

MATHS

[YEAR 7 – HOW CAN WE REDUCE OUR SPENDING?](#)

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New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Resource title: How can we reduce our spending?

Year level: 7

Key learning areas: Mathematics

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 8)

Student learnings: Explain why it is important to set and prioritise personal financial goals
Identify implications of 'terms and conditions' such as fees, penalties, interest and warranties
Analyse and explain the range of factors affecting consumer choices

Dimension: Competence (Year 8)

Student learnings: Compare income, spending commitments and life-styles at different stages of life
Determine the value of 'deals' when purchasing goods and services such as 'buy one, get one free'
Justify the selection of a range of goods and services in a variety of 'real-life' contexts
Identify and explain marketing strategies used in advertising and social media to influence consumer decision-making

Dimension Responsibility and enterprise (Year 8)

Student learnings: Recognise the importance of planning for their financial futures and appreciate that sacrificing current expenditure can bring long-term benefits
Recognise that people have different ways of living and expectations according to their values and/or financial situation
Recognise that their ability to make informed decisions about personal finance and financial products is strengthened by finding and evaluating relevant information and accessing reliable advice
Demonstrate awareness that family, community and socio-cultural values and customs can influence consumer behaviour and financial decision-making

Note: The framework is organised in 2 year intervals, so the Learnings for Year 8 are applicable to Year 7.

Stage 4 Stage Statements: This unit of work contributes to the following stage statements for Stage 4 (highlighted)

MATHEMATICS

By the end of Stage 4, students use mathematical terminology, algebraic notation, diagrams, text and tables to communicate mathematical ideas, and link concepts and processes within and between mathematical contexts. They apply their mathematical knowledge, skills and understanding in analysing real-life situations and in systematically exploring and solving problems using technology where appropriate. Students develop fluency with a range of algebraic techniques and in the solution of familiar problems. In solving particular problems, they compare the strengths and weaknesses of different strategies and solutions.

Students develop a range of mental strategies to enhance their computational skills. They operate competently with integers, fractions, decimals and percentages, and apply these in a range of practical contexts, including problems related to GST, discounts and profit and loss. Students are familiar with the concepts of ratios and rates, and apply these when solving problems. They investigate divisibility tests, use index notation for numbers with positive integral indices, and explore prime factorisation, squares and cubes, and related square and cube roots, and the concept of irrational numbers.

Extending and generalising number patterns leads students into an understanding of the use of pronumerals and the language of algebra. They simplify algebraic expressions, substitute into algebraic expressions and formulas, and expand and factorise algebraic expressions. Students solve simple linear and quadratic equations. They develop tables of values from linear relationships and illustrate these relationships on the Cartesian plane, with and without the use of digital technologies.

Students calculate the perimeters and areas of a variety of polygons, circles, sectors and simple composite figures, and solve related problems. They calculate the volumes and capacities of right prisms and cylinders, and solve related problems. They convert between units of area and units of volume, and connect units of volume and capacity. Pythagoras' theorem is used to calculate side lengths in right-angled triangles and solve problems in two dimensions. Students calculate time duration and apply their understanding of Australian and world time zones to solve problems.

Knowledge of the properties of two-dimensional geometrical figures, angles, parallel lines, perpendicular lines and congruent figures enables students to apply logical reasoning to solve numerical exercises involving unknown lengths and angles in figures.

Students construct, interpret and compare data displays, including dot plots, stem-and-leaf plots, sector graphs, divided bar graphs, and frequency tables and histograms. In analysing data, they consider both categorical and numerical (discrete and continuous) variables, sampling versus census, and possible misrepresentation of data, and calculate the mean, mode, median and range. Students represent events using Venn diagrams and two-way tables, and calculate the probability of simple and complementary events in single-step chance experiments.

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Australian Curriculum	NSW syllabus	
MATHEMATICS	MATHEMATICS	CONTENT
<p>Strand Number and algebra</p> <p>Sub-strand Real numbers</p> <p>Round decimals to a specified number of decimal places (ACMNA156)</p>	<p>Number and Algebra: Fractions, Decimals and Percentages</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships using reasoning (MA4-3WM)</p> <p>Operates with fractions, decimals and percentages (MA4-5NA)</p>	<p>Students:</p> <p>Round decimals to a specified number of decimal places (ACMNA156)</p> <ul style="list-style-type: none"> – round decimals to a given number of decimal places
<p>Strand Number and algebra</p> <p>Sub-strand Money and financial mathematics</p> <p>Investigate and calculate 'best buys', with and without digital technologies (ACMNA174)</p>	<p>Number and Algebra: Financial Mathematics</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships using reasoning (MA4-3WM)</p> <p>Solves financial problems involving purchasing goods (MA4-6NA)</p>	<p>Students:</p> <p>Investigate and calculate 'best buys', with and without the use of digital technologies (ACMNA174)</p> <ul style="list-style-type: none"> – calculate 'best buys' by comparing price per unit, or quantity per monetary unit, e.g. 500 grams for \$4.50 compared with 300 grams for \$2.75 <ul style="list-style-type: none"> ○ investigate 'unit pricing' used by retailers and use this to determine the best buy (Problem Solving) ○ recognise that in practical situations there are considerations other than just the 'best buy', e.g. the amount required, waste due to spoilage (Reasoning) ○ use price comparison websites to make informed decisions related to purchases under given conditions (Problem Solving)

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Resource title: How can we access money overseas?

Year level: 8

Key learning areas: Mathematics

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 8)

Student learnings: Research, identify and discuss the rights and responsibilities of consumers in a range of 'real-life' contexts
Identify where to access reliable information and advice concerning the rights and responsibilities of consumers and business
Analyse and explain the range of factors affecting consumer choices

Dimension: Competence (Year 8)

Student learnings: Explain how individual and collective consumer decisions may have an impact on the broader community and/or the environment
Determine and compare the actual cost of using different ways of paying for goods and services
Justify the selection of a range of goods and services in a variety of 'real-life' contexts
Convert from one currency to another in 'real-life' contexts
Explore the pros and cons of a range of payment options for goods and services such as: cash, debit card, credit card, direct debt, PayPal, BPay, prepay options, phone and electronic funds transfer
Identify and explain marketing strategies used in advertising and social media to influence consumer decision-making

Dimension Responsibility and enterprise (Year 8)

Student learnings: Apply informed and assertive consumer decision-making in a range of 'real-life' contexts
Recognise that people have different ways of living and expectations according to their values and/or financial situation
Recognise that their ability to make informed decisions about personal finance and financial products is strengthened by finding and evaluating relevant information and accessing reliable advice
Demonstrate awareness that family, community and socio-cultural values and customs can influence consumer behaviour and financial decision-making

Stage 4 Stage Statements: This unit of work contributes to the following stage statements for Stage 4 (highlighted)

MATHEMATICS

By the end of Stage 4, students use mathematical terminology, algebraic notation, diagrams, text and tables to communicate mathematical ideas, and link concepts and processes within and between mathematical contexts. They apply their mathematical knowledge, skills and understanding in analysing real-life situations and in systematically exploring and solving problems using technology where appropriate. Students develop fluency with a range of algebraic techniques and in the solution of familiar problems. In solving particular problems, they compare the strengths and weaknesses of different strategies and solutions.

Students develop a range of mental strategies to enhance their computational skills. They operate competently with integers, fractions, decimals and percentages, and apply these in a range of practical contexts, including problems related to GST, discounts and profit and loss. Students are familiar with the concepts of ratios and rates, and apply these when solving problems. They investigate divisibility tests, use index notation for numbers with positive integral indices, and explore prime factorisation, squares and cubes, and related square and cube roots, and the concept of irrational numbers.

Extending and generalising number patterns leads students into an understanding of the use of pronumerals and the language of algebra. They simplify algebraic expressions, substitute into algebraic expressions and formulas, and expand and factorise algebraic expressions. Students solve simple linear and quadratic equations. They develop tables of values from linear relationships and illustrate these relationships on the Cartesian plane, with and without the use of digital technologies.

