# Sample Unit – Mathematics Life Skills –Years 9–12

*This sample unit illustrates the delivery of the Mathematics Life Skills Years 7–10 course and the Mathematics Life Skills Stage 6 course in a multi-stage class. The Mathematics Life Skills Stage 6 Syllabus mapped to this sample unit is for implementation from 2018.*

|  |  |  |  |
| --- | --- | --- | --- |
| Unit title | Measuring and Me | Duration | 10 weeks (25 hours) |
| Unit description | In this unit, students will address outcomes related to Measurement from both the Years 7–10 Mathematics Life Skills course and the Mathematics Life Skills Stage 6 Syllabus for delivery in a multi-stage class. They will apply the theory and practice of measurement in real-life contexts to make a range of measurements about themselves and their environment. Students will engage in a range of projects focused on solving measurement problems in everyday contexts. Through this unit students will develop knowledge, understanding and skills that will enable them to participate independently in present and future contexts. | | |
| Strand(s) and topic(s) | Years 7–10:  Strand: Measurement and Geometry  Substrands: Time, Measurement  Stage 6:  Topic: Measurement  Subtopics: Everyday Measurement, Measuring Two-Dimensional and Three-Dimensional Shapes | | |
| Outcomes **Years 7–10**  MALS-23MG calculates and measures time and duration in everyday contexts  MALS-25MG estimates and measures in everyday contexts  MALS-26MG recognises and uses units to estimate and measure length  MALS-27MG selects and uses units to estimate and measure mass  MALS-28MG selects and uses units to estimate and measure volume and capacity  MALS-29MG applies formal units to estimate and calculate area  **Stage 6**  MALS6-1 explores mathematical concepts, reasoning and language to solve problems  MALS6-3 engages with appropriate tools, units and levels of accuracy in measurement  MALS6-4 explores contexts of everyday measurement  MALS6-13 engages with mathematical skills and techniques, including technology, to investigate, explain and organise information  MALS6-14 communicates mathematical ideas and relationships using a variety of strategies | | | |
| Assessment overview Evidence of student learning could be gathered through:   * teacher observations, both formal and informal, of students’ participation in class activities and communication of their understanding * practical assessments of students’ skills in using and reading measurement devices accurately * activities involving conversions between measuring units, such as quizzes, practical tasks or online interactive activities * students’ personal measurement portfolios * students’ presentations or results from the Measuring My Food project, measurement problem solving tasks or projects.   Note: There is no expectation for formal assessment experiences for Life Skills courses. | | | |

| Content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| **Years 7–10**   * recognise attributes that can be measured, eg length, temperature, mass, volume, capacity, area * recognise the language associated with attributes of length, temperature, mass, volume, capacity and area * recognise the appropriate device for measuring attributes of length, temperature, mass, volume and capacity https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * recognise the appropriate unit, and its abbreviation, for measuring length, eg centimetre (cm), metre (m), kilometre (km) https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise the appropriate unit, and its abbreviation, for measuring capacity, eg millilitre (mL), litre (L) https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise the appropriate unit, and its abbreviation, for measuring mass, eg gram (g), kilogram (kg) https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise the appropriate unit, and its abbreviation, for measuring area, eg square centimetre (cm2), square metre (m2) https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX   **Stage 6**   * use units of time and their abbreviations, for example hr, min * recognise metric units of length, their abbreviations and conversions between them * recognise appropriate units and devices to measure lengths https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * recognise metric units of mass, their abbreviations and conversions between them https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise appropriate units and devices to measure mass https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * recognise the unit °C and its abbreviation * recognise metric units of area, their abbreviations and conversions between them * recognise appropriate units and devices to measure volume https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * recognise metric units of volume, their abbreviations and conversions between them * recognise metric units of capacity, their abbreviations and conversions between them https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise appropriate units and devices to measure capacity https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * recognise the concept of capacity and how it relates to volume https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX | **Measurement overview**  Students undertake a review of measurement to consolidate their knowledge, understanding and skills.  