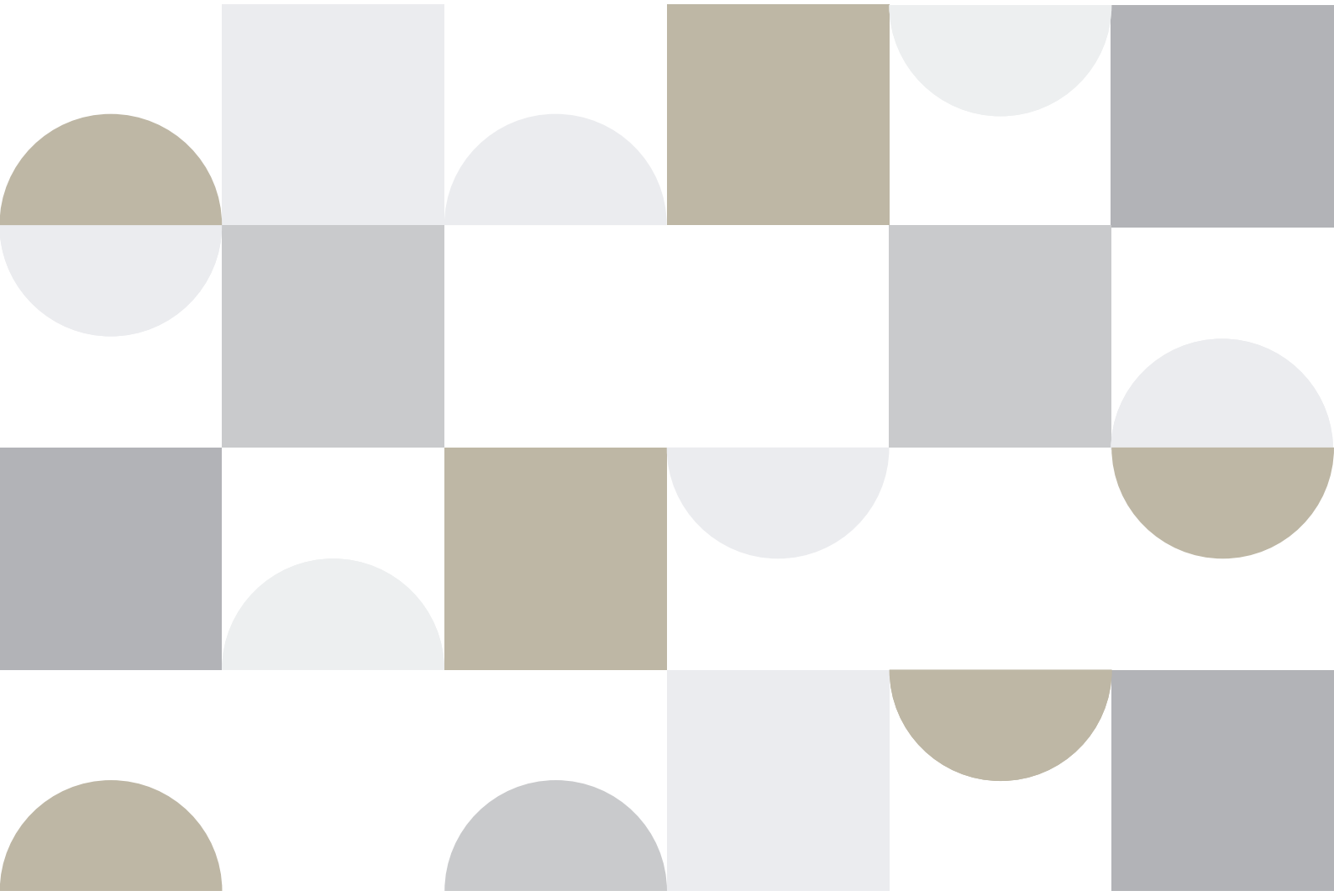
Australian Government

STEM EQUITY MONITOR

Data report 2022



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STEM Equity Monitor ISSN: 2652-5321 (Online)

Disclaimer

Acknowledgements

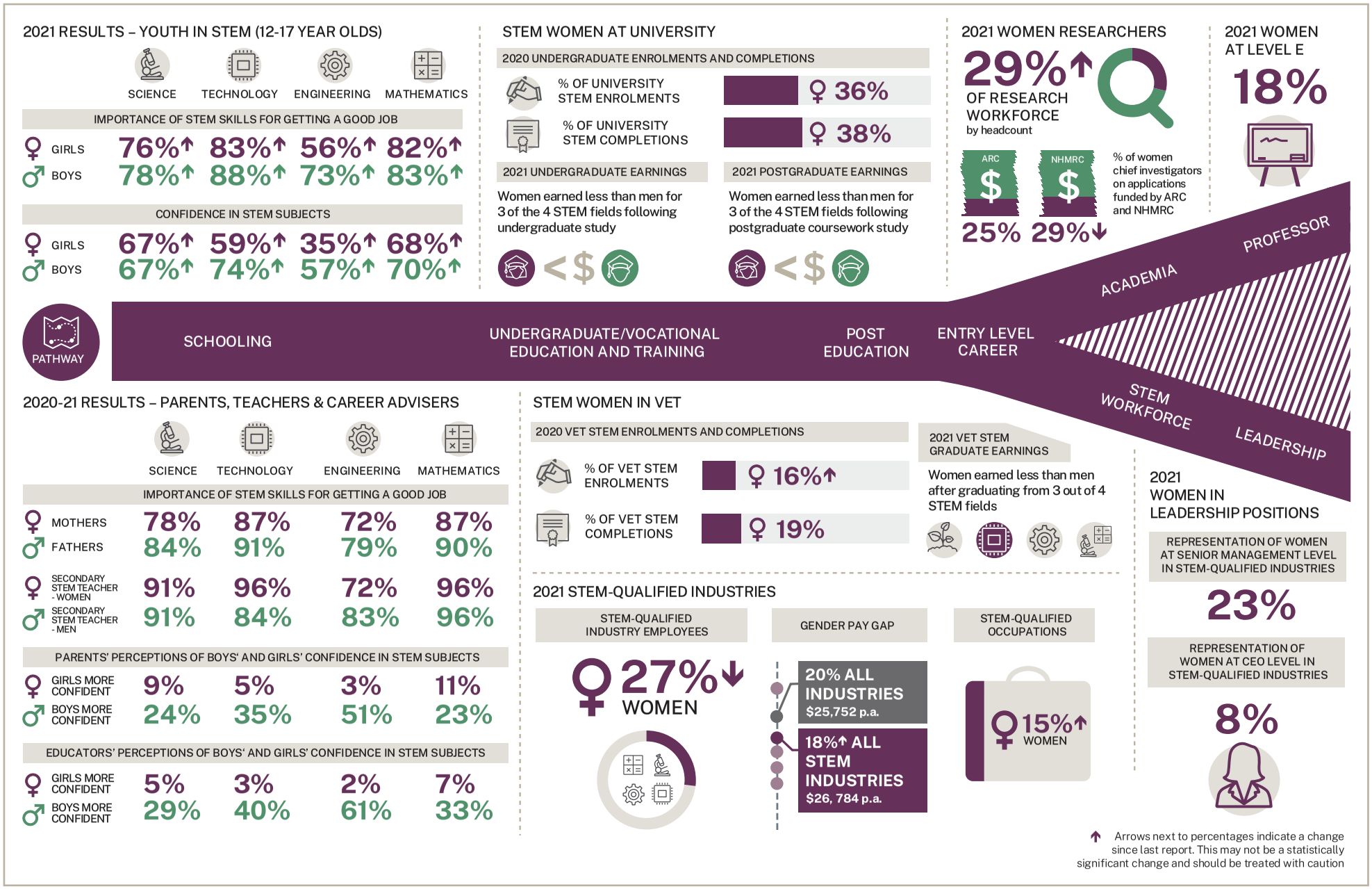
This report was prepared by the Department of Industry, Science and Resources.

