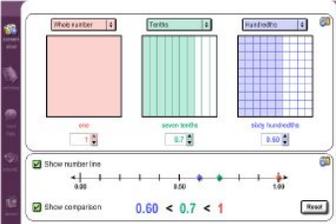


What is it that we want our students to know, understand, do and communicate KUDCO?					
Year Level: Six	Semester: One	Subject: Maths	Team Members: Katie McClue, Shane Collins, Craig Elliot, Linda Turner, Lisa Baker & Tom Penberthy		
Essential Learning What is the essential learning? Describe in student 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?
<p>Place Value I can recognise, represent and order numbers from thousandths to hundreds of thousands.</p> <p>Learning Targets: I can recognise & explain our number system as being 'Base 10'</p> <p>I can read, write and model whole numbers</p> <p>I can read, write and model decimal numbers</p> <p>I can rename both decimal and whole numbers efficiently and understand the purpose of this skill</p>	<p>WHOLE NUMBER PLACE VALUE Students can read, write and model numbers up to 7 digits.</p> <ul style="list-style-type: none"> → Standard Form → Written Form → Place Value Houses → Drawing diagrams → Expanded Form → MAB models <p>Students can rename numbers up to 6 digits, in multiple ways</p> <p>DECIMAL PLACE VALUE: Students can read, write and model decimal numbers to thousandths. eg 4.654</p> <ul style="list-style-type: none"> → Standard Form → Written Form → Place Value Houses → Drawing diagrams → Expanded Form → Decimal Squares or other model form 	<p>Whole Number: Order whole numbers</p> <p>Decimal Place Value: Knowledge that a decimal number's value is less than one.</p> <p>Knowledge of decimal place value to tenths.</p> <p>Knowledge that zero is a place holder.</p> <p>How to use the "Greater Than", "Less Than" and "Equal To signs." ie: Comparison symbols (>, < and =).</p> <p>Familiarity with everyday examples of decimal numbers (ie: money or time)</p>		<p>RTI focus, Term 1 Weeks 6 -9</p> <p>(would have commenced earlier, but due to camp are unable)</p>	<p>Complex Data set representations: Using estimation skills to determine percentages and decimals.</p>

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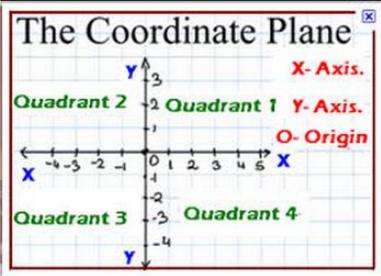
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<p>I can round whole numbers and decimals.</p>	<p>Students can use the following strategies, in order to organise decimals and explain their relative size (Thinkboard):</p> <ul style="list-style-type: none"> • Models • Numberlines • Pattern sequences  <p>I understand that to compare and order decimal numbers I refer to their position after the decimal point.</p> <p>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'.</p> <p>Students understand that repeatedly dividing a number by 10 will extend it to beyond hundreds of thousandths: Eg: $4/10 = 0.4$ $0.4/10 = 0.04$ $0.04/10 = 0.004$</p> <p>I understand that reading a decimal correctly will support my understanding of its size and how it connects to other number types.</p> <p>REAL LIFE LINKS: Data Money Time - Olympics Measurement & conversions (renaming flexibly)</p>				
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<p>Four Operations I can select and apply efficient mental and written strategies to solve problems involving all four operations with whole numbers and use digital technologies where appropriate.</p> <p>Learning Targets: I can select appropriate operation strategies and problem solving strategies</p> <p>I can use estimation and reasoning to predict my answer and check it's reasonableness</p> <p>I can apply a range of strategies to solve addition and subtraction problems.</p> <p>I can apply a range of strategies to solve multiplication problems</p> <p>I can apply a range of strategies to solve division problems</p> <p>I can apply a range of strategies to solve realistic problems and comment on the efficiency of different strategies</p>	<p>Expectations: Students can solve closed & open ended problems at an appropriate difficulty level for the year 6 standard. See examples in the link below: https://acaraweb.blob.core.windows.net/curriculum/worksamples/Year_6_Mathematics_Portfolio_Satisfactory.pdf</p> <table border="1" data-bbox="465 387 1010 675"> <tr> <td data-bbox="465 387 741 531">Addition with numbers up to 5 digits, which involve renaming.</td> <td data-bbox="741 387 1010 531">Subtraction with numbers up to 5 digits, which involve renaming.