What is it that we want our students to know, understand, do and communicate KUDCO?					
Year Level: Four	**Semester:** Two	**Subject:** Mathematics	**Team Members:** Melina Shenoy, Claire Crozier, Adriana Jankulovski, Debbie Arnheim, Melanie Barger		
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? https://docs.google.com/document/d/1MRgDULcmpED_BORTFUsm1RNx-FmqswF8ib3sN6Ou5M4/edit
(Patterns and Algebra) I can identify unknown quantities in number sentences involving addition and subtraction. **Learning Targets:** I can: - Use basic number facts to find an answer -Justify solutions -Use a range of strategies -Use inverse operations	I can use inverse operations to find missing quantities. I can balance both sides to an equation. Eg. 3+__=15 or 15 = 3 + __ I can use basic number facts to find missing quantities I can use a range of strategies and justify my solution - use: - the inverse operation - pictures, numbers, words - calculators - known facts I can identify unknown quantities in number sentences involving addition and subtraction. I can identify unknown quantities in subtraction number sentences. I can identify unknown quantities in addition number sentences.	I know what addition and subtraction are. I know basic number facts: - Doubles, tens facts, near doubles, etc I know part/ part/ whole and the inverse. I can identify if collections are equal or not equal. I know that the = sign is a symbol to indicate equivalence (not "and the answer is")	CFA, Pretest	Term 3: Week 1-3 (Minor)	I can use my knowledge of equivalent number sentences to solve unknown problems involving all 4 operations. E.g. 90 - ? = 5 x 6 OR 56 / 7 = ? x 2 I can balance both sides to an equation. I can identify unknown quantities in number sentences involving two or more unknowns. I can solve word problems that involve identifying unknown quantities in number sentences with the 4 operations. I can identify unknown quantities in number sentences involving the four operations.

