

**DON'T**

**PANIC**

**PoLT**

**VELS**

**Standards, mark II**

**Progression Points**

**-> reporting**

**-> planning**

# POLI

## **Students learn best when:**

- 1 The learning environment is supportive and productive.**
- 2 The learning environment promotes independence, interdependence and self-motivation.**
- 3 Students' needs, background, perspectives and interests are reflected in the learning**

# PoLT

**4 Students are challenged and supported to develop deep levels of thinking and application.**

**5 Assessment practices are an integral part of teaching and learning.**

**6 Learning connects strongly with communities and practice beyond the classroom.**

# VELS

**What are the**

**three strands?**

**1 Physical, personal and social learning.**

**2 Disciplines, such as Mathematics, each of which has its own way of thinking about the world.**

**(Working Mathematically)**

**3 Interdisciplinary learning: generic skills such as thinking, ICT, communicating and creating.**

# **MATHEMATICS**

**has five dimensions:**

**NUMBER**

**SPACE**

**MEASUREMENT**

**combined with CHANCE & DATA**

**STRUCTURE**

**and within them all**

**In case you are  
worried,  
VCAA wrote and  
approved the VELS  
approach.**

**“This will greatly improve the  
VCE results.”**

# **VELS standards in Mathematics**

## **WORKING MATHEMATICALLY**

**Reasoning**

**Investigating**

**Applying**

**Technology**

# **VELS standards in Mathematics**

## **NUMBER**

**Place value and decimals**

**Integers (inc. whole numbers)**

**Fractions**

# **VELS standards in Mathematics**

## **Meast, Chance & Data**

**Units, attributes, measuring &  
estimating**

**Calculating with measurement**

**Chance**

**Data**

# **VELS standards in Mathematics**

## **SPACE**

### **Geometry (i.e. Shapes)**

### **Location**

# **VELS standards in Mathematics**

## **STRUCTURE**

**Thinking logically**

**Functions and graphs**

**Variables and equations**

# **NUMBER Level 4a**

**Students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions).**

**They model integers, common fractions and decimals.**

**They place integers, decimals and common fractions on a number line.**

**They create sets of number multiples to find the lowest common multiple of the numbers.**

**They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1 x 12, 2 x 6 and 3 x 4).**

# **NUMBER Level 4b**

**Students identify square, prime and composite numbers.**

**They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers.**

**They recognise and calculate simple powers of whole numbers (for example,  $2^4 = 16$ ).**

**Students use decimals, ratios and percentages to find equivalent representations of common fractions.**

**They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers.**

**They add, subtract and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money.**

**They use estimates for computations and apply criteria to determine if estimates are reasonable or not.**

# **STRUCTURE Level 4**

**Students form and specify sets of numbers, shapes and objects according to given criteria and conditions.**

**They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all.**

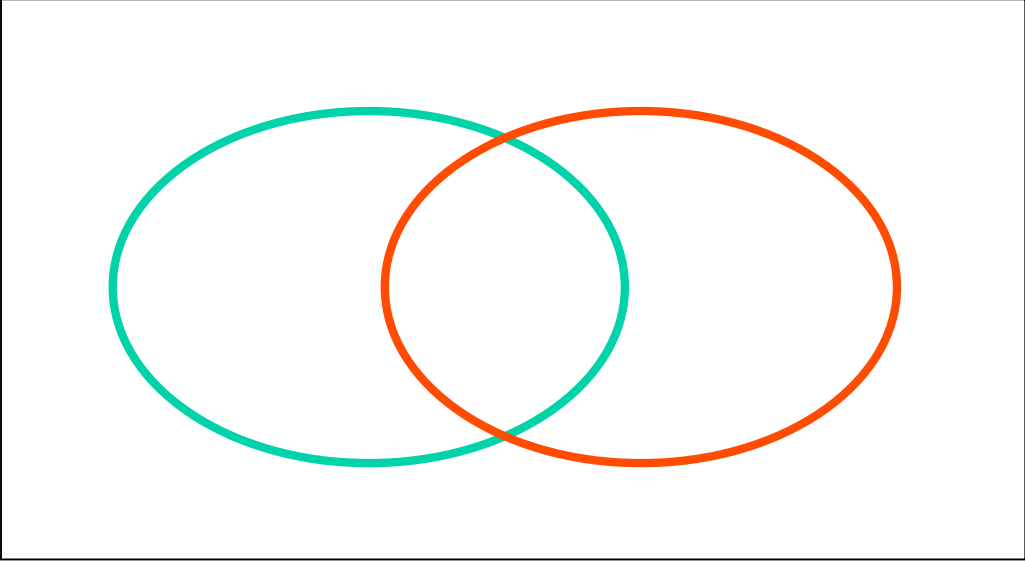
**They construct and use rules for sequences, based on the previous term (recursion) and by formula.**

**Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition.**

**They identify relationships between variables and describe them with language and words.**

**They recognise that addition and subtraction, and multiplication and division, are inverse operations.**

**They use words and symbols to form simple equations and solve equations by trial and error.**



# Standards & Years

Level of 'average child'

<b>Std</b>	<b>1.0</b>	<b>2.0</b>
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<b>Yr</b>	<b>P</b>	<b>2</b>
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<b>Std</b>	<b>3.0</b>	<b>4.0</b>
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<b>Yr</b>	<b>4</b>	<b>6</b>
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<b>Std</b>	<b>5.0</b>	<b>6.0</b>
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<b>Yr</b>	<b>8</b>	<b>10</b>
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# Progression Points & Years

Level of 'average child'

<b>PP</b>	<b>1.0</b>	<b>1.5</b>	<b>2.0</b>	<b>2.5</b>
<b>Yr</b>	<b>P</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>PP</b>	<b>3.0</b>	<b>3.5</b>	<b>4.0</b>	<b>4.5</b>
<b>Yr</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>PP</b>	<b>5.0</b>	<b>5.5</b>	<b>6.0</b>	<b>6.5</b>
<b>Yr</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>

# Progression Points & Semesters

Level of 'average child'

<b>PP</b>	<b>0.5</b>	<b>1</b>	<b>1.25</b>	<b>1.5</b>	<b>1.75</b>	<b>2.0</b>	<b>2.25</b>	<b>2.5</b>
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<b>Yr</b>	<b>JP</b>	<b>DP</b>	<b>J1</b>	<b>D1</b>	<b>J2</b>	<b>D2</b>	<b>J3</b>	<b>D3</b>
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<b>PP</b>	<b>2.75</b>	<b>3</b>	<b>3.25</b>	<b>3.5</b>	<b>3.75</b>	<b>4.0</b>	<b>4.25</b>	<b>4.5</b>
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<b>Yr</b>	<b>J4</b>	<b>D4</b>	<b>J5</b>	<b>D5</b>	<b>J6</b>	<b>D6</b>	<b>J7</b>	<b>D7</b>
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<b>PP</b>	<b>4.75</b>	<b>5</b>	<b>5.25</b>	<b>5.5</b>	<b>5.75</b>	<b>6.0</b>	<b>6.25</b>	<b>6.5</b>
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<b>Yr</b>	<b>J8</b>	<b>D8</b>	<b>J9</b>	<b>D9</b>	<b>J10</b>	<b>D10</b>	<b>11</b>	<b>11</b>
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# **Progression Points in Number**

## **3.25**

**Students find equivalent fractions, multiples and fractions of fractions, such as twice one sixth or half of one third, and perform simple addition and subtraction using fraction models including linear models.**

**“Record an ‘on-balance’ judgement”**

**NOT A TEACHING PROGRAM**

# **Progression Points in Number**

## **3.5**

**Students find equivalent fractions, multiples and fractions of fractions, including the number line. They model percentages as fractions out of 100 and find equivalences with decimals and fractions in simple cases.**

**“Record an ‘on-balance’ judgement”**

**NOT A TEACHING PROGRAM**

# **Progression Points in Number**

## **3.75**

**Students use percentage notation, describe its relationship to decimals and some simple cases or equivalences to common fractions. They use ratios to compare the sizes of two quantities.**

**“Record an ‘on-balance’ judgement”**

**NOT A TEACHING PROGRAM**

# **Standard in Number**

## **4.0**

**Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example ...). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money.**

**Look for the developmental stages in the preceding progression points.**

# **Progression Points in Number**

**Example of the development of a big idea.**

## **4.25**

**They describe ratio as a comparison of either subset to subset (part to part) or subset to set (part to whole), using simple whole number ratios.**

