Helping Children to Learn

Information Booklet for

Parents

Numeracy in Year 3

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 3	
WALT We are learning… To read the time to 5 minute intervals	WILF What I'm looking for… I know where the hand points for 5 minute intervals

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 3			
Term 1	*Term 2*	*Term 3*	*Term 4*
Part-Part-Whole Patterns MADT (Multiplication and division triangle)	Benchmarks— Angles Part-Part-Whole Focus on Parts MADT (Multiplication and division triangle)	Benchmark - Fractions Focus on Parts Part-Part-Whole	MADT (Multiplication and division triangle) Part-Part-Whole Benchmark - Angles

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.

2 ? 6 8
find a pattern

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
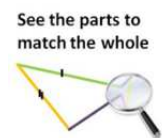
Benchmark - Angles

Students are frequently required to compare or classify angles.
Significant benchmark angles are 90°, 180° and 270°.
This can be further extended to include 30°, 45° and 60°.
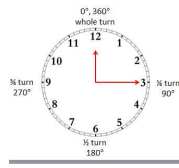
Benchmark - Fractions

Benchmarking to 1 is useful when comparing fractions and decimals

MADt - Multiplication and Division Strategy

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

The Multiplication and Division Triangle enables students to identify the correct
operation and represent the situation using the appropriate mathematical
numbers and symbols.
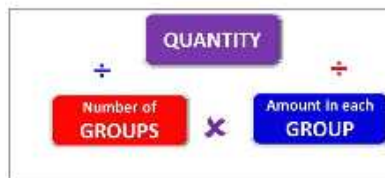
Mental Calculation Strategies:
Split
Jump
Compensate
Vertical Algorithm

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.

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

Subtraction: When subtracting two numbers one number is adjusted up or down to make the subtraction easier. The numbers are then subtracted from each other and then the total is compensated by the original adjustment.

Split Strategy

Addition: When adding two numbers both numbers are split or portioned into place value parts and the place value parts are added. You then combine the added parts to get the answer.

Subtraction: When subtracting two numbers break them up into place value parts and the place value parts are then subtracted. Then add the place value parts to get the answer.

Vertical Algorithm

When children are learning to add and subtract larger numbers they can use what is called the vertical algorithm.

One number is placed above the other number according to its value (thousands, hundreds, tens, ones). In this step-by-step method the numbers are added and subtracted vertically in the ONES, then TENS, then HUNDREDS, then THOUSANDS column and so on. A place value chart is used to show this process. It may require trading, **Trading** is changing a quantity into smaller or bigger parts without changing its value.

Using a vertical algorithm without trading

Addition 135 + 54 = ?

Hundreds	Tens	Ones
1	3	5
+	5	4
1	8	9

+

The sum of these digits is less than 10 so no trading to the TENS is needed.

Subtraction 257 – 43 = ?

Hundreds	Tens	Ones
2	5	7
-	4	3
2	1	4

–

Less TENS are being taken away, so no trading is needed.

Using the vertical algorithm with trading

Addition problems will involve trading when you add digits in a column and they make more than 10.

	1	
Hundreds	**Tens**	**Ones**
2	3	4
+	5	8
2	9	2

4 ones + 8 ones = 12 ones.

We don't put more than 9 in a column.

12 = 1 TEN and 2 ONES so we trade 10 ONES for 1 TEN.

The 1 TEN goes to the TENS column and the 2 remaining ONES stay in their column.

All the TENS in the column are now added together.

Subtraction 245 – 28 = ?

Subtraction problems will involve trading if there are more ONES, TENS, HUNDREDS in the number being taken away.

This means the children will have to trade some from the larger column, ie ONES will trade with TENS, TENS will trade with HUNDREDS etc.

Hundreds	Tens	Ones
2	³4	¹5
–	2	8
2	1	7

We can't take 8 away from 5.

There are more ONES in the number being taken away, so we need to trade 1 TEN into the ONES column to give us 15 ONES.
15 ONES – 8 ONES = 7 ONES

Now we only have 1 TEN left.

NUMBER FACTS

Students will develop fluency and confidence with numbers and calculations by saying number sequences.. The strategies covered in Year 3 are:

- Doubles
- Doubles extension and Near Doubles
- Build to 10 extension
- Count on 1,2, and 3 from any given number
- Add zero
- Add 10
- Add 100
- Count back 1, 2 and 3 from any given number
- Take zero
- Take 10
- Take 100
- Times tables 0, 1, 2, 3, 5 and 10
- Division by 1, 2, 3, 5 and 10
- Division by 1, 2, 3, 5 and 10

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
- Maths vocabulary
- Applications on concepts/skills

Concepts taught across Year 3 - Australian Curriculum
Term 1

Number and place value
- count to 1 000
- investigate the 2s, 3s, 5s and 10s number sequences
- identify odd and even numbers
- represent 3-digit numbers
- compare and order 3-digit numbers
- partition numbers (standard and non-standard place value partitioning)
- recall addition facts and related subtraction facts
- represent and solve addition problems
- add 2-digit, single-digit and 3-digit numbers
- subtract 2-digit and 3-digit numbers
- represent multiplication
- solve simple problems involving multiplication
- recall multiplication number facts

Using units of measurement
- tell time to 5-minute intervals
- identify one metre as a standard metric unit
- represent a metre, measure with metres

Chance
- conduct chance experiments
- describe the outcomes of chance experiments
- identify variations in the results of chance experiments

Concepts taught across Year 2 - Australian Curriculum

Term 1 continued...