Students calculate the perimeters and areas of a variety of polygons, circles, sectors and simple composite figures, and solve related problems. They calculate the volumes and capacities of right prisms and cylinders, and solve related problems. They convert between units of area and units of volume, and connect units of volume and capacity. Pythagoras' theorem is used to calculate side lengths in right-angled triangles and solve problems in two dimensions. Students calculate time duration and apply their understanding of Australian and world time zones to solve problems.

Knowledge of the properties of two-dimensional geometrical figures, angles, parallel lines, perpendicular lines and congruent figures enables students to apply logical reasoning to solve numerical exercises involving unknown lengths and angles in figures.

Students construct, interpret and compare data displays, including dot plots, stem-and-leaf plots, sector graphs, divided bar graphs, and frequency tables and histograms. In analysing data, they consider both categorical and numerical (discrete and continuous) variables, sampling versus census, and possible misrepresentation of data, and calculate the mean, mode, median and range. Students represent events using Venn diagrams and two-way tables, and calculate the probability of simple and complementary events in single-step chance experiments.

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Australian Curriculum	NSW syllabus	
MATHEMATICS	MATHEMATICS	CONTENT
<p>Strand Number and algebra</p> <p>Sub-strand Number and place value</p> <p>Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)</p>	<p>Number and Algebra: Computation with Integers</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships using reasoning (MA4-3WM)</p> <p>Compares, orders and calculates with integers, applying a range of strategies to aid computation (MA4-4NA)</p>	<p>Students:</p> <p>Carry out the four operations with rational numbers and integers, using efficient mental and written strategies and appropriate digital technologies (ACMNA183)</p> <ul style="list-style-type: none"> – multiply and divide integers using mental and written strategies <ul style="list-style-type: none"> ○ investigate, by developing patterns or using a calculator, the rules associated with multiplying and dividing integers (Reasoning) – use a calculator to perform the four operations with integers <ul style="list-style-type: none"> ○ decide whether it is more appropriate to use mental strategies or a calculator when performing certain operations with integers (Communicating) – apply the order of operations to mentally evaluate expressions involving integers, including where an operator is contained within the numerator or denominator of a fraction, <p>e.g. $15+9 \ 6$, $15+9 \ 15-3$, $5+18-12 \ 6$, $5+18 \ 6 -12$, $5 \times (2-8)$</p> <ul style="list-style-type: none"> ○ investigate whether different digital technologies, such as those found in computer software and on mobile devices, apply the order of operations
<p>Strand Number and algebra</p> <p>Sub-strand Real numbers</p> <p>Solve problems involving the use of percentages, including percentage increases and decreases, with and without digital technologies (ACMNA187)</p>	<p>Number and Algebra: Fractions, Decimals and Percentages</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships using reasoning (MA4-3WM)</p> <p>Operates with fractions, decimals and percentages (MA4-5NA)</p>	<p>Students:</p> <p>Solve problems involving the use of percentages, including percentage increases and decreases, with and without the use of digital technologies (ACMNA187)</p> <ul style="list-style-type: none"> – increase and decrease a quantity by a given percentage, using mental, written and calculator methods <ul style="list-style-type: none"> ○ recognise equivalences when calculating percentage increases and decreases, e.g. multiplication by 1.05 will increase a number or quantity by 5%, multiplication by 0.87 will decrease a number or quantity by 13% (Reasoning) – interpret and calculate percentages greater than 100, e.g. an increase from \$2 to \$5 is an increase of 150% – solve a variety of real-life problems involving percentages,

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		<p>including percentage composition problems and problems involving money</p> <ul style="list-style-type: none"> ○ interpret calculator displays in formulating solutions to problems involving percentages by appropriately rounding decimals (Communicating) ○ use the unitary method to solve problems involving percentages, e.g. find the original value, given the value after an increase of 20% (Problem Solving) ○ interpret and use nutritional information panels on product packaging where percentages are involved (Problem Solving) ○ interpret and use media and sport reports involving percentages (Problem Solving) ○ interpret and use statements about the environment involving percentages, e.g. energy use for different purposes, such as lighting (Problem Solving)
<p>Strand Number and algebra</p> <p>Sub-strand Real numbers</p> <p>Solve a range of problems involving rates and ratios, with and without digital technologies (ACMNA188)</p>	<p>Number and Algebra: Ratios and Rates</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships using reasoning (MA4-3WM)</p> <p>Operates with ratios and rates, and explores their graphical representation (MA4-7NA)</p>	<p>Students:</p> <p>Solve a range of problems involving ratios and rates, with and without the use of digital technologies (ACMNA188)</p> <ul style="list-style-type: none"> – use rates to compare quantities measured in different units <ul style="list-style-type: none"> ○ distinguish between ratios, where the comparison is of quantities measured in the same units, and rates, where the comparison is of quantities measured in different units – convert given information into a simplified rate, e.g. 150 kilometres travelled in 2 hours = 75 km/h – solve a variety of real-life problems involving rates, including problems involving rate of travel (speed)
<p>Strand Number and algebra</p> <p>Sub-strand Money and financial mathematics</p> <p>Solve problems involving profit and loss, with and without digital technologies (ACMNA189)</p>	<p>Number and Algebra: Financial Mathematics</p> <p>Communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols (MA4-1WM)</p> <p>Applies appropriate mathematical techniques to solve problems (MA4-2WM)</p> <p>Recognises and explains mathematical relationships</p>	<p>Students:</p> <p>Solve problems involving profit and loss, with and without the use of digital technologies (ACMNA189)</p>

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	using reasoning (MA4-3WM) Solves financial problems involving purchasing goods (MA4-6NA)	
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Resource title: How can we obtain more money?

Year level: 9

Key learning areas: Mathematics

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 10)

- Student learnings:**
- Identify and explain strategies to manage personal finances
 - Explain the different ways in which people are paid including wages, salaries, commissions, self-employment and government benefits
 - Explain the various factors that may impact on achieving personal financial goals
 - Analyse and explain the range of factors affecting consumer choices
 - Identify types of consumer and financial risks to individuals, families and the broader community, and ways of managing them

Dimension: Competence (Year 10)

- Student learnings:** Analyse relevant information to make informed choices when purchasing goods and services and/or to resolve consumer choices

Dimension Responsibility and enterprise (Year 10)

- Student learnings:**
- Apply informed and assertive consumer decision-making in a range of 'real-life' contexts
 - Appreciate that there is often no one right answer in making financial decisions because these depend on individual circumstances, preferences and values
 - Explain how, as financially active citizens, they fit into the broader economy and society through:
 - generating income and paying taxes
 - saving
 - spending
 - donating
 - investing
 - Explain the role of banks and other deposit taking institutions (e.g. credit unions, building societies) in collecting deposits, pooling savings and lending them to individuals and business
 - Demonstrate awareness that family and socio-cultural values and customs can influence consumer behaviour and financial decisions

Note: The framework is organised in 2 year intervals, so the Learnings for Year 10 are applicable to Year 9.

Stage 5 Stage Statements: This unit of work contributes to the following stage statements for Stage 5 (highlighted)

MATHEMATICS

By the end of Stage 5.1, students explain and verify mathematical relationships, select and use appropriate strategies to solve problems, and link mathematical ideas to existing knowledge and understanding. They use mathematical language and notation to explain mathematical ideas, and interpret tables, diagrams and text in mathematical situations.

Students apply their knowledge of percentages, fractions and decimals to financial problems related to earning and spending money, taxation, and simple and compound interest. They simplify and evaluate numerical expressions using index laws for positive and zero indices, round numbers to a specified number of significant figures, and express numbers in scientific notation. Students apply the index laws to simplify algebraic expressions. They determine the midpoint, gradient and length of intervals on the Cartesian plane and draw graphs of linear and simple non-linear relationships.

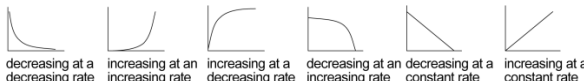
Skills in measurement are further developed to include finding the areas of composite shapes and the surface areas of rectangular and triangular prisms. Students describe the limit of accuracy of measurements. They apply right-angled triangle trigonometry to practical situations, including those involving angles of elevation and depression. They apply the properties of similar figures to find side lengths in problems related to similar figures.

