

Mathematics Stage 4 – financial mathematics

Rationale: Career learning benefits and career management skills

Learning for life beyond school is supported when all subjects are delivered to students in a way that they can understand how the content is relevant to career pathways and work settings. NESA syllabuses identify work and enterprise as important learning across the curriculum content for all students.

Career learning resources have been developed to enrich existing teaching and learning programs to facilitate effective career education for students, supporting students to link classroom learning to workplace applications, including developing career management skills.

Timeframe for use

Suggested Duration is 5 lessons. Each lesson may be approximately 1 hour.

Intended audience

The intended audience for this resource is Stage 4 Mathematics teachers and Career advisers.

Instructions for use

Assumed knowledge and understanding.

To participate in this activity, it is assumed that students have a basic understanding of the following Stage 4 content:

- prerequisite knowledge of using efficient mental and written strategies to perform calculations with rational numbers and integers

- Stage 3 review of data collection and display.

Evidence base

The following career learning resource aligns to Mathematics K – 10 syllabus (2012) outcomes and can be embedded into existing teaching programs to enrich the learning through career related terminology, exploration and experiences.

Students in Years 5-8 experience different career learning opportunities to test ideas about work and careers including work stereotypes. They locate and use career information and explore education and training requirements for various work roles.

Students' engagement in career learning grows throughout their schooling. They gain a sense of who they are, what matters to them and how they might contribute to society, as well as engage in life, learning and work. The evidence base for this resource is the:

- [Australian Blueprint for Career Development](#) – framework for designing, implementing and evaluating career development programs
- [Career Readiness](#) – OECD series of working papers
- [CESE – What works best in practice](#) 'Explicit teaching' evidenced with the use of learning intentions and success criteria.
- [Future Ready](#): National Career Education Strategy
- [K-12 Career Learning Framework](#)
- [Looking to the Future](#)
- [Strengthening Skills](#)

Alignment to existing frameworks

Career learning activities embedded within existing curriculum have been aligned to the themes from the [K-12 Career Learning Framework](#). Activities may relate to one or more of the themes:

- Identity – building and maintaining a positive self-concept, responding to change, and developing capabilities.
- Experience – discover, investigate, and consider opportunities in lifelong learning and work exploration.
- Empower – learning to self-manage, engage in career decision making and developing skills and capabilities to make informed decisions.

| Theme | Career Management Skills | Australian Blueprint for Career Development Competency |
|-----------------|---|---|
| Identity | Build a positive self-concept demonstrating positive social skills and behaviours | 2.3.1 Discover the skills, knowledge and attitudes needed to work effectively with and for others |

| | | |
|-------------------|--|--|
| Experience | Link learning and motivations to personal career aspirations | 4.1.2 Discover how different kinds of work require different combinations of skill and knowledge |
| Empower | Explore the qualities to complete tasks individually and collaboratively | 7.1.2 Understand how cooperating with others can help accomplish a task |

What do we want students to know, understand or be able to do?

Students will gauge the authentic use of mathematics and begin to explore careers that utilise mathematics. This is an ideal capstone activity for the final unit of Year 7.

Syllabus outcomes

- Compares, orders, and calculates with integers, applying a range of strategies to aid computation MA4-4NA
- Operates with fractions, decimals and percentages MA4-5NA
- Solve problems involving profit and loss, with and without the use of digital technologies MA4-6NA
- Solves financial problems involving purchasing goods MA4-6NA
- Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols MA4-1WM
- Applies appropriate mathematical techniques to solve problems MA4-2WM
- Recognises and explains mathematical relationships using reasoning MA4-3WM

Skill domain and skills

| Units | Substrand | Content |
|------------------------------|---|---|
| Financial mathematics | Stage 4 Computation with Integers, Stage 4 Fractions, decimals and percentages, Stage 4 Financial mathematics | Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183) Find percentages of quantities and express one quantity as a percentage of another, with and without the use of digital technologies (ACMNA158) Solve problems involving profit and loss, with and without the use of digital technologies (ACMNA189) |

Learning experiences, adaptations, changes, or extensions

This activity fits in the unit of work, “Data Collection, Representation and Simple Analysis”.

Activity 1 – interests and occupations

Students are to complete a reflection task which explores their interests. This information will generate groups for occupation streams for the next activity. Students use activity sheet 1 to reflect on their interests.

Teacher note: One way in which young people can begin searching their career interests is by considering what they are good at doing, what skills they can demonstrate and what matters to them. There are a range of tools that can support students to explore their strengths and interests. These can be accessed on websites such as [myfuture](#) and [joboutlook](#). Students can access myfuture using their education login details. Teachers are supported to use the myfuture website for career and transition planning by watching the [recording](#). Creating opportunities to discuss with students their strengths and interests throughout all stages of schooling can support them in future career decisions.

Activity 2 – selling a product

Students form teams based on their common interest from the matrix completed in Activity Sheet 1. Each team brainstorms a product/service to sell at a lunchtime stall based on their area of interest. Product examples could include food items, drinks, hair products, stationary, guessing games.

Profits will go to a Christmas appeal or other charity as determined by the teacher or SRC.

Activity 3 – establishing your business

Students work collaboratively in their group to name their business. Points to consider when naming their business include:

- Is it catchy?
- Does it communicate the business idea?
- Is the name too vague?
- Has this name been used by other businesses?
- Have the key words been used or highlighted in a creative way?
- Has the business name been kept simple?