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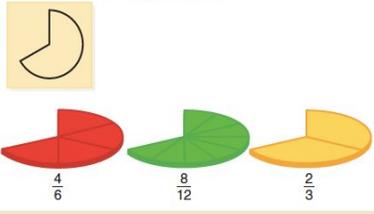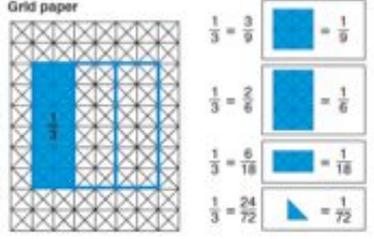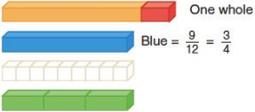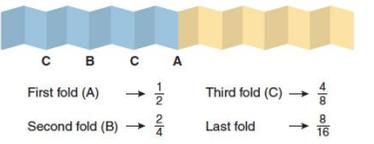|					
	I can identify if addition and subtraction equations are true or false.				
Fractions I can count by quarters, halves and thirds including mixed numbers using all three models- area, length and quantity. **** In 2018 consider changing this EL to focus on length model only as this is what is mentioned in the Vic Curric standard.** **Learning Targets:** I can: - count by quarters, halves and thirds - Locate fractions using the length, area and quantity models - count by unit fractions including mixed numbers	I can locate and represent fractions using all three models. ❏ Area ❏ Length/Linear ❏ Quantity/collection **Figure 15.9** Given a whole, find fractional parts. I can represent fractions larger than one as a improper fraction and a mixed number. Eg. 5/4, 1 ¼ I can count to one and beyond by unit fractions. 	I know that a fraction can represent when a whole has been partitioned into equal-sized portions. I can identify quarters, halves and thirds on an area, length and quantity model. I can read and use a fraction wall to compare fractions (greater than, less than or equal to) I can write a fraction correctly. I can share collections and quantities equally (e.g. counters, plasticine sausages)	CFA Pre-Test for extension students. Post - Test from previous Equivalent Fraction unit to be used as pre-assessment data. Post - Test Think board (Area, Length, Quantity) reasoning to explain. Van De Walle Envision (Selected pieces modified by the team). Fractions of shapes on a grid Fractions on a line Fractions of a group	Term 3: Wk 3-5 (Major)	I can apply the Essential Learning to other unit fractions (e.g. fifths, sixths, eighths and tenths.) I can provide examples when each model would be used in real life. - eg. Fraction of an area (grid, shape, array) - Fraction of a length (eg. Use a number line to show ⅕ of 25km). - Fraction of a quantity (10 horses. ⅖ are brown. How many are brown?) .
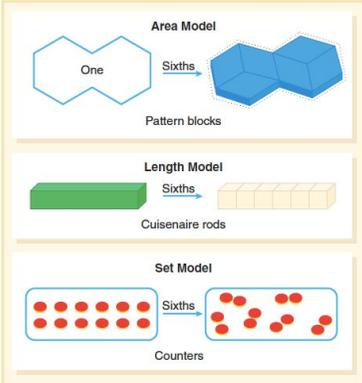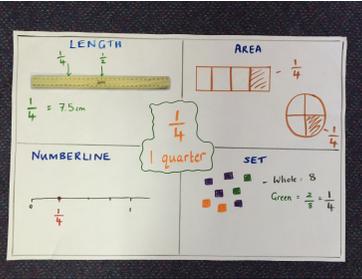
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	I know the larger the denominator is, the smaller the fraction piece. (i.e. ⅛ of a pizza is smaller than ½ of the same pizza) When partitioning a whole I know the parts must be **the same size**, though **not** necessarily **the same shape**. I know the size of each part depends on the size of the whole (i.e. fraction models are relative - half of a small pizza, will be different to half of a family size pizza) I understand what the numerator and denominator represent in a fraction (eg. The numerator tells how many parts we are talking about, the denominator says how many parts the whole is divided into.)				
(Equivalent Fractions) I can recognise common equivalent fractions in familiar contexts - linear/length, area and quantity **Learning Targets:** **I can…** - Recognise common equivalent fractions	I can explain the difference between these pairs of fractions (equivalent vs nonequivalent). I can identify common equivalent fractions. - Eg. ½, = 2/4, ⅔, 3/6. I can represent common equivalent fractions using: area, length and quantity models. I know two fractions are equivalent if they represent the same amount or quantity. I can find different ways to chunk a quantity into parts in order to name it in different ways. (e.g. 1/3, 2/6, 6/18)	I know that a fraction is when a whole has been partitioned into equal-sized portions. I can identify quarters, halves and thirds on an area, length and quantity model. I can read and use a fraction wall to compare fractions (greater than, less than or equal to) I can write a fraction correctly.		Term 3: Wk 6-8 (Major)	I can apply the Essential Learning to other unit fractions to identify equivalent fractions (e.g. fifths, ninths, tenths and twelfths).

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	Filling in regions with fraction pieces				
	Grid paper				
	Cuisenaire rods				
	Folding paper strips				
	I can use resources to identify and explain equivalent fractions: - Fraction walls, cuisenaire rods, **Vocabulary:** Equivalent (GV), fractions (SV), mixed numbers (GV)				
(Decimals and Fractions) I can make connections between	I can represent fractions and decimals in different ways: lengths, quantity.*	I can recognise a decimal number.	CFAs Anecdotal notes	Term 4: Wk 3-5 (Major)	I can use the halving strategy to find fractions decimals eg. ½ /2 = ¼ eg. 0.5 / 2 = 0.25

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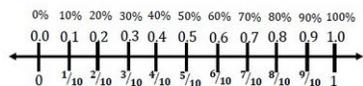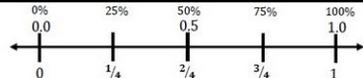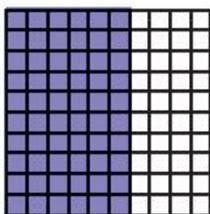|					
fractions and decimal notation to hundredths. **Learning Targets:** I understand that: - fractions and decimals can be represented in different ways: area, length and quantity. I can: -Recognise equivalent fractions and decimals on a number line. - Make connections between fractions and decimals.	0% 25% 50% 75% 100% 0,0 0,5 1,0 0 ¼ ²/₄ ³/₄ 1 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% 0,0 0,1 0,2 0,3 0,4 0,5 0,6 0,7 0,8 0,9 1,0 0 ¹/₁₀ ²/₁₀ ³/₁₀ ⁴/₁₀ ⁵/₁₀ ⁶/₁₀ ⁷/₁₀ ⁸/₁₀ ⁹/₁₀ 1 I can use a number line and estimate where equivalent decimals and fractions go. eg. I can estimate ¾ and 0.75 on a number line. I can make simple connections between fractions and decimals eg. ¼ = 0.25, ½ = 0.50 I can rename decimals as tenths and/ or hundredths. Eg. 63/100 = 6 tenths and 3 hundredths I can represent fractions and decimals using an area model to show their connection. I can read decimals up to hundredths and understand division by 10. I can name decimal places as tenths and hundredths.	**Vocabulary:** Decimals, Tenths, Hundredths (GV)			

