

# Choosing Year 11 and 12 courses: guidance from experts

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## Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind

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### Author



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*This is the first article in a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

From about August each year, young people in year 10 go through a round of interviews to close in on their subject selections for years 11 and 12.

They're given a portfolio full of reading materials. They may also attend vibrant careers markets to get helpful information. The principal and heads of the year give presentations, and occasionally a VIP guest speaker will arrive.

Somewhere at this point, my sobbing daughter had cried: "I'm growing up too quickly!" She'd been told a complex story about ATARs, prerequisites and options for her career path, all with the solemn authority about the importance of making wise decisions.

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Studies have shown students experience anxiety around choosing subjects that relate to their desired career path. Nothing as serious as this will have happened in most children's lives before now.

What if they don't know what they want to do? Or worse, what if they make a mistake in their subject choices?

The good news is, there is not much need to worry. Choices you make now about your subjects don't need to have a severe impact on your future.

There are some myths about senior schooling all kids and parents need to know. Here are six of them.

### **Myth 1: you need an ATAR to go to university**

There are several pathways to university — an ATAR is only one of them.

The federal education department reports there are significant intakes for courses that don't require an ATAR. A 2020 report says the share of university offers for applicants with no ATAR or who were non-year 12 applicants was 60.5% in 2020. This was up from 60.1% in 2019.

Some courses, like engineering, normally require an ATAR of somewhere around the mid 80s. But you could also get in through having done a VET certificate or diploma. RMIT, for instance, offers up to two years of credit to transfer from TAFE into an undergraduate degree.

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***Read more: Your ATAR isn't the only thing universities are looking at***

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There are many alternative pathways described by most institutions on their websites. Curtin University has a helpful journey finder for students without a competitive ATAR.



There are several pathways into university. Shutterstock

A year 12 student, expecting not to gain an ATAR, who is not studying English or doesn't expect to gain a 50 scaled rank for English, has at least three pathways into Curtin — sitting the Special Tertiary Admissions Test, doing a course at Curtin College, and using a portfolio for assessment.

Curtin also has a UniReady Enabling Program. This is a short course of 17 weeks. Completing the course means you will fulfil Curtin's minimum admission criteria of a 70 ATAR. Many universities have similar types of preparatory pathways.

### **Myth 2: your senior subjects majorly influence your career**

With all the disruption we're experiencing, technical and social, we actually don't have any idea what types of careers will be available in the future. Industry advice bodies, like the National Skills Commission, recommend students choose subjects that suit their interest and skill set, rather than to prepare for a specific future career.



Reports show today's 15-year-olds will likely change employers 17 times and have five different careers through their working life. Many of their career may have very little, if any, connection to the senior subjects they took at school.

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**Read more: [Can government actually predict the jobs of the future?](#)**

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A 2018 report by industry body Deloitte Access Economics showed 72% of employers “demanded” communication skills when hiring and that transferable skills, such as teamwork, communication, problem-solving, innovation and emotional judgement, “have become widely acknowledged as important in driving business success”.



The ability to work in a team will be an important skills for future employers. Shutterstock

This can include subjects like music, dance, debating and theatre will teach the exact skills employers value the most.

### **Myth 3: you should do ‘hard’ subjects to get a high ATAR**

All subjects are hard if you lack interest or ability. Students are unlikely to do well if they are unhappy and unmotivated.

Research shows being motivated will improve how well you do in something. But academic performance is better associated with internal motivation (such as liking something) than external (like the drive for an ATAR).

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**Read more: [Five tips to help year 12 students set better goals in the final year of school](#)**

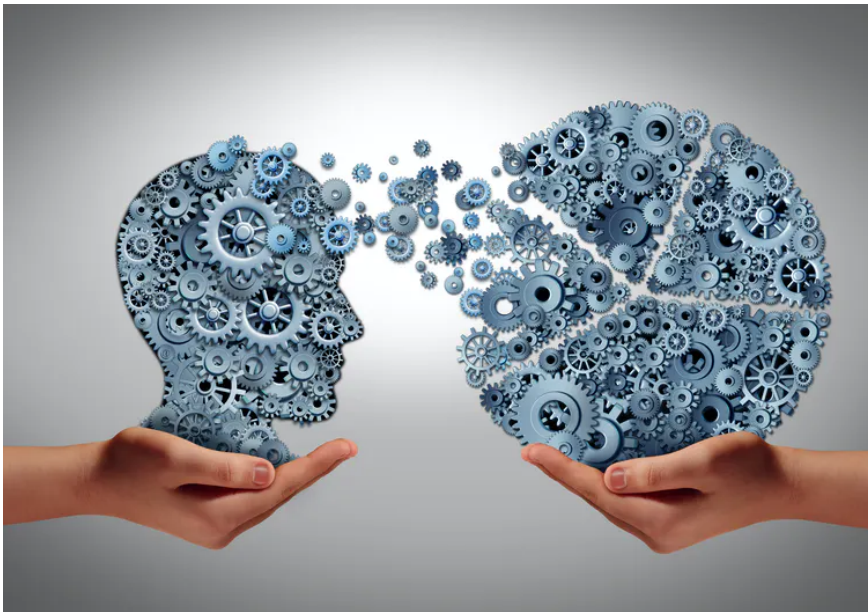
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So, if a student only values a subject for what it might get them, like a high ATAR, they'll do better than if there was no purpose at all. But they won't do as well as if they are internally motivated by it.

### **Myth 4: your ATAR will stand as the measure of your ability into the future**

The ATAR is simply a profile of achievement on a limited number of tasks over a defined period. A person at the end of school, aged 17 or 18, hasn't reached the end of their development.

Studies show there is an interaction between gains in knowledge and expertise, and losses in the speed of cognitive processing as we age (meaning we learn less as we get older, to some extent).



You will keep learning from experience. Shutterstock

But these losses are offset by an older person's access to a rich base of experience which can inform their understanding of things and their actions. Also the older a person is, the better developed their self-regulation and motivation.

Our abilities are shaped and reshaped by experience across our lifespan.

### **Myth 5: year 12 will be demanding and stressful**

Year 12 can be demanding and stressful, but it doesn't have to be. The most common source of distress in the senior years comes from anxiety, specifically test anxiety, and the pressures that come from selecting subjects for reasons not driven by interest and ability.

These years should not be devoted to self-flagellation for a high ATAR.

Students with a range of subjects types will have variety in their day and week. They are likely to have the best experience in their senior years.



Variety in your day can help you enjoy your senior years. Shutterstock

Research suggests a balanced life underscores success and general achievement, and setting the tone is vital during these formative years.

### **Myth 6: taking a VET subject in year 11 or 12 will affect your ATAR**

Taking a VET subject reduces the opportunity to take another ATAR subject. It could be argued this puts greater pressure on achievement in the remaining ATAR subjects. But taking a VET subject also reduces the ATAR subjects on your dance card, so they may well be easier to manage.

Including a VET subject is also likely to provide a balanced education in senior years, which may actually improve a student's chances for a high ATAR.

So here's what you should think about when making your subject choices:

- what do you like?
- what comes easily to you?
- will the selection give you variety in your day?
- in which subjects will you have the most fun?

Read the other articles in our series on choosing senior subjects, [here](#).



Vocational education and training

ATAR

Subject choices

Year 12

university entry

career choice

senior subjects

year 11 and 12

senior subjects series



## Thinking of choosing a science subject in years 11 and 12? Here's what you need to know

July 22, 2021 6.11am AEST

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### Author



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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

Studying science helps you make sense of the world and opens the door to a wide range of careers.

If you've decided to be a doctor or engineer then you will already know you need to do a science. But if you're in the [45% of students](#) who don't know what career they'll end up in, you may want to study a range of different subject types to keep your options open. Science could be one of them.

### Who takes science?

In Australia, science is compulsory until year 10 – after that, it's a choice. The Australian Curriculum groups [science](#) into four areas:

- biology — the study of life
- chemistry – the study of materials and substances
- earth and environmental science — a broad subject about the interactions between the Earth and its water, air and living organisms

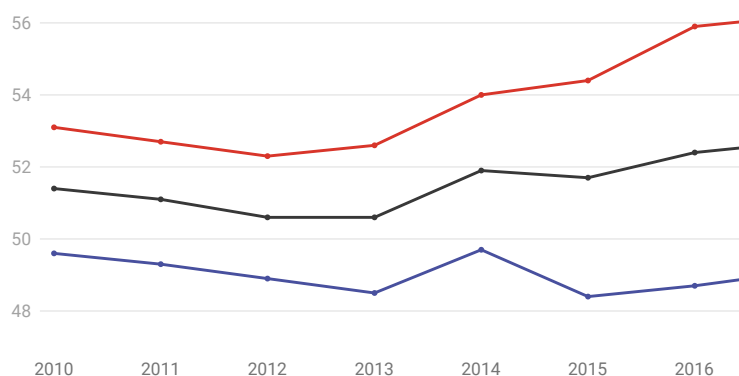
- physics — the study of the nature and the properties of matter and energy.

The specific science subjects you can choose depends on where you live and what your school offers but they will fall into these areas, or a combination.

