

Correlation Between

**EdAlive's Volcanic Panic V2**

And

**MATHEMATICS SYLLABUSES 2007  
(PRIMARY AND SECONDARY)**

Curriculum Planning and Development Division,  
Ministry of Education, Singapore

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## *Introduction*

This document provides a correlation between the content contained in EdAlive's Volcanic Panic V2 software, and the PRIMARY & SECONDARY MATHEMATICS SYLLABUSES developed by the Ministry of Education, Singapore.

Volcanic Panic V2 uses a carefully crafted progression of over 8000 curriculum-linked activities that begin with basic number-fact knowledge and introduce new concepts gradually, extending students at their own pace. Volcanic Panic V2 is suitable for children aged 5-15: Kindergarten 1 & 2, Primary 1 – 6, Secondary 1 & 2. Volcanic Panic V2 covers Addition, Subtraction, Multiplication, Division, Fractions & Percentage, Ratio & Proportion, and Numeration, and complements Baggin' the Dragon V2, together covering over 90% of the mathematics curriculum!

The correlation between Volcanic Panic V2 and the PRIMARY & SECONDARY MATHEMATICS SYLLABUSES is provided below. A correlation matrix is also provided to give a brief overview of the curriculum content covered by Volcanic Panic V2.

## Curriculum Overview

<b><u>Curriculum Topic</u></b>	<b><u>Covered by VP2</u></b>
Whole Numbers	Y
Fractions	Y
Decimals	Y
Percentage	Y
Ratio	Y
Speed	Y
Measurement	Y
Geometry	
Data Analysis	
Algebra	

*Main Curriculum Topics address by Volcanic Panic V2*

	<u>Main Topics in the Singapore Curriculum</u>									
	<b>Whole Numbers</b>	<b>Fractions</b>	<b>Decimals</b>	<b>Percentage</b>	<b>Ratio</b>	<b>Speed</b>	<b>Measurement</b>	<b>Geometry</b>	<b>Data Analysis</b>	<b>Algebra</b>
<u>Primary 1</u>	VC	V					VC	C	C	
<u>Primary 2</u>	VC	VC					VC	C	C	
<u>Primary 3</u>	VC	VC	V	V	V	V	VC	C	C	
<u>Primary 4</u>	VC	VC	VC	V	V	V	VC	C	C	
<u>Primary 5</u>	VC	VC	VC	VC	VC	V	VC	C	C	
<u>Primary 6</u>	VC	VC	VC	VC	VC	VC	VC	C	C	VC
<u>Secondary 1</u>	VC	VC	VC	VC	VC	VC	VC	C	C	VC
<u>Secondary 2</u>	VC	VC	VC	VC	VC	VC	VC	C	C	VC

*In line with the latest MOE Mathematics Syllabuses  
Ages 5 -15+: Kindergarten 1&2, Primary 1 – 6, Secondary 1&2*

C = Topic covered by Singapore Curriculum

V = Topic covered by Volcanic Panic V2

# Curriculum Correlation

## Primary 1

Volcanic Panic V2 covers the following content from Primary 1.

<b>WHOLE NUMBERS</b>	Numbers up to 100	<ul style="list-style-type: none"><li>• counting to tell the number of objects in a given set,</li><li>• comparing the number of objects in two or more sets,</li><li>• use of ordinal numbers (first, second, up to tenth) and symbols (1st, 2nd, 3rd, etc.),</li><li>• number notation and place values (tens, ones),</li><li>• reading and writing numbers in numerals and in words,</li><li>• comparing and ordering numbers,</li><li>• number patterns.</li></ul>
	Addition and subtraction	<ul style="list-style-type: none"><li>• concepts of addition and subtraction,</li><li>• use of the addition symbol (+) or subtraction symbol (−) to write a mathematical statement for a given situation,</li><li>• comparing two numbers within 20 to tell how much one number is greater (or smaller) than the other,</li><li>• recognising the relationship between addition and subtraction,</li><li>• building up the addition bonds up to <math>9 + 9</math> and committing to memory,</li><li>• solving 1-step word problems involving addition and subtraction within 20,</li><li>• addition of more than two 1-digit numbers,</li><li>• addition and subtraction within 100 involving<ul style="list-style-type: none"><li>• a 2-digit number and ones,</li><li>• a 2-digit number and tens,</li><li>• two 2-digit numbers,</li></ul></li><li>• addition and subtraction using formal algorithms.</li></ul>

