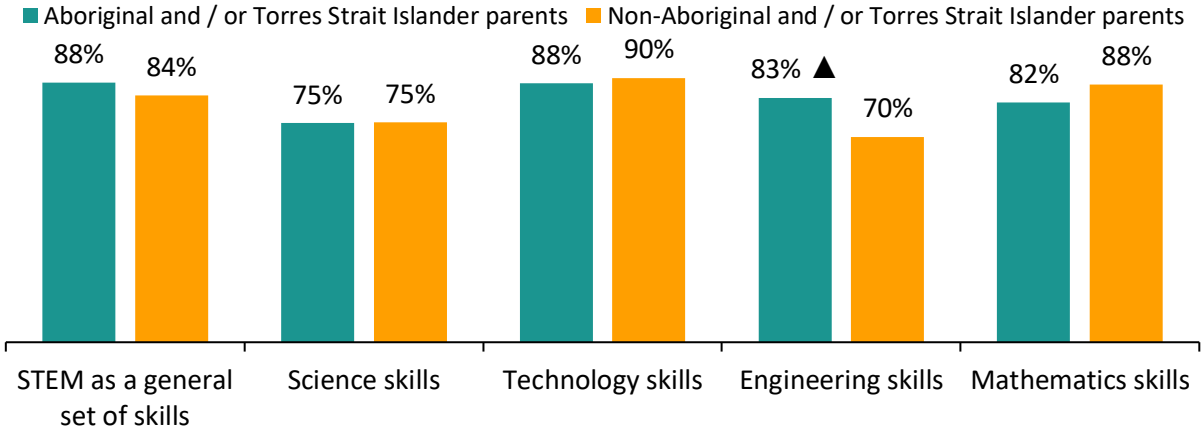
Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419.

Perceived importance of STEM for future employment

Like other parents surveyed, Aboriginal and / or Torres Strait Islander parents believe that STEM skills are important for their children to acquire a good job in the future. Skills in technology were seen as the most important (88%) alongside STEM as a general set of skills (88%). This wave it was observed that Aboriginal and / or Torres Strait Islander parents were more likely to say that engineering skills are important to get a good job (83% vs 70% of other parents surveyed).

Figure 39: Perceived importance of STEM skills for future career (net: somewhat / very important).

Q. In your opinion, how important is it for the child to have STEM skills in order to acquire a good job in the future?



Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419.

Engagement with children's education

Two in five Aboriginal and / or Torres Strait Islander parents (42%) reported discussing STEM topics with their children at least one a week, slightly higher than the 37% of other parents surveyed.

Half of Aboriginal and / or Torres Strait Islander parents (52%) said they help their child with assignments and homework at least weekly, higher than other parents surveyed (36%). Although not significant, Aboriginal and / or Torres Strait Islander parents were slightly more likely to say that they found it easy to help their child with assignments or homework related to each of the four STEM subjects.

Gender bias

Aboriginal and / or Torres Strait Islander parents reported similar perceptions to other parents surveyed with regards to differences in confidence of boys and girls across a range of school subjects. However, they were more likely than other parents surveyed to say that girls are more confident with technology (9% vs 2%) and that boys are more confident with social sciences (17% vs 7%).

Table 11: Proportion who think girls are more confident with STEM subjects (net: a bit more / much more).

Q. In your opinion, who do you believe is more confident in the following subjects?

	Aboriginal and / or Torres Strait Islander parent	Non-Aboriginal and / or Torres Strait Islander parent
Science	7%	8%
Technology	▲9%	2%
Engineering	2%	2%
Mathematics	11%	10%

Base: unweighted Aboriginal and / or Torres Strait Islander parents – 81, non-Aboriginal and / or Torres Strait Islander parents - 1,419.

Appendix: Questionnaire

Note on accessibility: The following questionnaire is presented in the format we use online and includes programming instructions in square brackets. It also contains tables listing questionnaire items. Tables don't have header rows or alt text, and some have blank cells. Questionnaire items appear in the left column with response options in the right column/s. If you have difficulty navigating the information in this questionnaire, please contact YouthInsight at support@youthinsight.com.au

[PROGRAMMING INSTRUCTIONS PROVIDED IN RED]

[SC = Single choice question | MC = Multi choice question | OE = Open ended response required]

SECTION 1: SCREENER

1. Captcha question
   [ASK ALL.SC.]

2. Which of the following do you identify as?
   [ASK ALL. SC. ALSO ASK HIGHER ED]

Man	1
Woman	2
Non-binary	3
Other	4
Prefer not to say	5

3. Which of the following best describes you?
   [ASK ALL.SC.]

Single: no kids	1	Terminate
Single: with kids	2	
In a relationship: no kids	3	Terminate
In a relationship: with kids	4	

4. Which of the following are your children or the children you are the primary carer for currently in?
   [ASK ALL.MC.]

Kindergarten or early childhood learning	1	Terminate
Year 1 to 6	2	
Year 7 to 12	3	
Higher education or other tertiary studies	4	
My child/children have completed their studies or not currently studying	5	Terminate

5. How many children are you the parent or primary carer for who are **currently in the education system** (i.e. primary, secondary or tertiary/university)?
   i.e. Do not include adult children who have entered the workforce or children who are yet to start school

1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9+	9
None	Terminate

These questions will repeat for each of your children **currently in the education system**. Please answer them in order from your oldest to your youngest child.

