What is it that we want our students to know, understand, do and communicate KUDCO?					
Year Level: Five	**Semester:** One	**Subject:** Maths	**Team Members:** Sarah Mason, Ann-Marie Sterjovski, Nathan Welsh		
Essential Learning What is the essential learning? Describe in student friendly vocabulary.	**Example-Rigor** What does proficient student work look like? Provide an example and/or description.	**Prior Skills Needed** What prior knowledge, skills and/or vocabulary are needed for a student to master this essential learning?	**Common Assessments** What assessment/s will be used to measure student mastery?	**When taught?** When will this essential learning be taught?	**Extension Skills** What will we do when students have already learned this essential learning?
Estimation: I can use estimation to predict a result and check whether my answer is reasonable. **Learning Targets:** I can explain why an answer is reasonable or not, using estimation. I can use a range of benchmarks and strategies according to the mathematical concept I am estimating.	I can use my mathematical knowledge to have a reasonable guess in all mathematical tasks. I can use prior knowledge and context of the problem to estimate more accurately I can use benchmarks applicable to the concept. I can explain why an answer is both reasonable or unreasonable.	Rounding Range What it can't be Guess, check, improve really thinking about what it could be. What are the benchmarks for different concepts. Number sense. Mental strategies - four operations.	Anecdotal notes from warm up activities. Students show their estimates for nearly all maths sessions - I.e. "Write the title, the date and your estimate".	Explicit teaching: T1, Weeks 4 - 6 as a minor Then continued throughout the year.	Continue to refine accuracy and apply this knowledge through problem solving and <u>explain reasoning of what it could and definitely can't be..</u> *For example* *"I know it can't be 58 degrees celsius because I know that is too hot for a Victorian temperature - most hot days are about 30-40 degrees celsius, and really hot days have got up to 46..."*

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<table>
<tr>
<td>Addition & Subtraction:
I can solve addition and subtraction problems, using the most efficient strategy.

Learning Targets:
I can:
Explain and justify my problem solving approach and answer.

Add or subtract a three digit number to/from a three digit number (ie: up to 4 digits).

Use estimation as a strategy to both predict my answer and check the reasonableness of my answer.</td>
<td>Students can solve a range of open and closed problems, in line with the outlined standard for their year level: https://acaraweb.blob.core.windows.net/curriculum/worksamples/Year_5_Mathematics_Portfolio_Satisfactory.pdf

Students can select most appropriate (ie: most efficient) strategy for the problem.

Students show a personal preference & fluency for one or more of the following written strategies:

<table><tr><th>Addition</th><th>Subtraction</th></tr><tr><td>Algorithm
Expanded
Split</td><td>Algorithm
Expanded
Split</td></tr></table>
Students can determine whether a worded problem requires addition or subtraction, using vocabulary, word clues and context.

Students can solve multi-stage problems</td>
<td>Understanding of Base 10 system - including renaming, up to 4 digits.
Conceptual knowledge of the 4 operations & recognition of the four operations' symbols.

Mental Facts/Strategies:
Partners to 10
Bridging
Known facts
Auto recall
Communitivity
Partitioning
Odd/Even numbers

Conceptual understanding & use of:
Part/Part/Whole

Written strategies:
Fluency with -
V strategy
Jump strategy on a numberline

Exposure to & practise with -
Expanded
Split

Solid understanding of the 'mathematician's</td>
<td>Team developed CFA

Conferencing/anecdotal notes

Mathletics
Assessments & assignments</td>
<td>T1 Weeks 4 - 6
Inclusive</td>
<td>Finding missing 'addends' or parts - algebraic thinking '

Addition/subtraction with decimals(to tenths)