	Mental calculation	<ul style="list-style-type: none"> <li>• addition and subtraction within 20,</li> <li>• addition and subtraction involving <ul style="list-style-type: none"> <li>• a 2-digit number and ones without renaming,</li> <li>• a 2-digit number and tens.</li> </ul> </li> </ul>
	Multiplication and division	<ul style="list-style-type: none"> <li>• multiplication as repeated addition (within 40),</li> <li>• use of the multiplication symbol (<math>\times</math>) to write a mathematical statement for a given situation,</li> <li>• division of a quantity (not greater than 20) into equal sets: <ul style="list-style-type: none"> <li>• given the number of objects in each set,</li> <li>• given the number of sets,</li> </ul> </li> <li>• solving 1-step word problems with pictorial representation.</li> </ul>
<b>MEASUREMENT</b>	Length and mass	<ul style="list-style-type: none"> <li>• measurement and comparison of the lengths/ masses of two or more objects in non-standard units,</li> <li>• use of the following terms: long, longer, longest, short, shortest, tall, high, higher, highest</li> </ul>

	Money	<ul style="list-style-type: none"><li>• telling the amount of money<ul style="list-style-type: none"><li>• in cents up to \$1,</li><li>• in dollars up to \$100.</li></ul></li><li>• use of the symbols \$ and c</li><li>• solving word problems involving addition and subtraction of money in dollars only (or in cents only).</li></ul>
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## Primary 2

Volcanic Panic V2 covers the following content from Primary 2.

<b>WHOLE NUMBERS</b>	Numbers up to 1000	<ul style="list-style-type: none"> <li>• counting in tens/ hundreds,</li> <li>• number notation and place values (hundreds, tens, ones),</li> <li>• reading and writing numbers in numerals and in words,</li> <li>• comparing and ordering numbers,</li> <li>• number patterns.</li> </ul>
	Addition and subtraction	<ul style="list-style-type: none"> <li>• addition and subtraction of numbers up to 3 digits,</li> <li>• solving up to 2-step word problems involving addition and subtraction.</li> </ul>
	Multiplication and division	<ul style="list-style-type: none"> <li>• building up the multiplication tables of 2, 3, 4, 5 and 10</li> <li>• recognising the relationship between multiplication and division,</li> <li>• multiplication and division within the multiplication tables,</li> <li>• solving 1-step word problems involving multiplication and division within the multiplication tables.</li> </ul>
	Mental calculation	<ul style="list-style-type: none"> <li>• addition and subtraction involving               <ul style="list-style-type: none"> <li>• a 3-digit number and ones,</li> <li>• a 3-digit number and tens,</li> <li>• a 3-digit number and hundreds.</li> </ul> </li> <li>• multiplication and division within the multiplication tables of 2, 3, 4, 5 and 10.</li> </ul>
<b>FRACTIONS</b>	Fraction of a whole	<ul style="list-style-type: none"> <li>• interpretation of fraction as part of a whole,</li> <li>• reading and writing fractions,</li> <li>• comparing and ordering               <ul style="list-style-type: none"> <li>• unit fractions,</li> <li>• like fractions.</li> </ul> </li> </ul>

	Addition and subtraction	<ul style="list-style-type: none"> <li>• addition and subtraction of like fractions within one whole.</li> </ul>
<b>MEASUREMENT</b>	Length, mass and volume	<ul style="list-style-type: none"> <li>• estimation and measurement of             <ul style="list-style-type: none"> <li>• length in metres/ centimetres,</li> <li>• mass in kilograms/ grams,</li> <li>• volume of liquid in litres,</li> </ul> </li> <li>• use of the appropriate measures and their abbreviations cm, m, g, kg, ,</li> <li>• comparing             <ul style="list-style-type: none"> <li>• lengths,</li> <li>• masses,</li> <li>• volumes,</li> </ul> </li> <li>• solving word problems involving length/ mass/ volume.</li> </ul>
	Money	<ul style="list-style-type: none"> <li>• comparing two or three amounts of money,</li> <li>• solving word problems involving money in dollars only (or in cents only).</li> </ul>

## Primary 3

Volcanic Panic V2 covers the following content from Primary 3.

