

Early Level 1: Tahi

I can count a set of 10 objects up to 10

I am learning to....



Knowledge



Read any number up to 10



1, 2, 3....

Count forwards to 10



10, 9, 8...

Count backwards from 10



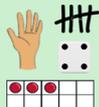
Say the number after a number 1-10



Say the number before a number 1-10

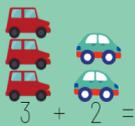


Order numbers 1-10



Recognise patterns to 5

Strategy



Solve addition and subtraction problems by counting all the objects by one-to-one matching



Form a set of objects up to 5 first and then to 10 by one to one matching



Identify a half of shape



Recognise repeated patterns

Early Level 1: Rua

I can solve problems by counting all the objects



I am learning to....

Knowledge



Read most numbers in the 0-20 range



9, 10, 11...

Count forwards to 20



20, 19, 18... Count backwards from 20



11, 12, _

Say the number after a number 1-20



_ , 16, 17

Say the number before a number 1-20



Order numbers 1-20



Know patterns to 10



Know groupings within 5



$5+2=$
 $3+5=$
 $5+4=$

Know groupings with 5

Strategy



Solve simple addition problems by counting all the objects with materials or by drawing in the range of 0-10



Solve simple subtraction problems by counting all objects with materials or by drawing in the range of 0-10



Continue repeated patterns



Identify a half of a group of objects

Early Level 1: Toru



I can solve problems by counting all the objects in my head

I am learning to...

Knowledge

  Read any number up to 20

  Say the 'ty' and 'teen' numbers

 $2, 4, 6...$
 $5, 10, 15...$
 $10, 20, 30 ..$ Skip count forwards in 2s, 5s and 10s to 20

 $12, 10, 8, 6 ...$
 $35, 30, 25, 20 ...$
 $50, 40, 30, 20...$ Skip count backwards in 2s, 5s and 10s to 20

  Instantly recognise patterns to 10 (doubles and 5 based)

 $5+4=9$
 $3+4=7$
 $7+3=10$ Know groupings within 10

 $5+5=$
 $3+3=$
 $2+2=$ Know doubles to 10

 11 is 1 bundle of sticks plus 1 one
 Know the place value for 'teen' and 'ty' numbers up to 20

Strategy

  Solve simple addition problems by counting all the objects with materials or in my head

 $6-3=$
 Solve simple subtraction problems by counting all objects with materials or in my head

  Solve multiplication problems by counting all the objects

  Find $\frac{1}{2}$ of shapes or sets to 20 by equal sharing of the objects



Recognise and name halves and quarters of shapes



Identify what the item of repeat is in a pattern e.g. yellow triangle, blue square

Early Level 1: After 1 year

Level 1: Whā

Advanced counting



I am learning to...

Knowledge



Read any number up to 100



55, 56, 57...

Count forwards from any number up to 100



87, 86, 85...

Count backwards from any number up to 100



Say the number after and before a number a number 1-100



2, 4, 6...
5, 10, 15...
10, 20, 30 ..

Skip count forwards and backwards in 2s, 5s and 10s to 100



Order numbers to 100



$14+6=$
 $17+3=$
 $5+15=$

Know groupings within 20



$9+_ = 10$
 $6+4=_$
 $5+_ = 9$

Know addition facts to 10

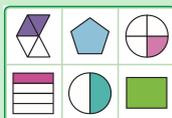


$70+30= 100$

Know multiples of 10 that add to 100



Know doubles and halves to 20



Read units $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{3}$ and $\frac{1}{5}$ and match the fractions to the corresponding shape

16 + 7 =
17, 18, 19, 20...

Solve addition problems by counting on from the biggest number in my head

14 - 4 =
13, 12, 11, 10

Solve subtraction problems by counting back from the biggest number in my head

22 + 30 =
22, 32, 42, 52

Solve addition and subtraction problems by counting on or back in ones and tens

2, 4, 6

Solve multiplication problems by skip counting in 2s, 5s or 10s

2 children are finding rocks. They find 8 rocks. How many would each child get?

Find $\frac{1}{2}$ and $\frac{1}{4}$ of shapes or sets by equal sharing

12 cars shared between 2 boys.
Double 6 is 12.

Solve multiplication and division problems by using knowledge of doubles and halves

1 2 3 4 5 6 7 8 9 10 11

What would be the 10th number in this pattern?
The expectation is that the student continue the pattern one cube at a time.

Create and continue sequential patterns

Level 2: Early Rima

Early Additive



I am learning to....

Knowledge



Read any number up to 1000



20, 30, 40..
300, 400, 500..