Just over half of all students choose to continue with science into year 12. In 2010, 53.1% of girls in Australia took a year 12 science subject. This had increased to 56.2% by 2019. In contrast, the proportion of boys taking science actually dropped – from 49.6% to 46.9% in the same period.

## Percentage of year 12 students enrolled in the sciences, across Australia

2010-2019



Source: [ACARA](#) • [Get the data](#)

Biology was the most popular science subject among both boys and girls – 32.4% of all students who took a science subject in 2016 took biology. This was compared to 21% taking chemistry and 15% taking physics.

But more girls (40%) chose biology than boys (24%). And more boys (21%) chose physics than girls (8%). Similar proportions of girls and boys chose to study chemistry and life and earth sciences (such as geology and agriculture).

## Science subjects chosen by boys and girls in years 11 and 12 in 2016

Subject	Boys (%)	Girls (%)	Total (%)
Science	57	58	57
Biology	24	40	32
Chemistry	22	19	21
Physics	21	8	15
Life and Earth Sciences	14	13	14

There are several theories for this difference. Some research shows girls consistently show a less positive attitude to science than boys and don't feel they are as good at it. This is interesting because girls get similar marks to boys in science.

**Read more: [Girls score the same in maths and science as boys, but higher in arts – this may be why they are less likely to pick STEM careers](#)**

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Girls tend to have better language skills than boys, so another suggestion is they are more likely to choose subjects that require those skills, such as humanities.

There are no clear answers but your gender shouldn't matter when it comes to choosing science.

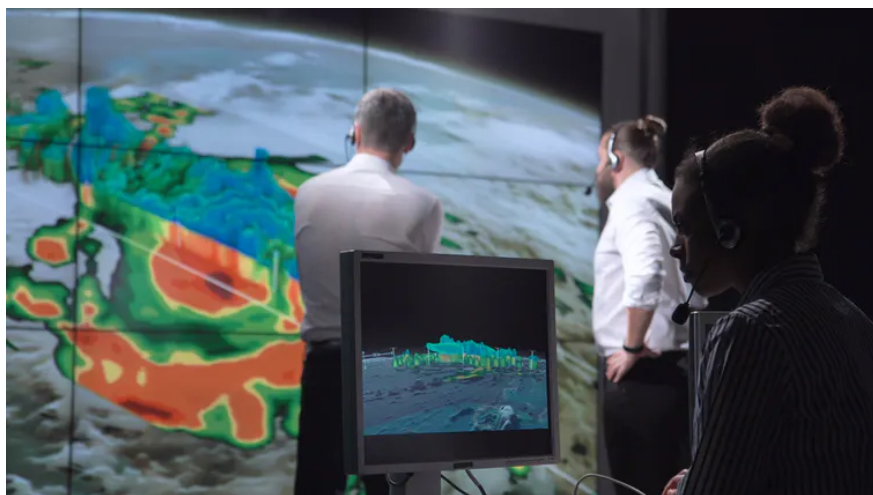
## Careers in science

Back in the 1990s, 85% of students in year 12 took at least one science subject. Enrolments started to fall around 1992 and settled around where they are now. The reason for the fall continues to be debated but popular theories include a wider range of subject choices, and the perception science is too hard and not worth the effort.

Many experts consider the current enrolment levels too low and this is confusing in light of evidence that the demand for science, or more broadly STEM (science, technology, engineering and mathematics), skills is increasing.

A recent government report showed STEM jobs are growing almost twice as fast as other jobs.

Many roles are available inside and outside the lab. These are in areas such as climate change, materials science (anything involving how things are made and how they work — from nanoparticles to concrete), health, food technology, drug manufacturing and education.



Climate science is among the many and varied areas science graduates could work in. Shutterstock

Of course it's unlikely you'll go straight out of school into a science job. You'd have to do a university or another type of course — such as vocational education and training — first. It will be far easier to do one of these courses if you did a science in your final years. Although, there are still pathways into them even if you didn't.

The reverse is true too — you may change your mind about wanting to pursue science after studying it at school (or uni). In fact, about two-thirds of students who do a STEM subject at school or university actually end up with jobs outside of STEM.

## What else can science teach you?

In my research into how students chose their subjects, most students thought science was only useful for traditional science careers such as medicine or engineering. That's not the case.

Studying science helps build scientific literacy, which means being able to engage with and reflect on science topics in your daily life. Good scientific literacy gives you skills to see fake science for what it is and talk meaningfully about issues like climate change or COVID vaccines.

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**Read more: *Teach questions, not answers: science literacy is a crucial skill***

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Studying science also helps students understand their world and be interested in what is happening around them. Knowing how science works means you can make up your own mind about evidence.



You can decide if getting solar panels makes sense or if kale really is a wonder food.



Scientific literacy can help you determine things like whether kale is in fact a superfood. Shutterstock

Today's 15 year olds are predicted to have five different careers and 17 changes of employer in their lifetime. So it makes sense to choose a range of subjects that build skills which are portable across a range of roles.

Including a science subject in the mix, even if you're not planning for a scientifically related career, can provide a good balance. But only, of course, if you're interested.

### **Don't choose it for the ATAR**

You may hear science subjects are great because the marks are scaled up when your ATAR is calculated. That's not quite right.

As you probably know, the ATAR is your rank compared to other students and it's one factor in how universities select students.

Historically science subjects have been favourably scaled because the average academic ability of students doing science has been higher than the average student. Scaling happens after the marks are in and aims to even the playing field between subjects. You have a far better chance of getting a good mark if you do a subject because you enjoy it, or are good at it.

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**Read more: [Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind](#)**

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In my research I found both girls and boys ranked finding a subject interesting and enjoyable as the most important influences when deciding to choose or reject a subject for year 11. Next came needing a subject for a career and then their expectation of getting a good mark.

You will need to weigh this up for all your subject choices, not just science. In the words of a year 10 student from my research

*if you choose everything that you love, you might not necessarily be doing very well and it might bring your marks down, but if you choose things that you are doing really well in, but you might not necessarily love them, you are not going to have the motivation to keep doing well.*

You don't have to love science but you do need to like it and think you can do the work.

Read the other articles in our series on choosing senior subjects, [here](#).







## Thinking of choosing a health or PE subject in years 11 and 12? Here's what you need to know

July 26, 2021 5.53am AEST

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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

From kindergarten to year 10, all Australian students follow the national health and physical education ([HPE](#)) curriculum. This expands in years 11 and 12 with a range of health and physical education selection options.

Depending on [which state you live in](#), you may be able to do year 11 and 12 health and physical education subjects such as physical education (by itself), sport science, health studies, personal development, athlete development, food and nutrition, outdoor and environmental studies, and sport and recreation. These subjects include a variety of practical and theoretical options.

When [deciding](#) which subjects to do in years 11 and 12, it is important to consider your interests and study load, as well as what you want to do after year 12.

Get your news from people who know what they're talking about.

Hear from them

Do you want to embark on university study, enter the workforce, learn a trade or something else? [Sport and recreation](#) is a common choice for industry preparation, with ATAR and higher education pathways also available. But there are other options, too.

### What subjects can I do?

In recent decades a number of [reports have indicated](#) studying health and physical education in year 11-12 is becoming more popular.

In 2016, almost 40% of students aged 16 to 17 across Australia [elected to enrol](#) in health and physical education subjects in years 11 and 12. The PE subjects were slightly more popular among males, and health education among females.

Similarly, [in New South Wales](#), trends show the proportion of senior secondary students studying health and physical education rose by almost 10% over the decade from 2008.

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**Read more: [Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind](#)**

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Many subjects are available under the health and physical education umbrella – depending on where you live. Alongside the combinations of [HPE](#) or [PE](#) (by [itself](#)), these can include:

- [health studies](#) and [well-being](#) are available in states such as Western Australia, South Australia, Queensland and Tasmania. Here you will learn about personal care and well-being and about where to find accurate health information. You can explore different dimensions of health such as physical, mental and emotional health — all of which can help you navigate busy and often stressful years at college
- [food and nutrition](#) is available in states such as Tasmania and South Australia. This will teach you how to analyse nutrition and food information, food advertising and dietary trends. You will also explore what influences food choices, analyse how nutrition affects health and consider how secure and sustainable our food supply is
- [sport and recreation](#) studies are available in states such as Queensland, Victoria and NSW. This subject can make you more aware of the many local organisations and experiences you can access for fun. It can also teach you how to [get engaged in](#) physical activities with your friends and family, and work with a local council to organise community sporting events
- [athlete development](#) is available in states such as Tasmania. This can allow you to develop in your chosen (team or individual) sport through specialist coaching. You can learn about things like how to train effectively and prevent and recover from injuries
- [outdoor education](#) is available in states such as Victoria, South Australia and Western Australia. This will give you exposure to many different activities, such as rafting, kayaking and climbing, that you probably would not be able to normally access. Experience in adventure activities is useful if you want to work as a recreational guide, with skills to lead and manage outdoor groups

For students who want to continue studying health and physical education at university as part of training to be a teacher, subjects that relate to [sport science](#) such as biology, chemistry and physics are highly recommended and [scaled well](#) towards ATAR scores in 2020.

They are also a great foundation for courses in exercise science, health promotion, nutritional sciences and physiotherapy.