The department would like to thank the following agencies, departments and other organisations who contributed data for the STEM Equity Monitor.

- Australian Antarctic Division (AAD)
- Australian Bureau of Statistics (ABS)
- Australian Curriculum, Assessment and Reporting Authority (ACARA)
- Australian Centre for International Agricultural Research (ACIAR)
- Australian Institute of Marine Science (AIMS)
- Australia's Nuclear Science and Technology Organisation (ANSTO)
- Australian Public Service Commission (APSC)
- Australian Research Council (ARC)
- Bureau of Meteorology (BoM)
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Department of Education
- Defence Science and Technology Group (DSTG)
- Geoscience Australia (GA)
- National Centre for Vocational Education Research (NCVER)
- Organisation for Economic Co-operation and Development (OECD)
- National Health and Medical Research Council (NHMRC)
- Social Research Centre
- Youth Insight – Student Edge
- Workplace Gender Equality Agency (WGEA)

We would also like to thank:

- the Office of the Chief Scientist
- Australia's Women in STEM Ambassador, Professor Lisa Harvey-Smith
- case study participants
- all those who contributed support and advice to the development of the Monitor.


2021 RESULTS – YOUTH IN STEM (12-17 YEAR OLDS)
SCIENCE
TECHNOLOGY
ENGINEERING
MATHEMATICS
IMPORTANCE OF STEM SKILLS FOR GETTING A GOOD JOB
GIRLS 76%↑ 83%↑ 56%↑ 82%↑
BOYS 78%↑ 88%↑ 73%↑ 83%↑
CONFIDENCE IN STEM SUBJECTS
GIRLS 67%↑ 59%↑ 35%↑ 68%↑
BOYS 67%↑ 74%↑ 57%↑ 70%↑
STEM WOMEN AT UNIVERSITY
2020 UNDERGRADUATE ENROLMENTS AND COMPLETIONS
% OF UNIVERSITY STEM ENROLMENTS
♀ 36%
% OF UNIVERSITY STEM COMPLETIONS
♀ 38%
2021 UNDERGRADUATE EARNINGS
Women earned less than men for 3 of the 4 STEM fields following undergraduate study
2021 POSTGRADUATE EARNINGS
Women earned less than men for 3 of the 4 STEM fields following postgraduate coursework study
2021 WOMEN RESEARCHERS
29%↑ OF RESEARCH WORKFORCE by headcount
ARC
NHMRC
25%
29%↓
% of women chief investigators on applications funded by ARC and NHMRC
2021 WOMEN AT LEVEL E
18%
PATHWAY
SCHOOLING
UNDERGRADUATE/VOCATIONAL EDUCATION AND TRAINING
POST EDUCATION
ENTRY LEVEL CAREER
ACADEMIA
PROFESSOR
STEM WORKFORCE
LEADERSHIP
2020-21 RESULTS – PARENTS, TEACHERS & CAREER ADVISERS
SCIENCE
TECHNOLOGY
ENGINEERING
MATHEMATICS
IMPORTANCE OF STEM SKILLS FOR GETTING A GOOD JOB
MOTHERS 78% 87% 72% 87%
FATHERS 84% 91% 79% 90%
SECONDARY STEM TEACHER - WOMEN 91% 96% 72% 96%
SECONDARY STEM TEACHER - MEN 91% 84% 83% 96%
PARENTS' PERCEPTIONS OF BOYS' AND GIRLS' CONFIDENCE IN STEM SUBJECTS
GIRLS MORE CONFIDENT 9% 5% 3% 11%
BOYS MORE CONFIDENT 24% 35% 51% 23%
EDUCATORS' PERCEPTIONS OF BOYS' AND GIRLS' CONFIDENCE IN STEM SUBJECTS
GIRLS MORE CONFIDENT 5% 3% 2% 7%
BOYS MORE CONFIDENT 29% 40% 61% 33%
STEM WOMEN IN VET
2020 VET STEM ENROLMENTS AND COMPLETIONS
% OF VET STEM ENROLMENTS
♀ 16%↑
% OF VET STEM COMPLETIONS
♀ 19%
2021 VET STEM GRADUATE EARNINGS
Women earned less than men after graduating from 3 out of 4 STEM fields
2021 STEM-QUALIFIED INDUSTRIES
STEM-QUALIFIED INDUSTRY EMPLOYEES
♀ 27%↓ WOMEN
GENDER PAY GAP
20% ALL INDUSTRIES $25,752 p.a.
18%↑ ALL STEM INDUSTRIES $26, 784 p.a.
STEM-QUALIFIED OCCUPATIONS
♀ 15%↑ WOMEN
2021 WOMEN IN LEADERSHIP POSITIONS
REPRESENTATION OF WOMEN AT SENIOR MANAGEMENT LEVEL IN STEM-QUALIFIED INDUSTRIES
23%
REPRESENTATION OF WOMEN AT CEO LEVEL IN STEM-QUALIFIED INDUSTRIES
8%
↑ Arrows next to percentages indicate a change since last report. This may not be a statistically significant change and should be treated with caution

STEM Equity Monitor data report

The STEM Equity Monitor (the Monitor) is an annual national data resource of girls' and women's participation in science, technology, engineering and mathematics (STEM). It also includes some data for other underrepresented groups in STEM.

This data report summarises the main points of the 2022 edition of the Monitor. The online version of the Monitor has more detailed data insights and interactive charts.

The Monitor presents the current state of gender equity in STEM in Australia. It can be used for further analysis, including measuring changes and trends over time in key sectors and career phases of girls' and women's engagement with STEM.

The Monitor follows girls' and women's participation pathway in STEM through:

- schooling
- higher education
- graduate outcomes
- the workforce.

STEM definitions and gender data labels

The Monitor defines STEM as science, technology, engineering and mathematics. It uses the education fields defined by the Australian Standard Classification of Education (ASCED). This is consistent with the Australia's STEM workforce report (Office of the Chief Scientist 2020).

The Monitor also matches education fields to research fields from the Australian and New Zealand Standard Research Classification (ANZSRC). It considers an occupation or industry to be STEM-qualified if the majority of people in the occupation or industry reported a STEM qualification in the 2016 Census of Population and Housing (ABS 2016).

However, the Monitor recognises that STEM-qualified graduates work in wide range of sectors, including health fields. The Monitor does not include health in its definition of STEM but recognises it as a closely related field that people with STEM qualifications may enter. The full web version of the Monitor lets users combine health and STEM data for results on STEMM – science, technology, engineering, mathematics and medicine.

The terms 'women' and 'men' (and 'girls' and 'boys' for minors) include cisgender (someone whose gender corresponds to their birth sex), transgender, non-binary and intersex people who identify as women/girls or men/boys. Some data may have been collected and recorded by sex. However, consistent with the Australian Government guidelines on the recognition of sex and gender the terms 'gender', 'women' and 'men' are used throughout the Monitor.

Data interpretation and methodology

The Monitor collects data from a range of sources and applies a common STEM definition. Each section highlights areas of interest and high-level observations from the data.

Data custodians have used different methods to generate the data at each stage of the pathway (for example, surveys, Census responses and count data). This means data should not be compared between sections.

If you want to use data from the Monitor to analyse changes and trends over time, you should:

- consider the original data generation method
- apply appropriate statistical techniques where necessary.

No significance testing has been carried out on data unless otherwise indicated.

See the methodology section of the online Monitor for our full methodology of classifying into a standard STEM definition, as well as a list of sources and definitions.

STEM and gender definition references

Australian Bureau of Statistics (ABS) (2016) *Census of Population and Housing*, ABS, Australian Government, accessed 13 January 2022.

Attorney General's Department (AGD) (2015) *Australian Government Guidelines on the Recognition of Sex and Gender*, AGD, Australian Government, accessed 13 January 2022.