Throughout this survey, when we use the term "your child" we are referring to children you are the parent, guardian, or primary carer for.

[SCRIPTED LOOP TO ASK GENDER & YEAR OF EDUCATION OF EACH CHILD THEY HAVE]

SECTION 2: INTRODUCTION

Thank you. This is a research project commissioned by the federal government, to better understand parent's/primary carer's opinions and experiences around education.

[SHOW BELOW INTRO IF THEY HAVE A CHILD IN YEARS 1 TO 12]

For the purposes of this survey, please answer the following questions thinking about the **eldest child currently in school who is between the year levels of year 1 to year 12.**

From your answers above this will be the child who is in year ___

[IF ONLY ONE CHILD AND THAT CHILD IS IN HIGHER EDUCATION THEN PROVIDE THE BELOW ALTERNATE INTRO]

For the purposes of this survey, please answer the following questions thinking about the eldest child currently in higher education.

All data is confidential ….

6. Which of the below best describes your situation with **the eldest child** between the year levels of year 1 to year 12?
   [ASK IF CODES 2 OR 3 ABOVE AT Q3. SC.]

I live the same household with my eldest child	1
I live in a separate household to my eldest child but have regular contact	2
I live in a separate household to my eldest child and don't have regular contact	3 - Terminate

I live in a separate household to my eldest child and don't have much contact at all	4 - Terminate

SECTION 3: ABOUT THE CHILD'S SCHOOL

Now, we'd like to know some more information about the school which the eldest child attends.

7. Where is the school located?
   ASK ALL.SC.

		Quotas
Sydney – City / Suburbs	1	32%
NSW – Regional	2	
Melbourne – City / Suburbs	3	26%
VIC – Regional	4	
Brisbane – City / Suburbs	5	20%
QLD – Regional	6	
Perth – City / Suburbs	7	11%
WA – Regional	8	
Adelaide – City Suburbs	9	7%
SA – Regional	10	
ACT	11	2%
Hobart – City/Suburbs	12	2%
TAS - Regional	13	
Darwin – City/Suburbs	14	1%
NT – Regional	15	

8. Please enter the school's postcode
   [ASK ALL.OE. POSTCODES WILL DETERMINE SES AREAS AND METRO/REGIONAL/REMOTE AREAS.]

9. Where is the school/institution located?
   [ASK ALL. SC.]

Capital city / metropolitan area	1
Regional area	2
Rural / remote area	3

10. What sector does the school operate in?
    [ASK ALL.SC.]

Government	1
Catholic	2
Independent	3
Other (specify)	98

11. Is the school?
    [ASK ALL. SC]

Primary	1
Secondary	2
Combined (P-12)	3

Special school	4
Other (specify)	98

12. Is the school co-ed or single sex school?
[ASK ALL. SC]

Coed	1
Single sex (girls)	2
Single sex (boys)	3

13. As far as you are aware, how many students are there at the school?
[ASK PRIMARY AND SECONDARY EDUCATORS (Q4 = 1-13). SC]

Under 100	1
100-249	2
250-499	3
500-749	4
750 - 999	5
1,000 – 1,499	6
1,500 or more	7

14. How would you describe the education setting at the school?
[ASK IF CHILD IS IN SCHOOL. SC]

Mainstream	1
Specialised – School of special needs	2
Specialised – Aboriginal and Torres Strait Islander Focus	3
Specialised – Creative and performing arts	4
Specialised – Selective entry / High academic performance	5
Specialised – Sport	6
Specialised – Science and technology	7
Specialised – Agriculture	8
Other (specify)	98

15. Now, thinking about the student population at the school or institution, does the school have specific support programs or assistance for any of the following?
[ASK IF CODE 1 SELECTED ABOVE. MC.]

Students with disability/special needs	1
Students from First Nations communities	2
Students with English as secondary language	3
None of these	4

SECTION 4: ABOUT YOU AND YOUR CHILD

And now, just a few questions about you and the eldest child.