### What else will I learn?

Studying health and physical education in senior secondary school can give you an insight and appreciation of how our psychology, social networks, culture, environments and bodies all connect to influence our activity behaviours and overall physical performance.

For instance, when planning how to get people moving and performing well, you might consider a person's motivation, the type of people to train with, the types of facilities available and levels of training preparation.



Doing subjects related to sports science could lead to a career in physiotherapy. Shutterstock

Many students choose senior secondary health and physical education for future careers relating to movement and the body. These include coaching, teaching, sport science, nutrition and recreation. Others may simply want to better understand how to plan and promote active and healthy lifestyles.

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***Read more: Thinking of choosing a science subject in years 11 and 12? Here's what you need to know***

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Studying health and physical education can lead to improved confidence in your movement, ability to make decisions and to develop teamwork and leadership skills that will help across life. These skills are transferable across a range of other professions such as management, policing and the defence forces.

### **Keeping active in the senior years**

Across Australia, schools are expected to deliver at least two hours of planned physical activities each week to students until year 10.

But there is no time requirement for schools to deliver physical activity in the senior years.

Global reports indicate physical activity reduces through adolescence and to some extent into adulthood. Researchers suggest the decline is most often due to a lack of time, followed by the amount of resources available and the level of school support to get students moving.

Physical activity is vital to buffer stress in senior schooling. Even a few brief periods of four to eight minutes of intense activity such as push-ups in class each week can help senior students' mental health, learning engagement and overall fitness.

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***Read more: How much physical activity should teenagers do, and how can they get enough?***

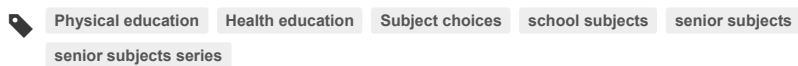
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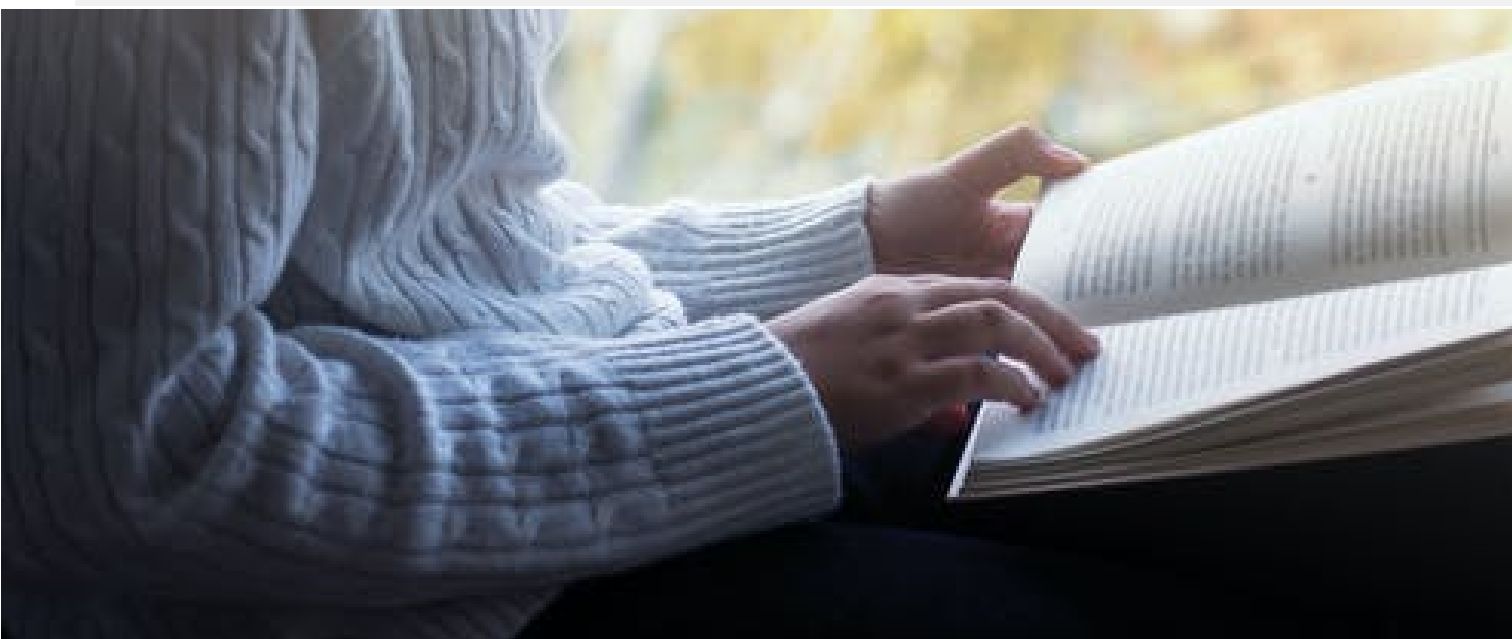
Although taking health and physical education in years 11 and 12 does not have the same requirements to get you moving regularly as in the earlier stages of school, you will have the

opportunity to develop a deeper appreciation of what you need to do to get moving on your own.

If physical education is just not your thing, still make sure you get at least one hour of activity each day that “makes your heart beat faster” to weather the stress of the final years of school and the evolving pandemic and to set up healthy habits for adulthood.

*Read the other articles in our series on choosing senior subjects, [here](#).*





## Confused about which English subject to choose in year 11 and 12? Here's what you need to know

July 28, 2021 12.31pm AEST

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### Author



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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

English (or an equivalent [literacy requirement](#)) is a compulsory subject for all secondary students in Australia. In years 11 and 12 there are several types of English subjects to choose from.

There are different versions of “English” in different states, with various titles and levels of difficulty.

There's [English](#), [English studies](#), [general English](#), [foundation English](#), [English standard](#), [English advanced](#), [English language](#), [English and literature extension](#) and [literature](#). It is important to choose the right version of English to reach your desired destination.

### Different types of English

The Australian Curriculum is the base for the development of state and territory senior secondary courses. It breaks English down into [four broad categories](#): English, literature, EALD (English as an Additional Language or Dialect) and essential English.

**Literature** is known as the most challenging of the four and focuses on literary texts such as poetry, prose and drama. Literature explores the creative use of language through in-depth study of culturally important literary works.

For example, students may explore colonial representations of race in Joseph Conrad's novella Heart of Darkness, the beauty and unsettling nature of Shakespeare's sonnets, or Australian cultural identity in Jack Davis' play No Sugar.

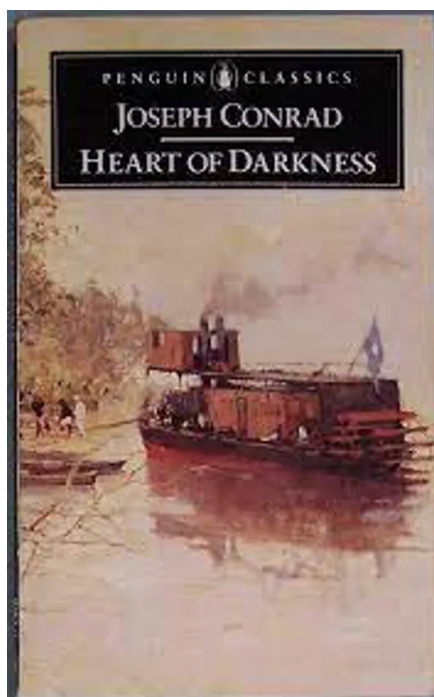
Literature is more like philosophy or history than what we think of as English from NAPLAN (grammar and comprehension).

Literature used to be a popular subject in some states, but its popularity has been falling. Recent figures from Victoria show while literature was the 15th most commonly studied subject in 2015 in the senior years, it tumbled to 19th in 2019. In 2020, it fell off the top 20 list entirely.

In Western Australia, some schools have dropped literature because of low enrolments. A report in 2018 noted the percentage of year 12s studying literature fell from 26% in 1998 to 11% in 2017.

Theories about this fall include the fact literature is seen as an elitist subject, that you have to be someone who reads all the time to take it, and you have to love great 19th and 20th century literature.

These things aren't true. Anyone interested but willing to challenge themselves should and can take literature. And some examples of recent texts include *Breath* (Tim Winton), *The Handmaid's Tale* (Margaret Atwood) and *The Book Thief* (Marcus Zusak). There are many "fun" texts students can study and while literature is challenging it can also be enriching, and can cultivate a love of reading.