Office of the Chief Scientist (OCS) (2020) *Australia's STEM workforce*, OCS, Australian Government, accessed 13 January 2022.

Schooling

Attitudes and perceptions towards STEM

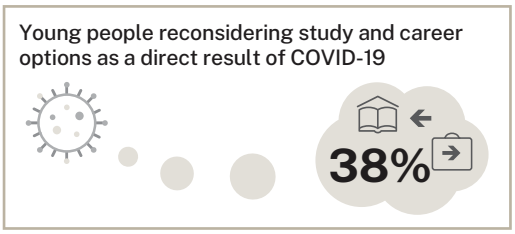
Confidence and interest in STEM develops at a young age and can be influenced by many factors. Understanding girls' perceptions and attitudes to STEM can help families, educators and policymakers support girls to engage in STEM and consider STEM-related careers.

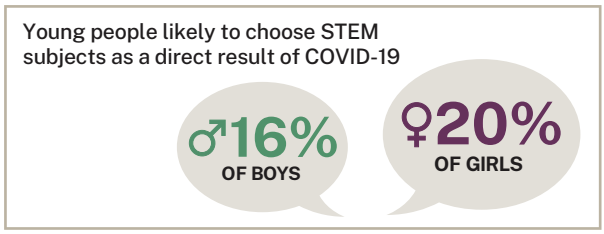
YouthInsight market research was commissioned by us to survey almost 3,200 young people aged between 12 and 25 years on their attitudes and perceptions towards STEM.

Key data from YouthInsight's Youth in STEM survey

Effect of COVID-19

Young people reported they were either slightly or much more likely to reconsider future study or work in STEM as a result of COVID-19. Girls were more likely than boys to choose STEM subjects as a result of the pandemic.





Understanding the STEM acronym

Understanding of what subjects make up STEM increased in 2021. This was driven mainly by a significant increase in boys' understanding of the acronym.

- 67% of girls understood what subjects made up STEM, compared to 64% in 2019–20.
- 62% of boys understood what subjects made up STEM, compared to 51% in 2019–20.

Interest in STEM

Science remained the most interesting STEM subject for girls in 2021.

- 62% of girls were interested in science in 2021, compared to 61% in 2019–20.
- 64% of boys were interested in science in 2021, compared to 63% in 2019–20.

Girls found engineering least interesting.

- 31% of girls were interested in engineering in 2021, compared to 30% in 2019–20.
- 56% of boys were interested in engineering in 2021, compared to 57% in 2019–20.

Girls' interest in engineering drops in later years

46% of girls aged 12 to 13 said they were interested in studying engineering. However, this interest falls as girls get older. Just 33% of girls aged 14 to 17 were interested in studying engineering, and this dropped to 26% for ages 18 to 21.

Most girls who said they would like to work in STEM were aged 12 or 13, and 12% of them were interested in being an engineer. For girls aged 14 to 17, interest in engineering as a career had fallen to 8%. By age 18 to 25 only 5% of girls were interested.

Confidence in STEM

Girls' confidence in all STEM subjects fell as they got older.

Subject	12–13 years	14–17 years	18–21 years	22–25 years
Science	65%	67%	63%	55%
Technology	68%	56%	56%	56%
Engineering	51%	30%	27%	27%
Mathematics	57%	71%	56%	50%

Source: YouthInsight, 2021

Importance of STEM knowledge for jobs

Girls considered technology and mathematics to be essential life skills. This was consistent with the survey results from 2019–20.

- Technology was the most important subject for girls. 83% of girls thought it was important, compared with 85% of boys.
- Despite an increase in positive responses since the last survey, engineering remained the least important subject for girls. Just 56% of girls thought it was important, compared with 69% of boys.

Intention to study STEM in the future

Consistent with the 2019–20 survey, girls in Years 6 to 8 were less likely than boys to choose STEM elective subjects overall in future (79% compared to 59%).

In years 9 and 10, the likelihood of choosing specific STEM electives was skewed by gender. Girls were significantly more likely to choose biology and chemistry. Boys were significantly more likely to choose:

- physics
- design and technology
- information and digital technology
- industrial technology
- engineering

These differences have remained consistent over time.

Reasons for not studying STEM in the future

Girls were more likely than boys to list lack of interest as a barrier to studying STEM. This was more noticeable in the higher education cohort.

- 72% of primary and secondary school girls (ages 12 to 17) compared to 70% of boys.
- 70% of girls in the higher education age group (18 to 25) compared to 53% of boys.

Aspirations for a STEM career in the future

Girls were half as likely as boys to aspire to a career in STEM. 21% of girls wanted a STEM career (down 3 percentage points from the last survey) compared to 42% of boys.

NAPLAN numeracy results

In 2021, girls' and boys' mean NAPLAN numeracy scores were lower than in 2019 for all year levels tested.

Girls' scores decreased more than boys' scores in every year level except year 9. In year 9, there was a one point difference between the decrease in girls' and boys' scores. All other years had between 2 and 3 points difference.

Between 94% and 96% of girls achieved scores at or above the minimum standard in numeracy. This was 1 percentage point higher than boys for each year level except year 5, where it was equivalent.

Across all schooling year groups (years 3 to 9), a smaller percentage of girls than boys achieved at or above the highest band usually achieved in their year group.

Schooling data references

Australian Curriculum, Assessment and Reporting Authority (ACARA) 2021, *National Assessment Program – Literacy and Numeracy (NAPLAN) Achievement in Reading, Writing, Language Conventions and Numeracy: National Report for 2021*, ACARA, Sydney, accessed 15 December 2021.

YouthInsight (2021), 2021 Youth in STEM Report, report to the Australian Government Department of Industry, Science and Resources, Student Edge, accessed 18 November, 2021.

Higher education

VET and university enrolments and completions

Students who study STEM at primary and secondary school may choose to continue their STEM studies through university or vocational education and training (VET). Understanding how women participate in STEM higher education can help the government and other sectors provide targeted support for women as they progress from schooling to the workforce. It can also help focus support on particular fields and education types. The National Centre for Vocational Education Research and the Department of Education collect data that helps inform this picture.

Key data on enrolments and completions

Between 2015 and 2020, the number of women enrolled in university STEM courses increased from 70,378 to 87,371. This was a 24% increase, compared to a 9% increase for men. This saw the proportion of STEM enrolments that were women increase by 3 percentage points (37% compared to 34% in 2015).

Although the number of STEM course completions by women grew by 1 percentage point (from 15,940 in 2019 to 16,072 in 2020) the number of university STEM course completions as a proportion of overall university course completions by women fell by one percentage point. The increase in STEM course completions was driven mostly by postgraduate completions.

The number of women enrolled in STEM vocational education and training has steadily increased since 2018. The proportion of women VET STEM enrolments remained relatively stable at 16% in 2020.

The total number of VET STEM completions in 2020 decreased from 2019, mostly due to a decrease in completions by men. The proportion of women completing VET STEM qualifications remained stable at 19% in 2020. This has risen by 3 percentage points since 2015.

