**Earning and Making Money**

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| Focus areas(s) | Duration |
| Financial mathematics A | Term 16 weeksDetail: Eight 53-minute blocks per fortnight |

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| Mathematics K-10 Outcome(s) | Life Skills Outcome(s) |
| * MA5-FIN-C-01 Applies algebraic and numerical techniques to solve financial problems involving simple interest, earning money and spending money
 | * MALS-FIN-01 Demonstrates knowledge of money in everyday contexts
* MALS-FIN-02 Plans and manages personal finances
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| Content | Content Descriptions |
| Solve problems involving earning money | * Solve problems involving wages given an hourly rate of pay including penalty rates for overtime, weekends and public holidays
* Calculate earnings from non-wage sources exploring commission, piece work and royalties
* Calculate weekly, fortnightly, monthly and yearly earnings assuming 1 year = 52 weeks
* Calculate leave loading by finding a percentage of eligible normal pay
* Investigate sources of published tables or online calculators and use these to calculate the weekly, fortnightly or monthly tax to be deducted from a worker’s pay under the Australian Pay-As-You-Go (PAYG) taxation system
* Determine annual taxable income by exploring allowable deductions and current tax rates
* Calculate net earnings after deductions and taxation
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| Solve problems involving simple interest | * Establish and use the formula $I = Prn$ to find simple interest where $I =$ simple interest, $P = $principal, $r = $interest rate per time period and $n = $number of time periods
* Apply the simple interest formula to solve problems related to investing money at simple interest rates, both algebraically and graphically
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| Solve problems involving spending money | * Calculate the cost of buying items on terms, by paying an initial deposit and making regular repayments
* Examine payment options involving *buy now, pay later* and investigate the costs associated with these schemes for purchasing goods
* Examine the principles behind short-term loans involving small dollar amounts and compare borrowing costs associated with using these products
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| **Mini-Lessons** |
| **Description:** Mini-lessons are teacher-led activities which contain a blend of explicit teaching and student discourse. Students work collaboratively and have opportunities to justify and explain mathematical ideas. The suggested lesson plan is a starting point for teachers' planning. Individual teachers make adjustments to these in order to best capture their own teaching style and to personalise the experience for the interest and aptitudes of their students. Teachers also draw upon data and their pedagogical understanding of the Australian Curriculum: Mathematics to iteratively develop the efficacy of these learning experiences over time; often planning and reflecting collaboratively in professional learning teams.**Timing:** Mini-lessons run throughout the topic. A typical lesson contains one or two mini-lessons. These are generally with a group of 3-8 students, so the same mini-lesson may be run multiple times through the topic with different groups. |
| **Mini-Lesson Name** | **Learning Intentions** | **Materials Needed** |
| Interest | * Calculate simple interest on a principal amount.
* Realise how compound interest rapidly increases the amount owed over time.
* Calculate compound interest step-by-step.
 | * Lesson plan “Interest”
* Printed Interest Answers — one teacher copy
* Calculator — one per student and one for the teacher
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| Percentage Calculations | * Understand the contexts in which percentage calculation is used
* Use percentage calculations to work out the best deal.
 | * Exercise Book – one per student for working out
* Pen – one per student.
* Print Game Store Handout (download) – one per pair of students and one teacher copy
* Calculator – one per student, e.g. <https://www.wolframalpha.com/>
* Print Extension Handout (download) – one per student.
* Print Teacher Answers (download) – one teacher copy.
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| **Adjustments and Extensions:** The small group format allows teachers to provide some on-the-spot differentiation through questioning strategies, as well as tactical facilitation of the small-group discussion. For some students, data may show that the learning intentions listed here have already been demonstrated. In such cases, the teacher may choose to run an extension mini-lesson connected with this topic. For other students, data may show that substantial gaps in prior learning could make access to this particular mini-lesson highly challenging. In such cases, the teacher may choose to run a supporting mini-lesson connected with this topic. In doing so, the opportunity may be taken to provide some exposure to the relevant aspects of the achievement standard as a way of framing the mini-lesson’s other learning intentions. |
| **Supporting Mini-Lessons** | **Extension Mini-Lessons** |
| Using MoneyIndex OperationsPerforming OperationsConnecting Fractions, Decimals and PercentagesRounding | Compound Interest |

