Helping Children To Learn Information Booklet for Parents

Numeracy in the Year 4

WALT AND WILF?

A Little bit of Theory..

We want to encourage our students to be actively involved in their learning because research shows that they are more motivated when they understand not just the task but the learning objective of the task. We want them to understand what they are being asked to do and what we hope they will learn in order to help them to make better decision about how they tackle a set task.

Learning is more effective if they are asked to help create the success criteria *(i.e. How will we know we've achieved this?) because they can be clear about how their work will be judged and what the teacher wants to see in the finished task. By inviting children to help create the success criteria, we are involving them in their own learning and encouraging them to evaluate their performance.*

Children need to know why they are learning something so that they can see how their work fits into the "bigger picture".

WALT *is short for* **We Are Learning…**

These are the learning objectives for the lesson.

WILF is short for What I'm Looking for…

These are the success criteria against which the children and teacher judge how well they are doing.

Example of WALT and WILF in Maths	
Year 4	
WALT We are learning… To represent time as 'am' and 'pm'	WILF What I'm looking for… I know how to write time as 'am' and 'pm'

You can help by asking your child "**What did you learn today?**" rather than "**What did you do today?**"

Problem Solving Strategies Taught Across Year 4			
Term 1	*Term 2*	*Term 3*	*Term 4*
MADt— (Multiplication and Division Triangle) Patterns Benchmark - probability	MADt - (Multiplication and Division Triangle) Part-Part-Whole Patterns Benchmark - time/ location Benchmark -angles Focus on parts	MADt— Multiplication and Division Triangle) Patterns Benchmark Part-Part-Whole Focus on parts	MADt— (Multiplication and Division Triangle) Benchmark— probability Patterns Part-Part-Whole

Part-Part-Whole

All addition and subtraction problems can be represented using the Part-Part-Whole Model. The Part-Part-Whole strategy enables students to identify the correct operation and represent the situation using the appropriate mathematical numbers and symbols**.**

Part + Part = Whole

Whole

Part + Part

This strategy is useful when.....

Patterns

Look at a series of objects, colours or numbers to see if you can find a pattern. The pattern should repeat and may not always be obvious.

Focus on Parts

Analyse the component parts that form the object - their shape, size and placement, considering how the components fit and hold together.
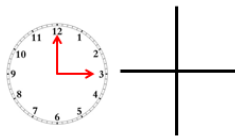
See the parts to match the whole

Benchmark - Angles

Students are frequently required to compare or classify angles.
Significant benchmark angles are right angle (90°), straight angle (180°).

Concrete Representation	Semi-Abstract	Abstract
Students can be provided with a transparency to overlay on the angle they are comparing	Students sketch reference angles onto angle they are comparing	Students visualise the angle they are looking at to compare with benchmark angles

MADt—Multiplication and Division Triangle

Fact triangles are an effective device to memorise because they emphasise fact families**.**

Multiplication & Division Triangle

QUANTITY

Number of groups × Amount per group

Benchmark - Time/Location

When calculating elapsed time it is useful for students to benchmark to the next

- hour
- half hour
- quarter hour

Or

- noon
- midnight

| Concrete Representation	Semi-Abstract	Abstract
Students can be provided with a clock face to skip count time	Students represent time on a number line	Students visualise benchmark angles on the angle they are comparing

MADt - Multiplication and Division Strategy

All Multiplication and division problems can be represented using the Multiplication and Division Triangle.
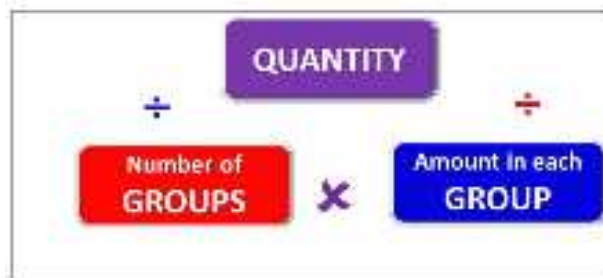
Benchmark - Fractions

Students are frequently required to compare fractions and decimals and to determine the probability of event. Knowing benchmark values such as half and quarter provides a reference point for comparison.
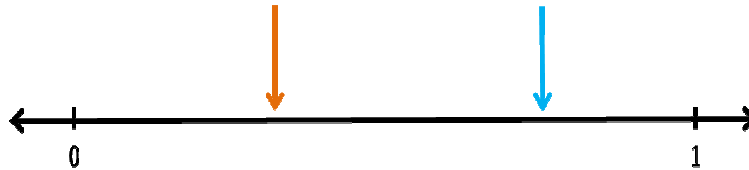
Mental Calculation Strategies:
Split
Jump
Compensate
Vertical Algorithm