Problem solving with complex multi-stages

Integers - real life problem solving (positive and negative)</td>
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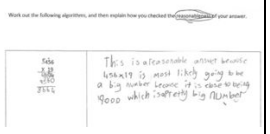
	Students demonstrate methodical and clear working out on the page, to show their thinking. Students use the four proficiencies to explain and justify their problem solving. Students use a calculator to check the accuracy of their answers.	**toolbox'** problem solving strategies Familiar with the **vocabulary** associated with the **four proficiencies** Ability to add			
Multiplication & Division: I can solve multiplication and division problems using the most efficient mental or written strategy. **Learning Target:** I can: Explain and justify my problem solving strategy and answer Divide a three digit number by a one digit number, including those that result in a remainder Multiply a three digit number by one or two digits.	Students can **select most appropriate** (ie: most efficient) strategy for the problem. Students can determine whether a **worded problem** requires multiplication or division, using vocabulary, word clues and context. Students show a personal preference & fluency for one or more of the following written strategies: **Multiplication** Split Grid (area model) Lattice Algorithm	Arrays Known facts Factors and Multiples Parts and Wholes Times tables Students understand the associative, commutative and distributive properties of multiplication and division. Fluency of timestable facts up to 10x10 and related division facts	Explain how you check your working out and answer:  CFA's as determined by the team and by intervention teachers as per need. (ACARA examples) Conferencing checklists Quick Check-In tasks	T1: w7- T2: w4	Solve more complex multi-step multiplication and division problems. Multiplication of decimal numbers. Division of whole numbers that result in a remainder.

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I can solve problems by identifying factors and multiples of a whole Inverse relationship	**Division** Partitioning Short Division Long Division I can apply the **associative, commutative and distributive laws** to to aid mental and written computation Students know what **factors, multiples** and **products** are. Students know what **prime and composite** numbers are in relation to the whole. Students use a calculator to check the reasonableness of their answers				
Decimals: Place Value Knowledge I can compare, order and represent decimal numbers to thousandths and beyond, using a variety of materials or strategies. **Learning Targets:** I can apply my decimal knowledge to real life	Recognise and represent (in models, numbers and words) decimal numbers **to thousandths** and beyond. eg 4.654 I can use the following strategies, in order to organise decimals and explain their relative size (Thinkboard): ● Models ● Numberlines ● Pattern sequences	Knowledge that a decimal number's value is less than one. Knowledge of decimal place value to tenths. Knowledge that zero is a place holder. How to use the "Greater Than", "Less Than" and "Equal To signs." ie:	Team designed CFA Mathletics tasks 1:1 conferences and checklists Exit Tickets - greater than/less than fractions and decimals. Numberline.		Explain the relationship between Decimals and Negative Numbers. Understand and apply large numbers written in abbreviated form. (1.2 Million = 1,200,000) Justify my thinking when ordering decimals.

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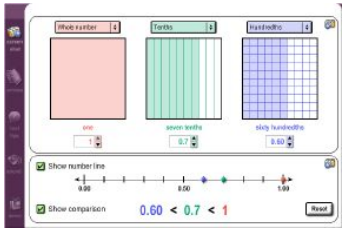
examples and problems, eg. measurement. I can order and compare a series of decimal numbers, according to their relative size. I can model, **read** and write decimal numbers to thousandths	 I understand that to compare and order decimals numbers I refer to their position after the decimal point. I can explain the significance of the Base 10 system and its role in extending the number system to thousandths and beyond. eg : Ten of 'these' create one of 'these'. Students understand that repeatedly dividing a number by 10 will extend it to beyond hundreds of thousandths: Eg: 4/10 = 0.4 0.4/10 = 0.04 0.04/10 = 0.004	Comparison symbols (>, < and =). Familiarity with everyday examples of decimal numbers (ie: money or time)			Four operations with decimal numbers
Angles I can estimate, measure and compare angles using degrees; and	I can use a protractor and digital technologies to measure and construct angles.	I know what an angle is. For every angle there is an related opposite angle.	CFA as determined by the team. (ACARA examples)	T2: w1-4	Demonstrate and use the knowledge that the angle sum of a quadrilateral is 360° -

