Mathematics – Unit Plan   **Westland High School**

Year Ten - Unit 1 - Number

YEAR	TEN	LEVEL	4/5	DURATION	6 Weeks

ACHIEVEMENT OBJECTIVES
In a range of meaningful contexts, the student will be engaged in thinking mathematically and statistically.
They will solve problems and model situations that require them to:

LEVEL 4	LEVEL 5	LEVEL 6 (Extension)
NA4-1 Use a range of multiplicative strategies when operating on whole numbers. **NA4-2** Understand addition and subtraction of fractions, decimals, and integers. **NA4-3** Find fractions, decimals, and percentages of amounts expressed as whole numbers, simple fractions, and decimals. **NA4-4** Apply simple linear proportions, including ordering fractions. **NA4-5** Know the equivalent decimal and percentage forms for everyday fractions. **NA4-6** Know the relative size and place value structure of positive and negative integers and decimals to three places.	**NA5-1** Reason with linear proportions. **NA5-2** Use prime numbers, common factors and multiples, and powers (including square roots). **NA5-3** Understand operations on fractions, decimals, percentages, and integers. **NA5-4** Use rates and ratios. **NA5-5** Know commonly used fraction, decimal, and percentage conversions. **NA5-6** Know and apply standard form, significant figures, rounding, and decimal place value.	**NA6-1** Apply direct and inverse relationships with linear proportions. **NA6-2** Extend powers to include integers and fractions. **NA6-3** Apply everyday compounding rates.

KEY COMPETENCIES	VALUES
Thinking make connections using creative, critical, metacognitive, and reflective processes • draw on personal knowledge and intuitions • co-construct knowledge • use mathematics to model real-life and hypothetical situations **Using Languages, Symbols, and Texts** use ICT appropriately • use mathematical language to solve problems • interpret mathematical information and ideas • interpret word problems and visual representations • know and use specialised vocabulary as well as their own language to explain ideas **Managing Self** develop skills of independent learning and be self-managing in their learning • be self-motivated, resilient, and know their own strengths and weaknesses • set goals and 'strive for excellence through high expectations' **Relating to Others** share, compare, and contrast their ideas • accept a range of approaches • respect other people's thinking • work in groups and work cooperatively and collaboratively • accept that being wrong is a part of learning **Participating and Communicating** work cooperatively • take on appropriate roles in different situations • contribute to a culture of inquiry and learning • share strategies and thinking • share equipment and resources • empower and enable others	**Excellence** **Innovation, Equity and Curiosity** **Diversity/Equity** **Community and Participation** **Ecological Sustainability** **Integrity** **Respect**
	CROSS-CURRICULAR LINKS

Suggested Teaching Sequence - Term One		Links to Resources
Week One	**Classroom Introductions**	**Possible Starters** Estimation180 Corbett - 5 a day **BEDMAS** Fours Puzzle Mind Your Decisions **Fractions** Bar Model
	Order of Operations - only positive numbers	
Week Two	**Integer Addition and Subtraction**	
	Integer Multiplication and Division	
	eAsTTle Assessment	
Week Three	**Order of Operations (Integers)**	
	Adding and Subtracting Fractions - classroom teacher decides whether or not to use calculators for fraction calculations.	
	PAT Assessment	
Week Four	**Multiplying Fractions** - includes finding fractions of amounts	
	Dividing Fractions - includes the idea of the reciprocal	
	Mixed Numbers	
Week Five	**Fraction, Decimal and Percentage Conversions**	
	Percentage of Amounts - Could be extended to reverse percentage calculations	
	Percentage Increase, Decrease and Change	
Week Six	**Financial Maths** GST, Tax and Interest	
	Really Big/Small Numbers Could be used to revisit negative indices	
	Standard Form Most likely only for positive powers of ten	

Suggested Teaching Sequence - Term Two		Links to Resources
Week One	**Recap of BEDMAS and Integers**	**Possible Starters** Estimation180 Corbett - 5 a day
	Recap of Fraction and Percentage of Calculations	
	Ratios Introduction to ratios and simplification	
Week Two	**Ratio Applications** Splitting a quantity in a ratio, find a part given a part and finding a total given a part. Could be extended to a:b a has x more than b type problems.	
	Rates Could be extended to inversely proportional situations	

Suggested Teaching Sequence - Term Three		Links to Resources
Week One	**Recap of Fractions, Decimals and Percentage**	**Possible Starters** Estimation180 Corbett - 5 a day
	Integrated Problems in Context	

Suggested Teaching Sequence - Term Four		Links to Resources
Week One	**Recap of Ratios**	**Possible Starters** Estimation180 Corbett - 5 a day
	Integrated Problems in Context	

Catering for Different Learners	
Gifted and Talented	**nRich Number** https://nrich.maths.org/8645
At Risk	**Basic Facts Practice** https://www.mathsisfun.com/numbers/math-trainer-multiply.html
Maori	**Ideas for an Inclusive Classroom** https://seniorsecondary.tki.org.nz/Mathematics-and-statistics/Pedagogy/Inclusive-learning-environment
Other Resources	

Assessment	
e-asTTle	Number Knowledge and Number Sense/Operations will be assessed in the term one e-asTTle common assessment for Y10's. This assessment typically occurs during this unit.
PAT	Students will attempt the PAT 7 assessment as part of this unit.