Embedding career education in the Victorian Curriculum F–10

Science, Levels 9 and 10

An existing learning activity linked to a particular learning area or capability in the Victorian Curriculum F–10 can be easily adapted to incorporate career education, enriching students’ career-related learning and skill development.

1. Identify an existing learning activity

**Curriculum area and levels:** Science, Levels 9 and 10

**Relevant content description:** Different types of chemical reactions are used to produce a range of products and can occur at different rates; chemical reactions may be represented by balanced equations. ([VCSSU125](https://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCSSU125))

Communicate scientific ideas and information for a particular purpose, including constructing evidence-based arguments and using appropriate scientific language, conventions and representations ([VCSIS140](https://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCSIS140))

**Existing activity:** Investigating the effect of a range of factors, for example, temperature and catalysts, on the rate of chemical reactions.

**Summary of adaptation, change, addition:** Researching how scientists present their findings differently to different audiences and presenting their own findings accordingly.

2. Adapt the learning activity to include a career education focus

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| Existing learning activity | Adaptations, changes or extensions that can be made |
| Teacher explains, using the particle model, how different factors affect the rate at which chemical reactions occur. | Teacher leads a discussion with students prior to the activity on science communication and why it is important people in a variety of fields can communicate the findings of their research effectively. Discussion could focus on topics such as public health and public safety. Consideration may also be given to what makes communication ineffective.  Teacher introduces the idea that scientists often have to present their findings to a specific audience (such as funding bodies, peer-reviewed journals, government departments). Scientists may need to respond to a brief including what they should be researching and how to present their findings. |
| Teacher places students into groups and gives them an example of a reaction that occurs in everyday life, such as the rusting of a bike or milk going sour.  In their groups, students research and design an experiment that looks at how changing different factors affects the chemical reaction allocated to them by their teacher. | Teacher extends the existing task and gives students each group a role in the scientific community to research. Students learn more about the basics of the career they have been allocated, and how someone in that role would need to communicate their findings/work. |
| Students perform their experiments, having first submitted a method and checked with the teacher that they are safe and ethical, and construct a presentation explaining to the class how and why they should slow some of the chemical reactions that may occur in their everyday life. | Students extend the existing task by taking on the role of a scientist in considering how they would present the information collected to different audiences as a response to a brief.  Students will need to consider how they would present the information collected to the following audiences:  1. a class of high school students studying chemistry  2. the general public.  Each group presents their findings to the high school student audience (their peers) and then explain how they would work to present their findings to the general public. They need to make clear why it is necessary to present the information to different audiences and how their delivery would differ for other audiences. |
| Teacher assesses the presentation and the final written report. | Students will be assessed on both their understanding of the concepts covered but also their ability to tailor their presentation of information appropriately to different audiences.  Teacher leads a discussion on the skills used in the activity and their application in a variety of scientific careers. Students can use insights gained to inform career-planning documents such as a career action plan. |

Benefits for students

Know yourself – self-development:

* This task requires students to effectively communicate their findings with a number of different audiences. In doing so they will develop their communication skills.
* Students will learn skills in cooperating with others and working in a team. They will need to support the other members of their group in designing and conducting the experiment and will need to ensure even distribution of work.

Know your world – career exploration:

* Students are required in this activity to take complex scientific information, summarise it and rewrite it using language different parties will understand. These are lifelong learning skills that will assist students in different careers.
* Students will experience work practices as they endeavour to successfully analyse the information collected and prepare presentations for different audiences. This will also give them experience in responding to a brief, as scientific research is often conditional when being funded by an external party.

Manage your future – be proactive:

* Students will need to manage time effectively to ensure they are able to plan and conduct their experiment in the time allocated. This is reflective of the work real scientists do.
* Students think critically and creatively as they design experiments and present their findings to different audiences. These skills can assist students with informed decision-making in future careers.