16. In what country were you and the child's other parent/primary carer (if applicable) born?
[ASK ALL. SC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer

Australia	1	1
Other (specify)	2	2
Not applicable	-	98

17. Are you or the child's other parent/primary carer (if applicable) of Aboriginal and/or Torres Strait Islander origin?
[ASK ALL. SC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer
Yes	1	1
No	2	2
Prefer not to specify	3	3
Not applicable	-	98

18. Is there a language spoken at home, other than English?
[ASK ALL. SC. ALSO ASK HIGHER ED]

No, English only	1
Yes	2

19. Which other languages are spoken at home (other than English)?
[ASK IF Q18 = CODE 2. MC. ALSO ASK HIGHER ED]

Arabic	1
Bengali	2
Cantonese	3
Dutch	4
Filipino	5
First Nations Language (please specify)	6
French	7
German	8
Greek	9
Hausa	10
Hindi	11
Italian	12
Japanese	13
Javanese	14
Korean	15
Malay	16
Mandarin	17
Portuguese	18
Punjabi	19
Russian	20
Spanish	21
Tagalog	22
	23
Telugu	24
Turkish	25
Urdu	26
Vietnamese	27
Other (specify)	98

20. [REMOVED IN 2024]
21. What's the highest level of education you and the child's other parent/primary carer (if applicable) have attained?
[ASK ALL. SC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer
Primary School	1	1
High school (Year 10)	2	2
High School (year 12)	3	3
VET Certificate	4	4
VET Diploma	5	5
Bachelor's degree	6	6
Graduate diploma or certificate	7	7
Masters	8	8
Doctorate	9	9
Other (please specify)	97	97
Not sure/prefer not to say	98	98
Not applicable	-	99

22. Have you or the child's other parent/primary carer (if applicable) completed a degree or certificate in any of the following areas?
[ASK ALL. MC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer
Accounting	1	1
Architecture	2	2
Computing	3	3
Engineering	4	4
Law	5	5
Marketing	6	6
Mathematics	7	7
Medicine	8	8
Nursing	9	9
Science	97	97
None of the above	98	98
Not applicable	-	99

23. Which of the below best describes the current employment situation for you and the child's other parent/primary carer (if applicable)?
[ASK ALL. SC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer
Full time	1	1
Part - time	2	2
Casual	3	3
Contractor	4	4
Stay at home parent	5	5

Unemployed – looking for work	6	6
Unemployed – not looking for work	7	7
Not applicable	-	99

24. Which of the below professions best describe the type of work done by you and the child's other parent/primary carer (if applicable)?
[ASK IF EMPLOYED. SC. ALSO ASK HIGHER ED]

	You	Other parent/primary carer	STEM RELATED
Accountant	1	1	
Advertising or marketing consultant	2	2	
Architect	3	3	
Artist	4	4	
Banker or finance	5	5	
Clerical and administration (office support)	7	7	
Community and personal service (aged care, childcare)	8	8	
Computing or information technology (IT)	9	9	STEM
Corporate management	10	10	
Data analyst	11	11	STEM
Economist	12	12	
Emergency services (police, fire or ambulance)	13	13	
Engineer	14	14	STEM
Farmer	15	15	
Hairdresser or beauty therapist	16	16	
Hospitality	17	17	
Entrepreneur (Specify type of business)	18	18	Potentially STEM
Labourer (construction, grounds maintenance, factory worker)	19	19	
Lawyer	20	20	
Machinery operator or driver (specify industry)	21	21	Potentially STEM
Mathematician	22	22	STEM
Medical doctor	23	23	
Nurse	24	24	
Pharmacist	25	25	

Professor, lecturer or teacher (specify subject taught)	26	26	Potentially STEM
Public servant (includes Army, Airforce, Navy) (specify role)	27	27	Potentially STEM
Public transport operator (Bus driver, train conductor)	28	28	
Retail worker	29	29	
Salesperson	30	30	
Scientist	31	31	STEM
Social worker	32	32	
Stay at home parents	33	33	
Taxi driver or ride share driver	34	34	
Technician or trade worker (mechanic, electrician, carpenter) (specify role)	36	36	Potentially STEM
Software / game developer	37	37	STEM
Unemployed	38	38	
Don't know	98	98	
Other (Specify)	98	98	
Not applicable	-	99	

25. From the professions listed below, which are the top 3 professions you would most like the child to pursue?
[ASK ALL. SC. ALSO ASK HIGHER ED]

	You	STEM RELATED
Accountant, Banker or finance	1	
Advertising or marketing consultant	2	
Architect	3	
Artist	4	
Computing or information technology (IT)	9	STEM
Corporate management	10	
Data analyst	11	STEM
Economist	12	
Emergency services (police, fire or ambulance)	13	
Engineer	14	STEM
Entrepreneur	18	Potentially STEM
Lawyer	20	
Mathematician	22	STEM
Medical doctor	23	
Nurse	24	

Pharmacist	25	
Teacher, Professor or lecturer	26	
Public servant (includes Defense Force - Army, Airforce, Navy)	27	Potentially STEM
Scientist	31	STEM
Social worker	32	
Technician or trade worker (mechanic, electrician, carpenter)	36	Potentially STEM
Software / game developer	37	STEM
Don't know	98	
Other (Specify)	98	
I don't have a preference	99	

26. What is the highest level of education you expect the child to attain when they grow up?
ASK ALL. SC. ALSO ASK HIGHER ED

High school (Year 10) (include if child is not yet in year 10)	1
High School (year 12) (include if child is not yet in year 12)	2
VET Certificate	3
VET Diploma	4
Bachelor's degree	5
Graduate diploma or certificate	6
Masters	7
Doctorate	8
Other (please specify)	9
Not sure/prefer not to say/	98
Don't have any expectations	99