Students' statistical skills are extended to include considering shape and skewness of distributions, comparing data and data displays, and evaluating the reliability of statistical claims. They also determine the relative frequencies of events in chance experiments and calculate probabilities from information displayed in Venn diagrams and two-way tables.

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Australian Curriculum	NSW syllabus	
MATHEMATICS	MATHEMATICS	CONTENT
<p>Strand Number and algebra</p> <p>Sub-strand Real numbers</p> <p>Solve problems involving direct proportion. Explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)</p>	<p>Number and Algebra: Ratios and Rates</p> <p>Selects appropriate notations and conventions to communicate mathematical ideas and solutions (MA5.2-1WM)</p> <p>Interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems (MA5.2-2WM)</p> <p>Recognises direct and indirect proportion, and solves problems involving direct proportion (MA5.2-5NA)</p>	<p>Students:</p> <p>Solve problems involving direct proportion; explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)</p> <ul style="list-style-type: none"> – convert between units for rates, e.g. kilometres per hour to metres per second – identify and describe everyday examples of direct proportion, e.g. as the number of hours worked increases, earnings also increase – identify and describe everyday examples of inverse (indirect) proportion, e.g. as speed increases, the time taken to travel a particular distance decreases – recognise direct and inverse proportion from graphs <ul style="list-style-type: none"> ○ distinguish between positive and negative gradients when using a graph (Reasoning) – interpret and use conversion graphs to convert from one unit to another, e.g. conversions between different currencies or metric and imperial measures – use the equation $y=kx$ to model direct linear proportion where k is the constant of proportionality <ul style="list-style-type: none"> ○ given the constant of proportionality, establish an equation and use it to find an unknown quantity (Communicating, Problem Solving) ○ calculate the constant of proportionality, given appropriate information, and use this to find unknown quantities (Problem Solving) – use graphing software or a table of values to graph equations representing linear direct proportion
<p>Strand Number and algebra</p> <p>Sub-strand Real numbers</p> <p>Solve problems involving direct proportion. Explore the relationship between graphs and equations</p>	<p>Number and Algebra: Ratios and Rates</p> <p>Uses and interprets formal definitions and generalisations when explaining solutions and/or conjectures (MA5.3-1WM)</p> <p>Generalises mathematical ideas and techniques to</p>	<p>Students:</p> <p>Solve problems involving direct proportion; explore the relationship between graphs and equations corresponding to simple rate problems (ACMNA208)</p> <ul style="list-style-type: none"> – interpret distance/time graphs when the speed is variable

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<p>corresponding to simple rate problems (ACMNA208)</p>	<p>analyse and solve problems efficiently (MA5.3-2WM)</p> <p>Uses deductive reasoning in presenting arguments and formal proofs (MA5.3-3WM)</p> <p>Draws, interprets and analyses graphs of physical phenomena (MA5.3-4NA)</p>	<ul style="list-style-type: none"> ○ match distance/time graphs to situations, and explore whether they are accurate, appropriate and possible (Problem Solving, Reasoning) ○ match distance/time graphs to appropriate descriptions and give reasons for choices (Communicating, Reasoning) ○ record the distance of a moving object from a fixed point at equal time intervals and draw a graph to represent the situation, e.g. move along a measuring tape for 30 seconds through different activities that include variable speeds, such as running fast, walking slowly, and walking slowly then speeding up (Communicating, Problem Solving) <ul style="list-style-type: none"> – analyse the relationship between variables as they change over time, e.g. draw graphs to represent the relationship between the depth of water in containers of different shapes when they are filled at a constant rate – interpret graphs, making sensible statements about the rate of increase or decrease, the initial and final points, constant relationships as represented by straight lines, variable relationships as represented by curved lines. etc. <ul style="list-style-type: none"> ○ decide whether a particular graph is a suitable representation of a given physical phenomenon (Reasoning) – describe qualitatively the rate of change of a graph using terms such as 'increasing at a decreasing rate' <div style="text-align: center;">  <p>decreasing at a decreasing rate increasing at an increasing rate increasing at a decreasing rate decreasing at an increasing rate decreasing at a constant rate increasing at a constant rate</p> </div> <ul style="list-style-type: none"> – sketch a graph from a simple description, given a variable rate of change
<p>Strand Number and algebra</p> <p>Sub-strand Money and financial mathematics</p> <p>Solve problems involving simple interest (ACMNA211)</p>	<p>Number and Algebra: Financial Mathematics</p> <p>Uses appropriate terminology, diagrams and symbols in mathematical contexts (MA5.1-1WM)</p> <p>Selects and uses appropriate strategies to solve problems (MA5.1-2WM)</p>	<p>Students:</p> <p>Solve problems involving simple interest (ACMNA211)</p> <ul style="list-style-type: none"> – calculate simple interest using the formula $I=PRN$ where I is the interest, P is the principal, R is the interest rate per time period (expressed as a fraction or decimal) and N is the

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	<p>Provides reasoning to support conclusions that are appropriate to the context (MA5.1-3WM)</p> <p>Solves financial problems involving earning, spending and investing money (MA5.1-4NA)</p>	<p>number of time periods</p> <ul style="list-style-type: none"> - apply the simple interest formula to solve problems related to investing money at simple interest rates <ul style="list-style-type: none"> o find the total value of a simple interest investment after a given time period (Problem Solving) o calculate the principal or time needed to earn a particular amount of interest, given the simple interest rate (Problem Solving) - calculate the cost of buying expensive items by paying an initial deposit and making regular repayments that include simple interest - investigate fees and charges related to 'buy today, no more to pay until ...' promotions (Problem Solving) - compare the total cost of buying on terms to paying by cash (Problem Solving) - recognise that repossession does not remove financial debt (Reasoning)
<p>Strand Number and algebra</p> <p>Sub-strand Linear and non-linear relationships</p> <p>Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)</p>	<p>Number and Algebra: Linear Relationships</p> <p>Uses appropriate terminology, diagrams and symbols in mathematical contexts (MA5.1-1WM)</p> <p>Provides reasoning to support conclusions that are appropriate to the context (MA5.1-3WM)</p> <p>Determines the midpoint, gradient and length of an interval, and graphs linear relationships (MA5.1-6NA)</p>	<p>Students:</p> <p>Sketch linear graphs using the coordinates of two points (ACMNA215)</p> <ul style="list-style-type: none"> - construct tables of values and use coordinates to graph vertical and horizontal lines, such as $x=3$, $x=-1$, $y=2$, $y=-3$ - identify the x- and y-intercepts of lines - identify the x-axis as the line $y = 0$ and the y-axis as the line $x = 0$ - explain why the x- and y-axes have these equations (Communicating, Reasoning) - graph a variety of linear relationships on the Cartesian plane, with and without the use of digital technologies, e.g. $y=3-x$, $y=x+1$, $x+y=5$, $x-y=2$, $y=2-3x$ - compare and contrast equations of lines that have a negative gradient and equations of lines that have a positive gradient (Communicating, Reasoning) - determine whether a point lies on a line by substitution
<p>Strand Number and algebra</p> <p>Sub-strand Linear and non-linear</p>	<p>Number and Algebra: Linear Relationships</p> <p>Uses and interprets formal definitions and</p>	<p>Students:</p> <p>Sketch linear graphs using the coordinates of two points (ACMNA215)</p>