Data representation and interpretation
♦   collect simple data, record data in lists and tables
♦   display data in a column graph
♦   interpret and describe outcomes of data investigations

Concepts taught across Year 3 - Australian Curriculum

Term 2

Number and place value
♦   compare and order three-digit numbers
♦   partition three-digit numbers into place value parts
♦   investigate 1 000, count to and beyond   1 000
♦   use place value to add and subtract numbers
♦   recall addition number facts
♦   add and subtract three-digit numbers
♦   add and subtract numbers eight and nine
♦   solve addition and subtraction word problems
♦   double and halve multiples of ten

Fractions and decimals
♦   describe fractions as equal portions or shares
♦   represent halves
♦   quarters and eighths of shapes and collections
♦   represent thirds of shapes and collections

Money and financial mathematics
♦   count collections of coins and notes
♦   make and match equivalent combinations
♦   calculate change from simple transactions
♦   solve a range of simple problems involving money

Patterns and algebra
♦   infer pattern rules from familiar number patterns
♦   identify and continue additive number patterns
♦   identify missing elements in number patterns

Concepts taught across Year 2 - Australian Curriculum
Term 2 continued...

Shape
- ◆ identify and describe the features of familiar three-dimensional objects
- ◆ make models of 3D objects

Location and transformation
- ◆ represent positions on a simple grid map
- ◆ show full, half and quarter turns on a grid map
- ◆ describe positions in relation to key features
- ◆ represent movement and pathways on a simple grid map
- ◆

Geometric reasoning
- ◆ identify angles in the environment
- ◆ construct angles with materials
- ◆ compare the size of familiar angles in everyday situations

Concepts taught across Year 3 - Australian Curriculum
Term 3

Number and place value
- ◆ count in sequences beyond 1000
- ◆ represent, combine and partition 4-digit numbers flexibly
- ◆ represent multiplication as arrays and repeated addition
- ◆ recall multiplication number facts
- ◆ identify related division number facts
- ◆ make models and use number sentences that represent problem situations
- ◆ recall addition and subtraction facts
- ◆ identify and describe the relationship between addition and subtraction
- ◆ choose appropriate mental and written strategies to add and subtract

Fractions and decimals
- ◆ represent and compare unit fractions of shapes and collections
- ◆ represent unit fractions symbolically
- ◆ solve simple problems involving, halves, thirds, quarters and eighths

Concepts caught across Year 3
Term 3 continued...

Money and financial mathematics
- represent money amounts in different ways
- count collections of coins and notes accurately and efficiently
- calculate change and simple totals
- choose appropriate mental strategies to add and subtract

Patterns and algebra
- connect number representations with number patterns
- use number properties to continue number patterns
- identify pattern rules to find missing elements in patterns

Units of measurement
- use familiar metric units to order and compare objects
- explain measurement choices
- represent time to the minute on digital and analog clocks
- transfer knowledge of time to real-life contexts

Location and transformation
- identify examples of symmetry in the environment
- classify shapes as symmetrical and non- symmetrical

Concepts taught across Year 3 - Australian Curriculum
Term 4

Number and place value
- recall addition and related subtraction number facts
- use 'part-part-whole' thinking to interpret and solve addition and subtraction word problems
- add and subtract using a written place value strategy
- recall multiplication and related division facts, multiply 2-digit numbers by single-digit multipliers
- interpret and solve multiplication and division word problems

Fractions and decimals
- identify, represent and compare familiar unit fractions and their multiples (shapes, objects and collections)
- describe the fractional relationship between parts and the whole
- record fractions symbolically
- recognise key equivalent fractions
- solve simple problems involving fractions
.

Money and financial mathematics
- represent money values in multiple ways
- count the change required for simple transactions to the nearest five cents

Using units of measurement
- measure, order and compare objects using familiar metric units of length, mass and capacity
- tell time to the minute
- investigate the relationship between units of time

Shape
- make models of three-dimensional objects
- sort and describe three-dimensional objects with curved surfaces

Location and transformation
- represent symmetry, interpret simple maps and plans

Geometric reasoning
- identify angles as measures of turn
- compare angle sizes in everyday situations

Chance
- explore the language of chance
- make predictions based on data displays

Data representation and interpretation
- identify questions of interest based on one categorical variable
- gather data relevant to a question
- organise and represent data
- interpret data displays

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