27. As far as you are aware, what are the child's favourite school subjects? You can select up to 3
[ASK PARENTS OF PRIMARY STUDENTS]

English	1
Mathematics	2- STEM
Science	3- STEM
Health & Physical Education	4
Human Society & Its Environment	5
Creative Arts	6
Technologies	7- STEM
Languages	8
Other (specify)	9

28. As far as you are aware, what are the child's favourite school subjects? You can select up to 3
[ASK PARENTS OF SECONDARY STUDENTS]

English	1
Literature	2
Mathematics	3 - STEM
Biology	4- STEM
Chemistry	5- STEM
Earth and Environmental Science	6- STEM

Physics	7- STEM
Civics and Citizenship	8
Economics and Business	9
Geography	10 - STEM
History	11
Dance	12
Drama	13
Media arts	14
Music	15
Visual arts	16
Design and Technologies	17- STEM
Digital Technologies	18 - STEM
Personal, Social and Community Health	19
Personal Development, Health and Physical Education (PDHPE)	20
Other (specify)	98

29a. As far as you are aware, which of the following **elective** subjects' best describes the subjects the child has chosen to do this year (2024)?
Please select a maximum of 6 subjects and minimum of 3
Please note that different states and schools offer different choices of electives, so please select the elective subjects that best describe the ones you are considering from the list below.
[ASK PARENTS WITH CHILDREN IN YEAR 9 TO 10 MC. RANDOMISE]

		STEM RELATED
Arts – Music	1	
Arts - Visual Arts	2	
Arts – Dance	3	
Arts – Drama	4	
Arts - Photography Digital media	5	
Languages	6	
Commerce	7	
Humanities and Social Sciences	8	
Human Society and Its Environment (HSIE) - Aboriginal Studies	9	
Human Society and Its Environment (HSIE) – Commerce	10	
Human Society and Its Environment (HSIE) - Geography Elective	11	STEM
Human Society and Its Environment (HSIE) - History Elective	12	
Human Society and Its Environment (HSIE) - Work Education	13	
PDHPE - Child Studies	14	
PDHPE - Physical Activity	15	
PDHPE - Sports Studies	16	
VET in Years 9 and 10	17	
Agricultural Technology	18	STEM
Design and Technology	19	STEM
Food Technology	20	STEM
Graphics Technology	21	STEM
Industrial Technology	22	STEM
Information and Software Technology	23	STEM
Textiles Technology	24	

Other (specify)	98	
Don't know	99	

29b. As far as you are aware, which of the following **elective** subjects best describes the subjects the child has chosen to do this year (2024)?
Please select a maximum of 8 subjects and minimum of 4
Please note that different states and schools offer different choices of electives, so please select the elective subjects that best describe the ones you are considering from the list below.
[ASK PARENTS WITH CHILDREN IN YEAR 11 TO 12 MC. RANDOMISE]

Subjects	STEM RELATED	Subjects	STEM RELATED
Aboriginal studies		Human Society and Its Environment	STEM(?)
Agriculture	STEM	Industrial Technology	STEM
Ancient History		Information and Digital Technology (VET)	STEM
Automotive (VET)		Information Processes and Technology	STEM
Biology	STEM	Investigating Science	STEM
Business and Economics		Languages	
Business Services (VET)		Legal Studies	
Business Studies		Living World Science	STEM
Ceramics		Marine Studies	STEM
Chemical World Science	STEM	Mathematics	STEM
Chemistry	STEM	Mathematics Advanced	STEM
Citizenship and Legal Studies		Mathematics Extension	STEM
Community and Family Studies		Metal and Engineering (VET)	STEM
Computing Applications	STEM	Modern History	
Construction (VET)		Music	
Creative Arts		Personal Development, Health and Physical Education	
Dance		Photography, Video and Digital Imaging	
Design and Technology	STEM	Physical World Science Life Skills	STEM(?)
Drama		Physics	STEM
Earth and Environmental Science	STEM	Primary Industries (VET)	
Earth and Space Science	STEM	Retail Services (VET)	
Economics		Science Extension	STEM
Electrotechnology (VET)	STEM	Society and Culture	
Engineering Studies	STEM	Software Design and Development	STEM
English Advanced/Extension/Other		Sport, Lifestyle and Recreation Studies	
Entertainment Industry (VET)		Studies of Religion	
Exploring Early Childhood		Technology Life Skills	
Financial Services (VET)		Textiles and Design	
Food Technology		Tourism, Travel and Events (VET)	
Geography	STEM	Visual Arts	

History Extension		Visual Design	
Hospitality (VET)		Work and the Community Life Skills	
Human Services (VET)		Work Studies	
		Other (please specify)	
		Don't know	

29c. Which of the following course(s) is your eldest child studying this year in higher education (2024)?
Please select a maximum of 2 subjects and minimum of 1.
Please note that different higher education providers offer different choices of courses, so please select the subjects that best describe the ones you are considering from the list below.
[ASK PARENTS WITH CHILDREN IN HIGHER EDUCATION MC. RANDOMISE]