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<p>relationships</p> <p>Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)</p>	<p>generalisations when explaining solutions and/or conjectures (MA5.3-1WM)</p> <p>Generalises mathematical ideas and techniques to analyse and solve problems efficiently (MA5.3-2WM)</p> <p>Uses deductive reasoning in presenting arguments and formal proofs (MA5.3-3WM)</p> <p>Uses formulas to find midpoint, gradient and distance on the Cartesian plane, and applies standard forms of the equation of a straight line (MA5.3-8NA)</p>	<ul style="list-style-type: none"> – sketch the graph of a line by using its equation to find the x- and y-intercepts <p>Students:</p> <p>Solve problems using various standard forms of the equation of a straight line</p> <ul style="list-style-type: none"> – describe the equation of a line as the relationship between the x- and y-coordinates of any point on the line <ul style="list-style-type: none"> ○ recognise from a list of equations those that can be represented as straight-line graphs (Communicating, Reasoning) – rearrange linear equations in gradient-intercept form ($y=mx+b$) into general form $ax+by+c=0$ – find the equation of a line passing through a point (x_1, y_1), with a given gradient m, using: <ul style="list-style-type: none"> ○ point-gradient form: $y-y_1 = m(x-x_1)$ ○ gradient-intercept form: $y=mx+b$ – find the equation of a line passing through two points – recognise and find the equation of a line in general form $ax+by+c=0$
<p>Strand Number and algebra</p> <p>Sub-strand Linear and non-linear relationships</p> <p>Sketch linear graphs using the coordinates of two points and solve linear equations (ACMNA215)</p>	<p>Number and Algebra: Equations</p> <p>Selects appropriate notations and conventions to communicate mathematical ideas and solutions (MA5.2-1WM)</p> <p>Interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems (MA5.2-2WM)</p> <p>Constructs arguments to prove and justify results (MA5.2-3WM)</p> <p>Solves linear and simple quadratic equations, linear inequalities and linear simultaneous equations, using analytical and graphical techniques (MA5.2-8NA)</p>	<p>Students:</p> <p>Solve linear equations (ACMNA215)</p> <ul style="list-style-type: none"> – solve linear equations, including equations that involve grouping symbols, e.g. $3(a+2)+2(a-5)=10$, $3(2m-5)=2m+5$
<p>Strand Statistics and Probability</p> <p>Sub-strand Data representation and interpretation</p> <p>Identify everyday questions and issues</p>	<p>Statistics and Probability: Single Variable Data Analysis</p> <p>Uses appropriate terminology, diagrams and symbols in mathematical contexts (MA5.1-1WM)</p>	<p>Students:</p> <p>Identify everyday questions and issues involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources (ACMSP228)</p>

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<p>involving at least one numerical and at least one categorical variable, and collect data directly from secondary sources (ACMSP228)</p>	<p>Selects and uses appropriate strategies to solve problems (MA5.1-2WM)</p> <p>Provides reasoning to support conclusions that are appropriate to the context (MA5.1-3WM)</p> <p>Uses statistical displays to compare sets of data, and evaluates statistical claims made in the media (MA5.1-12SP)</p>	<ul style="list-style-type: none"> – identify and investigate relevant issues involving at least one numerical and at least one categorical variable using information gained from secondary sources, e.g. the number of hours in a working week for different professions in Australia, the annual rainfall in various parts of Australia compared with that of other countries in the Asia-Pacific region
<p>Strand Statistics and Probability</p> <p>Sub-strand Data representation and interpretation</p> <p>Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)</p>	<p>Statistics and Probability: Single Variable Data Analysis</p> <p>Uses appropriate terminology, diagrams and symbols in mathematical contexts (MA5.1-1WM)</p> <p>Selects and uses appropriate strategies to solve problems (MA5.1-2WM)</p> <p>Provides reasoning to support conclusions that are appropriate to the context (MA5.1-3WM)</p> <p>Uses statistical displays to compare sets of data, and evaluates statistical claims made in the media (MA5.1-12SP)</p>	<p>Students:</p> <p>Compare data displays using mean, median and range to describe and interpret numerical data sets in terms of location (centre) and spread (ACMSP283)</p> <ul style="list-style-type: none"> – interpret two sets of numerical data displayed in back-to-back stem-and-leaf plots, parallel dot plots and histograms – calculate and compare means, medians and ranges of two sets of numerical data displayed in back-to-back stem-and-leaf plots, parallel dot plots and histograms – make comparisons between two like sets of data by referring to the mean, median and/or range, e.g. 'The range of the number of goals scored in the various weeks of a competition for Team A is smaller than that for Team B, suggesting that Team A is more consistent from week to week than Team B' (Communicating, Reasoning)

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Resource title: Reaching goals: What's involved?

Year level: 10

Key learning areas: Mathematics

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 10)

Student learnings:

- Identify and explain strategies to manage personal finances
- Explain the various factors that may impact on achieving personal financial goals
- Explain how over-reliance on credit can impact on future choices
- Analyse and explain the range of factors affecting consumer choices
- Identify types of consumer and financial risks to individuals, families and the broader community, and ways of managing them

Dimension: Competence (Year 10)

Student learnings:

- Investigate the financial decisions required at significant life stage events
- Discuss the differences between 'good' and 'bad' debt, including manageability of debt and its long-term impact
- Analyse relevant information to make informed choices when purchasing goods and services and/ or to resolve consumer choices

Dimension Responsibility and enterprise (Year 10)

Student learnings:

- Apply informed and assertive consumer decision-making in a range of 'real-life' contexts
- Appreciate that there is often no one right answer in making financial decisions because these depend on individual circumstances, preferences and values
- Understand and explain the legal responsibilities of taking on debt, including the consequences of not paying off the debt

Stage 5 Stage Statements: This unit of work contributes to the following stage statements for Stage 5 (highlighted)

MATHEMATICS

Mathematics Stage 5.1

By the end of Stage 5.1, students explain and verify mathematical relationships, select and use appropriate strategies to solve problems, and link mathematical ideas to existing knowledge and understanding. They use mathematical language and notation to explain mathematical ideas, and interpret tables, diagrams and text in mathematical situations.

Students apply their knowledge of percentages, fractions and decimals to financial problems related to earning and spending money, taxation, and simple and compound interest. They simplify and evaluate numerical expressions using index laws for positive and zero indices, round numbers to a specified number of significant figures, and express numbers in scientific notation. Students apply the index laws to simplify algebraic expressions. They determine the midpoint, gradient and length of intervals on the Cartesian plane and draw graphs of linear and simple non-linear relationships.

Skills in measurement are further developed to include finding the areas of composite shapes and the surface areas of rectangular and triangular prisms. Students describe the limit of accuracy of measurements. They apply right-angled triangle trigonometry to practical situations, including those involving angles of elevation and depression. They apply the properties of similar figures to find side lengths in problems related to similar figures.

Students' statistical skills are extended to include considering shape and skewness of distributions, comparing data and data displays, and evaluating the reliability of statistical claims. They also determine the relative frequencies of events in chance experiments and calculate probabilities from information displayed in Venn diagrams and two-way tables.

Mathematics Stage 5.2

By the end of Stage 5.2, students use mathematical arguments to reach and justify conclusions. When communicating mathematical ideas, they use appropriate mathematical language and algebraic, statistical and other notations and conventions in written, oral or graphical form. Students use suitable problem-solving strategies, which include selecting and organising key information, and they extend their inquiries by identifying and working on related problems.

Students apply their knowledge of percentages, fractions and decimals to problems involving conversion of rates, direct proportion, and financial contexts related to compound interest and depreciation.

Students apply the index laws with integer indices to simplify expressions. They operate with algebraic fractions, expand binomial products and factorise monic quadratic trinomial expressions. They solve linear equations and use them to solve word problems. They solve linear inequalities and linear simultaneous equations. Students solve simple quadratic equations and solve monic quadratic equations by factorisation. On the Cartesian plane they draw and interpret graphs of straight lines, and simple parabolas, circles and exponential graphs. Students determine the equations of straight lines and use the properties of parallel and perpendicular lines on the Cartesian plane.

Students extend their skills in measurement to solve problems involving the surface areas and volumes of right prisms, cylinders and related composite solids. They use trigonometric ratios to solve problems in which angles may be measured to the nearest second, and problems involving bearings and angles of elevation and depression. In geometry, they use deductive reasoning in numerical and non-numerical problems, drawing on their knowledge of the properties of congruent triangles, the angle properties of polygons, and the properties of quadrilaterals.