Count forwards and backwards by 1s, 10s and 100s



30, 40, 50, _

Say the number 1 more, 10 more, 100 more



_, 50, 60, 70

Say the number 1 less, 10 less, 100 less



3, 6, 9, 12...

Skip count forwards and backwards in 3s



14+4=
17+2=
4+15=

Know addition facts to 20



Order numbers to 1000

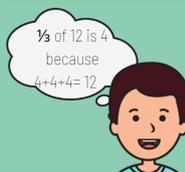
Strategy



Doubles
 $8+7=8+8-1$
Fives
 $8+7=5+3+5+2$
Making tens
 $8+7=8+2+5$

Solve addition and subtraction problems in my head using

- Doubles
- Fives
- Making Tens



Find a fraction of a number by using repeated addition or doubling



Solve simple fraction problems by splitting the whole number into halves and quarters e.g half of 16 is 8, so a quarter is 4



Identify the rule in a sequential pattern e.g. what shape goes on the number 14 in this pattern? What colour will it be?

Early Level 2: After 3 years

Level 2: At Rima

Early Additive



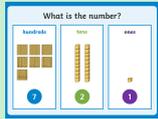
I am learning to....

Knowledge



400 and 600

Know multiples of 100 that add to 1000



Know groupings of 1s, 10s and 100s to at least 1000
(327 = 32 tens and 7 ones)



Round 3 digit numbers to the nearest 10 or 100



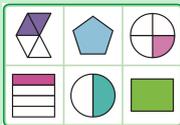
25 and 75
65 and 35

Know groupings within 100 (25+75 and 65+35)



$2 \times 4 =$
 $5 \times 5 =$
 $10 \times 6 =$

Know multiplication and division facts for 2x, 5x and 10x



Read unit fractions and improper fractions e.g. $\frac{4}{3}$

Strategy



Place value partitioning
($43 + 25 = (40 + 20) + (3 + 5) = 60 + 8 = 68$)

Rounding and compensating
($39 + 26 = 40 + 25 = 65$)

Back through ten
($84 - 8$ as $84 - 4 - 4 = 76$)

I can solve addition and subtraction problems involving tens and hundreds using strategies such as

- Place value partitioning ($43 + 25 = (40 + 20) + (3 + 5) = 60 + 8 = 68$)
- Rounding and compensating ($39 + 26 = 40 + 25 = 65$)
- Back through ten ($84 - 8$ as $84 - 4 - 4 = 76$)



(8×5 as $5 + 5 = 10$ so
 $10 + 10 + 10 + 10 = 40$)



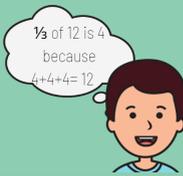
Solve multiplication problems by using known basic facts and repeated addition (For example use doubling additively 8×5 as $5 + 5 = 10$ so $10 + 10 + 10 + 10 = 40$)



$18 \div$ by 3 as (3×6 as
 $2 \times 6 = 12 + 6 = 18$)



Solve division problems using known basic facts and repeated addition e.g. $18 \div$ by 3 as (3×6 as $2 \times 6 = 12 + 6 = 18$)



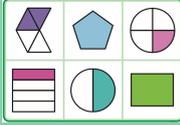
Find a fraction of a number by using repeated addition and known facts (e.g. $\frac{1}{3}$ of 12 is 4 because $4+4+4=12$)



Ben and his friends ate 16 pieces of cake. Each piece was $\frac{1}{4}$ of the cake. How many cakes did they eat?



Find fractions of shapes and lengths including fractions greater than 1



Order unit fractions and fractions with same denominators and explain why they are larger or smaller e.g. ordering $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$



How many matchsticks would 10 squares use?
20 squares?



Find rules for the next members in a sequential pattern

At Level 2: After 4 years

Level 3: Early Ono

Advanced Additive



I am learning to...

Knowledge



Read any number up to 1,000,000



Identify symbols for all fractions including improper fractions (including tenths, hundredths, thousandths) and improper fractions



Say numbers 1, 10, 100 and 1000 more or less than any number 1- 1,000,000



Know groupings of 10s and 100s in 4 digit number



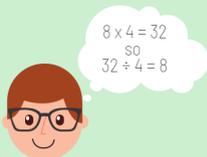
Know groupings within 1000



Know groups of 2s, 3s, 5s and 10s in numbers to 100 and any remainders



Round whole numbers to the nearest 10, 100 and 1000

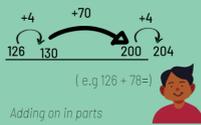


Recall all the basic multiplication facts and some related division facts



$$\begin{aligned} 14 + 5 &= \\ 16 + 3 &= \\ 19 - 5 &= \end{aligned}$$

Recall addition and subtraction facts to 20



Can estimate and solve problems involving addition (e.g $126 + 78$)