In a literature course, you could be asked to explore representations of race in Joseph Conrad's *Heart of Darkness*. Drümmkopf/Flickr, CC BY

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**Read more: 5 Australian books that can help young people understand their place in the world**

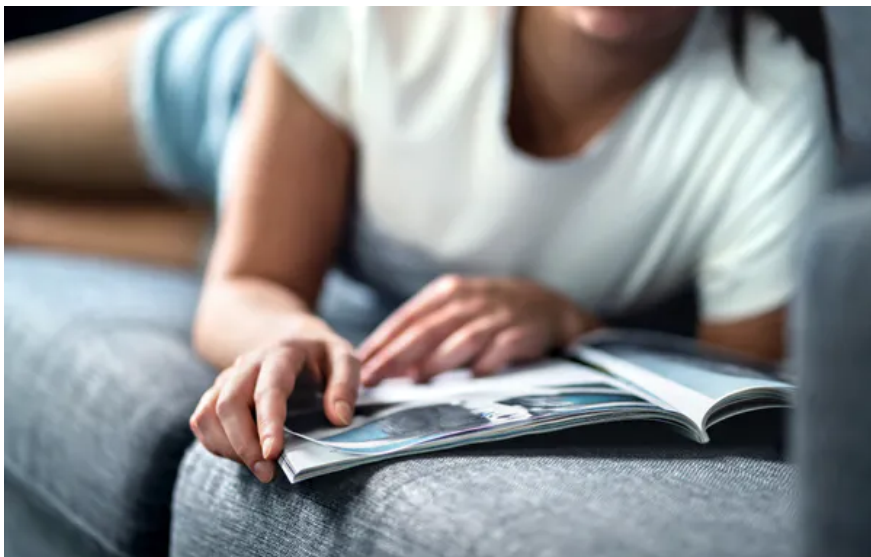
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Also, my research showed some students found studying literary texts to be an empowering experience. One year 12 student said:

*I'm the black sheep in my household. I identified with Rose (a character from Tim Winton's *Cloudstreet*) quite a bit as the strong girl who was being resilient and was trying to break out of where she was. I do performing and everyone else does engineering or chemistry.*

**English** develops analytical and creative skills through studying a range of literary and non-literary texts (including oral, multimedia and digital "texts" such as documentaries, graphic novels and feature articles).

If you're not in love with reading or writing but want to study subjects such as commerce or engineering at university, this may be the course for you.



In English, you can study a range of texts, such as magazine feature articles. Shutterstock

Although it's seen as easier than literature, not everyone finds it that way. One Victorian student who had taken both literature and English wrote actually found the latter harder. This is because she felt she had more freedom in literature while English "wasn't really compatible with tangents". She found it harder to be more concise in her expression.

**English as an additional language** is designed for students with English is their second language. This is an ATAR subject in some states such as Western Australia and Victoria.

**Essential English** develops students' use of language, but it is not an ATAR subject. Essential English and general English are tailored to students who would like to graduate from high school but don't want to go to university.

### How do I decide which to take?

The first question you can ask is: "Do I want to go to university?". If the answer is "yes", you are likely to choose an English subject that will go towards your ATAR.

It's worth noting you can still get into university without an ATAR, or without a very high one, but it does give you more options.

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**Read more:** *Don't stress, your ATAR isn't the final call. There are many ways to get into university.*

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ATAR subjects are traditionally seen as more difficult than non-ATAR ones, although for anyone who has ever studied non-ATAR subjects, this is debatable.

So, let's take an example student, Mia. She is tossing up between medicine, mechanics or music teaching.

If Mia wants to become a mechanic, she does not need an ATAR to get a school-based apprenticeship. She may be better off studying general English, which focuses on the skills students need to become competent communicators in everyday life, or at work.



If Mia wants to become a mechanic, she doesn't need to do an English subject that contributes to an ATAR. Shutterstock

But if Mia wants to be a music teacher or doctor, she is better off choosing an English subject that contributes to an ATAR. If she would like to be a teacher, she could choose something like [English standard or English advanced](#) and will need an ATAR score over 70 (but more than likely [around 85](#)). If she would like to study medicine, she will need an [ATAR closer to 99](#).

### What about scaling?

Some English subjects are scaled higher, while others lower.

[Scaling](#) uses an algorithm to make subject scores more or less comparable to each other. This also makes sure if a student takes a difficult subject, they aren't disadvantaged. It's easier to get an A in an easier subject than a harder subject, so scaling generally adds more points to students doing harder subjects.

ATAR literature, a traditionally more difficult course, is usually scaled up. In Western Australia in 2020, for instance, English was [scaled down](#) about two points and literature was scaled up by nearly seven.

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**Read more:** [\*Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind\*](#)

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But students shouldn't just take a subject like literature because it's scaled up. Because it's harder, they may get a lower mark and the scaling won't make much difference. You should do what interests you, and what you think will contribute best to your future while ensuring a good senior school experience.

### What could I do with English?

English is compulsory because you need it for everything in life, from social communication to employment.

Studying literature, which isn't compulsory, can be useful for occupations that require an advanced command of language such as journalism, research, law, public relations, philosophy and politics.

Read the other articles in our series on choosing senior subjects, [here](#).

 Literature Poetry ATAR English Australian curriculum senior subjects year 11 and 12  
senior subjects series





## History made the world we live in: here's what you'll learn if you choose it in years 11 and 12

July 29, 2021 10.47am AEST

Temple of Edfu temple, Egypt. Shutterstock

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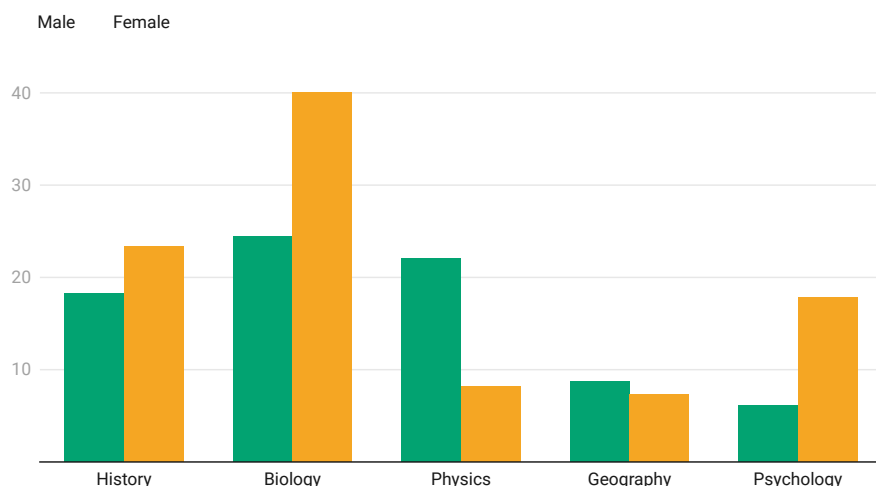
*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

History is for students curious about the world. It involves discovery, evaluation and imagination.

Around 40% of Australian senior students [chose to study](#) year 11 and 12 history in 2016. It was more popular than other humanities subjects such as geography and psychology and more girls chose to enrol (23%) than boys (18%).

Here's what you need to know if you're considering taking history in the senior years.

## Percentage of students who chose various subjects across Australia in years 11 and 12 (2016)



Source: Growing up in Australia • Get the data

### What kinds of history subject are there?

There are a variety of history subjects offered across Australia. For example, Victoria's history subjects include Australian history, 20th century history, ancient history and revolutions.

**Australian history** is only available in Victoria. It investigates Aboriginal history and contact with colonialists, through to Federation and 20th century nation building. But the subject is losing popularity. The number of students who completed Australian history almost halved between 2014 and 2019, from 1,245 in 2014 to just 632 in 2019.

Teachers are aiming to make it more interesting and the structure of Australian history will change next year. Instead of learning the entire span of Australian history chronologically, Victorian students will conduct two semester-length investigations of themes including creating a nation, power and resistance, and war and upheaval.



Australian history explores how we got to the present, from Aboriginal history to building the nation of Australia as we know it today. (Map of Australia published in Le Tour du Monde journal, Paris, 1860) Shutterstock

**Ancient history and revolutions** explores societies such as Ancient Egypt, classical Rome and Greece with a focus on politics, military and social history. Revolutions includes an in-depth study of French, American and Russian revolutions.

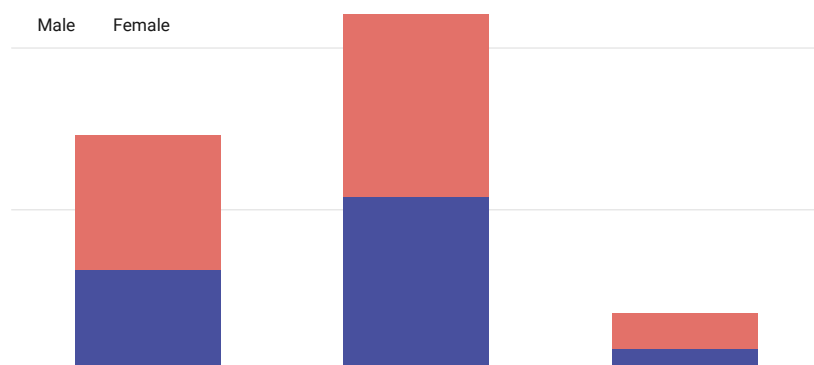
Year 12 student Taylah told us she took ancient history because:

*I always had a fascination with the ancient Egyptian civilisation. I was especially interested in how civilisations have or haven't learned from the past.*

**Modern history** is available in [New South Wales](#) and [Queensland](#). This generally focuses on prominent topics and events from the French Revolution to the present. It covers major conflicts such as the world wars, the Cold War, the Vietnam war, international race relations and peace initiatives such as the beginnings of the United Nations.

Modern history was the most popular course in NSW in 2020, with similar numbers of boys and girls choosing it.

## Number of students in NSW who took senior history in 2020



**History Extension**  
Source: [NSW Department of Education](#) • [Get the data](#)

Uniquely, NSW offers an [extension history](#) course, which examines historical theory and the uses of history today. This course features a major research project that places students in the role of a historian, extending learning beyond content to communicate conceptual understandings.