Statistical skills are extended to include the construction of box-and-whisker plots and the calculation of interquartile range to analyse and compare data sets in

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appropriate data displays. Students investigate bivariate data sets and use scatter plots to describe relationships between variables. They evaluate the sources of data in statistical reports. In their study of probability, students record and determine probabilities of events in multi-step chance experiments and examine conditional language.

Mathematics Stage 5.3

By the end of Stage 5.3, students use deductive reasoning in problem solving and in presenting arguments and formal proofs. They interpret and apply formal definitions and generalisations and connect and apply mathematical ideas within and across substrands. They demonstrate fluency in selecting, combining and applying relevant knowledge, skills and understanding in the solution of familiar and unfamiliar problems.

Students operate with irrational numbers and extend their knowledge of the number system to include all real numbers. They analyse and describe physical phenomena and rates of change. Algebraic skills are extended to expanding the special binomial products and factorising non-monic quadratic expressions, using a variety of techniques. Students solve complex linear equations, non-monic quadratic equations, simple cubic equations, and simultaneous equations involving one linear and one non-linear equation. They solve practical problems using linear, quadratic and simultaneous equations. They change the subject of literal equations. Students generate, describe and graph straight lines, parabolas, cubics, hyperbolas and circles. They use formulas to calculate midpoint, gradient and distance on the Cartesian plane, and to determine the equations of straight lines.

Students solve problems involving the surface areas and volumes of pyramids, cones and spheres, and related composite solids. They explore similarity relationships for area and volume. They determine exact trigonometric ratios for 30° , 45° and 60° , extend trigonometric ratios to obtuse angles, and sketch sine and cosine curves for angular values from 0° to 360° . Students apply the sine and cosine rules for finding unknown angles and/or sides in non-right-angled triangles. They use Pythagoras' theorem and trigonometry to solve problems in three dimensions.

Their knowledge of a wide range of geometrical facts and relationships is used to prove general properties in geometry, extending the concepts of similarity and congruence to more generalised applications. Students prove known properties of triangles, quadrilaterals and circles.

Students use standard deviation to analyse data, and interpolate and extrapolate from bivariate data using lines of best fit. They investigate statistical reports and explore how data is used to inform decision-making processes.

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Australian Curriculum	NSW syllabus	
MATHEMATICS	MATHEMATICS	CONTENT
<p>Strand Number and algebra</p> <p>Sub-strand Money and Financial Mathematics</p> <p>Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (ACMNA229)</p>	<p>Number and Algebra: Financial Mathematics</p> <p>Selects appropriate notations and conventions to communicate mathematical ideas and solutions (MA5.2-1WM)</p> <p>Interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems (MA5.2-2WM)</p> <p>Solves financial problems involving compound interest (MA5.2-4NA)</p>	<p>Students:</p> <p>Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (ACMNA229)</p> <ul style="list-style-type: none"> – establish and use the formula to find compound interest: $A=P(1+R)^n$ where A is the total amount, P is the principal, R is the interest rate per compounding period as a decimal, and n is the number of compounding periods <ul style="list-style-type: none"> ○ calculate and compare investments for different compounding periods, e.g. calculate and compare the value of an investment of \$3000 at an interest rate of 6% per annum after 5 years when the interest is compounded annually, as opposed to the interest being compounded monthly (Problem Solving) ○ use a spreadsheet to graph the value of an investment of a particular amount at various compound interest rates over time (Problem Solving) – solve problems involving compound interest <ul style="list-style-type: none"> ○ calculate the principal or interest rate needed to obtain a particular total amount for a compound interest investment (Problem Solving) ○ use a 'guess and refine' strategy to determine the number of time periods required to obtain a particular total amount for a compound interest investment (Problem Solving) ○ compare the total amounts obtained for a particular investment when the interest is calculated as compound interest and as simple interest, e.g. compare the total amount obtained when \$10,000 is invested at an interest rate of 6% per annum compounded monthly for 5 years, with the total amount obtained when the interest is calculated as simple interest (Problem Solving) – use the compound interest formula to calculate depreciation

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<p>Strand Number and algebra</p> <p>Sub-strand Money and Financial Mathematics</p> <p>Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (ACMNA229)</p>	<p>Uses and interprets formal definitions and generalisations when explaining solutions and/or conjectures (MA5.3-1WM)</p> <p>Uses appropriate terminology, diagrams and symbols in mathematical contexts (MA5.1-1WM)</p> <p>Selects and uses appropriate strategies to solve problems (MA5.1-2WM)</p> <p>Provides reasoning to support conclusions that are appropriate to the context (MA5.1-3WM)</p> <p>Solves financial problems involving earning, spending and investing money (MA5.1-4NA)</p>	<p>Students:</p> <p>Connect the compound interest formula to repeated applications of simple interest using appropriate digital technologies (ACMNA229)</p> <ul style="list-style-type: none"> – calculate compound interest for two or three years using repetition of the formula for simple interest <ul style="list-style-type: none"> ○ connect the calculation of the total value of a compound interest investment to repeated multiplication using a calculator, e.g. a rate of 5% per annum leads to repeated multiplication by 1.05 (Communicating) ○ compare simple interest with compound interest in practical situations, e.g. to determine the most beneficial investment or loan (Communicating, Reasoning) ○ compare simple interest with compound interest on an investment over various time periods using tables, graphs or spreadsheets (Communicating, Reasoning)
<p>Strand Number and algebra</p> <p>Sub-strand Patterns and Algebra</p> <p>Substitute values into formulas to determine an unknown (ACMNA234)</p>	<p>Number and Algebra: Equations</p> <p>Selects appropriate notations and conventions to communicate mathematical ideas and solutions (MA5.2-1WM)</p> <p>Interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems (MA5.2-2WM)</p> <p>Constructs arguments to prove and justify results (MA5.2-3WM)</p> <p>Solves linear and simple quadratic equations, linear inequalities and linear simultaneous equations, using analytical and graphical techniques (MA5.2-8NA)</p>	<p>Students:</p> <p>Substitute values into formulas to determine an unknown (ACMNA234)</p> <ul style="list-style-type: none"> – solve equations arising from substitution into formulas, e.g. given $P=2l+2b$ and $P=20$, $l=6$, solve for b <ul style="list-style-type: none"> ○ substitute into formulas from other strands of the syllabus or from other subjects to solve problems and interpret solutions, e.g. $A=1/2xy$, $v=u+at$, $C=5/9(F-32)$, $V=\pi r^2 h$ (Problem Solving)
<p>Strand Statistics and Probability</p> <p>Sub-strand Data representation and interpretation</p> <p>Investigate and describe bivariate numerical data where the independent variable is time (ACMSP252)</p>	<p>Statistics and Probability: Bivariate Data Analysis</p> <p>Selects appropriate notations and conventions to communicate mathematical ideas and solutions (MA5.2-1WM)</p> <p>Constructs arguments to prove and justify results (MA5.2-3WM)</p>	<p>Students:</p> <p>Investigate and describe bivariate numerical data where the independent variable is time (ACMSP252)</p> <ul style="list-style-type: none"> – recognise the difference between an independent variable and its dependent variable – distinguish bivariate data from single variable (univariate) data <ul style="list-style-type: none"> ○ describe the difference between bivariate data and

	<p>Investigates relationships between two statistical variables, including their relationship over time (MA5.2-16SP)</p>	<p>single variable data using an appropriate example, e.g. bivariate data compares two variables, such as arm span and height, while single variable data examines only one variable, such as arm span (Communicating)</p> <ul style="list-style-type: none"> - investigate a matter of interest, representing the dependent numerical variable against the independent variable, time, in an appropriate graphical form <ul style="list-style-type: none"> o determine and explain why line graphs are the most appropriate method of representing data collected over time (Reasoning) o describe changes in the dependent variable over time, e.g. describe changes in carbon pollution over time (Communicating) o suggest reasons for changes in the dependent variable over time with reference to relevant world or national events, e.g. describe the change in population of Australia over time with respect to historical events (Reasoning) - interpret data displays representing two or more dependent numerical variables against time, e.g. compare the daily food intake of different countries over time
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New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Resource title: Should I drink bottled water?