Jump Strategy
Addition: When adding two numbers one number is partitioned into parts and these parts are added to the other number.
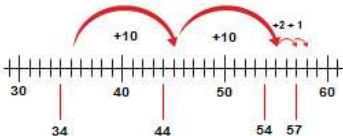
Jump Strategy

Subtraction: When subtracting two numbers one is partitioned into parts and these numbers are subtracted from the other number.
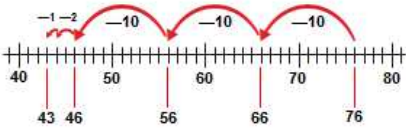
Jump strategy — Subtraction

Scan

76 − 33 = ?

Think

Start at   76
Jump back 10   66
Jump back 10   56
Jump back 10   46
then,
jump back 2   44
jump back 1   43
76 take away 33 is 43

Do

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

−1 −2   −10   −10   −10

40   50   60   70   80
43 46   56   66   76

Compensate Strategy

Addition: When adding two numbers one number is adjusted up or down to make the addition easier. The numbers are added together and then the total is compensated by the original adjustment.
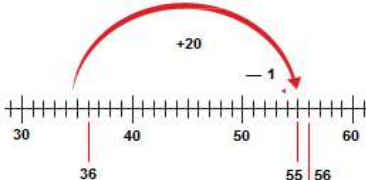
Compensate strategy — Addition

Scan

36 + 19 = ?

Think

Start with 36
19 is close to 20
add 36 and 20,
equals 56
take away 1 is 55
36 add 19 is 55

Do

+20

−1

30   40   50   60
36   55 56

Partitioning—Standard

Standard partitioning is breaking numbers according to the place value of each digit.

When partitioning the numbers they can be written in digit form or word form.

For example: 29 503 =

2 ten thousands + 9 thousands + 5 hundreds + 0 tens + 3 ones **OR**

20 000 + 9 000 + 500 + 3.

Writing the number on an **open number expander** helps to see the place value parts.

2	10 thousands	9	thousands	5	hundreds	0	tens	3	ones
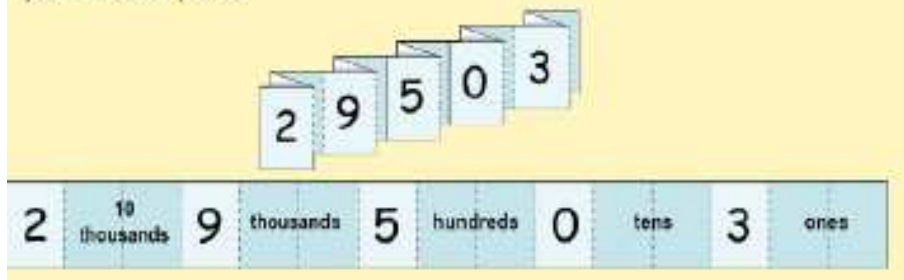
Partitioning— Non– standard

- **Non-standard partitioning** is breaking numbers in ways that *don't* use the place value of each digit.

For example: 23 465 = 23 thousands + 4 hundreds + 6 tens + 5 ones

23 thousands + 46 tens + 5 ones

23 thousands + 465 ones

NUMBER FACTS

Students will develop automaticity and confidence with numbers and calculations by saying number sequences. The strategies covered in Year 4 are:

- Doubles (extension)
- Near Doubles
- Rainbow Facts (extension)
- Count on 1,2, 3
- Add zero
- Add 10
- Add 100
- Count back 1, 2, 3
- Take zero
- Take 10
- Take 100
- Timetables to 12

WARMUPS

Goal: Warmups are designed to promote fluency with core skills in a variety of contexts (to move core curriculum content from short term memory to long term memory.