**“Record an ‘on-balance’ judgement”**

**THIS IS NOT A TEACHING PROGRAM**

# **Progression Points in Number**

**Example of the development of a big idea.**

## **4.5**

**Students describe ratio as a comparison of either subset to subset or subset to set, where the scale factor is greater than 1, such as  $2 : 5 = 1 : 2.5$ .**

**“Record an ‘on-balance’ judgement”**

**THIS IS NOT A TEACHING PROGRAM**

# **Progression Points in Number**

**Example of the development of a big idea.**

## **4.75**

**Students describe ratio as a comparison or either subset to subset or subset to set, where the scale factor is less than 1, such as  $5 : 2 = 1 : 0.4$ .**

**“Record an ‘on-balance’ judgement”**

**NOT A TEACHING PROGRAM**

# **Standard in Number**

**Example of the development of a big idea.**

## **5.0**

**Students understand ratio as both set:set comparison and subset:set comparison, and find integer proportions of these, including percentages.**

**Look for the developmental stages in the preceding progression points.**

**You report a score for each dimension,  
using your “on-balance judgement”  
and the computer works out an AVERAGE.**

**This is converted to a letter  
and that is the reported rating.**

**The computer will draw the graph showing  
individual progress over 12 months.**

**And you will type comments.**

# Reporting scale (primary)

<b>PP</b>	<b>0.5</b>	<b>1</b>	<b>1.25</b>	<b>1.5</b>	<b>1.75</b>	<b>2.0</b>	<b>2.25</b>	<b>2.5</b>
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<b>Yr</b>	JP	DP	J1	D1	J2	D2	<b>J3now</b>	D3
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<b>E</b>	<b>E</b>	<b>E</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>C</b>	<b>B</b>
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<b>PP</b>	<b>2.75</b>	<b>3</b>	<b>3.25</b>	<b>3.5</b>	<b>3.75</b>	<b>4.0</b>	<b>4.25</b>	<b>4.5</b>
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<b>Yr</b>	J4	D4	J5	D5	J6	D6	J7	D7
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<b>B</b>	<b>A</b>	<b>A</b>	<b>A</b>
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<b>PP</b>	<b>4.75</b>	<b>5</b>	<b>5.25</b>	<b>5.5</b>	<b>5.75</b>	<b>6.0</b>	<b>6.25</b>	<b>6.5</b>
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<b>Yr</b>	J8	D8	J9	D9	J10	D10	J11	D11
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# Reporting scale (sec'y)

**PP**    **0.5**    **1**    **1.25**    **1.5**    **1.75**    **2.0**    **2.25**    **2.5**

**Yr**    JP    DP    J1    D1    J2    D2    J3now    D3

**PP**    **2.75**    **3**    **3.25**    **3.5**    **3.75**    **4.0**    **4.25**    **4.5**

**Yr**    J4    D4    J5    D5    J6    D6    **J7now**    D7

**E**    **E**    **E**    **D**    **D**    **C**    **C**    **B**

**PP**    **4.75**    **5**    **5.25**    **5.5**    **5.75**    **6.0**    **6.25**    **6.5**

**Yr**    J8    D8    J9    D9    J10    D10    ??    ??

**D**    **A**    **A**    **A**

**There is a change in the  
secondary level assessment;**

**We are NOT reporting  
comparatively against peers  
on the some work that has  
been taught to all,**

**but comparing the child's  
progress with 12 months ago,  
and the child with the rest of**

**Once we have the evidence of a wide range of development we need **PLANNING** to meet the needs of all students**

**There are two ways:**

**Use different textbooks & resources for different levels**

**and/or use **OPEN-ENDED TASKS****

**and investigations that allow a**

**MANY GOOD OPEN-ENDED RESOURCES  
ALREADY EXIST**

**Problem Solving Task Centre**

**Maths300**

**(combined as 'Maths With Attitude')**

**RIME, RIME 5&6,  
Active Learning**

**and others – SEE MAV's**

**SOME RESOURCE MATERIAL TO COME**

**1 Teaching and Learning  
Strategies**

**2 Rich Assessment Tasks**

**with work samples  
(and/or rubrics)**

**to link to Progression Points.**

**Please,**

**DON'T**

**PANIC**

**No matter how slow we seem to be,  
we ARE working on it.**