Brainstorm – what can we measure?   * time * length * temperature * mass * volume & capacity * area.   For each of these, students give examples of where they might use the measurement in their everyday lives. For example, ‘I measure time at swimming training’, ‘I measure length when I cut fabric in my Textiles class’, ‘I measure weight when I am cooking’.  Students list or match the tools and units used to make a range of measurements. They should practise using the devices, focusing on using the zero correctly and reading the measurement to the desired degree of accuracy.  Review of time   * Time can be measured with clocks and watches (digital and analog), stopwatches, timers, calendars (print and digital). * Note that many students use their phones for measuring time. * Typical units of time range from seconds to millennia. * Unit conversions are non-standard and will likely need to be made with a calculator. * If appropriate, students can explore more extreme units such as nanoseconds or eons.   Review of length   * Length can be measured with rulers, metre rules, tape measures, electronic devices, calipers, trundle wheels, odometer in car. * Typical units of length range from millimetres to kilometres.   Review of temperature   * Temperature is measured with thermometers – there are different scales depending on the purpose of the thermometer. Students can look at body thermometers, pool thermometers, cooking thermometers, weather thermometers and so on to compare them. * Temperature in Australia is usually measured in degrees Celsius (, but other places use Fahrenheit (). Students can briefly consider the relationship between the Fahrenheit and Celsius scales, just for understanding.   Review of mass   * Mass is measured with a range of balances or scales, including beam balances, kitchen scales, bathroom scales, spring balances. * Typical units of mass range from milligrams to tonnes.   Review of capacity and volume   * Capacity can be measured with measuring spoons, cups, jugs or cylinders. * Typical units of capacity range from millilitres to kilolitres. * Volume is often used interchangeably with capacity, but if appropriate, students can be made aware that technically the units of volume are cubic units, such as cm3 or m3. * Students can ‘measure’ some volumes with centicubes or by counting cubes, or can calculate volumes if appropriate.   Review of area   * Area can be measured using a grid to count squares or calculated if appropriate. * Typical units of area are squared units, such as cm2, m2.   For some students it may be possible to work with conversions between units, using a calculator if desired. Students can be made aware that for most of the measurement units, the conversions are related to powers of ten, although not for time units.  Students create a classroom display of measurement words, tools and/or units to consolidate their learning throughout the topic. | A range of measuring devices, such as:   * clocks, watches and timers * calendars * rulers and tape measures * electronic measuring devices * calipers * trundle wheels * thermometers * scales and balances * measuring spoons, cups, jugs and cylinders * grid paper * centicubes   BBC KS3 Bitesize: Measures  [http://www.bbc.co.uk/bitesize/ks3/maths/measures/](http://www.bbc.co.uk/bitesize/ks3/maths/measures/%20) has a range of activities and online tests on different aspects of measurement  Scootle interactive measurement activities: *The Metrix*  [www.scootle.edu.au](http://www.scootle.edu.au)  These activities focus on unit conversions |
| **Years 7–10**   * measure and calculate the time taken for a variety of activities or events, eg use a stopwatch to time a race * select and use the appropriate unit and device for measuring length, eg measure the heights of students in the class using a metre ruler and record the results in a table https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * estimate the lengths of everyday objects and check using a measuring device, eg estimate the length of a room and check using a measuring tape https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring mass, eg weigh a piece of steak using kitchen scales and record the weight for a recipe https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * estimate the mass of everyday objects and check using a measuring device, eg estimate the weight of a soccer ball and check using scales https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring volume and capacity, eg a medicine glass for medicine, measuring cups for recipes https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * estimate the capacities of everyday objects and check using a measuring device, eg estimate the capacity of a bucket and check using a measuring jug https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring area, eg measure area using a grid overlay https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * estimate the areas of everyday objects and check using a measuring device, eg estimate the area of the classroom and check with a tape measure and calculations https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit   **Stage 6**   * measure the time taken for various events * estimate and measure passage of time using