Embedding career education in the Victorian Curriculum F–10

Mathematics, Levels 5 and 6

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 level:** Mathematics, Levels 5 and 6

**Relevant content description:** Compare, order and represent decimals [(VCMNA190)](https://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMNA190)

 Connect decimal representations to the metric system [(VCMMG222)](https://victoriancurriculum.vcaa.vic.edu.au/Curriculum/ContentDescription/VCMMG222)

**Existing activity:** Locating decimals on a number line.

**Summary of adaptation, change, addition:** Applying decimal understanding to practical examples of measurement in the world of work.

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 discusses relationship between the fractions $\frac{1}{10}$ , $\frac{1}{100}$ , and $\frac{1}{1000}$ and their decimal number notation (0.1, 0.01 and 0.001).Teacher models examples of fractions and decimal equivalents using concrete materials, such as MAB blocks, then representational diagrams including a number line and then their written (abstract) form as decimal numbers.Students discuss and model simple decimal fractions using concrete, representational and abstract iterations. For example, a student shows 0.255: (a) with MAB blocks (b) on grid paper, (c) on a number line and (d) as a number.  | Teacher discusses relationship between the fractions $\frac{1}{10}$ , $\frac{1}{100}$ , and $\frac{1}{1000}$ and their decimal number notation (0.1, 0.01 and 0.001) in the context of something physical to be measured, for example, the length of a classroom.Teacher draws diagrams showing division of the ‘whole’ of physical objects or spaces into decimal parts (0.1, 0.01 and 0.001). They explain that in the world of work, people often use decimals to measure lengths, areas, volumes and time, when they want to divide something precisely into smaller proportions. Teacher provides one or two real-world examples, for example, a nurse giving the right amount of medicine to a patient (‘Patient B gets 0.25 of a millilitre of medicine’).Students share and discuss ideas of things in the real world that might be broken down into tenths, hundredths and thousandths and discuss whose job might involve measuring those things.  |
| Teacher provides a list of decimal fractions (for example, $\frac{6}{10}$ , $\frac{25}{100}$ , and $\frac{543}{1000}$ ) and asks students to represent these using each of concrete materials, number lines, diagrams, and their decimal number equivalent (0.6, 0.25, 0.543). | Students brainstorm a list of careers where people measure things. Examples might include nurses, builders, scientists, pastry chefs, coaches, accountants.Students chose one occupation and use the internet to answer the questions: ‘What does a *[chosen occupation]* measure?’ and ‘What unit of measurement does a *[chosen occupation]* use at work?’ |
| Teacher marks students’ representations of decimal fractions and their decimal number equivalents.Students review by sharing and justifying responses with peers and the teacher in the classroom. | Teacher provides a range of concrete measurement materials to students for model making or for exploration and demonstration, such as liquids and measuring cups; matchsticks and rulers; or plasticine or modelling clay.Students make a model or draw a diagram of something that needs to be measured in their chosen occupation, and use it to represent several examples of decimal fractions of the whole.For example, a hairdresser needs to measure out $\frac{55}{100}$ of a bottle of hair dye to make a colour solution. Student makes a model or draws a diagram showing the exact amount of 0.55 of the bottle to be measured out by the hairdresser.Students order the practical examples of decimal measurement of things from smallest amount to largest amount. Students justify responses with peers and the teacher in the classroom. ‘Hairdressers must measure hair dye carefully to make sure they get colours right. This shows exactly 0.55 of a bottle of hair dye because… It is larger than 0.355 of a bottle of hair dye because…’ |

Considerations when adapting the learning activity

* Teacher should provide guidance as students select their occupational examples of things that need measuring in the world of work.
* Having students draw metric scales on or with their model or diagram will help show and justify the decimal amount they are modelling. For example, in the hair dye example, having the student draw a decimal scale on a bottle from zero to 1 allows them to partition the whole into metric increments.

Additional resources to help when adapting the learning activity

* AMSI Calculate, [Decimats game and teaching activity](https://calculate.org.au/2017/12/05/decimats/)
* NZ Maths, [Decipipes](https://nzmaths.co.nz/decipipes)

Benefits for students

Know yourself – self-development:

* By selecting an occupational area and applying this context to abstract mathematical thinking, students build self-awareness and the ability to know themselves.

Know your world – career exploration:

* By using the internet to answer questions about the ways specific occupations use decimal numbers to measure and record, students use technology and information effectively to integrate mathematics with career information.
* As they examine the application of decimals to a specific job, students understand work better.

Manage your future – be proactive:

* Students develop practical problem-solving skills by learning the skill of comparing decimal quantities in applied situations, which will help them make informed decisions.
* By investigating the application of decimals within the measurement aspects of a specific job, students engage use opportunities to learn about and explore work.