		STEM RELATED
Accounting	1	
Agriculture	2	STEM
Architecture	3	
Built environment	4	
Business and management	5	
Communications	6	
Computing and information technology	7	STEM
Creative arts	8	
Dentistry	9	
Economics	10	
Education and training	11	
Engineering and technology	12	STEM
Environmental studies	13	STEM
Health services and support (e.g. Nutrition, occupational therapy)	14	
Humanities and social sciences	15	
International relations		
Languages	16	
Law	17	
Mathematics	18	STEM
Medicine	19	
Nursing	20	
Para-legal studies	21	
Pharmacy	22	
Psychology	23	
Rehabilitation (e.g. physiotherapy, chiropractic)	24	
Biology	25	STEM
Chemistry	26	STEM
Physics	27	STEM
Earth and environmental sciences	28	STEM
Social work	29	
Sport and leisure	30	
Surveying	31	

Tourism and hospitality	32	
Veterinary science	33	
Other (specify)	98	
Don’t know	99	

29d. As far as you are aware, are any of the following subjects NOT offered at the child’s school?
[ASK PARENTS WITH CHILDREN IN YEARS 11 & 12. MC. A-Z]

Subjects	STEM RELATED
Agriculture	STEM
Biology	STEM
Chemical World Science	STEM
Chemistry	STEM
Computing Applications	STEM
Design and Technology	STEM
Earth and Environmental Science	STEM
Earth and Space Science	STEM
Electrotechnology (VET)	STEM
Engineering Studies	STEM
Geography	STEM
Human Society and Its Environment	STEM(?)
Industrial Technology	STEM
Information and Digital Technology (VET)	STEM
Information Processes and Technology	STEM
Investigating Science	STEM
Living World Science	STEM
Marine Studies	STEM
Mathematics	STEM
Mathematics Advanced	STEM
Mathematics Extension	STEM
Metal and Engineering (VET)	STEM
Physical World Science Life Skills	STEM(?)
Physics	STEM
Science Extension	STEM
Software Design and Development	STEM
Don’t know	

29e. From the following list, what do you want the child to do after they finish high school?
[ASK TO PARENTS OF CHILDREN IN HIGH SCHOOL. SC]

Go to University	1
Do a TAFE course or other vocational course	2
Get a job	3
Do an apprenticeship	4
Take a gap year	5
Other (please specify)	97
Not sure yet	99

29f. And from what you know, what is the child intending to do after school?
[ASK TO PARENTS OF CHILDREN IN HIGH SCHOOL. SC]

Go to University	1
Do a TAFE course or other vocational course	2
Get a job	3
Do an apprenticeship	4
Take a gap year	5
Other (please specify)	97
Not sure yet	99

29G. Here is some more information about AI. Artificial intelligence, or "AI," is the ability for a computer to think and learn. With AI, computers can perform tasks that are typically done by people, including processing language, problem-solving, and learning. Artificial intelligence is a tool, much like other types of new technologies.

Generative AI is a type of artificial intelligence system capable of generating text, images, or other media in response to prompts, for example ChatGPT.

Do you believe that Generative AI tools will have a significant impact on work and careers in the future?

ASK ALL. SC

Yes	1
No	2
Unsure	3

29H. Have you ever talked to your child/children about AI or the impact on their future careers?

ASK ALL. SC

Yes, I have spoken to them about this	1
No, but I plan to talk to them about this	2
No, and I don't plan to	3
Not sure	4

SECTION 5: UNDERSTANDING AND PERCEPTIONS ABOUT STEM

Great thanks. Now in this next section we would like to ask you some questions about your general views around STEM. Please remember that there are no right or wrong answers and all your answers are confidential.

29. Please write below what you believe the term 'STEM' stands for.
[ASK ALL. OE. ALSO ASK HIGHER ED]

_____

_____

30. In your opinion, what broader life skills does STEM education provide children?
[ALSO ASK HIGHER ED.]
https://stem.getintoenergy.com/stem-skills-list/

31. What type of jobs do you think people would be able to get if they have a STEM related degree or certificate?
[ASK ALL. OE ALSO ASK HIGHER ED]

1. _____
2. _____
3. _____
4. _____
5. _____

STEM *stands for* ***science***, ***technology***, ***engineering*** *and* ***mathematics.***
In this survey, science means things like biology, chemistry, physics, and earth and environmental sciences. It doesn't include medicine, nursing, psychology or health sciences.
Technology means things like information technology and programming, mechanics, electronics, and all other types of technology. Some technology courses could also be called engineering.
There are many types of engineering, like aerospace and environmental engineering, and many types of mathematics, such as geometry, logic and statistics.