Using one or more strategy from

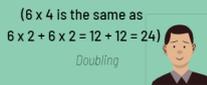
- Rounding and compensating
- Place value partitioning
- Adding on in parts
- Making to ten with 2 digit numbers
- Compatible numbers



Can estimate and solve problems involving subtraction (e.g $56-38 =$)

Using one or more strategy from

- Place value partitioning
- Equal additions (add to both numbers)
- Rounding and compensating
- Reversibility



Can use known facts to solve problems involving multiplication and division and apply some strategies from

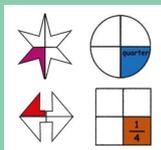
- Doubling (6×4 is the same as $6 \times 2 + 6 \times 2 = 12 + 12 = 24$)
- Addition and subtraction ($6 \times 6 = (5 \times 6) + (1 \times 6) = 30 + 6 = 36$)
- Reversing ($24 \div 6 = ?$ as $6 \times ? = 24$)



Can find unit fractions of whole numbers using multiplication and division (quarter of 24 is 6 so $\frac{1}{4} \times 24 = 6$)



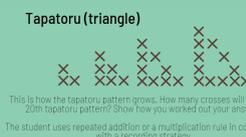
Can solve simple equivalent ratio problems using repeated copying



Can use symmetry to find fractions of continuous shapes like lengths, circles and rectangles)



Create, continue and predict sequential patterns with two or more variables



Describe spatial and number patterns using rules that involve repeated addition or subtraction or simple multiplication

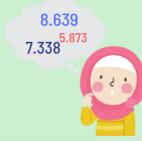
Level 3: At Ono

Advanced Additive



I am learning to....

Knowledge



Read decimals to three decimal places



0.4, 0.5, 0.6...
and
0.55, 0.54, 0.53...

Count forwards and backwards in decimal numbers



6.39 rounds to 6,
19.91 rounds to 20

Round decimals to the nearest whole number



$6 \times 1 =$
 $70 \times 0 =$
 $10 \times 16 =$

Know what happens when you multiply by 1, 0 or 10



$\frac{3}{6} = \frac{1}{2}$
 $\frac{2}{4} = \frac{1}{2}$

Recognise equivalent fractions

Strategy



standard written form

$148 + 186 =$

$\begin{array}{r} 148 \\ + 186 \\ \hline \end{array}$

Can estimate and solve problems involving addition and subtraction ($148 + 186$ or $403 - 97$) choosing the most efficient strategy from a range including

- Compensation
- Place value partitioning
- Compatible numbers
- Reversibility
- Equal additions (add to both numbers)
- Standard written form for addition and subtraction



Doubling and halving

$(6 \times 15 = 3 \times 30 = 90$
or $24 \times 5 = 12 \times 10 = 120)$



Multiplication and division

Can use a combination of known facts and strategies including

- Addition and subtraction
- Reversing
- Doubling and halving ($6 \times 15 = 3 \times 30 = 90$ or $24 \times 5 = 12 \times 10 = 120$)
- Round/ compensation ($19 \times 5 = 20 \times 5 = 100 - 5 = 95$)



Find fractions of whole numbers where the numerator is greater than 1

$\frac{2}{3}$ of 36 = $\frac{2}{3} \times 36$



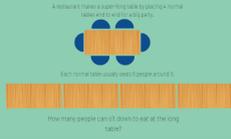
Can use multiplication and division strategies to

- Find fractions of whole numbers where the numerator is greater than 1 (e.g. $\frac{2}{3}$ of 36 = $(\frac{2}{3} \times 36)$).
- Solve simple ratio and rate problems
- Compare fraction sizes with whole numbers ($32/6 = 5 \frac{2}{6}$)



"I know the 9th member will be...."

Determine members of sequential patterns given their ordinal positions



Describe spatial and number patterns using

- Tables and graphs
- Using rules that involve repeated addition or subtraction or simple multiplication

At Level 3: After 6 years

Level 4: Early *Whitu*

Advanced Multiplicative



I am learning to....

Knowledge



0.4, 0.5, 0.6...
and
0.55, 0.54, 0.53...