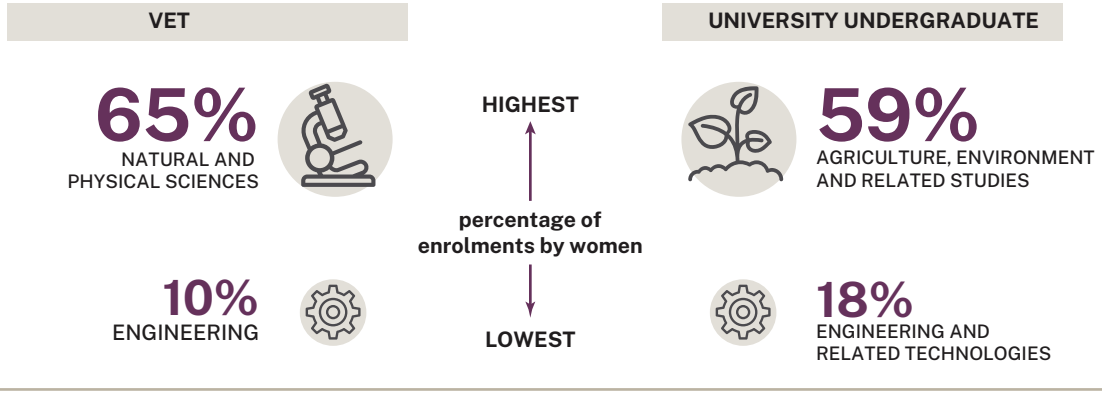
More women are starting and finishing agriculture, environmental and related studies

19,790 women enrolled in VET agriculture, environmental and related studies in 2020. Women made up 32% of all students in the field, up 3 percentage points from 2019 and 7 percentage points from 2015.

The proportion of women completing courses in this field also increased by 4 percentage points from 2015 to 2020. This was the only VET STEM field where the proportion of women enrolments rose consistently across the years 2015 to 2020. There were no notable changes in the other STEM fields.

Natural and physical sciences remained the VET STEM field with the greatest proportion of women enrolments (65%) and completions (66%) in 2020. Engineering remained the VET STEM field with the lowest proportion of women in 2020. Women have made up 10% or less of enrolments in this field since 2015.

STEM fields with the highest and lowest by proportion of women enrolled, in VET and university undergraduate courses



Longitudinal analysis of completion rates

After enrolling in university, some university students change their study choices or stop studying completely.

We commissioned the Australian Bureau of Statistics to do a longitudinal analysis of 140,000 university students aged under 25 who started undergraduate study for the first time in 2012. The analysis looked at these students' course completions by 2016.

The results provide context for the experiences of women and men in STEM courses compared to other fields.

Key data on completion rates for 2012–2016 undergraduates

More women started undergraduate study in 2012 compared to men. Of the women who had completed study by 2016, 15% were STEM graduates, as opposed to 33% of men.

49% of women who started in STEM completed STEM study by 2016, compared to 42% of men.

13% of women who started in STEM switched and completed a degree in a different field by 2016, compared to 6% of men.

493 women and 475 men started in a non-STEM or health field in 2012 and switched to complete a degree in STEM by 2016. This was around 1% of total non-STEM or health enrolments.

Fields of study

Women had the lowest completion rate for information technology. Only 25% of women who enrolled in information technology graduated with a degree in that field by 2016, compared to 37% of men.

By comparison, health had the highest completion rate for women. 60% of women who enrolled in health had completed a degree in that field by 2016.

STEM field enrolled in 2012	Gender	Graduated in same STEM field	Graduated in different STEM field	Graduated in non-STEM field	Graduated in health field	Did notfinish by 2016
Natural and physical sciences	Women n = 9,111	49%	1%	7%	8%	12%
	Men n = 8,465	44%	2%	6%	3%	18%
Information technology	Women n = 804	25%	12%	14%	4%	18%
	Men n = 4,269	37%	3%	5%	0%	28%
Engineering and related technologies	Women n = 1,530	34%	4%	7%	5%	13%
	Men n = 8,129	34%	3%	3%	1%	18%
Agriculture, environmental and related studies	Women n = 1,011	47%	3%	6%	0%	20%
	Men n = 843	48%	2%	2%	0%	22%

Source: Australian Bureau of Statistics (unpublished data), 2021

Higher education data references

Australian Bureau of Statistics (ABS) (unpublished) *Women in STEM longitudinal analysis of the 2011 higher education cohort and Completion rate analysis of the 2012-16 cohort*, analysis provided to the Australian Government Department of Industry, Science and Resources, ABS, Australian Government, accessed 7 December, 2021.

Department of Education, Skills and Employment (DESE)[1] (unpublished) *Research staff by field of education, duty classification and year*, data set provided to the Australian Government Department of Industry, Science and Resources, DESE, Australian Government, accessed 9 March , 2022.

National Centre for Vocational Education Research (NCVER) (unpublished) *VET enrolments and completions by gender and year and field of education*, data set provided to the Australian Government Department of Industry, Science and Resources, NCVER, accessed 15 November 2021.

1 From 1 July 2022, the Department of Education, Skills and Employment became the Department of Education.

Graduate outcomes

VET and university graduate outcomes

A successful transition into the workforce can be impacted by job availability, relevance of training to jobs, working conditions and pay. Understanding graduate employment outcomes for STEM-qualified women can provide valuable insights into factors that continue to affect women's progression and retention in STEM.

The National Centre for Vocational Education Research collects data on these indicators for VET students. Data from the annual Quality Indicators for Learning and Teaching (QILT) Graduate Outcomes Survey helps build a picture of skills use and university graduate satisfaction.

Key data on VET and university graduate outcomes

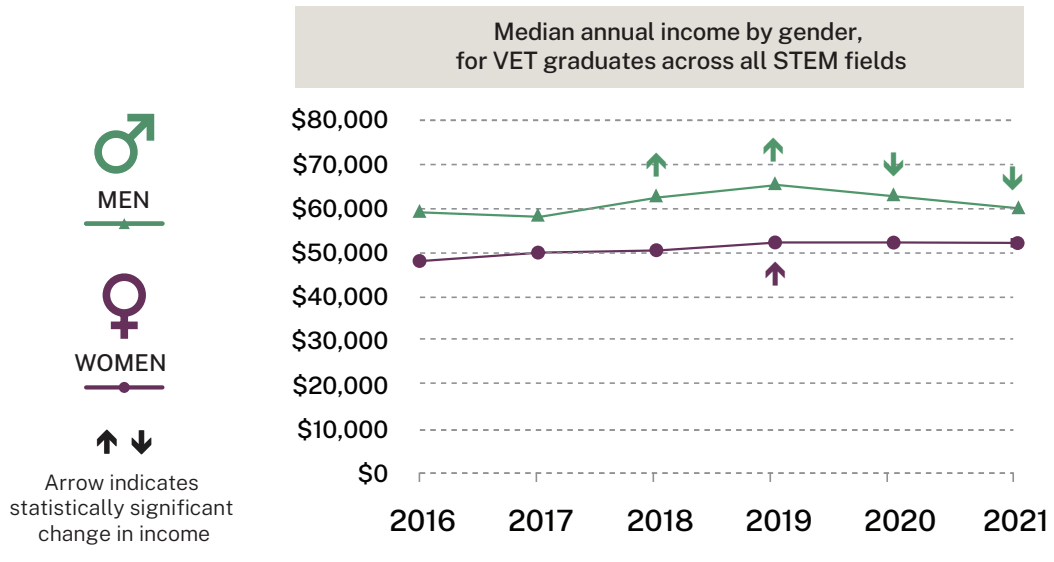
VET graduates

In 2021, 62% of women VET STEM graduates reported their training had some or high relevance to their jobs, a similar number to 2020. STEM graduates were more likely to report their training was highly relevant to their job than non-STEM graduates (50% compared to 47%).

The proportion of women whose employment outcomes improved (by gaining employment or being employed at a higher skill level) after graduating in a VET STEM field increased. This proportion was 52% in 2021 compared to 45% in 2020. However, this was still lower than the proportion of men whose employment outcomes improved (65%).

Across all VET STEM fields, women's median full-time annual income was $52,000 in 2021, similar to 2020. Men's median full-time annual income was $60,000, down from $63,000 in 2020. This lower income for men saw the income gap for VET graduates narrow in 2021.