<b>WHOLE NUMBERS</b>	Numbers up to 10 000	<ul style="list-style-type: none"><li>• number notation and place values (thousands, hundreds, tens, ones),</li><li>• reading and writing numbers in numerals and in words,</li><li>• comparing and ordering numbers,</li><li>• odd and even numbers,</li><li>• number patterns</li></ul>
	Addition and subtraction	<ul style="list-style-type: none"><li>• addition and subtraction of numbers up to 4 digits,</li><li>• use of the terms 'sum' and 'difference',</li><li>• solving up to 2-step word problems involving addition and subtraction.</li></ul>
	Multiplication and division	<ul style="list-style-type: none"><li>• building up the multiplication tables of 6, 7, 8 and 9</li><li>• use of the terms 'product', 'quotient' and 'remainder',</li><li>• multiplication and division within the multiplication tables,</li><li>• division with remainder,</li><li>• multiplication and division of numbers up to 3 digits by 1 digit,</li><li>• solving up to 2-step word problems involving the 4 operations.</li></ul>

	Mental calculation	<ul style="list-style-type: none"> <li>• addition and subtraction involving two 2-digit numbers,</li> <li>• multiplication and division within the multiplication tables.</li> </ul>
FRACTIONS	Equivalent fractions	<ul style="list-style-type: none"> <li>• recognising and naming equivalent fractions,</li> <li>• writing the equivalent fraction of a fraction given the denominator or the numerator,</li> <li>• expressing a fraction in its simplest form,</li> <li>• comparing fractions with respect to half,</li> <li>• comparing and ordering unlike fractions.</li> </ul>
	Addition and subtraction	<ul style="list-style-type: none"> <li>• addition and subtraction of two related fractions within one whole.</li> </ul>
MEASUREMENT	Length, mass and volume	<ul style="list-style-type: none"> <li>• measurement of length in kilometres (km)</li> <li>• measurement of length in compound units,</li> <li>• conversion of a measurement in compound units to the smaller unit, and vice versa, <ul style="list-style-type: none"> <li>• kilometres and metres,</li> <li>• metres and centimetres,</li> <li>• kilograms and grams,</li> </ul> </li> <li>• solving word problems involving length/ mass/ volume/ capacity.</li> </ul>
	Money	<ul style="list-style-type: none"> <li>• addition and subtraction of money in decimal notation,</li> <li>• solving word problems involving addition and subtraction of money in decimal notation.</li> </ul>

	Area and perimeter	<ul style="list-style-type: none"><li>• concepts of area and perimeter of a plane figure,</li><li>• measurement of area in square units,</li><li>• measurement of area in square centimetres (cm<sup>2</sup>) / square metres (m<sup>2</sup>),</li><li>• calculation of the perimeter of<ul style="list-style-type: none"><li>• rectilinear figure</li><li>• rectangle</li><li>• square</li></ul></li><li>• use of formula to calculate the area of a rectangle/ square,</li><li>• solving word problems involving the area/ perimeter of squares and rectangles.</li></ul>
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## Primary 4

Volcanic Panic V2 covers the following content from Primary 4.

<b>WHOLE NUMBERS</b>	Numbers up to 100 000	<ul style="list-style-type: none"><li>• number notation and place values (ten thousands, thousands, hundreds, tens, ones),</li><li>• reading and numbers in numerals and in words,</li><li>• comparing and ordering numbers,</li><li>• number patterns,</li><li>• rounding off numbers to the nearest 10 or 100,</li></ul>
	Multiplication and division	<ul style="list-style-type: none"><li>• multiplication of a 4-digit number by a 1-digit number,</li><li>• multiplication of a 3-digit number by a 2-digit number,</li><li>• division of a 4-digit number by a 1-digit number,</li><li>• solving up to 3-step word problems involving the 4 operations,</li><li>• estimation of answers in calculations involving the 4 operations,</li></ul>
	Factors and multiples	<ul style="list-style-type: none"><li>• determining if a 1-digit number is a factor of a given number,</li><li>• listing all factors of a given number up to 100,</li><li>• finding the common factors of two given numbers,</li><li>• recognising the relationship between factor and multiple,</li></ul>