### What will I be learning?

History is for students interested in understanding the origins of the present and who like to see beyond simple, right-or-wrong answers.

Samantha who is studying teaching at university told us she chose history in years 11 and 12 because:

*It always fascinated me how history made the world we live in. I also thought it was interesting how in Australia we are so tied to the Western world, considering geographically we are quite removed.*

History isn't just about learning facts like names and dates. Senior history opens up knowledge to be questioned and explored in depth. For example, students can compare and contrast the revolutions of France and Russia and investigate whether and how the first world war was a precursor to the second.



Students can compare the Russian the French revolutions. (Funeral of people killed by Czarist police on Feb 26, 1917 St. Petersburg, Russia) Shutterstock

Jack who has a bachelor in business studies told us he:

*enjoyed the combination of skills involved in studying history: writing, critical analysis and assessment of a range of different sources such as books, film and interviews.*

A major skill students learn is historical inquiry. This means finding out about the past by researching information from different perspectives, locations and times. Students synthesise information to form a historical evidence-based argument.

Let's take competing perspectives on Aboriginal civilisation before the British arrived in Australia. For years, our history textbooks told us Aboriginal people were hunter gatherers moving from place to place. But more recent evidence claims many Aboriginal people cultivated the land for farming and aquaculture.

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**Read more: *Secondary school textbooks teach our kids the myth that Aboriginal Australians were nomadic hunter-gatherers***

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There is still debate about this in the media and in the classroom. Students could research the topic for themselves, read up on the different types of evidence and present their own conclusions.

History is best suited to students who enjoy research as well as reading and writing an argument in response to a question. Students need to be prepared for assigned reading and extended writing tasks.

### Where history takes you after school?

Many careers are open to those who study history in senior school and later at university. Some careers that come directly from history study include:

- historian, genealogist (family history researcher) or archaeologist
- school teacher
- museum guide, curator, or education officer (someone who develops education materials and experiences in museums and other public history sites)
- research officer for a policy institution, a member of parliament or industry think tank
- librarian or archivist (including in conservation and preservation).

Senior curator at a rail museum, Jennifer, told us:

*History was the only subject I liked. I chose modern and ancient history for senior because I hoped to have a career in history. I loved learning, analysing and evaluating, finding different sources and opinions, and deep discussions in class. Still choosing history today.*

But you don't just have to take history for a career in it. History also helps develop a range of employment-related skills.

Many employers appreciate skills such as being able to write and communicate effectively and persuasively, to think critically, to consider multiple perspectives and to logically consider consequences based on evidence.

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**Read more: [If the government listened to business leaders, they would encourage humanities education, not pull funds from it](#)**

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These skills are vital for careers such as in journalism, law, human resources, policy, diplomacy, and other jobs that require critical thinking and clear communication skills.

Rebecca, who studied modern and ancient history in school in Brisbane and then at university told us:

*Studying social sciences gives a greater understanding and interest of the wider world [...] I work in the UK public service now, and history provides you with excellent analytical, investigation and communication skills. Lots of people in my office have history degrees.*



You can use the research and analytical skills you learn in history in careers like archiving, being a librarian or a researcher in parliament. Shutterstock

When selecting subjects for senior school, there is one important consideration that is often overlooked or set aside. The senior years are hectic. Students should choose at least some of their school subjects for themselves, because they like them and they think the subject is valuable for them.

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**Read more: [Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind](#)**

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For many students, history is one of these subjects. By investigating the past, students discover insights about humans and the world they have inherited. These can help them find the paths they will take beyond school.

Read the other articles in our series on choosing senior subjects, [here](#).





## Thinking of taking a language in year 11 and 12? Here's what you need to know

August 2, 2021 3.05pm AEST

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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

Some students elect to study languages in their senior years because of personal interest, or because they have previously been successful in language learning. Others may choose to do so because of future career plans, or because they wish to further their studies at [university](#).

Other important influences on students' decisions are perceived cognitive benefits. Studying languages [can lead to](#) more effective thinking skills and enhanced intercultural understanding.

Research shows [high achieving students](#) in capital cities are most likely to study a language in years 11 and 12. This is particularly the case for students whose parents were born overseas in non-English speaking countries.



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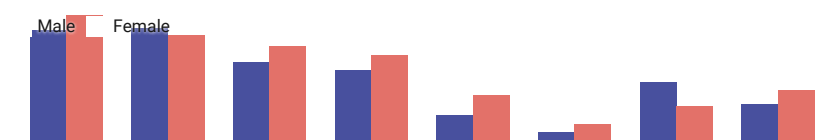
Girls are more likely to do languages than boys — research suggests they are just more motivated to do so.

If you're thinking of studying a language in years 11 and 12, here's what you should know.

### Few students choose to study a language

In Australia, 10% of year 12 students studied a language in 2019. This compared with enrolments of 77% and 71% for the most popular learning areas, English and maths. The visual and performing arts were the second-least popular at 25%. In other parts of the world, however, language learning is on the up. So if you're looking to broaden your horizons, learning a language is a good way to go.

## Percentage of year 12 students across Australia enrolled in subject areas in (2019)



Source: Australian Curriculum, Assessment and Reporting Authority (ACARA) • Get the data

We don't know the exact reasons for the low enrolments. One reason could be that the language a student wants to learn isn't always available. For example, the majority of students who study Indonesian at the primary level don't continue when they enter secondary school, often because it's no longer available.

Among students who do decide to study a language in years 11 and 12, the most popular choices are Chinese (22%), Japanese (20%) and French (18%).

Chinese is the second most widely-spoken language in Australian homes after English, which may be one reason for its popularity. But there are many factors that influence the popularity of a language, such as students of French being interested in French culture.

### What can you do with languages?

If you're planning on going to university, learning a language will give you a leg up in the applications. Some Australian universities actually offer bonus ATAR points to students studying a language. For instance, ANU will bump your score up by five points if you take a language.

There are many career pathways available to language graduates. Teaching, interpretation, translation and diplomacy are some of them.



***Read more: Learning languages early is key to making Australia more multilingual***

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A quick search on [Seek](#) throws up more than 4,000 jobs requiring language expertise including for lawyers, technical support engineers, sales representatives and market data analysts. Other options include finance, media, public relations, tourism, consulting, marketing, charity work, international business, foreign affairs or government work. [Kevin Rudd's](#) knowledge of Mandarin gave him an edge as foreign affairs minister.



Former Minister for Foreign Affairs Kevin Rudd is fluent in Mandarin. Chen weiming/AAP

Many industries will welcome language graduates because they bring intercultural skills, which are crucial in our globally connected world. Plus, a second language can allow you to travel the world while developing your career.

### **What will you learn in the senior years?**

What you will learn depends on which school you go to, what state you live in and which language you choose.

In most senior courses, you'll not only learn the language but also its associated culture. For instance, in Victoria the [senior language curriculum](#) is organised into three broad themes:

- the individual, which looks at cultural topics such as relationships, educational aspirations, and leisure and sports
- the (language)-speaking communities, where you explore aspects of the history and the culture, arts and entertainment, lifestyles and ways of life
- the changing world, where you engage with social issues, youth issues, environmental concerns and work.

Across these themes you will gain historical insight into the language and its speakers. You will likely explore the art, literature and music that have grown out of these language communities, consider social issues, such as the role of women, and engage with issues such as the culture's value systems on relationships.



Through learning your chosen language, you will also learn about the history and culture of its communities. Shutterstock

Most of this learning happens through the actual language, so you're growing your knowledge and understanding of culture, society and history, while developing your language skills.

How fluent you become by the end of year 12 depends on many factors, including how many years you've been studying the language and how much effort you put in.

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**Read more: [Is your kid studying a second language at school? How much they learn will depend on where you live](#)**

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If you've been learning a language all the way through high school, by the end of year 12, you could aim for level B1 in an international certificate known as the Common European Framework of Reference for Languages (CEFR). This means you can deal with most situations you encounter while travelling, you can talk about your experiences and ambitions and explain your opinions, and you can understand the main points on things you regularly come across at work, school or elsewhere.

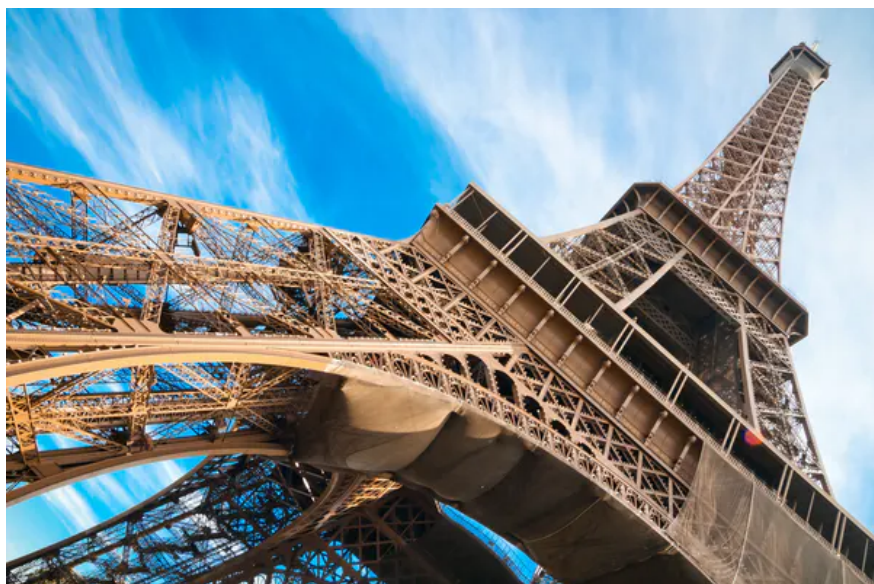
### **Is it better to take a language you've already been learning?**

If you take the same language in the senior years as you have all through school, you will obviously benefit from already knowing a lot of the language as well as its grammatical structure.