The income gap for VET graduates narrowed in 2021



University graduates

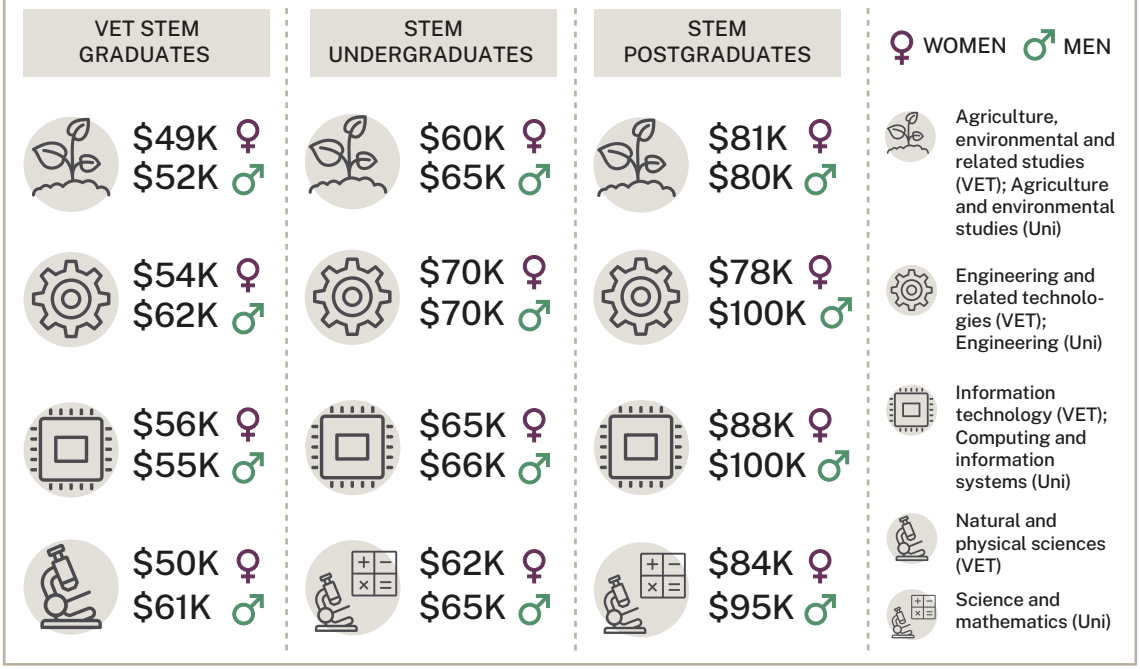
In 2021, similar proportions of employed women and men STEM university graduates felt their skills weren't being fully used in their jobs (41% of women and 39% of men). STEM graduates in full-time employment felt less strongly about this than the overall employee group, with 29% of women and 28% of men saying their skills were underused.

Compared to 2020, the median income[2] gap widened for women STEM undergraduates entering the full-time workforce from agricultural and environmental, science and mathematics fields:

- For agriculture and environmental studies graduates, the median income for women in 2021 was $60,000, the same as 2020. This was $2,000 less than men in 2020, but $5,000 less than men in 2021.
- Women graduates in science and mathematics saw their median income drop to $62,000 in 2021 ($3,000 less than men). In 2020 it was $63,000 ($2,000 less than men).

In 2021, the proportion of women STEM undergraduates employed part-time was higher than men. This has been the case every year since 2016.

In 2021, women's annual median income was lower than men in 3 of 4 VET STEM graduate fields, 3 undergraduate STEM fields, and 3 postgraduate by coursework STEM fields



Source: Australian Bureau of Statistics (unpublished), 2021

2 Graduate income information is based on the median salary of Australian university graduates who were in full-time employment at the time of the Graduate Outcomes Survey. Income has not been adjusted for inflation. Data has been provided without margins of error. Statements about the significance of differences cannot be made.

Further study by graduates

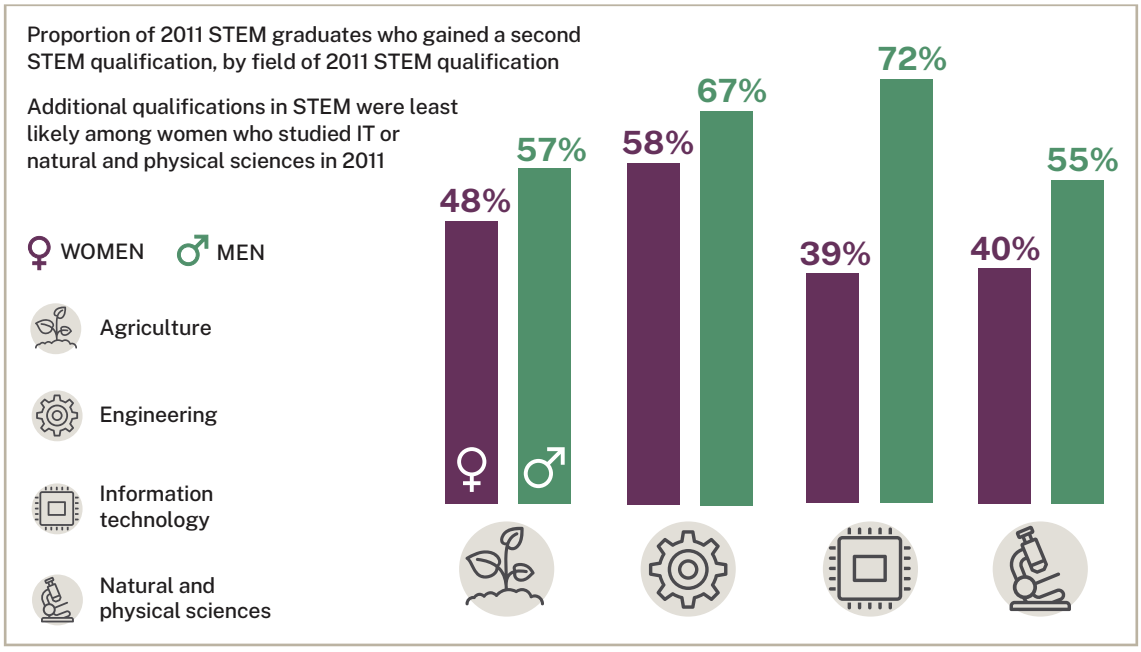
Longitudinal data can provide insights into the career progression of people after graduation. We commissioned the Australian Bureau of Statistics to perform longitudinal analysis of university graduates from 2011. The analysis explored the characteristics and outcomes of graduates who completed another qualification between 2012 and 2015.

The Monitor will continue to examine the outcomes of this cohort as they progress further in their careers.

Key data on further study and associated career outcomes

Study choices

- 23% of women and men who completed a qualification in any field in 2011 completed a second qualification between 2012 and 2015.
- 38% of women who completed a STEM qualification in 2011 completed a second qualification between 2012 and 2015 (compared to 24% of STEM-qualified men).
- 29% of women who completed a STEM qualification in 2011 returned to study in a STEM field between 2012 and 2015 (compared to 27% of men).
- For women who completed a STEM qualification in 2011, the most popular field of further study was health (31%), followed by education (13%).
- Almost two-thirds of women (64%) and just over half of men (53%) who completed a second STEM qualification did so at undergraduate level.
- 60% of people who completed an additional STEM qualification between 2012 and 2015 did so at a postgraduate level.