a range of devices including stopwatches and personal devices, for example how long it takes to cook a meal, play a sport, complete a task at work https://lh6.googleusercontent.com/WSefKq_SVlkCAk8JjIg-pKyEHoJ9mbq8vmhjNlaSXq0PM2NXsYXw6HhprbvvU0SC_O7S7pZxOTygyLn98r1oPNm-O5E79mQsI6M1JEU8xlv8c6iKp1oIe6_2wgLfuojrK4cfjYe5 https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * explore simple rates related to time, for example speeds measured in kilometres per hour * estimate and measure lengths using a range of devices in everyday situations * measure masses with a requested degree of accuracy, for example cooking ingredients to the nearest gram when following a recipe * estimate and measure temperatures using a range of devices https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * estimate and compare areas of shapes, for example bread plates and dinner plates https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * measure capacity with a requested degree of accuracy, for example measure cough syrup to the nearest millilitre | **Measuring myself**  Students undertake a range of personal measurements to create a personal portfolio, Measuring Myself. This can take the form of a booklet, art diary, poster or an electronic format. The portfolio could include photographs, drawings, video to accompany the measurements they make, and can be shared with others as appropriate.  Students make and record a range of measurements as appropriate to their skills and interests. Some suggestions are included below.  Measuring times   * Students record times for specific activities. For example, display on clock faces the time they need to be at school, go home, or go to bed. * Students time specific activities. For example, they can measure the time they take to move from one side of the school to the other, write their name, or eat their lunch. * Students record significant dates for themselves and/or the class on a calendar. * Students express their age in years, or months, or days. * Students count or calculate the number of days until their next birthday. * Students calculate their walking/running/travelling speed by measuring the time it takes them to travel a distance, measuring the distance, and then using the formula to calculate speed (S = dt).   Measuring lengths   * Students measure a range of lengths on their body and record them in a table or other graphic form (note: teachers may need to specify appropriate body parts to measure). For example, they could measure their height, foot length, hand span. There is potential to link these measurements to a discussion of early forms of measurement, when people used their feet and hands to measure things. Students could also brainstorm some more unusual measurements to make, like the length of their nose or the longest hair on their head. * If appropriate, students compare their measurements with others and calculate the average measurement of the class.   Measuring area   * Students measure the area of their hand or foot by counting squares on a grid and add this to their recording of personal measurements.   Measuring mass   * Students measure and record the mass of a familiar object, such as their schoolbag, their lunch or their equipment.   Measuring capacity   * Students measure and record their lung capacity using a displacement of water experiment. * Students measure and record their mouth capacity by filling their mouth with water from a measuring jug and measuring how much water was needed.   Measuring temperature   * Students measure their body temperature using a thermometer. They can take repeated measurements through the day to see if their temperature remains constant. * Students discuss the typical temperature of a healthy person and what happens when someone has a fever. | Depending on the form of the portfolio, resources such as art diaries, cardboard, art supplies, cameras, access to apps or web tools may be required  Clock faces  Stopwatches (including stopwatch apps)  Calendars  EasyCalculation.com for calculation of age, days between birthdays etc <https://www.easycalculation.com/date-day/age-calculator.php>  Tape measures, rulers  Grid paper  Scales  Glasgow Science Centre: Lung capacity  <http://www.glasgowsciencecentre.org/science-bites/lung-capacity.html>  Measuring jugs  Thermometers |
| **Years 7–10**   * recognise that some countries use different units of measurement https://lh6.googleusercontent.com/QmUUDpCHHd1O4cQuQwN_pYPiDcEwxUSf44vPN_dSsKUGevkiA_2LvcxrXplfujFbYuHzdIlZXZzszXxVxh37AvYAyfS58tvhyFivmWYElm8WsKq8xMozxqC3KhlHxYycI0nu7-99 * select and use the appropriate unit and device for measuring volume and capacity, eg a medicine glass for medicine, measuring cups for recipes https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring mass, eg weigh a piece of steak using kitchen scales and record the weight for a recipe https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit   **Stage 6**   * identify units of energy commonly used in relation to human or household energy and their abbreviations, for example kilojoules, calories, kilowatts https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX * recognise that kilojoules are used to describe the amount of energy gained when consuming food or drink https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * recognise that energy is expended during physical activity https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * measure masses with a requested degree of accuracy, for example cooking ingredients to the nearest gram when following a recipe * estimate and measure capacity using a range of devices including measuring jugs, medicine droppers, cups and spoons as appropriate, for example measure 1½ cups of milk for a pancake recipe and 1 teaspoon of vanilla essence https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit | **Measuring my food**  Students explore measurements through a range of food-related activities.  