Australian Government
Office of the Chief Scientist

SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

DATASHEET 2: NOVEMBER 2016

WOMEN IN STEM

A story of attrition

PRIMARY SCHOOL | SECONDARY SCHOOL | POST-SECONDARY EDUCATION | WORKFORCE

Australia loses female talent at every stage of the STEM pipeline despite no innate cognitive gender differences

Achievement and retention of women in STEM is related to:

- Engagement
- Confidence
- Bias

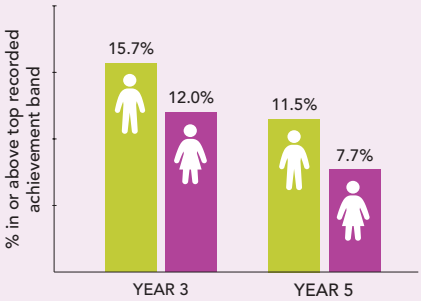
PRIMARY SCHOOL

1 Gender bias and stereotyping begins at an early age

Two thirds of children aged nine to eleven draw a man when asked to draw a scientist.

2 Girls in Grade 4 are less confident in their maths abilities

3 Despite having similar average performance in NAPLAN numeracy 2015, fewer girls achieved at the highest level



SECONDARY SCHOOL

4 Attitudes to STEM subjects affect performance

% of 15 year olds who **DO NOT** think maths will help them:

With later study	20%	33%
Get a job	16%	24%

5 Fifteen year old girls are less confident in applying maths concepts to real-world problems

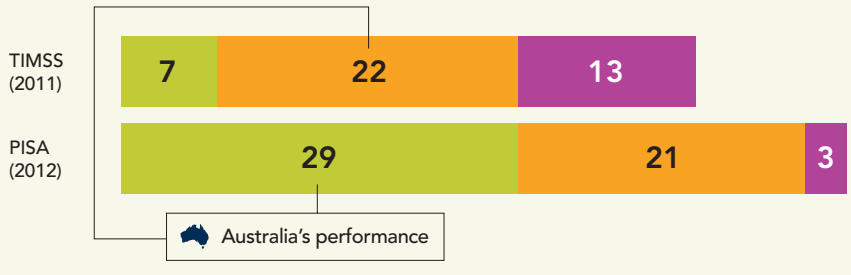
% confident to calculate petrol consumption of a car:	41%	66%
% confident to solve a formal maths equation:	88%	86%

7 Participation in key Year 12 STEM subjects shows a clear gender imbalance

PHYSICS	3:1	
ADVANCED MATHS	1.9:1	
INTERMEDIATE MATHS	1.3:1	
ENTRY MATHS	1:1.1	
BIOLOGY	1:1.9	

6 International maths tests reveal no innate gender differences: sometimes boys do better, and sometimes girls do better

Number of countries where:
- Boys performed better than girls
- Boys performed equal to girls
- Girls performed better than boys

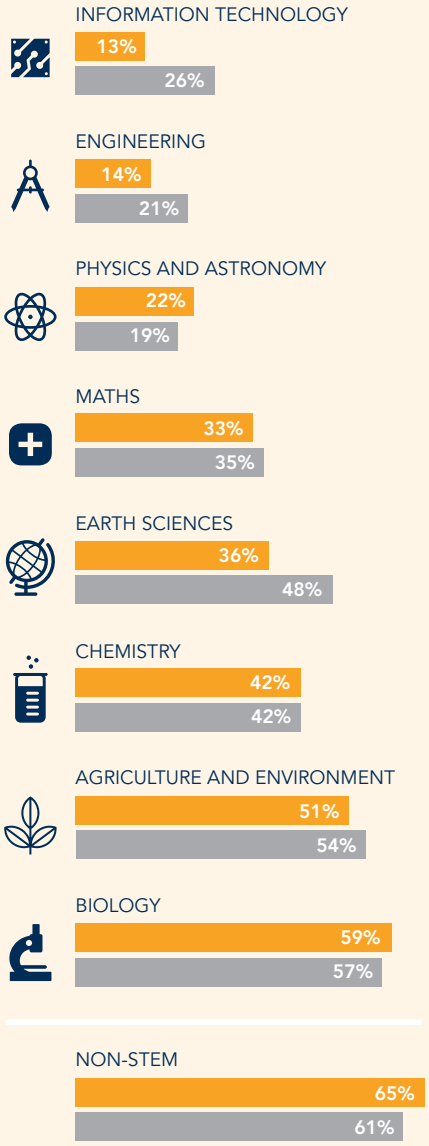


UNIVERSITY EDUCATION

8 Female graduates are scarce in many STEM disciplines

% of domestic completing graduates who were female (2015)

- Bachelor
- Postgraduate



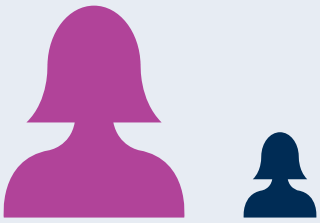
WORKFORCE

9

16%

OF UNIVERSITY AND VET STEM GRADUATES ARE

FEMALE



29% University qualified

9% VET qualified

10 Traditionally male sectors still employ few female STEM graduates

% of STEM graduates in sector who are female		
Bottom 2 sectors	Construction	12%
	Transport	15%
Top 2 sectors	Education	41%
	Healthcare	60%

11 Fewer female STEM graduates earn in the top income bracket

32% male **12% female***

Graduates earning in the top income bracket ($104 000 or above)

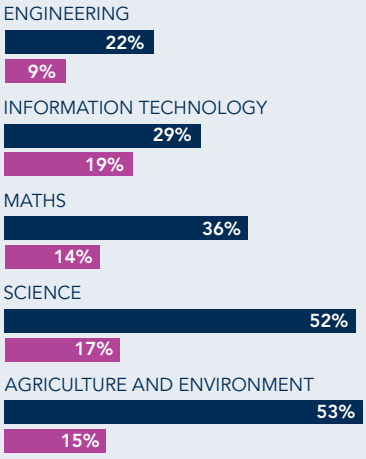
* Parenthood does not explain the wage gap: it is similar for women without children

12 Females make up fewer than one third of total STEM academic and research staff

Only 17% of STEM professors are female, even though around 40% of junior STEM academics are female

Female academics at:

- Junior levels
- Senior levels



KEY STEPS TOWARDS GENDER EQUALITY IN STEM

ELIMINATE stereotypes and bias

EMPHASISE real-life STEM applications in teaching

REWARD hard work and build confidence – it's okay if you don't understand it straight away

ENCOURAGE organisations to create supportive and inclusive workplaces, and monitor progress towards equality

For more detail including references, visit http://www.chiefscientist.gov.au/category/science-andresearch/occasional-paper-series/

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