But you could also take the opportunity to learn a different language, which will be easier to grasp now that you've already studied one.

Language learning involves developing knowledge about how language works. For instance, if you learn French throughout high school, you will develop a detailed and technical knowledge of the grammar of both English and French.

You could transfer your knowledge of how the French grammatical system works to another language.



Knowing the grammatical structure of one language will make it easier for you to grasp the basics of another language.  
Shutterstock

### What do the exams look like?

The structure of senior language exams differs slightly depending on the state you are in. But generally the exam will require students to read and respond to both written and oral texts.

The written exam may include reading a passage in the language and answering questions to demonstrate comprehension of the text's ideas or arguments. There will also be questions that involve composing texts in the language, such as an email, a description of an event such as a holiday or a letter to a friend.

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**Read more: [What languages should children be learning to get ahead?](#)**

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The oral texts are often pre-recorded and played to students several times. After listening to the oral texts, students are often asked to answer questions (in English or the target language). The oral exam may also include a conversation with the examiners and/or a discussion with the examiners on a prepared topic.

Read the other articles in our series on choosing senior subjects, [here](#).



Mandarin

French language

Chinese culture

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# Art, drama and music lower stress. Here's what you need to know if you're thinking of taking arts in years 11 and 12

August 9, 2021 2.52pm AEST

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### Author



**Shelley Hannigan**

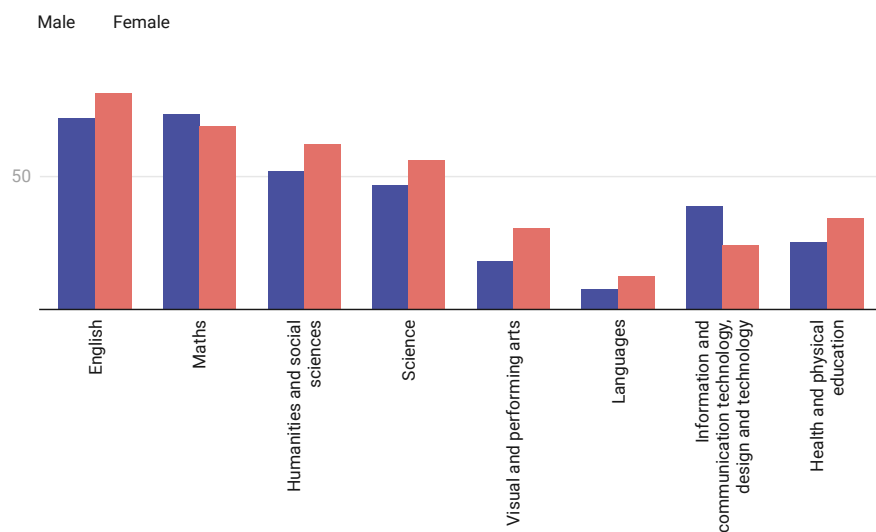
Senior Lecturer in Art Education, Deakin University

*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

If you're thinking of taking a performing or visual arts subject in years 11 and 12, you are probably weighing up a few considerations. These may include your passion and interest in the subject, how doing one or two arts subjects might affect your entry into university and what you could do with the skills you learn.

Nearly 30% of all [year 12 students across Australia](#) (53,311 year 12 students in total) chose to study visual or performing arts in year 12 in 2019. But twice as many girls took an arts subject (40%) as boys (18%).

## Percentage of year 12 students across Australia enrolled in subject areas in (2019)



Source: [Australian Curriculum, Assessment and Reporting Authority \(ACARA\)](#) • [Get the data](#)

The arts subject selection you have will depend on what state you live in. But these are the types of subjects you can broadly choose from in visual and performing arts.

### Visual arts

Visual arts is a theory-based subject. You will learn about different artworks and the role of artists in society. You will engage in discussions and writing tasks about what artworks mean. This includes ideas from historical and contemporary arts and culture.

**Read more:** [Here's looking at: Blue poles by Jackson Pollock](#)

In studio arts, you will learn about artists' practices and the art industry while also developing your own art.

You will experiment with techniques and art processes in the mediums of your choice. These include photography, painting, drawing, printmaking, film, digital arts, ceramics or textiles. You will develop your own artworks, document this process and exhibit your work.





In studio arts, you can work in a media form of your choice, including photography. Shutterstock

Media arts involves researching and learning about narrative across different media forms. You will demonstrate your understanding of production processes by designing a media product (such as a film or photographic exhibition) and presenting it.

Product design and technology involves learning about, and experimenting with, materials and processes. The materials will vary from school to school, but you may be able to choose from wood or timber, metal, fabrics, polymers, glass or ceramics. You will learn how to design and put these designs into production.

## Performing arts

Dance will teach you about dance traditions, styles and works from different cultures. You will learn about music theatre, the work of tap or jazz or street performers, ballet and modern dance, and choreography. As you learn this content through theory and practice, you will engage in analysis of dance that will help you develop your own choreographed performance with others.

Drama involves studying practice and theory to understand the ways theatre and performance can communicate stories and ideas. You will explore different traditions of drama including costume, set design and lighting, make-up, masks, props and puppetry and sound design. You will ultimately create, develop and present a solo performance.



In music, you will learn through listening, performing and composing. Shutterstock

Music has different pathways depending on what state you live in. In the Victorian curriculum, there are three pathways culminating in units 3 and 4 of music investigation and music performance. These pathways require at least four years' experience in learning an instrument. Another pathway, VET music industry, focuses on performing in public.

While each pathway and qualification is different, you will learn through listening, performing and composing. You will apply creative thinking skills to analyse and critique contemporary and historical music and musicians.

## What benefits will I get through studying arts?

From my research and practice as an artist and university educator of 15 years, I know any of the year 11 and 12 art subjects will enable you to learn from extensive creative processes. Developing a set of paintings will require experimenting with techniques, learning from other artists, developing a theme or message to convey, and ensuring the subject matter in your paintings is suitable for conveying the message and appropriate for the style you are working in.

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**Read more: [Thrash not trash 🎸: why heavy metal is a valid and vital PhD subject](#)**

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Your technique must be proficient to achieve good marks. You also need to document the development of your research and ideas with visual images you created and written statements in journals. This is somewhat risky as you are putting yourself out there. It must also come together in a certain time frame, which can be challenging and stressful.

But it will pay off as research shows [arts education has](#) many benefits.

Beyond technical knowledge and skills, benefits include actual enjoyment and stress relief. The senior years can be stressful years, so adding an arts subject to the mix can actually be a way to take care of yourself. It is well documented the arts offer [mental health benefits](#) as the focus on creating art is a form of mindfulness.



Theatre and other arts can be a great form of stress relief. Shutterstock

Creating art is a process of focusing on bringing together subject matter, technique and creative experience to communicate a story or an idea. The ability to express your feelings through the arts is a [form of release](#). And reflecting on its meaning can provide insights into your self, which is therapeutic.

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**Read more: [Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind](#)**

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In addition, you will develop a range of skills that will help you in any area of life. Beyond creativity and thinking skills, [research shows](#) arts education will help you enhance your communication and expressive skills, as well as boosting your confidence and self-esteem. Teamwork, too, is a big part of the arts, and learning this skill will be helpful at university and in your future employment.

The presentation, communication and performance skills you learn are adaptable for public speaking, community and public art careers, as well as teaching.

### **Will doing the arts bring down my ATAR?**

The ATAR is a university-based system that determines how many students will get into particular courses. Like a queue, it ranks you against everyone in the year 12 age group.

But university entry, particularly when it comes to the arts, doesn't rely on ATAR. It often requires an [interview process with presentation of a portfolio](#).

If you're not looking to do arts at university, it's still important to choose senior subjects you are interested in and good at. Plus, skills you learn in the arts can enhance your entry prospects. For instance, entry into a medical degree requires a high ATAR. But most [universities also conduct an interview](#) to test your empathy, collaboration and ethical reasoning skills – all of which are enhanced by the arts.

### **What will I do with these skills after school?**

Many students who study senior art go on to study the visual and/or performing arts at university. Some become self-employed artists. Others practise art on the side and that helps them maintain a good balance in life.




Many people continue to practise art on the side of their full-time job, to help create a healthy life balance. Shutterstock

One ex-student, now in her late 20s, studied visual art and music in school but is now a psychiatric nurse who is also in a band. She said being a musician helps her cope with the stresses of her job.