Teacher note: Today's start-ups could potentially be tomorrow's industry leaders. To support students in naming their business, provide a reading task. Examples could include; [Things to consider before you pick a name for your business](#), or [12 Tips for naming your start up business](#). Discuss with students, who from the community they think could help them to choose a saleable product and name their business. A common place to start is the local [Chamber of Commerce](#) or discuss with their parents.

Activity 4 – calculating cost

Students use Google Sheets or Microsoft Excel to record the ingredients/ materials needed to produce their product/ service. Students will use formulae to calculate costs using addition, multiplication and percentages.

Students research the cost of each ingredient/ material and then perform calculation to make a 20% profit. Calculations will need to be completed for the cost of each product and for the overall cost of the product or service that is being sold. All data and calculations are to be provided in the spreadsheet. There is opportunity here for students to draw graphs to demonstrate the income vs expenses for their product.

In their teams, students decide, what material each person will bring to produce their product/ service. This is recorded on the spreadsheet.

Teacher note: Students who need support on using spreadsheets can be provided with [weblinks](#) which demonstrate how to fill in an excel template, blank workbook. Students are supported to make their estimates on product costs by accessing websites that provide the ingredients or materials for their product. This could include searches from websites such as [Coles](#), [Bunnings](#), [Woolworths](#). You may like to invite a local accountant to add real world context on running a small business.

Activity 5 – event organisation

Use a collaborative platform from the [Digital Learning Selector](#) to allow students to collaborate and organise the sale of their product through a virtual or real stall.

- Location of the stall in the school
- Resources required i.e., display tables, pricelists, floats.
- Teacher support and supervision
- Advertisement of event
- Signage for the event

Teacher Note: When implementing the business/fundraising event ensure that students have communicated with the Principal, executive and SRC. Communication skills are an

essential employability skill that can be developed through participating in this activity. There are a range of careers that relate to community and corporate event management. Use the bullseye charts available on [myfuture](#) to explore careers associated with mathematics and retail industries.

Consider the option for shoppers to exchange real money for simulated money or tickets, which would allow each stall holder to carry a float of simulated money. An extension activity could then be to reconcile the float before and after the stall activity.

Activity 6 – calculating profit

Debrief of event. Students discuss what they enjoyed and what they found challenging in organising the event and the planning required to make a profit. What did students enjoy about running their stall? Have students take the quiz to see which students might be a [future entrepreneur](#).

Students calculate the profit from each stall. As the final figures come in for each stall students respond to the following statements:

- Were the items priced appropriately to make a profit?
- Calculate the difference a 5% increase on sale price would make to the overall profit margin.
- Would customers still have bought the product if listed at a higher price? Explain your answer.
- Would you have made the same profit if you had to account for labour costs? Explain your answer by exploring the [minimum wage](#) for your age bracket.

Discuss which charity will be supported for profit donation. [ChangePath](#) is a reputable website to help you decide.

Activity Sheet 1 – career matrix

1. Read the list and select the one that appeals greatest to you.

| Personal attribute | Tick to select one only |
|---|-------------------------|
| I like learning about our country and the world. I enjoy watching TV shows like The Amazing Race and Travel Guides. I might be a tour guide or travel blogger | |
| I like food – eating and cooking. I enjoy watching TV shows like Master Chef and My Kitchen Rules. I might be a chef or own a restaurant | |
| I like Lego. I enjoy watching TV shows like Lego Masters and playing Minecraft. | |

| Personal attribute | Tick to select one only |
|---|-------------------------|
| I might be an engineer or carpenter | |
| I like playing performing and role playing I enjoy watching TV shows like The Voice and Making it Australia I might be an actor or in the creative industries | |
| I like looking after people around me I enjoy watching shows like RPA and Bondi Rescue I might be a paramedic or in the health sector | |
| I like entering maths and science competitions I enjoy watching shows like The Apprentice and Aussie Inventions I might be in finance or research | |

2. Based on your response in the table select a careers bullseye on [myfuture](#) and explore the range of industries that are related to this or another area of interest. Use your student log in to access myfuture.
3. Select one job that is of most interest and answer the following:
 - List the main tasks that are expected in this role.
 - What skill level or qualifications are required to fulfil this role?
 - What learning areas could support you while you are at school for this role?
 - Provide an overview of the employment prospects for this occupation.

Alignment to system priorities and or needs:

This resource aligns with system priorities to support Career learning as part of effective curriculum implementation. It aligns to these four system priorities and needs:

[School Excellence Framework](#)

[School Success Model](#)

[Rural and Remote Education Strategy \(2021 –2024\)](#)

[Australian Professional Standards for teachers](#)

Alignment to School Excellence Framework: This resource supports practices aligned with the Learning domain: Curriculum and Teaching and Learning Programs. It also supports practices aligned with Teaching Domain: Effective Classroom Practice.

Consulted with: Career Learning Team, Pathways and Transitions and Mathematics Curriculum Advisor

Created by/last updated: May 2022

Anticipated resource review date: Resources are reviewed each 12 months for currency and relevancy as part of Career Learning team's evaluation plan.

Feedback: Was this resource helpful? To enquire further into this resource or to provide feedback, please contact: Career Learning team seniorpathways@det.nsw.edu.au