Year level: 7

Key learning areas: Science

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 8)

Student learnings: Research, identify and discuss the rights and responsibilities of consumers in a range of 'real-life' contexts
Analyse and explain the range of factors affecting consumer choices

Dimension: Competence (Year 8)

Student learnings: Justify the selection of a range of goods and services in a variety of 'real-life' contexts

Dimension Responsibility and enterprise (Year 8)

Student learnings: Explain how individual and collective decisions may have an impact on the broader community and/or the environment
Apply consumer and financial knowledge and skills in relevant class and/or school activities such as student investigations, charity fundraising, product design and development, business ventures and special events
Apply informed and assertive consumer decision-making in a range of 'real-life' contexts
Demonstrate awareness that family, community and socio-cultural values and customs can influence consumer behaviour and financial decision-making

Note: The framework is organised in 2 year intervals, so the Learnings for Year 8 are applicable to Year 7.

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Stage 4 Stage Statements: This unit of work contributes to the following stage statements for Stage 4 (highlighted)

SCIENCE

By the end of Stage 4 students use scientific inquiry by actively engaging in using and applying the processes of Working Scientifically. They identify questions and problems that they can test or research scientifically. They select and use appropriate strategies, understanding and skills to generate creative plausible solutions to identified problems. Individually and collaboratively they plan and conduct a range of types of first-hand investigations, including fieldwork and controlled experimental methods, ensuring that fairness, safety and ethical guidelines are followed.

Students process and analyse data and information from first-hand investigations and secondary sources to identify trends, patterns and relationships, drawing relevant, evidence-based conclusions. They reflect on how the methods, strategies used and the quality of data obtained could be improved. Their ideas, methods and findings are communicated to a given audience using appropriate scientific language, representations and text types, with information sources acknowledged using a recognised method.

By engaging in scientific inquiry, students develop their knowledge of and about science ideas and concepts, as well as the nature, development and importance of scientific evidence. They explain how scientific knowledge changes as new discoveries and technological developments are made available, appreciating that new evidence leads to an improved understanding of the world.

Students describe the action of unbalanced forces on the motion of objects in everyday situations, including the Earth's gravity. They discuss how developments in scientific knowledge and technology have contributed to finding solutions to problems involving the use of energy transfers and transformations in simple systems and how the solutions may impact on other areas of society.

Students relate the structure and function of living things to their classification, survival and reproduction. They predict the effects of environmental changes on ecosystems and how scientific understanding influences the development of some management practices. They explain the contribution and influence of scientific knowledge and technological advances in finding solutions to contemporary issues and that these solutions may involve ethical considerations.

Students describe the dynamic nature of models, theories and laws in developing scientific understanding of the Earth, solar system and observed properties and behaviour of matter. They describe processes occurring in and on the Earth and the time scales involved, as well as situations where understanding and skills from across the disciplines of Science are used in exploration for resources and obtaining and processing of materials. They explain how advances in scientific understanding influence the choices people make about resource use and management practices in shaping sustainable futures.

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Australian Curriculum	NSW syllabus	
SCIENCE	SCIENCE	CONTENT
<p>Strand Science understanding</p> <p>Sub-strand Chemical sciences</p> <p>Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)</p>	<p>Knowledge and Understanding: Chemical World</p> <p>Describes the observed properties and behaviour of matter, using scientific models and theories about the motion and arrangement of particles (SC4-16CW)</p> <p>Explains how scientific understanding of, and discoveries about, the properties of elements, compounds and mixtures relate to their uses in everyday life (SC4-17CW)</p>	<p>Students:</p> <p>CW3: Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques (ACSSU113)</p> <ul style="list-style-type: none"> – describe the importance of water as a solvent in daily life, industries and the environment – describe aqueous mixtures in terms of solute, solvent and solution – relate a range of techniques used to separate the components of some common mixtures to the physical principles involved in each process, including filtration, decantation, evaporation, crystallisation, chromatography and distillation – investigate the application of a physical separation technique used in everyday situations or industrial processes, e.g. water filtering, sorting waste materials, extracting pigments or oils from plants, separating blood products or cleaning up oil spills – research how people in different occupations use understanding and skills from across the disciplines of Science in carrying out separation techniques
<p>Strand Science understanding</p> <p>Sub-strand Earth and space science</p> <p>Water is an important resource that cycles through the environment (ACSSU222)</p>	<p>Knowledge and Understanding: Earth and Space</p> <p>Models, theories and laws in developing scientific understanding of the Earth and solar system (SC4-12ES)</p> <p>Explains how advances in scientific understanding of processes that occur within and on the Earth, influence the choices people make about resource use and management (SC4-13ES)</p>	<p>Students:</p> <p>ES4: Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management (ACSHE121, ACSHE136)</p> <ul style="list-style-type: none"> – identify that water is an important resource that cycles through the environment (ACSSU222)
<p>Strand Science as a human endeavour</p> <p>Sub-strand Use and influence of science</p> <p>Science and technology contribute to finding solutions to a range of</p>	<p>Knowledge and Understanding: Physical World</p> <p>Describes the action of unbalanced forces in everyday situations (SC4-10PW)</p> <p>Discusses how scientific understanding and technological developments have contributed to</p>	<p>Students:</p> <p>PW4: Science and technology contribute to finding solutions to a range of contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE120, ACSHE135)</p>

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<p>contemporary issues; these solutions may impact on other areas of society and involve ethical considerations (ACSHE 120)</p>	<p>finding solutions to problems involving energy transfers and transformations (SC4-11PW)</p>	
<p>Strand Science inquiry skills Sub-strand Evaluating Use scientific knowledge and findings from investigations to evaluate claims (ACSIS132)</p>	<p>Skills: Working Scientifically (Skills) selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems (SC4-8WS)</p>	<p>Students: <i>WS8</i> Students solve problems by:</p> <ul style="list-style-type: none"> - describing different strategies that could be employed to solve an identified problem with a scientific component - using scientific knowledge and findings from investigations to evaluate claims (ACSIS132,ACSIS234) - using cause and effect relationships to explain ideas and findings - evaluating the appropriateness of different strategies for solving an identified problem

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New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Resource title: Light up the globe!

Year level: 8

Key learning areas: Science

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 8)

Student learnings: Analyse and explain the range of factors affecting consumer choices

Dimension: Competence (Year 8)

Student learnings: Use a range of methods and tools to keep financial records in 'real-life contexts'

Justify the selection of a range of goods and services in a variety of 'real-life' contexts

Identify and explain marketing strategies used in advertising and social media to influence consumer decision-making

Dimension Responsibility and enterprise (Year 8)

Student learnings: Apply informed and assertive consumer decision-making in a range of 'real-life' contexts

Discuss the legal and ethical issues associated with advertising and providing goods and services to consumers

Apply consumer and financial knowledge and skills in relevant class and/or school activities such as student investigations, charity fundraising, product design and development, business ventures and special events

New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Stage 4 Stage Statements: This unit of work contributes to the following stage statements for Stage 4 (highlighted)

SCIENCE

By the end of Stage 4 students use scientific inquiry by actively engaging in using and applying the processes of Working Scientifically. They identify questions and problems that they can test or research scientifically. They select and use appropriate strategies, understanding and skills to generate creative plausible solutions to identified problems. Individually and collaboratively they plan and conduct a range of types of first-hand investigations, including fieldwork and controlled experimental methods, ensuring that fairness, safety and ethical guidelines are followed.

Students process and analyse data and information from first-hand investigations and secondary sources to identify trends, patterns and relationships, drawing relevant, evidence-based conclusions. They reflect on how the methods, strategies used and the quality of data obtained could be improved. Their ideas, methods and findings are communicated to a given audience using appropriate scientific language, representations and text types, with information sources acknowledged using a recognised method.

By engaging in scientific inquiry, students develop their knowledge of and about science ideas and concepts, as well as the nature, development and importance of scientific evidence. They explain how scientific knowledge changes as new discoveries and technological developments are made available, appreciating that new evidence leads to an improved understanding of the world.