Usually delivered at the start of a Maths block. A typical numeracy warmup may include:

- Number facts
- Times tables
- Counting
- Four processes
- Place Value
- Rules, formulae
- Extended number facts
- Maths vocabulary
- Applications on concepts/skills

Concepts taught across Year 4

Term 1

Number and place value
- make connections between representations of number
- partition and combine numbers flexibly
- recall multiplication facts
- formulate, model & record authentic situations involving operations
- compare large numbers
- generalise from number properties & results of calculations
- derive strategies for unfamiliar multiplication & division tasks

Fractions and decimals
- communicate sequences of simple fractions

Patterns and algebra
- use properties of numbers to continue patterns

Using units of measurement
- use appropriate language to communicate times
- compare time durations & use instruments to accurately measure lengths

Chance
- compare dependent & independent events
- describe probabilities of everyday events

Data representation and interpretation
- collect & record data
- communicate information using graphical displays & evaluate the appropriateness of different displays.

Concepts taught across Year 4

Term 2

Number and place value
- recognise, read & represent 5-digit numbers
- partition numbers using standard & non-standard place value parts
- compare & order 5-digit numbers
- identify odd & even numbers
- make generalisations about the properties of odd & even numbers
- make generalisations about adding, subtracting, multiplying & dividing odd & even numbers,
- recall of 3s, 6s, 9s facts, solve multiplication & division problems,
- use informal recording methods for calculations
- apply mental & written strategies to computation

Fractions and decimals
- develop understanding of proportion & relationships between fractions in the halves family & thirds family
- count & represent fractions on number lines
- represent fractions using a range of models
- solve fraction problems in familiar contexts

Money and financial mathematics
- read & represent money amounts
- investigate change, rounding to five cents
- explore strategies to calculate change
- solve problems involving purchases & the calculation of change
- explore Asian currency & calculate foreign currencies

Shape
- explore properties of polygons & quadrilaterals
- identify combined shapes
- investigate properties of shapes within tangrams
- create polygons & combined shapes using tangrams

Geometric reasoning
- identify angles
- construct & label right angles
- identify & construct angles not equal to a right angle
- mark angles not equal to a right angle

Concepts taught across Year 4

Term 2 continued

Location and transformation
- ♦ investigate the features on maps & plans
- ♦ identify the need for legends
- ♦ investigate the language of location, direction & movement
- ♦ find locations using turns & everyday directional language
- ♦ identify cardinal points of a compass
- ♦ investigate compass directions on maps
- ♦ investigate the purpose of scale
- ♦ apply scale to maps & plans
- ♦ explore mapping conventions
- ♦ plan & plot routes on maps
- ♦ explore appropriate units of measurement & calculate distances
- ♦ using scales

Concepts taught across Year 4

Term 3

Number and place value
- ♦ sequence number values
- ♦ apply number concepts & place value understanding to the calculation of addition, subtraction, multiplication & division

Fractions and decimals
- ♦ partition to create fraction families
- ♦ identify, model & represent equivalent fractions
- ♦ count by fractions
- ♦ solve simple calculations involving fractions with like denominators
- ♦ model & represent tenths & hundredths
- ♦ make links between fractions & decimals
- ♦ count by decimals, compare & sequence decimals

Concepts taught across Year 4

Term 3 continued

Money and financial mathematics
- represent, calculate & round amounts of money required for purchases & change

Patterns and algebra
- use equivalent addition & subtraction number sentences to find unknown quantities

Using units of measurement
- use scaled instruments to measure & compare length, mass, capacity & temperature
- measure areas using informal units & investigate standard units of measurement

Shape
- compare the areas of regular & irregular shapes using informal units of area measurement

Location and transformation
- investigate different types of symmetry, analyse & create symmetrical designs.

Concepts taught across Year 4

Term 4

Number and place value
- calculate using a range of mental & written strategies with 2 & 3 digit numbers
- recall multiplication & related division facts
- calculate multiplication & division using a range of mental & written strategies
- solve problems involving the four operations

Term 4 continued

Fractions and decimals
♦ count & identify equivalent fractions
♦ locate fractions on a number line,
♦ read & write decimals
♦ identify fractions & corresponding decimals
♦ compare & order decimals (to hundredths)

Money and financial mathematics
♦ calculate change to the nearest five cents
♦ solve problems involving Purchases

Patterns and algebra
♦ investigate & describe number patterns
♦ solve word problems & use equivalent multiplication & division number sentences to find unknown quantities

Using units of measurement
♦ measure & compare volume
♦ use am & pm notation
♦ solve simple time problems

Shape
♦ measure area of shapes
♦ compare the areas of regular & irregular shapes by informal means

Chance
♦ describe the likelihood of everyday chance events
♦ order events on a continuum

Data representation and interpretation
♦ write questions to collect data
♦ collect & record data
♦ display & interpret data