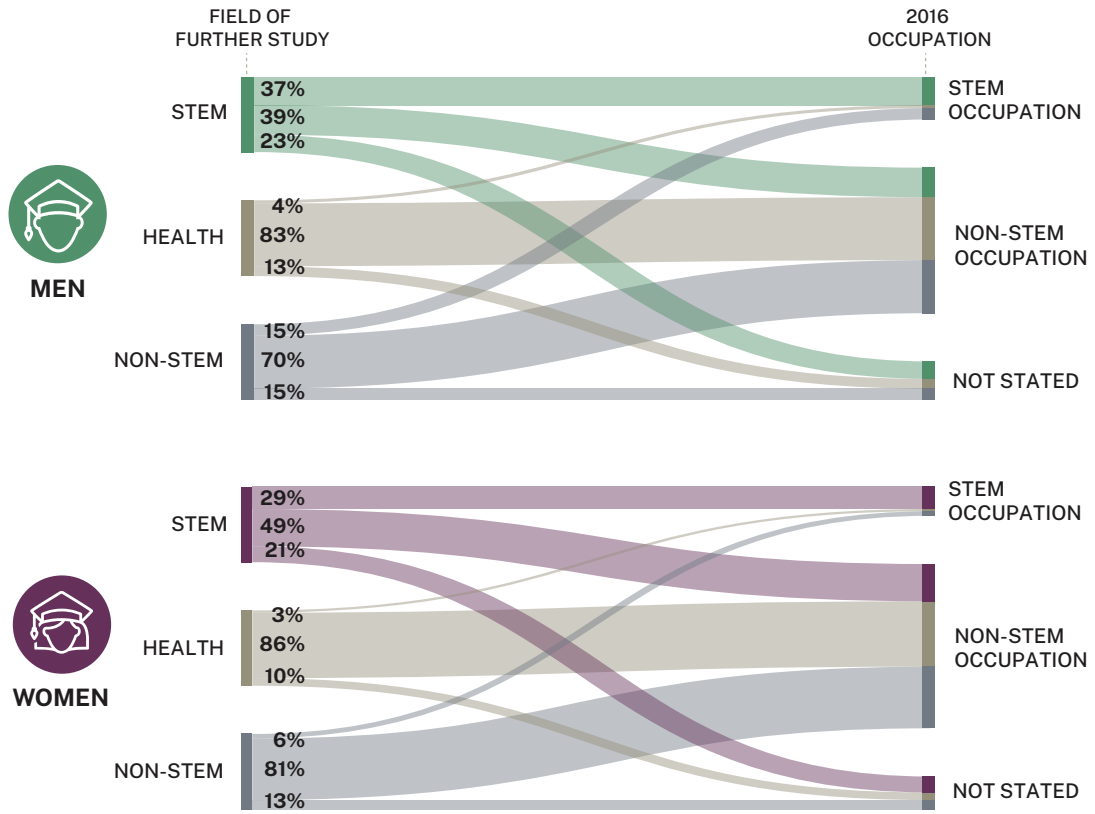
Source: Australian Bureau of Statistics (unpublished), 2021

Career outcomes

Completing a second field of STEM study had the following relationships to being employed in STEM in 2016:

- Only 29% of women who completed further studies in STEM were employed in STEM occupations, compared with 37% of men.
- 49% of women who completed further studies in STEM moved into a non-STEM occupation, compared with 39% of men.
- 40% of women (and 46% of men) who had completed 2 STEM qualifications were employed as professionals, as defined by Australian and New Zealand Standard Classification of Occupations (ANZSCO) major groups.
- 57% of women (and 53% of men) whose first qualification was in STEM but second qualification was in a non-STEM field were employed as professionals.

Type of occupation by field of further study, 2016



Source: Australian Bureau of Statistics (unpublished), 2021

Income after study

The income of graduates who completed further study between 2012 and 2015 was measured in the 2015–16 financial year.

53% of the women who completed a STEM qualification in 2011 and didn't do any further study earned under $50,000. This compares to 38% of STEM-qualified men who didn't do any further study after graduating in 2011.

61% of women (and 59% of men) who completed a STEM qualification in 2011 and additional further study (field not specified) were earning below $50,000. It may be too soon to notice the full impact of further study on income. However, women were likely to experience lower wage growth than men if they had not done further study.

Effects of unemployment on professional career outcomes

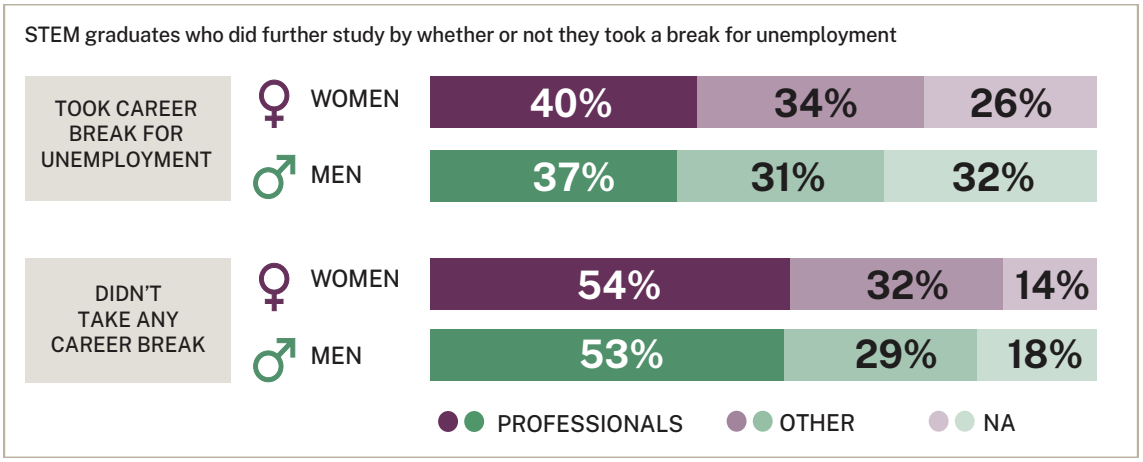
The Australian Bureau of Statistics analysed whether people were employed as a professional (as defined by ANZSCO major groups) based on:

- their employment status from 2012 to 2015
- if they had done further study between 2012 and 2015.

40% of women who had a break for unemployment and had done further study were employed as a professional in 2016, compared to 37% of men. This is twice the employment rate of people who had a break for unemployment and did not do further study (20%).

People who had no break for unemployment between 2012 and 2015 were much more likely to be employed as a professional in 2016. The likelihood was even greater for women who had done further study between 2012 and 2015.

46% of all women who didn't do further study and did not take a break for unemployment were employed as professionals in 2016, compared to 55% of men. However, 54% of women who did further study and didn't take a break for unemployment were employed as professionals in 2016, compared to 53% of men.



Source: Australian Bureau of Statistics (unpublished), 2021

Graduate outcomes data references

Australian Bureau of Statistics (ABS) (unpublished) *Women in STEM longitudinal analysis of the 2011 higher education cohort and Completion rate analysis of the 2012-16 cohort*, analysis provided to the Australian Government Department of Industry, Science and Resources, ABS, Australian Government, accessed 14 January 2022.

National Centre for Vocational Education Research (NCVER) (unpublished) *Income data*, data set provided to the Australian Government Department of Industry, Science and Resources, NCVER, accessed 17 February 2021.

— — (2021) 'Total VET student outcomes 2016–2020' [data set], *VOCSTATS*, NCVER website, accessed 17 February 2021.

Social Research Centre (2020) 'Graduate Outcomes Survey (GOS) 2020 National Tables' [data set], *Graduate Employment*, Quality Indicators for Learning and Teaching (QILT) website, accessed 13 January 2021.

— — (unpublished) *Skill utilisation*, data set provided to the Australian Government Department of Industry, Science and Resources, Social Research Centre, accessed 4 January 2021.

Workforce

Research workforce and grant outcomes

STEM skills are important for people in the research workforce, including academic staff who do research and have teaching responsibilities.

Understanding women's participation in the STEM research workforce can help build inclusive and diverse workplaces. These workplaces have been shown to produce higher quality science with greater impact.

Key data on research workforce and grant outcomes

In 2021, Department of Education, Skills and Employment (DESE) data showed that 46% of university staff in teaching and research roles (by headcount) were women.

However, 29% of STEM teaching and research roles were held by women. The largest number of women in STEM teaching and research roles (601) were employed at academic staffing level B, while the largest number of men (1,561) were employed at level E (the higher/highest level). At level B, the number of men was almost 1.5 times the number of women. At level E, the number of men was over 4.5 times the number of women.