Another ex-student, a 20-year-old male, studied the VCE VET in music industry as well as media arts, studio arts, visual arts, psychology and literature. He is a full-time intern in a technology company. He said the networking he does now is very close to what he had to do for the documentary he made in media arts. He also said his creative skills were helpful in the marketing material he designs.

*You have to be a creative strategist to get people to give you time of day in sales and marketing.*

Read the other articles in our series on choosing senior subjects, [here](#).

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Media

Photography

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Visual arts

Dance

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# Doing a VET subject in years 11 and 12 can help with a job and uni. Here's what you need to know about VET in the senior years

August 11, 2021 12.57pm AEST

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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

Vocational education and training, or VET, is where you learn skills for employment. Think of plumbers, veterinary nurses, fashion designers, make-up artists, chefs, childcare workers, furniture makers, shipbuilders, carpenters, builders, electricians, laboratory and cybersecurity technicians, surveyors, legal assistants and many other vocations.

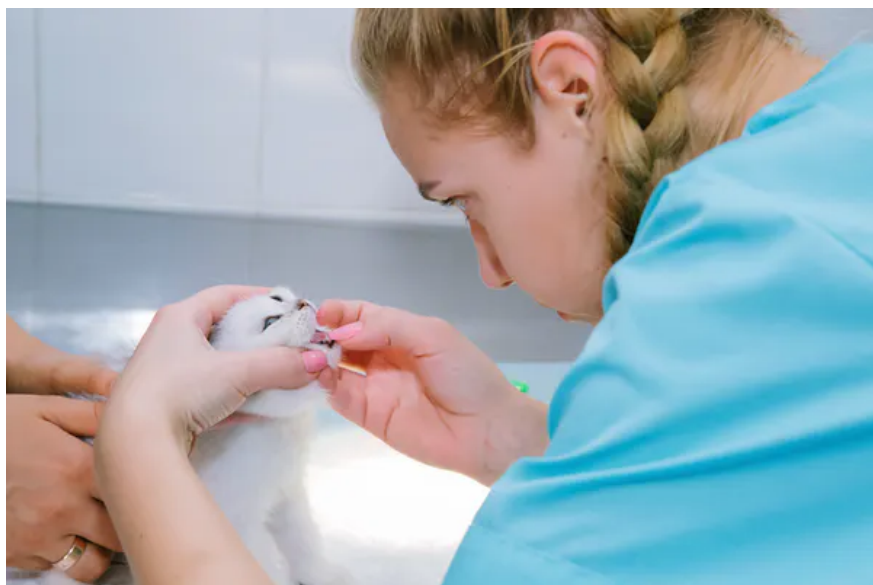
VET is done in secondary schools and post-school educational organisations such as TAFEs or private training institutions. It's also provided in workplaces and in the community.

It can be done at your own pace, with a group through online learning, in the classroom, or a combination of these. If you're thinking of doing a VET subject in the senior years at school, here's what you need to know.

### What kinds of VET qualifications are there?

Secondary school students can enrol in nationally recognised VET together with other school subjects. This includes doing school-based apprenticeships or traineeships.

Provided students meet necessary requirements, they can finish school with a VET qualification along with their secondary school certificate.



You can learn many, varied skills with a VET course – from vet nursing to shipbuilding. Shutterstock

VET studies at school involve a combination of classroom and work-based learning. School-based apprenticeships and traineeships are a combination of classroom learning and on-the-job training under a contract of training with an employer.

In 2020, 241,200 secondary school students across Australia were doing VET that contributed to their senior secondary school certificate. This was an increase of around 2% on the previous year. More males did a VET course than females.

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**Read more: *We need to change negative views of the jobs VET serves to make it a good post-school option***

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If you want to do a school-based apprenticeship or traineeship you need to have an employer willing to employ you. In 2020 around 7% (17,800) of secondary students doing VET decided on this pathway. Queensland had the highest proportion of school-based apprentices and trainees of all states and territories.

The top five qualifications done by school-based apprentices and trainees in 2020 were in business, retail, hospitality, childcare, and sport and recreation. Nearly half of all students doing a school-based apprenticeship or traineeship in 2020 enrolled in one of these qualifications.

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## Top 5 qualifications enrolled in by school-based apprentices and trainees, 2020

2020

Certificate III in Business	2,385
Certificate III in Retail	2,230
Certificate III in Hospitality	1,755
Certificate III in Sport and Recreation	1,075
Certificate III in Early Childhood Education and Care	1,025

Source: [NCVER](#) • [Get the data](#)

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Most secondary students who do VET don't do a school-based apprenticeship or traineeship. They do other types of VET studies instead. The top five enrolments in 2020 included qualifications in hospitality, business and construction.

The Certificate II in Skills for Work and Vocational Pathways, a general qualification that helps prepare people for entry into the workforce and/or further vocational training, had the second highest number of enrolments.

## Top 5 VET qualifications students enrolled in as part of their high school certificate

2020

Certificate II in Hospitality	14,265
Certificate II in Skills for Work and Vocational Pathways	12,140
Certificate II in Business	11,480
Certificate II in Kitchen Operations	9,880
Certificate II in Construction Pathways	9,615

Source: [NCVER](#) • [Get the data](#)

Depending on the VET course, students can learn at school, in purpose-built facilities like a trade training centre, or at the premises of an external training provider such as a TAFE or other VET institution.

Schools may also join with other schools in a cluster arrangement to increase what students have on offer. If your school does not have a course you are interested in you can check if you could do it through another school.

### It's a flexible pathway to work and further study

VET is a competency-based system, which means the focus is on the development of a skill. Students then get the opportunity to demonstrate they can perform that skill. It doesn't matter how the person goes in comparison with others — it only matters how they perform against the standard required.

The VET system provides flexible pathways, enabling students to move in and out of education and training to get the skills and qualifications they need to enter the jobs market. This includes starting their own business, moving through jobs or transitioning to new or related jobs and courses.



Doing a VET course at school means you can leave school with a qualification under your belt. Shutterstock

In 2019, there were 4.2 million people — almost a quarter (23.4%) of the Australian resident population aged 15-64 — enrolled in nationally recognised VET courses.

Participation is highest among younger people: 43.2% of 15-19 year olds and 32.2% of 20-24 year olds did some VET in 2019. Some students enrolled in qualifications (such as the Certificate II in Automotive Vocational Preparation or a Certificate III in Electrotechnology Electrician). Others enrolled in short courses such as the Course in First Aid Management of Anaphylaxis or the Course in Asbestos Awareness. Others enrolled just in a single subject, such as learning how to provide cardiopulmonary resuscitation (CPR) or the responsible serving of alcohol.

The number of students enrolled in short courses and stand-alone subjects has increased steadily over the past several years.

### Why do students do VET?

Secondary students do VET studies for a range of reasons including to get a qualification while still at school.

Around 45% of secondary students do VET for employment reasons, while 30% do it for further study. About a quarter of secondary students do VET for personal development.

Doing a VET course while at school can help in getting a job directly after you finish school. Research has found students who did VET studies at school, including school-based apprenticeships and traineeships, were more likely than those who didn't to be in full-time and permanent employment five years after their studies.

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***Read more: Most young people who do VET after school are in full-time work by the age of 25.***

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In the states and territories that allow it, many students do VET studies that count toward their ATAR. Some 45.2% of students in secondary schools that do VET also get an ATAR.



A VET qualification when you leave school can help you get a job. Shutterstock

Research has also explored the intended occupation of students doing VET in secondary school and whether they actually get that job. The strongest links were in trade-related study areas — electrotechnology and telecommunications, construction trades, and automotive and engineering trades. There were also strong links across other occupational groups, like sales assistants, and carers and aides.

### Will I earn less money than if I go to uni?

The most common post-school qualifications for secondary students who did VET studies were VET qualifications. But almost 20% of students had also gone on to complete a bachelor's degree.

People with university qualifications generally earn more per week than people with VET qualifications. But this masks the variability in wages between industries and jobs that require VET

qualifications.

For example, people who have a VET qualification and work in the agricultural, forestry and fishing, or mining industries have similar, if not higher, weekly earnings as those who have a university qualification.

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***Read more: [Choosing your senior school subjects doesn't have to be scary. Here are 6 things to keep in mind](#)***

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Technicians and trades workers (such as plumbers, information communications technology support technicians, operating theatre technicians) who have VET qualifications [earn as much per week](#), if not more, than those with university qualifications in a similar job.

You can't go wrong doing VET studies at school. It sets you up for a job straight after school as well opening up opportunities to do further study, whether that be more VET or a uni degree.

Read the other articles in our series on choosing senior subjects, [here](#).



Apprenticeships

Vocational education and training

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## Which maths subject should I take in years 11 and 12? Here's what you need to know

August 11, 2021 1.34pm AEST

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*This article is part of a [series](#) providing school students with evidence-based advice for choosing subjects in their senior years.*

Maths prepares students for the ultimate test — life beyond school. As maths is everywhere, regardless of where life leads you, the more maths you learn, the better prepared you may be to understand the world.

The [Australian Curriculum](#) intends to provide some consistency in what is taught at school, regardless of where you live. Maths is one of 15 senior secondary subjects.

However, states and territories maintain responsibility for local education. So there is variation in the range, focus and difficulty of maths subjects offered.