</td> </tr> <tr> <td data-bbox="465 531 741 675">Multiplication involving numbers up to 4 x 2 digits</td> <td data-bbox="741 531 1010 675">Division up to 4 digit dividends and single digit divisors. Including remainders</td> </tr> </table> <p>Students: select appropriate and most efficient operation to use for any given problem.</p> <p>use effective problem solving strategy (moving from more simple to complex strategy)</p> <p>can use symbols or words to determine the most efficient operation</p> <p>explain their problem solving through the four proficiencies (as demonstrated on a think board)</p> <p>make explicit their reasoning (separate from their working out/understanding)</p> <p>Example problem: Two legged, three legged and nine legged aliens attend an alien convention. After an hour there were 144 legs at this convention. Using the four proficiencies show your understanding on a think-board and determine how many aliens were at the convention.</p>	Addition with numbers up to 5 digits, which involve renaming.	Subtraction with numbers up to 5 digits, which involve renaming.	Multiplication involving numbers up to 4 x 2 digits	Division up to 4 digit dividends and single digit divisors. Including remainders	<p>Concrete knowledge of the problem solving strategies (mathematicians toolbox)</p> <p>Four Proficiencies Vocabulary: Understanding, Fluency, Problem Solving and Reasoning</p> <p>Using place value system to estimate</p> <p>Fact families: (prior knowledge of multiplication and known facts) Fluent knowledge of known multiplication facts up to 10 x 10</p> <p>-Part, Part, Whole: Partitioning</p> <p>Addition: Add a three digit number to a three digit number and beyond.</p> <p>Subtraction: Subtract a one or two digit number from a larger number including those that result in a remainder.</p> <p>Multiplication multiply a three digit number by one or two digits.</p> <p>Division</p>	<p>Team designed CFA developed from proficiency scale. (PRE and POST)</p> <p>Work samples Quick checks - Warm up - One operation</p> <p>Mathletics Conferencing</p>	<p>Term 1 Week 6 - Term 2 Week 11</p>	<p>design, create and deconstruct problems</p> <p>justify and compare strategy selection for operations for efficiency (would you rather)</p> <p>inventory their mental, written and problem solving strategies</p> <p>evaluate problem solving (on a rubric)</p> <p>formulate their reasoning in written language</p> <p>compare and contrast reasoning (with another person)</p> <p>Making educational resources and lesson planning for buddy grades</p> <p>National Maths Talent Quest</p> <p>https://www.mav.vic.edu.au/go-to-maths-talent-quest.html</p> <p>Peer teach RTI T3 kids</p> <p>STEM</p>
Addition with numbers up to 5 digits, which involve renaming.	Subtraction with numbers up to 5 digits, which involve renaming.								
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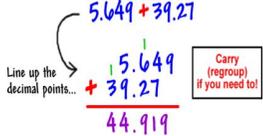
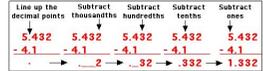
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		<p>divide a three digit number by a one digit number, including those that result in a remainder</p>			
<p>Patterns & Algebra: BODMAS I can solve and create number sentences involving brackets and order of operations.</p> <p>Learning Targets:</p> <p>I can create number sentences involving BODMAS that result in a given answer.</p> <p>I can understand and apply the rules for completing multiple operations within the same number sentence (BODMAS) (F)</p> <p>I can understand and explain why brackets are used in number sentences</p>	<p>What different number sentences can you create that equal 35?</p> <p>$5 \times 7 = 35$ $7 \times 5 = 35$ $30 + 5 = 35$ $60 - 25 = 35$ $40 - 5 = 35$</p> <p>Can you include brackets and order of operations in your number sentences?</p> <p>$(2 \times 20) - (2 \times 5 \times 2) = 35$ $(6 \times 4) + (5 \times 2) + (2 \times 1) = 35$ $(7 - 2) + (15 \times 2) = 35$</p> <p>Can you explain the rules for order of operations?</p> <p>Brackets Orders Division Multiplication Addition Subtraction</p> <p>① Brackets - any number standing in brackets ② Orders - anything to the power of or square ③ Division and/or multiplication ④ Addition and/or subtraction</p> <p>Can you now try and create number sentences that equal 11?