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| **Energisers** |
| **Description:** 8-10 minute whole-class thinking and discussion task, led by the teacher. These tasks are designed to engage a wide range of students’ learning needs, and are easily adjustable by the teacher. Teachers use questioning to guide deep thinking and sharing of different strategies during the whole-class discussion phase.**Timing:** Throughout the topic. Lessons typically open with an energiser, and longer lessons may be broken up with an energiser part-way through. |
| **Energisers** | **Learning Intentions** | **Materials Needed** |
| A set of 215 such PowerPoint files are available. These may be presented in a semi-random “shuffled” order through the year; or similar types of energisers may be grouped together.There are eight distinct types of energiser in this set:* Venn
* Calculator
* Four Digits
* “Which one doesn’t belong?”
* Estimate
* Total
* Riddle
* Video
 | The main purpose of energisers is to help provide structure to the lesson, break up module time into reasonable chunks, and reinforce students’ emotional associations within the classroom: class cohesion, connection with the teacher, and overall feeling of safety/belonging. Because of this, energisers don’t strictly need a “mathematical” learning intention to be effective, so some are just fun short activities. However, most energisers do contribute to mathematical learning objectives. Examples include:* Building fluency with number
* Exploring estimation strategies
* Searching for patterns
* Using mathematical vocabulary
* Working with shape properties or number properties
* Reasoning logically
* Seeing how mathematics will be relevant to their future careers
* Broadening the sense of what mathematics is, beyond those areas covered in school
* Encountering some of the beauty and excitement in mathematics
 | Students use pen and paper only.Teachers draw upon a bank of PowerPoint files which can be used by the teacher to facilitate the activity and discussion, provided that there is a projector and speakers available to use. Teachers may choose to create their own energisers using those PowerPoints as a starting-point. |
| **Flow of Energisers:** Energisers generally follow one of two flows. |
| **“I do, we do, you do”** | **“Jump in then discuss”** |
| ***Get ready (1 min).*** Copy something simple out. This ensures all students have pen and paper ready so they’re all ready to start at the same time.***I do, we do (3 min).*** A whole class discussion to understand the task. The teacher explains one example to the class. Then the class does two more examples together as a group.***You do (2 min).*** Students have 2 minutes on a timer to try more pieces of the task on their own. By now they understand the task, and have pen and paper, so they can all get on task simultaneously.***Discuss (2-4 min).*** A whole class discussion about what students found in the task. | ***Jump in (3-4 min).*** The whole class starts the task immediately. The teacher clarifies a little on the way, but it doesn’t require pen and paper and is intuitive to start.***Discussion (4-6 min).*** A whole class discussion about what students found in the tasks. Sharing of strategies or ideas. |
| **Adjustments and Extensions:** Energisers are generally constructed with a low entry point, and a moderate-to-high exit point. The nature of these short activities is that students of all attainment levels are able to meaningfully engage in the task, with the teacher providing some on-the-spot differentiation through questioning strategies, as well as tactical facilitation of the whole-class discussion. |

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| **Modules** |
| **Description:** Hand-written activities completed by students in their workbook, with a computer helping to organise and guide. These activities are a mixture of: skills practice; building conceptual understanding; identification and repair of misconceptions; mathematical reasoning; and problem-solving. Students use a set of fully-worked solutions to self-correct as they go. Students are supported through this work by the teacher, by semi-structured peer coaching, and by video instruction as required.**Timing:** Throughout the topic. A typical lesson will include time for students to complete modules. This includes times when some students are working with the teacher in a mini-lesson, during which other students are able to work on modules. |
| **Module Name** | **Learning Intentions** | **Materials Needed** |
| Simple Interest | To calculate a percentage of a dollar amount, then add that percentage at a consistent time interval. | * Student workbooks
* Pens and pencils
* Rulers
* Calculators
* Computers
* Headphones
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| The Simple Interest Formula | To understand and apply the simple interest formula. |
| Calculating Tax | To calculate income tax from tables. |
| **Adjustments and Extensions:** Students are given some choice over the order in which they complete workbook activities. However, care is taken to constrain this choice such that students are not operating outside of their zone of proximal development (so some activities need to be done prior to others), drawing upon the evidence of students' individual learning needs.If there is evidence that a student needs to complete additional modules in order to access the targeted modules within the topic, the student may choose one of those necessary prerequisites - but are always working directly towards the topic outcomes. By contrast, if there is evidence that a student has attained mastery over the topic’s outcomes prior to the conclusion of the topic, they may access some additional modules to extend their learning.Teachers may choose to allow a balance of different types of module choice, with some modules allowed to be from outside of the topic. This can be an effective strategy to provide some spaced exposure to different areas of the curriculum over time, and allow students to spend more time in areas of need over the course of the full school year.Teachers use data to regularly monitor students’ progress on modules. In particular, it is easy to see if a student is having trouble with a particular area and can conduct a “targeted intervention” to provide additional support and explicit teaching in that area. The data available as part of this process includes enough information to begin targeting that support.Students also have access to special accessibility supports within modules, which cater for students with additional learning needs. Examples include text-to-speech functionality, supporting students with high literacy needs; and text display customisation (font, letter spacing, word spacing, background colour), supporting students with dyslexia. |