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(Money)	I can round to the nearest 5c. (74c rounds to 75c, 72c rounds to 70c, 78c rounds to 80c)	I can round to the nearest 5 cents.	Worded problem. Buy products, how much was it and how much change. (given an amount of money and a number of products they have to buy) - differentiate amounts given	Term 4: Wk 6-7 (Major)	Creating a budget or a plan to spend a certain amount of money.
I can solve problems involving purchases with and without the use of digital technology.					
Learning Targets:	I can explain the role of the decimal point in monetary values.	Estimating. Problem solving skills.			
I can:					
- calculate money problems using simple decimals (dollars & cents)	I can round money off to estimate a total.	I can read monetary amounts and explain their values.			
- round numbers to the nearest 5 cent.	I can carry out calculations in another currency.				
- calculate change and total cost to the nearest five cents.		I know what renaming, addition and subtraction.			
	I can problem solve using real life contexts.				
	E.g. shopkeeper method	I can explain that cents are part of a dollar. e.g) There are 100 cents in 1 dollar.			
	- With a set amount of money students purchase items and round total value and change to the				
	- nearest 5 cents.	I know that a total can be created using a variety of notes and coins. E.g. $10 can be created using two $5 notes.			
	I know that different countries have different currencies.				
		(Vocab. Cents, dollar, total cost, change,value, running total, shopkeeper method, notes, coins, currency)			
(Units of Measurement)	I can interpret graduated scales on a range of measuring instruments	I know the order of: mm, cm, m, km,	Hands on activities incorporating the use of scaled instruments.	(All Minor) Mass: Term 3: Wk 4-5	I can convert between units of measurement.
I can use scaled instruments to measure mass, capacity and temperature.	- E.g. Decimals, fractions	g, kg, ml, L,		Capacity : Term 3: Wk 6-7	I can explain how units of measurement are linked.
Learning Targets:	I can measure using the correct standard unit and explain why it's appropriate.	I know degrees celsius.		Temperature: Term 3: Wk 8-9	
I can:					
Estimate and measure	I can estimate using the appropriate non-standard unit	I can use a scale, e.g. balance scale, bathroom scale.			
- Mass					
- Capacity	I can read the graduated scale on a variety of measuring instruments	I can read a thermometer.			
- Temperature					