Count forwards and backwards in $\frac{1}{1000}$'s, $\frac{1}{100}$'s, $\frac{1}{10}$'s 1's, 10's etc



1.2, 1.3, 1.4
6.43, 6.43, 6.41

Say the number $\frac{1}{1000}$, $\frac{1}{100}$, $\frac{1}{10}$, 1 or 10 before or after any number including negative numbers



Order decimals to 3 digits in the correct order



$\frac{2}{10}$ $\frac{3}{4}$ $\frac{1}{2}$ $\frac{3}{5}$

Order fractions with different denominators



Round whole numbers and decimals to the nearest 1 or $\frac{1}{10}$



Recall all multiplication and division facts up to 10x10

Strategy



Place value partitioning
 $8.65 + 4.28 + 4 + 0.6 + 0.2 + 0.05$



Estimate and solve addition problems involving decimal numbers using

- Place value partitioning
- Adding on in parts



Negative numbers (Integers)

$$7 - -3 = 7 + 3 = 10$$



Solve addition and subtraction problems involving negative numbers (integers)

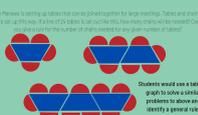


simple equivalent fractions

$$\frac{3}{4} + \frac{3}{8} = \frac{6}{8} + \frac{3}{8} = \frac{9}{8}$$



Solve problems involving adding and subtracting fractions with like denominators or simple equivalent fractions ($\frac{3}{4} + \frac{5}{8} = \frac{6}{8} + \frac{5}{8} = \frac{11}{8} = 1 \frac{3}{8}$)



Find and represent relationships in spatial and number patterns using

Tables and graphs

General rules for linear relationships



Expressing remainders as fractions,

decimals or whole numbers

$38 \div 6 = 6 \text{ r}2$ or
 $6 \frac{1}{3}$ or
 6.33



Solve multiplication and division problems choosing the most efficient from a broad range of strategies

- Compensation from tidy numbers
- Place value
- Reversibility
- Proportional adjustment
- Express remainders as fractions, decimal or whole numbers
- Standard written forms / vertical algorithms for \times and \div



Unit fractions

$(\frac{5}{8} \times 72 \text{ as } 5 \times$
 $(\frac{1}{8} \times 72)$



Can solve problems involving fractions, decimals, ratios and proportions by using

- Unit fractions ($\frac{5}{8} \times 72$ as $5 \times (\frac{1}{8} \times 72)$)
- Place value (3.4×8 as $(3 \times 8) + (0.4 \times 8)$) or $13 \div 5 = (10 \div 5) + (3 \div 5) = 2 \frac{3}{5}$
- Compensation from tidy numbers ($2.9 \times 6.3 = (3 \times 6.3) - 0.1 \times 6.3$)
- Equivalent fractions $40\% \text{ of } 35 = \frac{2}{5} \text{ of } 35$

At Level 4: After 8 years

Level 5: Waru

Advanced Proportional - Part Whole



I am learning to....

Knowledge

- Say the number 0.001, 0.01, 0.1, 1, 10 before and after decimal numbers
- Order fractions, decimals and percentages
- Recall prime numbers to 20
- Know how many $\frac{1}{1000}$, $\frac{1}{100}$ and $\frac{1}{10}$'s that are in numbers to 3 decimal places
- Know what happens when any number is multiplied or divided by a power of ten
- Round decimals to the nearest 100, 10, 1, 0.1 or 0.01
- Recall fraction, decimal and percentage conversions for commonly used fractions: (1 /8s, 1 /10s 1 /20s etc)
- Know simple powers of numbers to 10
- Use divisibility rules for 2, 3, 4, 5, 6, 8, 9, 10
- Identify common factors of pairs of numbers to 100
- Identify lowest common multiple of pairs of numbers to 10

Strategy

- Can solve addition and subtraction problems with fractions and decimals by using a range of mental partitioning strategies

- Can solve multiplication and division problems with fractions and decimals
 - Conversion between fractions and decimals
 - Place value
 - Doubling and halving
 - Commutativity
 - Multiplying numerators and denominators
 - Converting to common denominators
- Can find fractions, decimals and percentages of given amounts
- Can estimate answers and solve problems involving proportions, ratios and rates by
 - Using common factors
 - Re-unitising fractions, decimals and percentages
 - Finding relationships between and within ratios and simple rates
- *Use written forms for:*
 - Addition and subtraction of whole numbers and decimals to 3 decimal places
 - Multiplication and division of whole numbers, decimals and fractions multiplied by a single digit number
 - Multiplication of 4 digit x 2 digit whole numbers
- Can form and solve linear and simple quadratic equations
- Generalise the properties of operations with fractional numbers and integers
- Relate tables, graphs and equations to linear and simple quadratic relationships found in number and spatial patterns

At Level 5: After 9 years