<b>FRACTIONS</b>	Mixed numbers and improper fractions	<ul style="list-style-type: none"><li>• concepts of mixed numbers and improper fractions,</li><li>• expressing an improper fraction as a mixed number, and vice versa,</li><li>• expressing an improper fraction/mixed number in its simplest form.</li></ul>
	Addition and subtraction	<ul style="list-style-type: none"><li>• addition and subtraction of<ul style="list-style-type: none"><li>• like fractions,</li><li>• related fractions.</li></ul></li></ul>
	Fraction of a set of objects	<ul style="list-style-type: none"><li>• interpretation of fraction as part of a set of objects.</li></ul>

	Multiplication	<ul style="list-style-type: none"> <li>• multiplication of a proper/improper fraction and a whole number,</li> <li>• solving up to 2-step word problems involving addition, subtraction and multiplication,</li> <li>• using unitary method to find the whole given a fractional part.</li> </ul>
DECIMALS	Decimals up to 3 decimal places	<ul style="list-style-type: none"> <li>• notation and place values (tenths, hundredths, thousandths),</li> <li>• identifying the values of the digits in a decimal,</li> <li>• use of the number line to display decimals,</li> <li>• comparing and ordering decimals,</li> <li>• conversion of a decimal to a fraction,</li> <li>• conversion of a fraction whose denominator is a factor of 10 or 100 to a decimal,</li> <li>• rounding off decimals to             <ul style="list-style-type: none"> <li>• the nearest whole number,</li> <li>• 1 decimal place,</li> <li>• 2 decimal places.</li> </ul> </li> </ul>
	Addition and subtraction	<ul style="list-style-type: none"> <li>• addition and subtraction of decimals</li> </ul>

	Multiplication and division	<ul style="list-style-type: none"><li>• division of a whole number by a whole number with answer in decimal form,</li><li>• multiplication and division of decimals (up to 2 decimal places) by a 1-digit whole number,</li><li>• solving up to 2-step word problems involving the 4 operations,</li><li>• rounding off answers to a specified degree of accuracy,</li></ul>
<b>MEASUREMENT</b>	Money	<ul style="list-style-type: none"><li>• multiplication and division of money in decimal notation,</li><li>• solving word problems involving the 4 operations of money in decimal notation.</li></ul>

## Primary 5

Volcanic Panic V2 covers the following content from Primary 5.

<b>WHOLE NUMBERS</b>	Numbers up to 10 million	<ul style="list-style-type: none"><li>• reading numbers in numerals and in words,</li><li>• rounding off numbers to the nearest 1000.</li></ul>
	Four operations	<ul style="list-style-type: none"><li>• multiplication and division by tens, hundreds and thousands without using calculators,</li><li>• solving word problems involving the 4 operations</li></ul>
	Order of operations	<ul style="list-style-type: none"><li>• combined operations involving the 4 operations,</li><li>• use of brackets.</li></ul>
<b>FRACTIONS</b>	Concept of fraction as division	<ul style="list-style-type: none"><li>• association of a fraction with division,</li><li>• conversion between fractions and decimals.</li></ul>

	Four operations	<ul style="list-style-type: none"> <li>• addition and subtraction of proper fractions without using calculators,</li> <li>• addition and subtraction of mixed numbers,</li> </ul>
<b>DECIMALS</b>	Four operations	<ul style="list-style-type: none"> <li>• multiplication and division of decimals (up to 3 decimal places) by tens, hundreds and thousands without using calculators,</li> <li>• solving word problems involving the 4 operations,</li> <li>• rounding off answers to a specified degree of accuracy,</li> </ul>
<b>PERCENTAGE</b>	Percentage	<ul style="list-style-type: none"> <li>• expressing a part of a whole as a percentage,</li> <li>• writing fractions and decimals as percentages, and vice versa,</li> <li>• finding a percentage part of a whole,</li> <li>• solving up to 2-step word problems involving percentage,</li> <li>• percentages with money, including discounts</li> </ul>
<b>RATIO</b>	Ratio	<ul style="list-style-type: none"> <li>• interpretation of <math>a : b</math> and <math>a : b : c</math>, where <math>a</math>, <math>b</math> and <math>c</math> are whole numbers,</li> <li>• writing equivalent ratios,</li> <li>• expressing a ratio in its simplest form,</li> <li>• finding the ratio of two or three given quantities,</li> <li>• finding the missing term in a pair of equivalent ratios,</li> <li>• finding one quantity given the other quantity and their ratio,</li> <li>• solving up to 2-step word problems involving ratio.</li> </ul>