</p> <p>$(2 \times 20) - (11 \times 2) - (5 \times 2) = 11$ $60 - (2 \times 20) + 5 - (2 \times 5) - (2 \times 2) = 11$</p> <p>How do you know each of your number sentences is right?</p> <p>The number sentences are correct if they are completed using BODMAS, like mine.</p> <p>Can you use any decimals?</p> <p>$(2 \times 5 \times 2) + (5 \times 2) = 35$ $(3 \times 5 \times 2) \times (2 \times 5 \times 2) = 35$ $(4 \times 5 \times 2) + (5 \times 5) = 11$</p>	<p>I can apply efficient mental and written strategies when solving all four operations with whole numbers.</p> <p>Identifying Indices within a number sentence (EL from Term One this year)</p> <p>I know that numbers can be positive and negative</p>	<p>Team designed CFA developed from proficiency scale. (PRE and POST)</p> <p>Work samples Quick checks Warm up</p> <p>Mathletics Conferencing</p>	<p>Term 2: Week 1- 4</p>	<p>Create and write number sentences involving brackets of operation (BODMAS) that relate to real life problems</p> <p>Solving and Including Indices in BODMAS number sentences.</p> <p>BODMAS problems with increased difficulty involving multiple brackets and order of operations.</p>
<p>Decimals Four Operations</p>	<p>I can add any number with a decimal to the thousandths, using an efficient written method.</p>	<p>Select and justify operation required to</p>	<p>CFA Mini CFA's Check-In Tasks</p>	<p>Term 2: Week 5 - 11</p>	<p>Apply, investigate and justify the solutions to problems involving</p>

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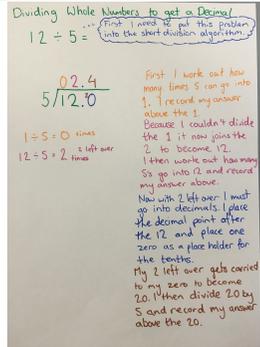
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<p>Select and apply efficient mental and written strategies to solve problems involving all four operations with decimals.</p> <p>Learning Targets:</p> <p>I can solve number sentences, involving all four operations with decimal numbers.</p> <p>I can convert a remainder into a decimal, when solving division problems.</p> <p>I can solve real life problems that involve using the four operations with decimal numbers</p>	 <p>I can subtract any number with a decimal to the thousandths, using an efficient written method.</p>  <p>I can multiply a whole number by a number ending in a decimal to hundredths, using an efficient written method.</p> <p>Multiply the numbers. Don't worry about the decimal points just yet.</p> $\begin{array}{r} 1.124 \\ \times 1.5 \\ \hline 5620 \\ 1124 \\ \hline 16860 \end{array}$ <p>Count the total number of decimal places (or hops). In this case there are 3 on the top and one on the bottom.</p> $\begin{array}{r} 1.124 \\ \times 1.5 \\ \hline 5620 \\ 1124 \\ \hline 16860 \end{array}$ <p>Place the decimal point in the answer. Use the same number of hops (decimal places) that you counted.</p> $\begin{array}{r} 1.124 \\ \times 1.5 \\ \hline 5620 \\ 1124 \\ \hline 1.6860 \end{array}$ <p>I can divide any 4 digit whole number by a 1 digit number resulting in a terminating decimal, or powers of 10, using an efficient written method.</p>	<p>solve worded problems (whole number)</p> <p>Use algorithms to solve number sentences involving division (whole number)</p> <p>Use algorithms to solve number sentences involving multiplication (whole number)</p> <p>Use algorithms to solve number sentences involving addition and subtraction (whole number)</p>			<p>the four operations of decimals (backwards working).</p> <p>EXT: Applying written strategies to solve problems involving the multiplication of decimal by decimal to tens of thousandths.</p> <p>EXT: Applying written strategies to solve problems involving the division of whole numbers by more than one digit to result in a decimal.</p>
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<p>Angles I can solve problems using the properties of angles</p> <p>Learning Target I can use results to find unknown angles I can recognise and explain that every angle formed by intersecting lines has an inverse angle.</p>	<p>I can show my knowledge of angle by:</p>  <p>Investigating angles:</p> <ul style="list-style-type: none"> - On a straight line - At a point - Vertically opposite angles 	<p>Estimate, measure and compare angles using degrees.</p> <p>Construct angles using a protractor</p> <p>I can - describe acute (less than 90deg), obtuse (greater than 90deg), reflex angles (greater than 180deg) and revolution (360deg) in terms of their relationship to a right angle (90deg)</p>	<p>CFA designed by the team. Check-In Tasks</p>	<p>Term 2 - Week 3 & 4 (major)</p>	<p>- use properties of different quadrilaterals to find unknown angles</p> <p>- Corresponding angles</p>
