Westgarth Primary School Parent Night: 
Years 3 & 4 
24th May 2016

Strategies matter: Building on what students know 
Developing strategies for understanding the 
multiplication and division facts

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Victorian Curriculum: Mathematics

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
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

Retrieved from

D. Strategies for multiplication and division

0. Not apparent.
Not yet able to create and count the total of several small groups.

1. Counting group items as ones
To find the total in a multiple group situation, refers to individual items only.

2. Modelling multiplication and division (all objects perceived)
Models all objects to solve multiplicative and sharing situations.

3. Abstracting multiplication and division
Solves multiplication and division problems where objects are not all modelled or perceived.

4. Basic derived and intuitive strategies for multiplication
Can solve a range of multiplication problems using strategies such as commutativity, skip counting and building up from known facts.

5. Basic, derived and intuitive strategies for division
Can solve a range of division problems using strategies such as fact families and building up from known facts.

Extending and applying multiplication and division
Can solve a range of multiplication and division problems (including multi-digit numbers) in practical contexts
1. The 2s facts
e.g. 2 ones, 2 twos, 2 threes, 2 fours, ... 2 eights ...
DOUBLES e.g. “2 sevens ... double 7, 14”
Establish RELATED facts, e.g. 7 twos, think 2 sevens

2. The 3s facts
e.g. 3 ones, 3 twos, 3 threes, 3 fours ... 3 eights, 3 nines ...
DOUBLES AND 1 MORE GROUP e.g. “3 eights ... double 8, 16 and 8 more, 20 ... 24”
Establish RELATED facts, e.g. 8 threes, think 3 eights

3. The 4s facts
e.g. 4 ones, 4 twos, 4 threes, 4 fours ... 4 eights, 4 nines ...
DOUBLE DOUBLES e.g. “4 sixes ... double 6, 12, double 12, 24”
Establish RELATED facts e.g. 6 fours think 4 sixes

4. The 5s facts
e.g. ... 5 threes, 5 fours, 5 fives, 5 sixes ... 5 eights, 5 nines ...
RELATE TO TENS e.g. “5 eights is half of 10 eights, 40
Establish RELATED facts e.g. 8 fives, think 5 eights or 4 tens

5. The 9s facts
e.g. ... 9 sixes, 9 sevens, 9 eights, 9 nines
TEN GROUPS LESS 1 GROUP e.g. 9 eights is less than 10 eights, it is 8 less, 72”
Establish RELATED facts using the same strategy e.g. 8 nines is less than 8 tens it is 8 less, 72

6. The 1s and 0s facts
e.g. 1 one, 1 two, 1 three, 1 four ... 1 of anything is anything
Establish RELATED facts e.g. 8 ones, think 1 eight
e.g. 0 ones, 0 twos, 0 threes, 0 fours ... 0 ‘anythings’ is zero
Establish RELATED facts e.g. 9 zeros, think 0 nines

7. Deal with remaining facts
## Tracking multiplication and division fact knowledge

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(Donald Eddington, 2014; adapted from Dianne Siemon, 2011)
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