Westgarth Primary School Parent Night:

Foundation to Year 2

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Giving students the license to think in flexible ways:

Developing strategies for understanding the addition and subtraction facts

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Victorian Curriculum: Mathematics

Rationale and Aims

http://victoriancurriculum.vcaa.vic.edu.au/mathematics/introduction/rationale-and-aims

The Mathematics curriculum aims to ensure that students:

- develop useful mathematical and numeracy skills for everyday life, work and as active and critical citizens in a technological world
- see connections and apply mathematical concepts, skills and processes to pose and solve problems in mathematics and in other disciplines and contexts
- acquire specialist knowledge and skills in mathematics that provide for further study in the discipline
- appreciate mathematics as a discipline – its history, ideas, problems and applications, aesthetics and philosophy

Learning in Mathematics http://www.vcaa.vic.edu.au/Pages/foundation10/f10index.aspx

The proficiencies of Understanding, Fluency, Problem Solving and Reasoning are fundamental to learning mathematics and working mathematically, and are applied across all three strands Number and Algebra, Measurement and Geometry, and Statistics and Probability.

Students build understanding when they:

- connect related ideas
- represent concepts in different ways
- identify commonalities and differences between aspects of content
- describe their thinking mathematically
- interpret mathematical information.

Students are fluent when they:

- make reasonable estimates
- calculate answers efficiently
- recognise robust ways of answering questions
- choose appropriate methods and approximations
- recall definitions and regularly use facts,
- can manipulate expressions and equations to find solutions.

Students pose and solve problems when they:

- use mathematics to represent unfamiliar or meaningful situations
- design investigations and plan their approaches
- apply their existing strategies to seek solutions
- verify that their answers are reasonable.

Students are reasoning mathematically when they:

- explain their thinking
- deduce and justify strategies used and conclusions reached
- adapt the known to the unknown
- transfer learning from one context to another
- prove that something is true or false
- make inferences about data or the likelihood of events
- compare and contrast related ideas and explain their choices.

Framework of Mathematical Learning

http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/Pages/enrpframe.aspx

C. Strategies for addition and subtraction

0. Not apparent.
   Not yet able to combine and count two collections of objects.

1. Count all (two collections)
   Counts all to find the total of two collections.

2. Count on
   Counts on from one number to find the total of two collections.

3. Count back/count down to/count up from
   Given a subtraction situation, chooses appropriately from strategies including count back, count down to and count up from.

4. Basic strategies (doubles, commutativity, adding 10, tens facts, other known facts)
   Given an addition or subtraction problem, strategies such as doubles, commutativity, adding 10, tens facts, and other known facts are evident.

5. Derived strategies (near doubles, adding 9, build to next ten, fact families, intuitive strategies)
   Given an addition or subtraction problem, strategies such as near doubles, adding 9, build to next ten, fact families and intuitive strategies are evident.

6. Extending and applying addition and subtraction using basic, derived and intuitive strategies
   Given a range of tasks (including multi-digit numbers), can solve them mentally, using the appropriate strategies and a clear understanding of key concepts

6 + 3 = 

Strategy	**Example**
Count all – triple count	Student counts all the blue counters: 1, 2, 3, 4, 5, 6. Then counts all the red counters: 1,2, 3 Then attempts to count all the counters while waving his/her hand over the top and says: 1, 2, 3, 4, 5, 6, 7, **8**.
Counts all – starting at one	Student starts with the blue counter on the left and touches each counter as he counts: 1, 2, 3, 4, 5, 6, 7, 8, **9**
Counts on – from incorrect number	Student waves his hand over the blue counters and says six. He/she starts counting the red counters 6, 7, **8**
Counts on from larger however number is on the left	Student points to the blue counters and says six. She/he then starts counting the red counters 7, 8, **9**
Uses known fact	Student says there are **9** counters because he/she knows that six and three are nine.

What is 8 – 5? 

Strategy	Example
Counts the number of counters left	John crossed out 5 triangles and counted the number left: 1, 2, **3**
Counts back from incorrect number	Meg pointed to the last triangle then counted back using her fingers to show five counts as she said: 8, 7, 6, 5, **4**
Counts back from correct number	Finn touched the last triangle then counted back touching each triangle as he went saying: 7, 6, 5, 4, **3**
Counts up from	Con said ***five*** then said 6, 7, 8 as he put out three fingers. The answer is **3.**
Uses known doubles facts	Jill said: " I know 8 take away 4 is 4 so 8 take away 5 must be **3**.
Uses known facts	Bill said: "I know 3 + 5 equals 8 so 8 – 5 equals **3**.

If I know that 6 + 4 = 10 what else do I know?

How would you solve 16 + 9 in your head (mentally)?

How would you solve 53 – 17 mentally?

How would you solve $3.00 - $1.65?

Place in order from easiest to hardest:

36 + 24 = __ 25 + __ = 48 17 + 14 = __ + 15

19 + 19 = 20 + __ 28 + 37 = __ __ + 19 = 30 + 20

Tens Frames

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20