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## How many senior students do maths?

It's not compulsory to study senior maths across Australia, but most year 11 and 12 students still do so. [Available data](#) suggests just over 70% of year 12 students study maths, with slightly fewer girls doing so than boys.

However, enrolments are on the decline. For instance, between 2001 and 2013 the [proportion of students studying](#) the high school certificate in New South Wales, who did not take a maths subject, tripled from 3.2% to almost 10%. NSW has announced it [intends to make maths mandatory](#) in years 11 and 12 to arrest the decline in enrolments, but there has not yet been a timeline set for this move. Victoria is also [widening its maths offering](#) to senior secondary students.

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***Read more: [Fewer Australians are taking advanced maths in Year 12. We can learn from countries doing it better](#)***

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## What subjects are available for me to choose from?

The [Australian Curriculum](#) describes four senior secondary maths subjects, with each organised into four units, usually studied over the four semesters of year 11 and 12.

They are essential mathematics, general mathematics, mathematical methods and specialist mathematics. In Queensland, these are the subject names used. However, there are different names for different types of maths in each state and territory with some being more closely aligned with the Australian Curriculum than others. For example, in NSW [the equivalent subjects](#) have completely different names and also arrange content and concepts differently.

But all maths subjects have similarities when it comes to the knowledge and skills students will develop. They also teach students how to think, reason and communicate mathematically, describe and analyse data and evidence, and use digital technologies.



Maths subjects will teach you about important concepts, such as financial modelling. Shutterstock

[Essential mathematics](#) (most closely aligned with [foundation mathematics](#) in year 11 in Victoria) focuses on students developing and using maths knowledge and skills to investigate realistic problems. The subject or subjects include the study of data and statistics and financial modelling. Students selecting these courses typically have work or a vocational education and training course in mind once they leave school.

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***Read more: [More teens are dropping maths. Here are three reasons to stick with it](#)***

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General mathematics (most closely aligned with general mathematics in year 11 and further mathematics in year 12 in Victoria) includes the study of financial modelling, geometric problems, and statistics. These are areas many of us encounter in our work and life. Students selecting this subject typically plan to go to university and study a course where maths may have practical and/or theoretical relevance. General mathematics is a pre-requisite for courses like aviation, ICT, and health science at Swinburne University.

Mathematical methods is where students are introduced to calculus. This is the study of relationships and change. For instance, is the spread of a particular virus increasing? Can we describe trends and patterns observed and make predictions about the future? Can we describe the total number of cases over a given time period and assess the impact of government intervention?

Students are also introduced to statistical analysis, which is describing and analysing phenomena involving uncertainty and variation. Students who choose mathematical methods are likely intending to study maths-related subjects at university such as science, engineering, medicine and IT related degrees.

Specialist mathematics should be taken together with mathematical methods, as it deepens and extends key ideas studied there. Students who do specialist mathematics and mathematical methods (or extension and advanced mathematics in NSW) intend to do maths related courses at university.

When we were teaching in school, many students studied two maths subjects in year 12 (mathematical methods and specialist mathematics, or mathematical methods and general mathematics). Everyone had different ideas on which maths they found the hardest.

### **Which one should I choose?**

Parents and teachers frame subject selection around the question, “What are your plans for the future?”

Having an idea what you want to do once you finish year 12 will determine your interest in maths and motivation to learn it.

The future is uncertain with study and career pathways that are dynamically evolving. Research shows a 15-year-old today could have 17 different jobs over five careers in their lifetime. Maths is essential to a range of study and career choices — including vocational trades, nursing, teaching and mathematical sciences.

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**Read more: *Thinking of choosing a science subject in years 11 and 12? Here's what you need to know***

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If you do choose maths, you should choose the maths subject that interests you and offers the best preparation for your destination beyond school, be it work, TAFE or university.

Unsurprisingly, studying senior maths at school increases your success when studying university maths units and courses. Some universities have pages where you can easily search by maths subjects rather than course.

School careers counsellors are an excellent resource for advising students on possible study and career paths and what maths subjects you may need.

It can also help to speak with maths teachers you know and trust, and family members and friends who have taken different subjects. Some people say some maths subjects are harder than others, but others argue it really depends on your interests and effort to take advantage of available opportunities to learn.

Be wary about the university and vocational education and training prerequisites and recommended subjects. Often students see a subject is recommended but not required, and opt not to take that subject.

However, when they enrol in the TAFE or university course in question, they might find a maths equivalent to a year 12 course is more or less squashed into a first semester unit. It is often easier to learn this content in year 12 with the support of a dedicated maths teacher than to try doing so in one semester in a new environment with unfamiliar teachers and peers.

### What should I know about scaling?

In calculating the ATAR, all subjects are scaled to account for the competition in the subject — not the level of difficulty. Maths and languages have additional scaling.

Scaling is to even the playing field, and students who take more challenging subjects usually get scaled up. Specialist mathematics is taken to be more difficult than mathematical methods which is taken to be more difficult than general mathematics. For mathematics, the subjects are compared against each other as well as against all other studies.

For example, in 2020 in Victoria, an initial study score of 30 was scaled to 27 in further mathematics, 34 in mathematical methods and to 41 in specialist mathematics.

Maths has never been more important or visible to making sense of the world. We believe there is a maths for every student and a choice that keep your options open for the future.

Read the other articles in our series on choosing senior subjects, [here](#).



Maths study

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## Keep your job options open and don't ditch science when choosing next year's school subjects

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Studying chemistry can take you into many careers, from an analytical chemist to a forensic scientist and even an environmental consultant. Shutterstock/Rawpixel.com

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Thousands of Year 10 students are in the process of choosing subjects for their final years of school and half will probably choose to ditch science.

For someone like me who thinks science is one of the most worthwhile things I've ever studied, that decision is bewildering.

The downward trend in science enrolments has been watched with concern for decades and is the subject of much research.

**Read more: *Curious Kids: how was maths discovered? Who made up the numbers and rules?***

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But still science continues to be out of favour with teens despite its potential use in a wide range of employment opportunities, beyond the traditional science careers.

## Teens live in a world of science

Today's teenagers have grown up in a world shaped by science. Most don't know life without the internet and have the world at their fingertips (and parents to help) through computers, smartphones and other connected devices.

Schools are doing what they can to try to teach students the skills they need to prosper in a future that continues to be shaped by science, with increased use of automation, artificial intelligence and so on.

You would think students in this environment would jump at science as a subject that teaches critical thinking and problem solving – just the skills needed in this modern world.

But that's just not happening.

There are plenty of books written on why students aren't choosing science and government reports on why we need more science skills, so you might wonder what hasn't been done.

That's where my research comes in. I have studied as a scientist, teacher and marketer and I thought the problem might not be science at all, but how students see science compared to the other subjects they can choose. To me it looked like a purchase decision.

## How students choose subjects

I wanted to know how students chose their subjects and how they saw science, so I asked them.

Initially, I spoke to 50 students from five New South Wales schools and then 15 adults (careers advisers and teachers) who helped students make their choices. I went to the information events at these schools and reviewed the subject choice documents given to students.

Next, a group of 379 Year 10 students were surveyed to ask about their subject choices. They were asked to rank 21 factors I found students considered when they chose their subjects. These factors included things such as parent advice, teacher advice, enjoyment of a subject, subject difficulty and the expected mark.

What I found was that the students seemed to use a two-stage process to choose their five to six subjects. The first stage was a choice on "love" or "hate" (they used those words). Then, with any subjects left over, they judged the value of the subject compared to the others available.

This value was in terms of how useful a subject was for a career or further study, and how much effort they would need to put in to get good marks. Unfortunately, this is where things go wrong for science.

## Science looks like the bad buy

Students reported more often (16 against 7) that they saw science as harder than other subjects, and as harder to get marks. Students didn't say they wanted to avoid work – it just had to be worth it.

Unfortunately, science has a problem here too. Students repeatedly commented that science wasn't as useful as other subjects – unless you wanted to be a doctor, scientist, engineer or something similar.

I did not see anything at any of the school subject selection events that countered this idea. This makes science look like the bad buy. It's seen as expensive in terms of time and effort to get marks, and as having limited use.

Yet science is useful in a range of careers, from carpentry to management and many other roles – basically any career that needs answers backed by evidence. Science helps us to understand and participate in the world in which we live.

But this is not clear to students. Their perception of the usefulness of science is very narrow, so there is no longer pressure to include it as a staple next to mathematics and English.

## Seeing the value of science

Knowing this gives us something to work with. Along with all the other great work to help students love science, we can work on their perceptions of the value of science at the time they are choosing subjects.

Schools should invite people from a wide range of career backgrounds to come talk to students to share their ideas on how science is useful in their jobs.

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***Read more: Timely intervention: how Doctor Who shapes public attitudes to science***

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We can also do some very practical things to make sure science is at its most attractive when students are choosing subjects – for example, doing fun work in the lab and not scaring them with any challenging exam just before they choose.

These teenagers do not take subject choice lightly – they know they may be closing the doors on some paths. It would be wrong to convince students to take any subject that’s not right for them, but this is about helping them see the value of science.

If they see that value of science subjects through good information and good experiences then they may decide to stay with science, at least for a couple more years.



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