Students describe the action of unbalanced forces on the motion of objects in everyday situations, including the Earth's gravity. They discuss how developments in scientific knowledge and technology have contributed to finding solutions to problems involving the use of energy transfers and transformations in simple systems and how the solutions may impact on other areas of society.

Students relate the structure and function of living things to their classification, survival and reproduction. They predict the effects of environmental changes on ecosystems and how scientific understanding influences the development of some management practices. They explain the contribution and influence of scientific knowledge and technological advances in finding solutions to contemporary issues and that these solutions may involve ethical considerations.

Students describe the dynamic nature of models, theories and laws in developing scientific understanding of the Earth, solar system and observed properties and behaviour of matter. They describe processes occurring in and on the Earth and the time scales involved, as well as situations where understanding and skills from across the disciplines of Science are used in exploration for resources and obtaining and processing of materials. They explain how advances in scientific understanding influence the choices people make about resource use and management practices in shaping sustainable futures.

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Australian Curriculum	NSW syllabus	
SCIENCE	SCIENCE	CONTENT
<p>Strand Science understanding</p> <p>Sub-strand Physical sciences</p> <p>Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems (ACSSU155)</p>	<p>Knowledge and Understanding: Physical World</p> <p>Describes the action of unbalanced forces in everyday situations. (SC4-10PW)</p> <p>Discusses how scientific understanding and technological developments have contributed to finding solutions to problems involving energy transfers and transformations (SC4-11PW)</p>	<p>Students:</p> <p>PW3: Energy appears in different forms including movement (kinetic energy), heat and potential energy, and causes change within systems (ACSSU155)</p> <ul style="list-style-type: none"> – identify objects that possess energy because of their motion (kinetic) or because of other properties (potential) – describe the transfer of heat energy by conduction, convection and radiation, including situations in which each occurs – relate electricity with energy transfer in a simple circuit – construct and draw circuits containing a number of components to show a transfer of electricity – investigate some everyday energy transformations that cause change within systems, including motion, electricity, heat, sound and light
<p>Strand Science Inquiry Skills</p> <p>Sub-strand Planning and conducting</p> <p>In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (AC SIS141)</p>	<p>Working Scientifically (Skills): Problem Solving</p> <p>collaboratively and individually produces a plan to investigate questions and problems (SC4-5WS)</p>	<p>Students:</p> <p>WS5.3 Students choose equipment or resources for an investigation by:</p> <ul style="list-style-type: none"> – identifying suitable equipment or resources to perform the task, including safety equipment and digital technologies – selecting equipment to collect data with accuracy appropriate to the task (AC SIS126, AC SIS141)
<p>Strand Science Inquiry Skills</p> <p>Sub-strand Processing and analysing data and information</p> <p>Construct and use a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (AC SIS144)</p>	<p>Working Scientifically (Skills): Processing and Analysing Data and Information</p> <p>processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions (SC4-7WS)</p>	<p>Students:</p> <p>WS7.2 Students analyse data and information by:</p> <ul style="list-style-type: none"> – constructing and using a range of representations, including graphs, keys and models to represent and analyse patterns or relationships, including using digital technologies as appropriate (AC SIS129, AC SIS144) – identifying data which supports or discounts a question being investigated or a proposed solution to a problem <p>using scientific understanding to identify relationships and draw conclusions based on students' data or secondary sources (AC SIS130, AC SIS145)</p>

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<p>Strand Science Inquiry Skills</p> <p>Sub-strand Processing and analysing data and information</p> <p>Summarise data from students' own investigations and secondary sources, and use scientific understanding to identify relationships and draw conclusions (AC SIS145)</p>	<p>Working Scientifically (Skills): Processing and Analysing Data and Information</p> <p>processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions (SC4-7WS)</p>	
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New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Resource title: Could I live smaller?

Year level: 9

Key learning areas: English

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 10)

Student learnings: Discuss and compare different sources of consumer and financial advice

Dimension: Competence (Year 10)

Student learnings: Compare overall 'value' of a range of goods and services using IT tools and comparison websites as appropriate

Evaluate marketing claims, for example in advertising and social media, to influence consumers to purchase a range of goods and services

Dimension Responsibility and enterprise (Year 10)

Student learnings: Research and identify ethical and moral dimensions of consumer choices in specific circumstances and the consequences to themselves, their families, the broader community and/or the environment

Explore the economic cost of individual and collective consumer decisions on the broader community and the environment

Appreciate that there is often no one right answer in making financial decisions because these depend on individual circumstances, preferences and values

Demonstrate awareness that family and socio-cultural values and customs can influence consumer behaviour and financial decisions

Note: The framework is organised in 2 year intervals, so the Learnings for Year 10 are applicable to Year 9.

New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Stage 5 Stage Statements: This unit of work contributes to the following stage statements for Stage 5 (highlighted)

ENGLISH

By the end of Stage 5 students respond to and compose a comprehensive range of imaginative, factual and critical texts using different modes and technologies. They enjoy, reflect on, critically assess and articulate processes of response and composition. They respond to and compose a wide range of simple and complex texts for pleasure, critical analysis and information-gathering, varying their approach according to a text's purpose, audience and context. They focus on details of texts to analyse meaning, perspective, cultural assumptions, ideologies and language.

Students use varying technologies to compose texts. They apply their knowledge of the elements that shape meaning in texts. They use a range of strategies to shape their texts to address purpose and audience in different contexts. They conform to or challenge an audience's preconceptions and expectations about content and form, and they evaluate the effectiveness of each approach. Students display a developing personal style in their personal, imaginative, critical and analytical compositions. They work through the composing process, including planning, researching, drafting, conferencing, editing and publishing. Students reflect on their composing process and how it has affected the final version of their text.

Students respond to texts from different cultures that offer a range of perspectives. In considering possible meanings, they develop sustained interpretations supported by evidence and think creatively beyond the text. They infer and interpret, and investigate the similarities and differences between and among texts. Through close and wide engagement with texts students extend their imaginations and engage with images of their real and imagined worlds. They respond imaginatively and critically to verbal and visual imagery and iconography, considering how these and other features reflect the cultural context of the text. By critically evaluating texts, students identify strengths and weaknesses and are able to articulate coherent responses. From their responses to individual texts they generalise about views of the world and strategies that are used to communicate and sustain such views.

Students reflect on their own and others' learning, assessing learning strategies and purposes to adapt their knowledge, understanding and skills to new contexts.

New South Wales syllabus mapping to MoneySmart Teaching secondary resources

Australian Curriculum	NSW syllabus	
ENGLISH	ENGLISH	CONTENT
<p>Strand Literacy</p> <p>Sub-strand Interpreting, analysing, evaluating</p> <p>Interpret, analyse and evaluate how different perspectives of issue, event, situation, individuals or groups are constructed to serve specific purposes in texts (ACELY1742)</p>	<p>Objective A</p> <p>Through responding to and composing a wide range of texts and through the close study of texts, students will develop knowledge, understanding and skills in order to:</p> <p>A. communicate through speaking, listening, reading, writing, viewing and representing</p>	<p>Students:</p> <p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> – interpret, analyse and evaluate how different perspectives of issue, event, situation, individuals or groups are constructed to serve specific purposes in texts (ACELY1742)
<p>Strand Literacy</p> <p>Sub-strand Interacting with others</p> <p>Plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements for aesthetic and playful purposes (ACELY1741)</p>	<p>Objective A: Outcome 2</p> <p>Effectively uses and critically assesses a wide range of processes, skills, strategies and knowledge for responding to and composing a wide range of texts in different media and technologies (EN5-2A)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements to influence a course of action (ACELY1741)
<p>Strand Literacy</p> <p>Sub-strand Creating texts</p> <p>Create imaginative, informative and persuasive texts that present a point of view and advance or illustrate arguments, including texts that integrate visual, print and/or audio features (ACELY1746)</p>	<p>Objective A: Outcome 1</p> <p>Responds to and composes increasingly sophisticated and sustained texts for understanding, interpretation, critical analysis, imaginative expression and pleasure (EN5-1A)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – create sustained texts, including texts that combine specific digital or media content, for imaginative, informative, or persuasive purposes that reflect upon challenging and complex issues (ACELY1746)
<p>Strand Literacy</p> <p>Sub-strand Interpreting, analysing, evaluating</p> <p>Explore and explain the combinations of language and visual choices that</p>	<p>Objective A: Outcome 1</p> <p>Responds to and composes increasingly sophisticated and sustained texts for understanding, interpretation, critical analysis, imaginative expression and pleasure (EN5-1A)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – explore and explain the combinations of language and visual choices that authors make to present information, opinions and perspectives in different texts (ACELY1745)