Students learn that the unit for measuring energy is the joule (J) and that we typically use the kilojoule (kJ) to measure the amount of energy contained in food. The government website 8700 Find Your Ideal Figure is an excellent source of information.  Students develop an understanding of the following:   * Kilojoules (kJ) is the Australian measure of how much energy a person gets from consuming a food or drink. * We also use kJ to measure the energy we use up doing certain activities. * In some countries (and on some foods) the measure of energy used is the calorie; 1 kJ is approximately 0.2 calories, 1 calorie is approximately 4.2kJ. Students can use online converters if appropriate. (There is one on the Find Your Ideal Figure website.) * Balancing kJ consumed and kJ used is important for maintaining health; so if a person consistently consumes more kJ than they use they would typically increase their weight, and vice versa. * The number of kJ a person should consume is related to a range of things, including a person’s height, weight, body composition, health status and gender as well as the amount and type of activity they typically do in a day. * The number of kJ in different food or drinks varies greatly.   Student activities to explore kilojoules could include:   * Using the Find Your Ideal Figure website to determine the approximate number of kJ they need for a healthy diet, based on their own personal characteristics. * Reading nutrition panels on foods to find out the number of kJ they have per serve or per 100g. * Measuring one serve or 100g of some foods to see how much it is. * Ordering foods by the number of kJ they have per 100g. * Estimating or discovering the number of kJ in some common foods. * Calculating the kJ in a meal or recipe based on the ingredients. * Exploring tables or online calculators to see how many kJ are typically used doing certain activities for a given duration, or how long you need to do a given activity to burn a number of calories.   Students carry out a *Measuring my Food* project, where they complete and record a range of measurement activities in a related sequence.  For example, students could:   * decide on a recipe to prepare * investigate or calculate the number of kJ it will contain per serve * prepare (or help prepare) the recipe, making all of the measurements that are required such as weighing out grams, measuring cups, spoons or millilitres, setting the temperature on the oven, timing cooking or preparation * estimate and/or calculate the cost of the total recipe or per serve * estimate the amount of activity they would need to do to use up the kJ they have just consumed by eating the meal.   Students can present their results in a number of ways, such as an oral, visual or electronic presentation, a written, drawn, photographed or recorded project record, or a showcase or sharing of the food(s) prepared. | Find Your Ideal Figure  [www.8700.com.au](http://www.8700.com.au/)  Nutrition panels from a range of foods  Find Your Ideal Figure  [http://www.8700.com.au/kj-in-food/](http://www.8700.com.au/kj-in-food/search-foods/)  <http://www.8700.com.au/balance-and-burn/how-to-burn-your-kjs/>  Recipes and ingredients  Access to kitchen facilities and/or cooking equipment |
| **Years 7–10**   * apply an understanding of the passage of time to plan or participate in a range of activities or events https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * locate special days and events on a calendar, eg ‘Anzac Day is the 25th of April’ https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL https://lh4.googleusercontent.com/1USu359LjcFWOcrFTTaaPyar5ziAbgBK4YgcvVNZjq9tNN_yY6N2dCKeDZ8TPElxnPrBaXtJRbmqUzMD5RBEY5vDcbB5AA5OIPpbjtXM7uwPL7K0r2r7nOvihVdzsVpZfI2I-BTl * recognise that calendars are used to plan events and activities, eg the school term plan in the newsletter, coming events in the newspaper https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * measure and calculate the time taken for a variety of activities or events, eg use a stopwatch to time a race * make choices and decisions about activities on the basis of time available, eg ‘I can’t make that movie because I have training at that time’ https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * select and use the appropriate unit and device for measuring length, eg measure the heights of students in the class using a metre ruler and record the results in a table https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring mass, eg weigh a piece of steak using kitchen scales and record the weight for a recipe https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring volume and capacity, eg a