<p>Prisms and pyramids I can construct simple prisms and pyramids</p> <p>Learning Target I can identify and describe a range of simple prisms and pyramids</p> <p>I can use digital technologies to</p>	<p>I can:</p> <ul style="list-style-type: none"> - construct prisms and pyramids from nets and skeletal models <ul style="list-style-type: none"> - Prisms: Square (cube), rectangular, triangular, pentagonal - Pyramids: Square, triangular, hexagonal - identify and draw prisms and pyramids from different rotations (birds eye, underneath and side view) 	<p>I can recognise and name prisms and pyramids</p> <p>I can identify the properties of prisms and pyramids</p>	<p>CFA designed by the team.</p>	<p>Term 2: Week 5 & 6 (major)</p>	<p>Draw different views of prisms and solids formed from combinations of prisms</p>

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<p>construct simple prisms and pyramids</p>	 <p>AMSI: Year 6 Prisms/Pyramids: http://amsi.org.au/ESA_middle_years/Year6/Year6_md/Year6_2c.html</p> <p>ACARA: Year 6 At Standard Portfolio: https://acaraweb.blob.core.windows.net/curriculum/worksamples/Year_6_Mathematics_Portfolio_Satisfactory.pdf</p>				
<p>Length and area. I can solve problems involving length and area.</p> <p>Learning Target I can use formulas to calculate length and area of quadrilaterals</p> <p>I can solve problems involving the comparison of lengths and areas using appropriate units</p> <p>I can recognise and investigate familiar objects using concrete materials and digital technologies</p>	<p>I can:</p> <ul style="list-style-type: none"> - estimate and use formal measurements to check - find the area of a rectangle when all lengths are whole numbers. - explain the rule for finding the area of a rectangle - find the perimeter of quadrilaterals, triangles, and various regular and irregular shapes. - explain how shapes with the same perimeter can have different areas - compare lengths and areas of various shapes - Partitions a composite shape into rectangles in order to find its area. 	<p>I know and understand the relationship between units of measurement for length: e.g. 10mm in 1cm 100cm in 1m 1000m in 1km</p> <p>I know the difference between perimeter and area.</p> <p>Understand and recognise the formulas: $A = l \times w$ $P = 2 \times (l + w)$ I can explain why the 'formulas' are reliable (reasoning).</p>	<p>Team designed CFA</p>	<p>Term 2: Week 7 & 8 (major)</p>	<p>Triangles, circles, non-uniform shapes (shape cut out of a shape).</p> <p>I can find the area of a rectangle when some lengths are decimal numbers</p>
<p>Volume and capacity I can connect volume and capacity and their units of measurement.</p> <p>Learning Target</p>	<p>I understand that:</p> <ul style="list-style-type: none"> - 1ml is equivalent to 1cm^3 - capacity and volume are different things - they can be related through displacement <p>I can:</p> <ul style="list-style-type: none"> - find the volume and capacity of a rectangular prism 	<p>I know:</p> <ul style="list-style-type: none"> - that capacity refers to the amount an object can hold and is usually associated with liquid/gas. - commonly used capacity measurements/units: litres 	<p>Team designed CFA</p>	<p>Term 2: week 9-11</p>	<p>Calculate volumes of rectangular prisms (ACMMG160)</p> <p>investigating volumes of cubes and rectangular prisms and establishing and using the formula $V = l \times w \times h$</p>

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<p>I can calculate both capacity and volume of cubes and rectangular prisms</p> <p>I can solve real life problems involving capacity and volume</p>		<p>for milk, millilitres for medicine...</p> <p>- that volume refers to the amount of space occupied by an object and commonly used volume measurements are the cubic centimetre and cubic metre</p>			<p>- understanding and using cubic units when interpreting and finding volumes of cubes and rectangular prisms</p>
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