32. How much do you agree or disagree with the following statements about STEM education and its impact on future work and the economy?
Please remember there are no right or wrong answers, we just want to know your opinion and beliefs.
[ASK ALL. SC PER ROW. ALSO ASK HIGHER ED]

	Strongly disagree	Somewhat disagree	Somewhat Agree	Strongly Agree	Don't know
A workforce with STEM skills is important for the Australian economy	1	3	4	6	98
Most future jobs will require STEM skills	1	3	4	6	98
We need more emphasis on STEM education from an early age	1	3	4	6	98
Compared to other countries, Australia is doing a good job of teaching STEM	1	3	4	6	98
Preparing students for careers in STEM should	1	3	4	6	98

be a top priority for schools in Australia					
Most or all jobs will require at least a basic understanding of math and science	1	3	4	6	98
STEM skills will enable students to have well-paying careers in the future	1	3	4	6	98
STEM skills are important when considering employment opportunities	1	3	4	6	98

33a. [QUESTION REMOVED IN 2024]

33. How **interested** are you in topics related to STEM and each of the individual STEM subjects?
[ASK ALL. SC PER ROW. ALSO ASK HIGHER ED]

	Not interested at all	Not really interested	Neither interested nor disinterested	Somewhat interested	Very interested
STEM in general	1	2	3	4	5
Science topics	1	2	3	4	5
Technology topics	1	2	3	4	5
Engineering topics	1	2	3	4	5
Mathematics topics	1	2	3	4	5

34. How **confident** would you feel if you had to support the child with homework/projects related to STEM ?
[ASK ALL. SC PER ROW]

	Not confident at all'	Not really confident	Neither confident nor unconfident	Somewhat confident	Very confident
STEM in general homework/projects	1	2	3	4	5
Science homework/projects	1	2	3	4	5
Technology homework/projects	1	2	3	4	5
Engineering homework/projects	1	2	3	4	5
Mathematics homework/projects	1	2	3	4	5

35. Why do you not feel confident about talking about [insert entry if codes 1 or 2 selected]?
[ASK THOSE WHO SAID 'NOT CONFIDENT AT ALL' OR 'NOT REALLY CONFIDENT'. INSERT ONE QUESTION PER NEGATIVE RESPONSE ABOVE (CODES 1 & 2)]

I don't understand enough about the subject myself	1
I don't have the time t**o** go through the requirements of the homework/projects	2
I find it hard to comprehend the requirements of the homework/projects	
I wouldn't know how to teach it the way it's meant to be taught (i.e. in line with the Australian curriculum)	3
What I learnt at school is different to what children learn now	4
I'm worried I will tell them the wrong answers	5
Other (specify)	98

36. Which of the below would help increase your confidence to support with homework/projects related to STEM?
[ASK THOSE WHO SAID 'NOT CONFIDENT AT ALL' OR 'NOT REALLY CONFIDENT'. INSERT ONE QUESTION PER NEGATIVE RESPONSE ABOVE (CODES 1 & 2)]

Specific resources for parents (e.g. websites to find help)	1
STEM short course	2
More information from the school (e.g. about learning outcomes or the curriculum)	3
Instructions for parents of how best to support children with specific tasks	4
Other (specify)	98

37. In your opinion, **how important** is it for the child to have STEM skills in order to acquire **a good job in the future**?
[ASK ALL. SC PER ROW. ALSO ASK HIGHER ED]

	Very unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Very important
STEM as a general set of skills	1	2	3	4	5
Science skills	1	2	3	4	5
Technology skills	1	2	3	4	5
Engineering skills	1	2	3	4	5
Mathematics skills	1	2	3	4	5

38. Why do you believe it's not important for the child to acquire these STEM skills?
[ASK THOSE WHO SAY 'NOT IMPORTANT' ABOVE. MC]

Not needed for all jobs	1
No need, my child is focused in another area	2
Other subjects/skills more important	3
Some STEM skills are too specific	4
Dependent of which career my child pursues	5
My child in not interested	6
Basic STEM skills is enough	7
Don't believe it will be helpful in certain areas	8
Jobs of tomorrow don't exist yet	9
Not useful	10
My child does not have the capability	11
~~To get higher qualifications~~	~~12~~

Its my child's decision what's important	13
Higher paying jobs don't need these types of skills	14
Not relevant to real world	15
This is just a fad with the government	16
Other (please specify)	17
Don't know	18

39. Besides skills directly related to science, technology, engineering and mathematics, which of the below skills do you believe are developed through the study of STEM?
[ASK ALL. MC PER ROW. ALSO ASK HIGHER ED]

	STEM skills
Problem solving skills (STEM Skill)	1
Creativity skills (STEM Skill)	2
Inquiry skills (STEM Skill)	3
Design thinking skills (STEM Skill)	4
Critical thinking skills (STEM Skill)	5
Collaboration skills (STEM Skill)	6
Communications skills	7
Project Management Skills	8
Hand-eye coordination skills	9
Growth mindset (i.e. the belief that your abilities can be developed through dedication and hard work)	10
Below are some non-STEM skills to mask the answers	
Empathy skills	11
Handwriting skills	12
Reading comprehension skills	13

40. Below is a list of statements about STEM skills and how they can impact future careers. How much do you agree or disagree with each of these statements?
Please remember there are no right or wrong answers, we just want to know your opinion and beliefs.
[ASK ALL. SC PER ROW. ALSO ASK HIGHER ED. KEEP STATEMENTS WHICH ARE SIMILAR SEPEARTE FROM ONE ANOTHER TO AVOID MISTANLY THINKING IT'S THE SAME STATEMENT.]