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authors, make to present information, opinions and perspectives in different texts (ACELY1745)		
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Resource title: Teens Talk Money

Year level: 10

Key learning areas: English

National Consumer and Financial Literacy Framework

Dimension: Knowledge and understanding (Year 10)

Student learnings: Discuss and compare different sources of consumer and financial advice

Dimension: Competence (Year 10)

Student learnings: Compare overall 'value' of a range of goods and services using IT tools and comparison websites as appropriate

Evaluate marketing claims, for example in advertising and social media, to influence consumers to purchase a range of goods and services

Dimension Responsibility and enterprise (Year 10)

Student learnings: Research and identify ethical and moral dimensions of consumer choices in specific circumstances and the consequences to themselves, their families, the broader community and/or the environment

Explore the economic cost of individual and collective consumer decisions on the broader community and the environment

Appreciate that there is often no one right answer in making financial decisions because these depend on individual circumstances, preferences and values

Demonstrate awareness that family and socio-cultural values and customs can influence consumer behaviour and financial decisions

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Stage 5 Stage Statements: This unit of work contributes to the following stage statements for Stage 5 (highlighted)

ENGLISH

By the end of Stage 5 students respond to and compose a comprehensive range of imaginative, factual and critical texts using different modes and technologies. They enjoy, reflect on, critically assess and articulate processes of response and composition. They respond to and compose a wide range of simple and complex texts for pleasure, critical analysis and information-gathering, varying their approach according to a text's purpose, audience and context. They focus on details of texts to analyse meaning, perspective, cultural assumptions, ideologies and language.

Students use varying technologies to compose texts. They apply their knowledge of the elements that shape meaning in texts. They use a range of strategies to shape their texts to address purpose and audience in different contexts. They conform to or challenge an audience's preconceptions and expectations about content and form, and they evaluate the effectiveness of each approach. Students display a developing personal style in their personal, imaginative, critical and analytical compositions. They work through the composing process, including planning, researching, drafting, conferencing, editing and publishing. Students reflect on their composing process and how it has affected the final version of their text.

Students respond to texts from different cultures that offer a range of perspectives. In considering possible meanings, they develop sustained interpretations supported by evidence and think creatively beyond the text. They infer and interpret, and investigate the similarities and differences between and among texts. Through close and wide engagement with texts students extend their imaginations and engage with images of their real and imagined worlds. They respond imaginatively and critically to verbal and visual imagery and iconography, considering how these and other features reflect the cultural context of the text. By critically evaluating texts, students identify strengths and weaknesses and are able to articulate coherent responses. From their responses to individual texts they generalise about views of the world and strategies that are used to communicate and sustain such views.

Students reflect on their own and others' learning, assessing learning strategies and purposes to adapt their knowledge, understanding and skills to new contexts.

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Australian Curriculum	NSW syllabus	
ENGLISH	ENGLISH	CONTENT
<p>Strand Literacy</p> <p>Sub-strand Creating Literature</p> <p>Create imaginative texts that make relevant thematic and inter-textual connections with other texts (ACELT1644)</p>	<p>Objective C</p> <p>Through responding to and composing a wide range of texts and through the close study of texts, students will develop knowledge, understanding and skills in order to:</p> <p>C. think in ways that are imaginative, creative, interpretive and critical</p> <p>Objective C: Outcome 6</p> <p>Investigates the relationships between and among texts (EN5-6C)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – create imaginative texts that make relevant thematic and intertextual connections with other texts (ACELT1644, ACELT1773)
<p>Strand Literacy</p> <p>Sub-strand Interacting with others</p> <p>Identify and explore the purposes and effects of different text structures and language features of spoken texts, and use this knowledge to create purposeful texts that inform, persuade and engage (ACELY1750)</p>	<p>Objective A</p> <p>Through responding to and composing a wide range of texts and through the close study of texts, students will develop knowledge, understanding and skills in order to:</p> <p>A. communicate through speaking, listening, reading, writing, viewing and representing</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – identify and explore the purposes and effects of different text structures and language features of spoken texts, and use this knowledge to create purposeful texts that inform, persuade and engage (ACELY1740, ACELY1750)
<p>Strand Literacy</p> <p>Sub-strand Interpreting, analysing, evaluating</p> <p>Explore and explain the combinations of language and visual choices that authors, make to present information, opinions and perspectives in different texts (ACELY1745)</p>	<p>Objective A: Outcome 1</p> <p>Responds to and composes increasingly sophisticated and sustained texts for understanding, interpretation, critical analysis, imaginative expression and pleasure (EN5-1A)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – explore and explain the combinations of language and visual choices that authors make to present information, opinions and perspectives in different texts (ACELY1745)
<p>Strand Literacy</p> <p>Sub-strand Interpreting, analysing, evaluating</p> <p>Plan, rehearse and deliver</p>	<p>Objective A: Outcome 2</p> <p>Effectively uses and critically assesses a wide range of processes, skills, strategies and knowledge for responding to and composing a wide range of texts</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – plan, rehearse and deliver presentations, selecting and sequencing appropriate content and multimodal elements to

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<p>presentations, selecting and sequencing appropriate content and multimodal elements to influence a course of action (ACELY1751)</p>	<p>in different media and technologies (EN5-2A)</p>	<p>influence a course of action (ACELY1741, ACELY1751)</p>
<p>Strand Literacy</p> <p>Sub-strand Creating texts</p> <p>Create sustained texts, including texts that combine specific digital or media content, for imaginative, informative, or persuasive purposes that reflect upon challenging and complex issues (ACELY1756)</p>	<p>Objective A: Outcome 1</p> <p>Responds to and composes increasingly sophisticated and sustained texts for understanding, interpretation, critical analysis, imaginative expression and pleasure (EN5-1A)</p>	<p>Students:</p> <p>Respond to and compose texts</p> <ul style="list-style-type: none"> – create sustained texts, including texts that combine specific digital or media content, for imaginative, informative, or persuasive purposes that reflect upon challenging and complex issues (ACELY1746, ACELY1756)
<p>Strand Literacy</p> <p>Sub-strand Creating texts</p> <p>Review, edit and refine students' own and others' texts for control of content, organisation, sentence structure, vocabulary, and/or visual features to achieve particular purposes and effects (ACELY1757)</p>	<p>Objective A: Outcome 2</p> <p>Effectively uses and critically assesses a wide range of processes, skills, strategies and knowledge for responding to and composing a wide range of texts in different media and technologies (EN5-2A)</p>	<p>Students:</p> <p>Understand and apply knowledge of language forms and features</p> <ul style="list-style-type: none"> – review, edit and refine students' own and others' texts for control of content, organisation, sentence structure, vocabulary, and/or visual features to achieve particular purposes and effects (ACELY1747, ACELY1757)
<p>Strand Language</p> <p>Sub-strand Language for Interaction</p> <p>Understand that people's evaluations of texts are influenced by their value systems, the context and the purpose and mode of communication (ACELA1565)</p>	<p>Objective D</p> <p>Through responding to and composing a wide range of texts and through the close study of texts, students will develop knowledge, understanding and skills in order to:</p> <p>D: express themselves and their relationships with others and their world</p> <p>Objective A: Outcome 7</p> <p>Understands and evaluates the diverse ways texts can represent personal and public worlds (EN5-7D)</p>	<p>Students:</p> <p>Develop and apply contextual knowledge</p> <ul style="list-style-type: none"> – understand that people's evaluations of texts are influenced by their value systems, the context and the purpose and mode of communication (ACELA1565)