As at November 2021[3], fewer women were named on STEM research grant applications than men. This is consistent with the 2020 data. Across all STEM fields, 22% of applicants for ARC funding were women and 34% of NHMRC applicants were women.

As there were fewer women applicants than men applicants, fewer women received funding than men:

- 543 women received ARC funding, with 430 as chief investigator. In comparison, 1,918 men received ARC funding, with 1,355 as chief investigator.
- 93 women received NHMRC funding, with 32 as chief investigator. 163 men received NHMRC funding, with 77 as chief investigator.

Success rates for women and men researchers in STEM fields were similar except for NHMRC chief investigator grants, where men had a 4 percentage points higher success rate.

- 25% of women investigators who applied for an ARC grant were successful, compared to 24% of men.
- 25% of women chief investigators who applied for an ARC grant were successful, compared to 23% of men.
- 11% of women investigators who applied for an NHMRC grant were successful. 11% of men were also successful.
- 8% of women chief investigators who applied for an NHMRC grant were successful, compared to 12% of men.

Women accounted for less than a third of the workforce in STEM fields of research in 2021

29%
OF RESEARCH WORKFORCE BY HEADCOUNT

Women were also underrepresented in chief investigators applying for and receiving research grants from the ARC and NHMRC

PROPORTION OF APPLICATIONS SUBMITTED BY WOMEN – ARC

23% CHIEF INVESTIGATORS

PROPORTION OF SUCCESSFUL APPLICATIONS THAT WERE BY WOMEN – ARC

25% CHIEF INVESTIGATORS

PROPORTION OF APPLICATIONS SUBMITTED BY WOMEN – NHMRC

36% CHIEF INVESTIGATORS

PROPORTION OF SUCCESSFUL APPLICATIONS THAT WERE BY WOMEN – NHMRC

29% CHIEF INVESTIGATORS

3 Data represents point in time funding counts.

Industries and occupations

STEM skills are widely valued and can be used in many different occupations and industries. Understanding women's participation in STEM-qualified occupations, and how STEM-qualified industries are taking action to support women's participation, can highlight industries that are driving change and industries where more effort is needed.

The monitor uses data from relevant employers that reported to the Workplace Gender Equality Agency. We source data on occupations and participation rates from the Australian Labour Force Survey.

Key data on industries and occupations

Workforce gender equity and pay gap

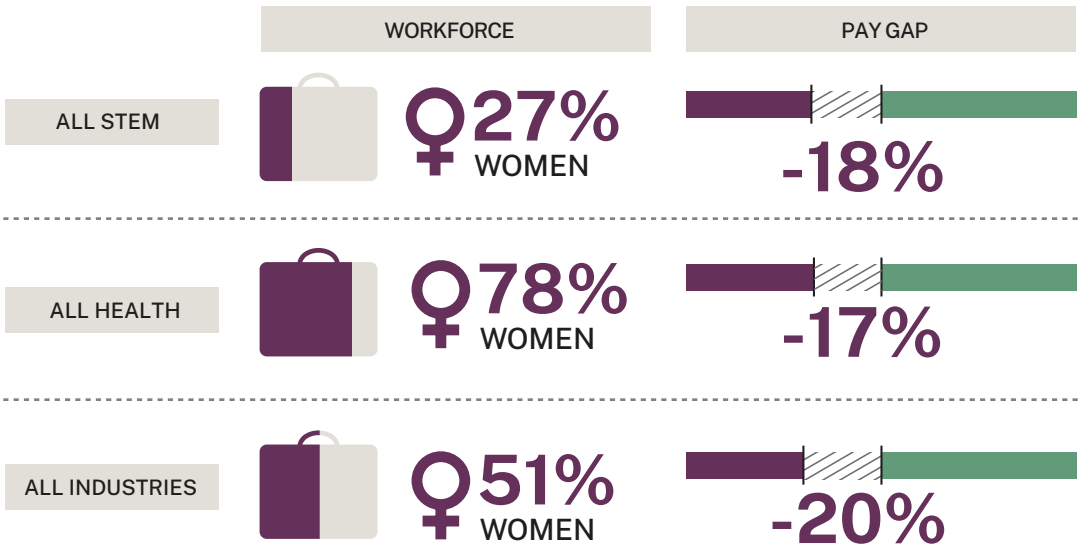
In 2021, women made up 27% of the workforce across all STEM industries, 1 percentage point less than in 2020.

23% of all managers in STEM industries were women. The highest proportion of women in senior STEM positions were in key management and other management roles (24%). The lowest proportion were in CEO and head of business positions. Only 8% of women across all STEM industries were in CEO positions, compared to 43% in health and 19% across all industries.

In 2021, the gender pay gap for full-time workers in STEM industries (including discretionary pay) was $26,784, or 18%. This was smaller than in 2020, when the pay gap was $28,994 (19%).

The 'all industries' category had a 20% average gender pay gap. Seven of the 12 STEM-qualified industries had a smaller percentage pay gap than this average. The 'all industries' category had an average dollar gender pay gap of ($25,752). Four STEM industries had a higher pay gap than this, down from 6 STEM industries in 2020.

Proportion of women and gender pay gap and women in each industry

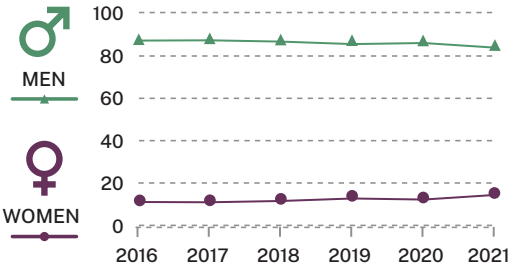


Australian labour force

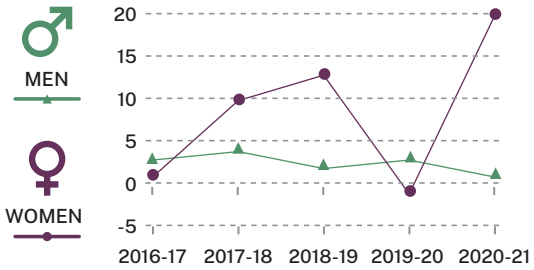
The proportion of women in STEM-qualified occupations increased by 2 percentage points, growing from 13% in 2020 to 15% in 2021. In comparison, women have made up approximately 50% of people in non-STEM occupations and 76% of health occupations since 2009.

From 2018 to 2021, the number of women in STEM-qualified occupations rose at a faster rate than men. In 2021, women's participation in STEM-qualified occupations increased by around 42,000 (a 20% increase) after a slight fall in 2020. As a result, women in STEM-qualified occupations rose from approximately 165,000 in 2016 to approximately 247,000 in 2021 – about a 50% increase. In contrast, the number of men in STEM-qualified occupations increased by about 13% during this time.

The proportion of women in STEM-qualified occupations increased by 2 percentage points in 2021



The number of women in STEM occupations increased by 50% from 2016 to 2021



Australian Public Service (APS) workforce

Responses to the 2021 APS Employee Census provide an insight into STEM roles in the APS.