	Strongly disagree	Slightly disagree	Slightly Agree	Strongly agree
STEM skills will provide job security to future workers				
There are many STEM related jobs currently available for graduates				
Boys have a better chance to succeed in a STEM career compared to girls				
The number of jobs requiring STEM skills is growing				
STEM related careers are more suited to boys than girls				

It is easier to engage girls with STEM subjects compared to other subject areas				
It is easier to engage boys with STEM compared to girls				
It is easier to engage girls with STEM subjects compared to boys				
Boys are better suited to STEM careers than girls				
Interest in STEM is cultivated from young age				
STEM skills are applied in everyday life				
Girls have a better chance to succeed in a STEM career compared to boys				
It is easier to engage boys with STEM subjects compared to other subject areas				
STEM careers offer good work/life balance				
STEM careers offer flexibility				

41. How essential do you think STEM skills are to the following careers?
[ASK ALL. SC PER ROW. RANDOMISE ORDER. SPLIT SAMPLE TO ONLY SHOW 10 CAREERS. ALSO ASK HIGHER ED]

	Must have STEM skills for this job	May require some STEM skills for this job	Do not require STEM skills for this job
Accountant	1	2	3
Advertising or marketing consultant	1	2	3
Architect	1	2	3
Banker or finance	1	2	3
Clerical and administration (office support)	1	2	3
Computing or information technology (IT)	1	2	3
Corporate management	1	2	3
Data analyst	1	2	3
Economist	1	2	3
Emergency services (police, fire or ambulance)	1	2	3
Farmer	1	2	3
Entrepreneur	1	2	3
Labourer (construction, grounds maintenance, factory worker)	1	2	3
Lawyer	1	2	3
Machinery operator	1	2	3
Nurse	1	2	3
Pharmacist	1	2	3
Public servant (includes Defence Force - Army, Airforce, Navy)	1	2	3
Teacher	1	2	3
Trade worker (mechanic, electrician, carpenter)	1	2	3

Software / game developer	1	2	3

42. Below is a list of statements of how STEM is currently presented to young people in the media (e.g. in television, social media, books etc.). Please indicate how much you agree or disagree with the following statements.
Please remember there are no right or wrong answers, we just want to know your opinion and beliefs.
[ASK ALL. SC PER ROW. RANDOMISE ROW ORDER. ALSO ASK HIGHER ED]

	Strongly disagree	Slightly disagree	Slightly Agree	Strongly agree
Generally, STEM is presented in a positive manner in the media	1	2	3	4
The media portrays STEM as more important than it actually is	1	2	3	4
All four STEM subjects are equally presented in the media	1	2	3	4
There are conflicting messages in the media about the importance of STEM skills	1	2	3	4
It's not really presented in the media at all	1	2	3	4
The media portrays more men STEM role models	1	2	3	4
The media portrays more women STEM role models	1	2	3	4
Generally, men are interviewed more frequently for technology and engineering stories	1	2	3	4
Generally, women are interviewed more frequently for family or health stories	1	2	3	4
There are more men experts than women experts available for media interviews	1	2	3	4
There is a lack of women role models in STEM	1	2	3	4
There is too much emphasis on getting girls into STEM	1	2	3	4
The media portrayal of STEM is very stereotypical (i.e. white lab coats)	1	2	3	4

SECTION 6: GENDER BIAS

In this next section we'd like to get your perceptions about some differences between boys and girls.

43. In your opinion, who do you believe is more confident in the following subjects?
[ASK ALL. SC PER ITEM. RANDOMISE ORDER. ALSO ASK HIGHER ED]

	Boys are much more confident	Boys are a bit more confident	Boys and girls are equally confident	Girls are a bit more confident	Girls are much more confident
Mathematics	1	2	3	4	5
Science	1	2	3	4	5
Technology	1	2	3	4	5
Engineering	1	2	3	4	5

Arts	1	2	3	4	5
Social science	1	2	3	4	5
English	1	2	3	4	5
Sport	1	2	3	4	5

44. Of these jobs, which ones do you think are more for men, more for women or for both?
[ASK ALL. SC PER ITEM. SPLIT SAMPLE TO ONLY SHOW 10 CAREERS. ALSO ASK HIGHER ED]