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| **Rich Tasks** |
| **Description:** Teacher-led engaging tasks with students working in small groups. These are tasks designed to have a low floor and a high ceiling, so have multiple entrance and exit points. The lessons emphasise deep thinking, “productive struggle” and collaborative problem-solving. They contain opportunities for students to engage in multiple cognitive processes, including retrieval, comprehension, analysis, and knowledge utilisation with each of their associated cognitive verbs.Teachers support every group of students to remain in "productive struggle" throughout the task by providing questions and prompts. These may scaffold students' understanding or make the problem simpler; or they may challenge student's thinking and extend the problem.A set of rich tasks are available for teachers to use and adapt to meet the needs of their students. Teachers may source or create other rich tasks to help extend and transfer student knowledge. The learning intentions for rich tasks are not constrained to the part of the achievement standard focussed on for the topic. This is because a series of rich tasks can span a full term (crossing two or three topics) in order to develop a particular mathematical problem-solving or thinking strategy. Such series of tasks touch on many different areas of mathematics at once, and have learning intentions that are more about thinking processes than they are about content.**Timing:** Throughout the topic. Roughly one full lesson per fortnight. |
| **Rich Task Name** | **Learning Intentions** | **Resources Needed** |
| *[Note: this section is usually filled in by the school’s course convenor after collaborative planning of rich tasks by teachers. For help getting started, see the “Rich Learning” section of the professional development course. This includes sample resources which can act as a good starting point for this planning]* |  |  |
| **Adjustments and Extensions:** The tasks are designed to be low-floor and high ceiling, so do not generally require additional adjustments based on students’ entry level with mathematics. However, students’ literacy needs, comfort with group work and creative thinking are likely to require different levels of scaffolding within the lesson. Teachers support this by forming the small groups tactically, and being deliberate with questioning strategies and discussion prompts as they check in periodically with each group. |
| **Assessment** |
| **Description:** Students are assessed in a variety of ways, as outlined below. These cover elements of diagnostic, formative and summative assessment; as well as assessment for-, as- and of-learning. |
| **Type of Assessment** | **Description** | **Purpose and Use of Data** |
| Projects | An investigative task in which students work in groups and communicate/document their thinking. Students can be assessed about once per term, so not every topic needs to be assessed in this way. However, it is possible for a project to touch on more than one topic’s content simultaneously. | * Provide opportunities for collaborative problem-solving, and practice communication of thought processes and strategies.
* Gather data which can be used to inform reporting.
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| Learning cycle tests | Throughout the topic, there is a check-in point once every two weeks or so at the end of each “learning cycle”. Each student sits a test which checks on their recent learning. This is a mixture of online and hand-written questions. Marked tests are returned to the students, and they undertake a reflection process where they analyse and learn from any mistakes they made on the test. The teacher also speaks one-on-one with some students about their progress, using data to help prioritise and facilitate those conversations. | * Provide opportunities for metacognitive self-reflection and coaching to build more effective learning behaviours over time.
* Update the data for each student to inform the next steps in their learning. Specifically, preventing students from operating too far beyond their zone of proximal development, while also providing teachers with the data they need to target instruction and support.
* Gather data which can be used to inform reporting.
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| Diagnostic tests | If a student is new to the school, some initial data gathering may be required first to target instruction correctly from the outset. In this case, a teacher generally runs a “diagnostic” test, which is a fully online adaptive test. | * Form an initial idea of each student’s learning needs so that instruction can be targeted.
* Gather data which can be used to inform reporting.
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| **Adjustments and Extensions:** In addition to these codified data, more informal teacher observations and student self-assessment may also be integrated into day-to-day activities. For example: students self-assess in modules; teachers regularly check in on book work; and many valuable observations can be gained from teacher-student discussion during mini-lessons, energisers, rich tasks, etc. Such data helps teachers further tailor instruction and support for students’ needs, as well as informing on-balance reporting judgments. |

*[Note: there are 2-4 project assessments per year, so not every topic will contain a project. If this topic does not have a project, the below section can be deleted]*

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| **Project**  |
| **Description:** A project is a longer task that is collaboratively designed by a group of teachers. This is an investigative task that is usually completed in groups. The teacher launches the activity with a whole class discussion and then the students work in groups to investigate a deep, mathematical problem-solving task. Students are expected to record their thinking. **Timing:** A project runs for about a week. The frequency of projects is up to the discretion of the teaching team, usually 2-4 per year.**Key Considerations and Key Connections:** In addition to considering the Achievement Standard, this project addresses some or all of the key considerations and key connections below. |
| **Task Description / Marking Guide***[Note: this section is usually filled in by the school’s course convenor after collaborative planning of rich tasks by teachers – by copy-pasting the task description and/or marking guide from the project assessment once developed. For help getting started, see the “Rich Learning” section of the professional development course. This includes sample resources which can act as a good starting point for this planning.]* |