<b>MEASUREMENT</b>	Length, mass and volume	<ul style="list-style-type: none"><li>• conversion of a measurement from a smaller unit to a larger unit in decimal form, and vice versa,<ul style="list-style-type: none"><li>• kilometres and metres</li><li>• metres and centimetres</li><li>• kilograms and grams</li><li>• litres and millilitres</li></ul></li></ul>
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## Primary 6

Volcanic Panic V2 covers the following content from Primary 6.

<b>FRACTIONS</b>	Four operations	<ul style="list-style-type: none"> <li>• division of a whole number/proper fraction by a proper fraction without using calculators.</li> </ul>
<b>PERCENTAGE</b>	Percentage	<ul style="list-style-type: none"> <li>• finding the whole given a part and the percentage,</li> <li>• finding percentage increase/decrease,</li> <li>• solving word problems involving percentage.</li> </ul>
<b>RATIO</b>	Ratio	<ul style="list-style-type: none"> <li>• expressing one quantity as a fraction of another, given their ratio, and vice versa,</li> <li>• finding how many times one quantity is as large as another, given their ratio, and vice versa,</li> <li>• expressing one quantity as a fraction of another given the two quantities,</li> <li>• finding the whole/ one part when a whole is divided into parts in a given ratio,</li> <li>• solving word problems involving 2 pairs of ratios.</li> </ul>
<b>SPEED</b>	Distance, time and speed	<ul style="list-style-type: none"> <li>• concepts of speed and average speed,</li> <li>• relationship between distance, time and speed</li> <li>• calculation of speed, distance or time given the other two quantities,</li> <li>• writing speed in different units such as km/h, m/min, m/s and cm/s,</li> <li>• solving up to 3-step word problems involving speed and average speed.</li> </ul>

## Secondary 1

Volcanic Panic V2 covers the following content from Secondary 1.

<b>NUMBERS AND ALGEBRA</b>	Numbers and the four operations	<ul style="list-style-type: none"> <li>• primes</li> <li>• finding HCF and LCM, squares, cubes and square roots</li> <li>• negative numbers, integers and their four operations</li> <li>• representation and ordering of numbers on the number line</li> <li>• use of the symbols <math>&lt;</math>, <math>&gt;</math>, <math>\leq</math>, <math>\geq</math></li> <li>• estimation (including rounding off numbers to a required number of decimal places or significant figures)</li> </ul>
	Ratio, rate and proportion	<ul style="list-style-type: none"> <li>• ratios involving rational numbers</li> <li>• writing a ratio in its simplest form</li> <li>• average rate</li> <li>• problems involving ratio and rate</li> </ul>
	Percentage	<ul style="list-style-type: none"> <li>• expressing one quantity as a percentage of another</li> <li>• comparing two quantities by percentage</li> <li>• percentages greater than 100%</li> <li>• increasing/decreasing a quantity by a given percentage</li> <li>• problems involving percentages</li> </ul>
	Speed	<ul style="list-style-type: none"> <li>• concepts of speed and average speed</li> <li>• conversion of units (e.g. km/h to m/s)</li> <li>• problems involving speed, uniform speed and average speed</li> </ul>

	Algebraic representation and formulae	<ul style="list-style-type: none"><li>• using letters to represent numbers</li><li>• interpreting notations:<ul style="list-style-type: none"><li>• <math>ab</math> as <math>a \times b</math></li><li>• <math>3y</math> as <math>y + y + y</math> or <math>3 \times y</math></li></ul></li><li>• evaluation of algebraic expressions and formulae</li><li>• recognising and representing number patterns (including finding an algebraic expression for the <math>n</math>th term)</li></ul>
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## Secondary 2

Volcanic Panic V2 covers the following content from Secondary 2.

NUMBERS AND ALGEBRA	Algebraic manipulation	<ul style="list-style-type: none"><li>• expansion of the product of algebraic expressions</li><li>• finding the value of an unknown quantity in a given formula</li></ul>
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