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construct angles using a 360 degree protractor. **Learning Targets:** I can measure and draw specific angles with a protractor, to the nearest 1 degree I can use a variety of strategies to estimate the size of an angle. I can compare angles, using informal and formal measurements	I can estimate the size and type of everyday angles, using strategies such as: Comparing an unknown angle with a given angle Using known everyday angles Eg: That book shelf has a 90 degrees angle. Clockhands I can express which angle is bigger or smaller using the greater than > and less than < and = equal to symbols. I know the purpose of a real life angle (natural or constructed). Eg. Shape of roofs and plants..	Arms(Lines), Vertix A full rotation is 360 degrees. How to divide 360 into parts. Obtuse - >90 Acute - < 90 Straight - 180 Reflex - >180 Right - 90 Revolution I know that an angle is not relative to the size of an object. For example: The right angle on a piece of paper is the same as the right angle on a Bunnings Roof.	Rob V What is my Angle activity? Draw/create something and identify the angles and the size of them.		ie: in finding unknown angles Demonstrate and use the knowledge that the angle sum of a triangle is 180° - ie: in finding unknown angles Introduction to complementary and supplementary angles - application of this to problem solving. Apply knowledge of specific angles to problem solving questions.
Shapes & Nets: I can connect 3D shapes to their net and other 2D representations. **LEARNING TARGETS** I can visualise how a net of a 3D shape is made up of related 2D shapes. I can understand why things in the world are	I understand the relationship between and properties of 2 Dimensional & 3 Dimensional shapes. I can identify the number of faces, edges and vertices of a 2-dimensional perspective of a 3D-shape. Length Height Depth	Understanding and knowing the different dimensions: length, height, depth Knowing the property of 3D and 2D shapes.	CFA - Shape Quiz Targeted work samples - properties of shape -nets for shapes -perspectives Mathletics.	T2 W5-6	I can classify quadrilaterals (including rhombuses, parallelograms, kites and trapeziums) and all triangles based on their properties. I can

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shaped the way they are and for what purpose.					
Measurement: I know which units of measurement belong to each attribute and how to select the most appropriate unit when problem solving. **LEARNING TARGETS:** I can apply my understanding of measurement to solve real life problems. I can estimate and formally measure a variety of attributes, using a range of tools.	I can estimate, measure and solve problems involving the following attributes: We measure distance with metres. (milli**meters**, centi**metres**, **metres**, kilo**metres**...) Time Temperature Capacity Mass I can select the most **appropriate**, efficient, practical and accurate unit for the purpose. For example: -Measuring the football oval in meters, not cm. -km rather than m to measure the distance between two towns	I know that a variety of attributes can be measured. I can use a variety of measuring tools accurately. I can measure a variety of attributes, using informal I know common informal benchmarks, eg: A4 piece paper - 30cm Paperclip - 2g Knowledge of common conversions, eg: 1cm = 10mm 10cm = 0.1m		T2, W7 - W11	I can identify and use the correct operations when converting units including millimetres, centimetres, metres, kilometres, milligrams, grams, kilograms, tonnes, millilitres, litres, kilolitres and megalitres. Convert to the next unit of measurement, cm -> mm. e.g. Convert 1.5kg to g Convert 270m to cm
Using formulas to calculate measurements I can use formulas to calculate a range of measurements **LEARNING TARGET** I can apply formulas to solve real life problems	I can use formulas in a neat and accurate manner I know why and where such measurements are required. I can explain why the 'formulas' are reliable (reasoning). **Area & Perimeter -**	**Being able to add and multiply** **Understanding the concepts of area and perimeter** **Being able to multiply numbers**	Small formative assessment tasks - embedded in classroom tasks	T2, w8/9 - 11	I can: - estimate and use formal measurements to check - use the length to find the perimeter of quadrilaterals and triangles. - explain how shapes with the same

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I can calculate the volume and capacity of rectangular prisms. I can use a formula to calculate the area and perimeter of rectangles I can explain the difference between volume and capacity I can explain the difference between area and perimeter	I can show the formula: A = l x w P = 2 x (l + w) I know that area is measured in squared units - ie: cm^2 or m^2 I can explain why we use different units for perimeter and area **Volume & Capacity -** I can show the formula: V^3 = l × w × h C = l x w x h I know that **capacity** is measured in L/ml I know that **volume** is measured in cubic units - ie: cm^3/m^3	**Understanding the concept of volume** **I know 3D shapes and know simple prisms.**			perimeter can have different areas **More complex prisms.** Triangles: L x W x ½

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