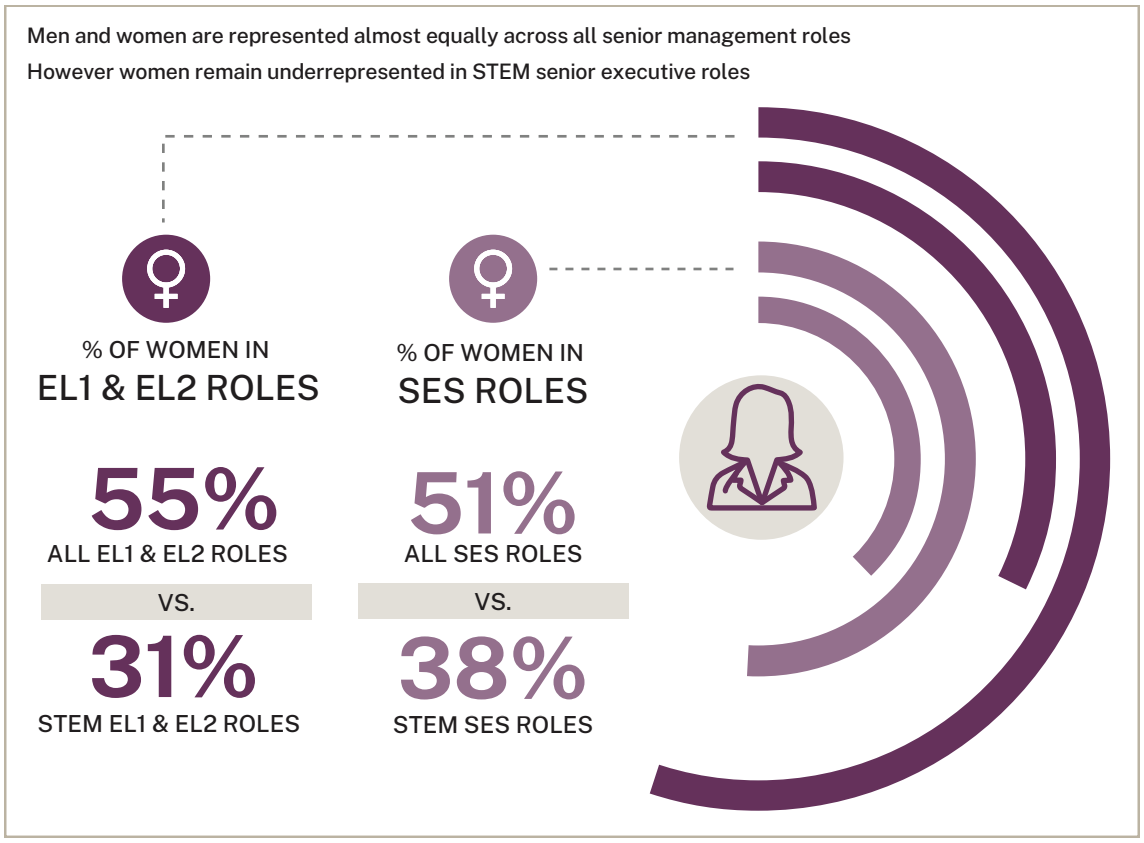
Most STEM roles in the APS had a classification level of APS 5 or 6. 32% of APS employees working in STEM roles were women. In comparison, women made up 65% of employees in non-STEM roles and 78% of health roles.

The number of women at APS 5 or 6 level overall was more than 1.5 times the number of men. However, the proportion of women in STEM roles at an APS 5 level or above was around half that of men:

- Of the women working at APS 5 or 6 level in the APS, 14% were working in STEM roles. By contrast, 29% of men at APS 5 or 6 levels were working in STEM roles. Women at Executive Level 1 (EL1) made up 10% of all STEM roles. EL1 men made up 21%.
- Women at Executive Level 2 (EL2) made up 4% of all STEM roles. EL2 men made up 11%.

55% of all EL1 and EL2 employees were women, but only one-third of staff in EL1 and EL2 STEM roles were women.

Similarly, the overall proportion of women and men at Senior Executive Service (SES) levels was about equal (women 51% and men 49%). However, only 38% of SES-level STEM roles were filled by women.



Publicly funded research agencies (PFRAs) workforce

In 2021, 71% of all people working in the sampled PFRAs were in STEM occupations. This is an increase of almost 4 percentage points from 2020. Women made up 28% of people in STEM occupations, the same as 2020. By comparison, women made up 59% of non-STEM occupations in PFRAs, an increase of 6 percentage points from 2020.

The largest number of women in STEM were working at the EL1 level (812, or 35% of women in STEM occupations). The largest number of men were also at the EL1 level (2,107, or 35% of men in STEM occupations).

The EL2 level had the largest difference between men and women in STEM roles – 18% of EL2 roles in STEM were held by women, one percentage point less than in 2020.

Workforce data sources

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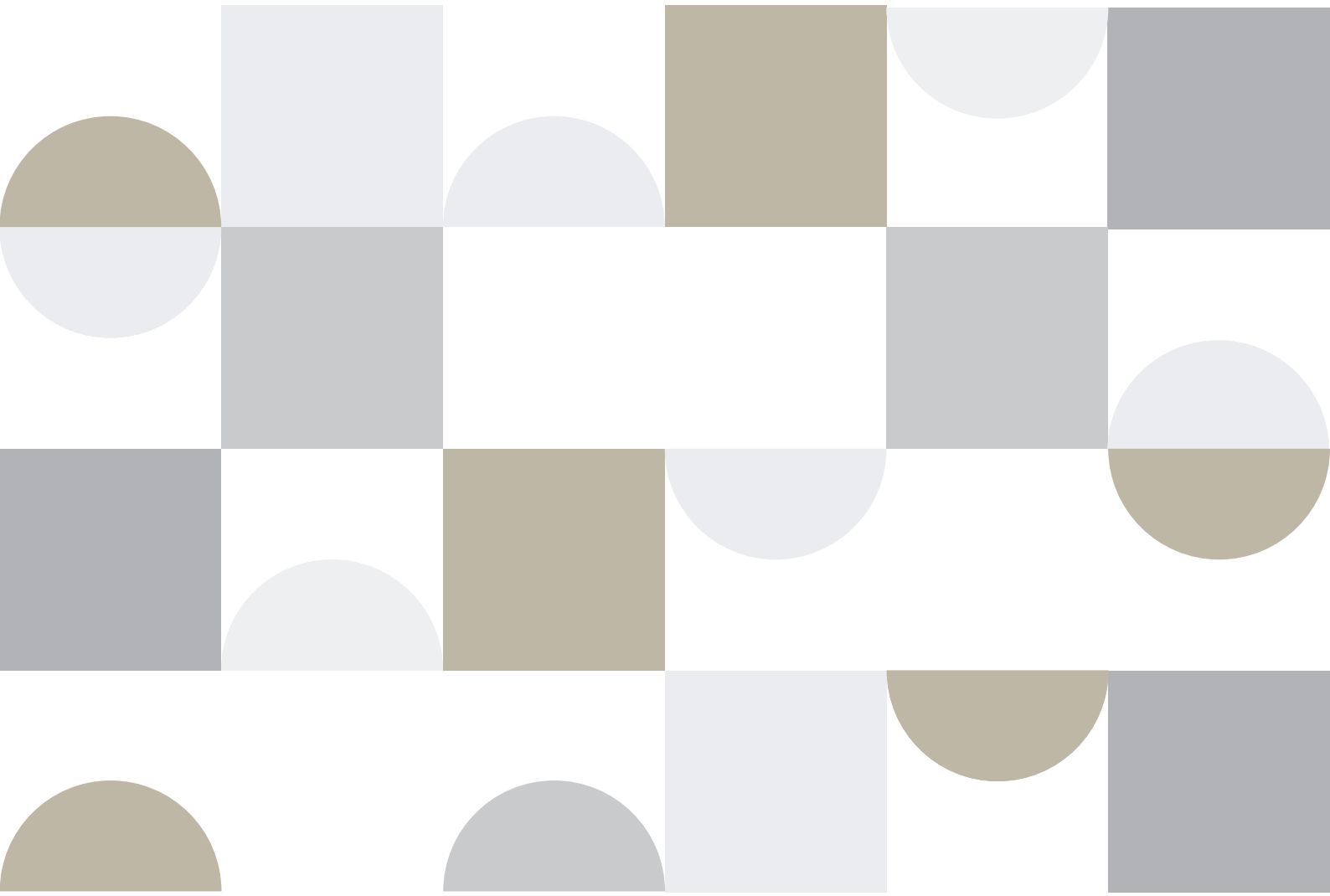

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