	Strongly men	Moderately men	Slightly men	Neither men nor women	Slightly women	Moderately women	Strongly women
Accountant	-1	-2	-3	0	1	2	3
Advertising or marketing consultant	-1	-2	-3	0	1	2	3
Architect	-1	-2	-3	0	1	2	3
Banker or finance	-1	-2	-3	0	1	2	3
Clerical and administration (office support)	-1	-2	-3	0	1	2	3
Computing or information technology (IT)	-1	-2	-3	0	1	2	3
Corporate management	-1	-2	-3	0	1	2	3
Data analyst	-1	-2	-3	0	1	2	3
Economist	-1	-2	-3	0	1	2	3
Emergency services (police, fire or ambulance)	-1	-2	-3	0	1	2	3
Farmer	-1	-2	-3	0	1	2	3
Entrepreneur)	-1	-2	-3	0	1	2	3
Labourer (construction, grounds maintenance, factory worker)	-1	-2	-3	0	1	2	3
Lawyer	-1	-2	-3	0	1	2	3
Machinery operator	-1	-2	-3	0	1	2	3
Nurse	-1	-2	-3	0	1	2	3
Pharmacist	-1	-2	-3	0	1	2	3
Public servant (includes Defense Force - Army, Airforce, Navy)	-1	-2	-3	0	1	2	3
Teacher	-1	-2	-3	0	1	2	3
Trade worker (mechanic, electrician, carpenter)	-1	-2	-3	0	1	2	3
Software / game developer	-1	-2	-3	0	1	2	3

45. [REMOVED IN 2024]

SECTION 7: STEM DISCUSSIONS WITH CHILDREN & EXTRA CURRICULAR ACTIVITIES

Great thanks. Now in this next section we would like to ask you some questions **about your interactions with the child around STEM subjects.**

STEM discussions with children & extra curricular activities

46. On average, how often do you have conversations with the child about topics related to STEM?
For example, these conversations could be general discussions about science in the news or in media children consumes, financial issues in the economy, chats about animals or the environment. It could even be time spent working together on homework related to STEM subjects or visiting a museum or science centre together.
[ASK ALL. SC]

Everyday	1
A few times a week	2
At least once a week	3
A few times a month	4
At least once a month	5
A few times a semester	6
At least once a semester	7
A few times a year	8
At least once a year	9
Less often than once a year	10

47. When you have conversations about STEM with the child, what sort of things do you discuss?
[ASK ALL. MC]

STEM careers / job prospects	1
What they are learning about STEM in school	2
Whether they are enjoying learning about STEM	3
Whether they need assistance with STEM subjects at home	4
STEM subjects at further education (e.g. university)	5
Future goals and ambitions	6
Topics of interest to the child	7
How things work or are made	8
STEM in the news	9
The environment / nature	10
Science / space	11
Technology e.g. computers, coding	12
Applying maths in the real world / doing equations	13
STEM assignments / homework	14
Other (specify)	98

48. How often do you help the child with assignments and homework?
[ASK ALL. SC]

Never	1
Hardly ever – a few times a year	2
Occasionally - a few times per month	3
❑ Fairly regularly – a few times per week	4
All the time – every day	5

49. How easy or difficult do you find helping the child on assignments and homework related to STEM subjects?
[ASK IF CODE 3 TO 5 ABIVE. SC PER ROW.]

	Very difficult	Somewhat difficult	Somewhat easy	Very easy	Not applicable
Science	1	2	3	4	98
Technology	1	2	3	4	98
Engineering	1	2	3	4	98
Mathematics	1	2	3	4	98

50. Which of the below activities have you been involved in with the child over the past 12 months?
[ASK ALL. MC]

Went to a Science Museum	1
Went to a Science Exhibition	2
Registered in STEM Online programs	3
Participated in science events (e.g. National Science Week)	4
Participated in hackathons	5
Participated in an external science course	6
Participated in an external coding course	7
Paid for tutoring for STEM subjects	8
Watched a documentary related to STEM topics together	9
None of these	10

51. How much emphasis does the child's school put into the teaching of STEM?
[ASK ALL. SC]

No emphasis at all	1
Some emphasis, but not much	2
Quite a bit of emphasis	3
A lot of emphasis	4
Don't know	5

52. Would you like the child's school to be doing more or less to engage your child in STEM?
[ASK ALL. SC]

A lot more	1
A little bit more	2
About the same as now	3
A little bit less	4
A lot less	5

54. Please give more details as to why you believe your child's school should be [INSERT ANSWER FROM ABOVE FOR CODES 1,2,4,5. ASK ALL, OE]

_____
_____
_____
_____

_____

53. Which of the following things do you think would help increase the child's engagement with STEM? Please select the top 3.
[ASK ALL. MC]

Experiments / interactive STEM tasks	1
Excursions and events	2
Science fairs	3
Making STEM more "fun" (e.g. exciting and creative activities)	4
Increasing the number of teachers, availability of specialist teachers	5
Increasing learning / focus on STEM subjects at school	6
Encouraging students to read more about STEM subjects	7
Setting more homework / assignments / projects related to STEM subjects	8
Addressing issues with STEM curriculum / providing more STEM specialisations within curriculum	9
Increasing the number of STEM classes / courses	10
More STEM resources for parents	11
Video content on STEM	12
STEM-related games or apps	13

54. Is there anything else that you can think of that might help improve your engagement with the child when it comes to STEM?
[ASK ALL. OE]

_____
_____
_____