

Correlation Between

EdAlive's Volcanic Panic V2

And

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

Curriculum Planning and Development Division,
Ministry of Education, Singapore

Table of Contents

Table of Contents	2
Introduction	3
Curriculum Overview	4
Curriculum Correlation	6
Primary 1	6
Primary 2	9
Primary 3	11
Primary 4	14
Primary 5	18
Primary 6	21
Secondary 1	22
Secondary 2	24

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

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

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

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

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

Primary 2

Volcanic Panic V2 covers the following content from Primary 2.

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

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

Primary 3

Volcanic Panic V2 covers the following content from Primary 3.

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

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

	Area and perimeter	<ul style="list-style-type: none">• concepts of area and perimeter of a plane figure,• measurement of area in square units,• measurement of area in square centimetres (cm²) / square metres (m²),• calculation of the perimeter of<ul style="list-style-type: none">• rectilinear figure• rectangle• square• use of formula to calculate the area of a rectangle/ square,• solving word problems involving the area/ perimeter of squares and rectangles.
--	--------------------	---

Primary 4

Volcanic Panic V2 covers the following content from Primary 4.

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

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

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

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

Primary 5

Volcanic Panic V2 covers the following content from Primary 5.

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

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

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

Primary 6

Volcanic Panic V2 covers the following content from Primary 6.

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

Secondary 1

Volcanic Panic V2 covers the following content from Secondary 1.

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

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

Secondary 2

Volcanic Panic V2 covers the following content from Secondary 2.

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