medicine glass for medicine, measuring cups for recipes https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit * select and use the appropriate unit and device for measuring area, eg measure area using a grid overlay https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit   **Stage 6**   * solve problems involving length, for example buying curtains for a window that is 1.2 m wide * solve problems involving mass * solve problems involving area and surface area, for example buying a large enough can of paint to cover the area https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL * solve problems involving volume * solve problems involving capacity * use calendars and planners to identify and relate times, dates, months and special occasions * use and interpret time to plan travel * apply knowledge of temperature to make judgements or decisions, for example a weather prediction of 13°C will mean they should wear warm clothes https://lh6.googleusercontent.com/EdvWh_GyIWeWkoGzdGdG9BqJEgLeSCWG-ycm_Ma_NHT-SdquLmMhWNsXEBePNJdnyi80i2boeVBa6HKHOXPlb8dY9U3FQdu17gGxh2NIB93Ce9_NblFf7MPQ2sow38VEV8vn-tit https://lh5.googleusercontent.com/BaJe4_V7hOW-x1HTRBokL9dorYjTQQgjMCbVGhKlu6CWHO5webOqzPU3bIjnWKgc3mzujAsVntcPnKGg-HNd2P-f3MAD774pepFCOCtzf75c-reGcSd0KVsUdipv0YdLCTfxlVKX https://lh5.googleusercontent.com/Rxtd35_bD9NYVAYTpCQ-l7NjzMfiyFajA_6a4YcahraxXOTfH4tnHYhUexf1uMPSXbOwgmNnpyg5qdPeM0mzCxt4kZSRo3k71lpcoUKMsqqj_fEDdSEoLDDRM41ErrQUfCaz07YL | **Measuring in my environment**  Students undertake a measurement project within a real life context.  This is an opportunity to embark on some Project Based Learning (PBL) where students are given an open-ended driving question and investigate, research, collaborate and present their conclusions.  Some examples of problems that students can explore include:   * *What do we actually do all day?* By calculating times they spend on a range of activities, students could determine what activities they spend the most time doing and make some sort of representation of their day in times. * *When would be the best time to run an ice-cream stall at school?* Students would need to look at available dates on the school calendar, dates of significance to them as a group, expected temperatures and times of day and decide what time and day might be best. * *What sort of clothes should we have in our wardrobes?* Considering the typical temperature of their local area in different seasons, students could design or select a wardrobe of appropriate clothing, or decide what they will need to buy or wear for school or at home. * *How do we compare to record holders?* Students can research a range of records, both serious and frivolous, and use measurements to compare the records to themselves. For example, they could find the speed of the current world-record holder for an Olympic or Paralympic event and compare the group’s times to this. Students could investigate amazing lengths such as the height of the world’s tallest person or the length of the world’s longest fingernails and make comparisons using measurements of themselves. * *What will I eat this week to maintain a healthy weight?* Students can take into consideration a range of issues to develop an ideal menu for themselves for a week/day. How many kilojoules are in different foods available at the school canteen, how many kilojoules do their typical or preferred activities use up, what do they prefer to eat and how much (consider capacities, masses, serving sizes) would all be examples of things they may explore. * *What size schoolbag is ideal for high-school students?* Students could consider the mass and capacity of a range of schoolbags and investigate the mass and volume of the things that students typically have to bring to school. Students might need to work out things like the minimum size or maximum mass of their schoolbag. * *How much space does each person get in our classroom?* This might involve students measuring lengths, area and/or volume of the classroom and relating it to each individual. * *What would it cost to give our classroom a makeover?* By making a range of measurements and calculations of things, eg the area of the walls for repainting, the length of the windows for curtaining or the volume of the room to calculate what size air conditioner is needed, students could work out a budget for a classroom makeover of their design. | NSW Department of Education  <https://education.nsw.gov.au/futures-learning/learning-and-teaching/project-based-learning-toolkit/introducing-project-based-learning> provides a comprehensive guide to implementing PBL  Coolmath-Games.com – Lemonade Stand  <http://www.coolmath-games.com/0-lemonade-stand> is a similar idea so might be a good hook to get students involved  Australian Government Bureau of Meteorology  [www.bom.gov.au/climate/data/index.shtml?bookmark=200](http://www.bom.gov.au/climate/data/index.shtml?bookmark=200) can be used to find climate data for specific areas  Guinness World Records  [www.guinnessworldrecords.com/](http://www.guinnessworldrecords.com/)  Official website of the Paralympic Movement  [www.paralympic.org/results](https://www.paralympic.org/results)  Olympic Games  [www.olympic.org/olympic-results](https://www.olympic.org/olympic-results) |

|  |
| --- |
| Reflection and evaluation |