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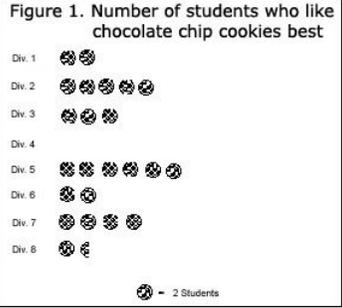|	I can use the appropriate instrument to measure units of measurement				
(Location and Transformation) I can create and describe symmetrical simple and composite shapes and patterns, with and without the use of digital technology. **Learning Targets:** - Lines of symmetry - Asymmetry - Properties of shapes	**I can identify horizontal, vertical and diagonal lines of symmetry.** **I can identify multiple lines of symmetry.** **I can create symmetrical and asymmetrical shapes and patterns with and without technology.** **I can describe properties of a shape that make it symmetrical or asymmetrical.**	**I can explain if an image or object is symmetrical or not.** **I can show a line of symmetry on a shape.** **I know what a tessellating pattern is (a repeated pattern of shapes).** **I know what 2D shapes are and basic properties.**	**CFAs** **Anecdotal Notes**	**Term 4: Wk 3-4 (Minor)**	I can identify rotational symmetry. I can create images with/visualise rotational symmetry.
(Time) I can convert between units of time and solve problems involving time duration. **Learning Targets:** I understand: - am and pm - The link between units of time - Time duration/ elapse (jump strategy)	I can calculate elapsed time from an end point I can calculate elapsed time from a starting point eg. I began an activity at 11:00am. It finished at 3pm. How long did it take? (11:15am to 3:00pm) I can calculate elapsed time using a number line I can convert between units of time. eg. I know that 2 days is 48 hours. A children's museum is open from 1:00 pm to 6:35 pm every day. How long is the museum open? The museum is open 5 hours, 35 minutes. I can use am and pm notation	I can tell time to the nearest minute on an analogue clock. Counting on - working out the difference between two time allocations. I know that there are 24 hours in a day, 60 minutes in an hour. I know the features of an analogue clock. - the long hand = minutes - the shorthand = hours - I know quarter past, half past, quarter to and o'clock.. Vocab - am, pm, duration, elapsed time , clock face, clock hands, midday,	Anecdotal notes Pre-Test Post- Test CFAs	Term 4: Wk 5-6 (Minor)	Extension I can tell time using 24 hour duration I can convert between 12 and 24 hour time. Reading timetables Application

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	I can count on by hours and minutes (to a multiple of 5) eg. 3 o'clock to 3:15 = 15 minutes I can explain the difference between midday and midnight	midnight, shorthand, long hand, convert,			
(Data Representation and Interpretation 1) I can select and trial methods of data collection and representation. **Learning Targets:** I can: - Collect and organise my data - Construct data displays: tables, column graphs, picture graphs. - Select and justify choice of data representation.	I can present my data using an appropriate display e.g. column, bar, dot, line graphs, table (drawn, Excel, ICT program). I can choose an appropriate/ effective data collection method and display depending on the data to be represented. I can collect data using a variety of methods (table, survey, tally, ICT, observations) ensuring results are correctly recorded.	I understand and can use different ways to represent data. I can include the basic features on a data graph. I can read and create simple bar/column/pictographs without the use of digital technology with appropriate features. I understand that data can be collected in different ways numbers,tally marks, words) I can collect data using a tally. I know what a tally mark represents.	Create graphs given the key and scales. Anecdotal Notes CFAs	Term 4: Wk 1-2 (Major)	I understand the purpose of a survey and how to graph data so that it is EASIER to interpret than just numbers I can collect, display and interpret data to construct a variety of displays: - tables - columns, dot, pie, bar, line graphs.
(Data Representation and Interpretation 2) I can evaluate the effectiveness of different data collection methods and displays. **Learning Targets:** I can:	I can use the data to draw conclusions about the topic. I can interpret given data. I understand that different data collection methods can alter the results you obtain. (e.g. giving only 4 options when asking a	I know different data collection methods (tally, table, survey, observations). I can read and understand different data displays (column, bar, pie, line, pictograph)	Anecdotal notes CFAs (Students choose and create best display for given data).	Term 4: Wk 1-2 (Minor)	I can create different data displays using the same data

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- draw conclusions from data displays	population 'Who is your favourite footy team?') I can interpret keys and scales from data displays (e.g. where symbols represent more than one data value). Figure 1. Number of students who like chocolate chip cookies best Div. 1 Div. 2 Div. 3 Div. 4 Div. 5 Div. 6 Div. 7 Div. 8 — 2 Students I understand that different graphs can provide different information about the same data.	I can record data on displays (column, bar, pictograph) I can read and create simple bar/column/pictographs without the use of digital technology with appropriate features.			
(Chance) I can identify dependent and independent events.	I can explain what a dependent event is. I can explain what an independent event is. I can identify events where one cannot happen if the other happens. I can identify events where the chance of one will not be affected by the occurrence of another. (E.g. The sex of a child is not influenced by the previous child, Tossing one coin and having two outcomes does not change the next outcome, taking cards from a pile does change the likelihood of an outcome occurring).	I can explain what chance is. I can identify possible outcomes of a chance experiment.	Anecdotal notes	Term 4: Wk 7-8 (Minor)	

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