Subject	Year	Month	
Mathematics	10	September	Balcarras *From strength to strength*

Topic:

Indices including roots and reciprocals

4 lessons

Content (Intent)

Prior Learning	Future Learning
Year 9 Indices September	Year 10 Factors, multiples & primes September Year 10 Standard form September Year 10 Percentages (compound interest & repeated depreciation) December **Year 12** Pure Chapter 1 Algebraic Expressions

Objectives

- Find the value of calculations involving positive, <mark>fractional</mark> (unitary and non-unitary) and negative indices; recalling that $n^0 = 1$
- Know and use rules of indices to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, <mark>fractional</mark> and negative powers, and powers of a power;
- Know and use rules of indices to simplify algebraic expressions, including e.g. $(2x^3y^4)^3$
- <mark>Solve problems using index laws, e.g. solve $2^x = 16$, $3^{2n} = 81$, $8^{2x+3} = 4^{7-x}$</mark>
- Use an extended range of calculator functions, including $+, -, \times, \div, x^2, \sqrt{x}$, memory, $x^y, x^{\frac{1}{y}}$, brackets

Pedagogical notes (implementation)	How will understanding be assessed & recorded (Impact)
Students need to know how to enter negative numbers into their calculator. Use negative number and not minus number to avoid confusion with calculations	**End of half term** Assessment in Oct **End of Year** Mocks in April
	How can parents help at home?
	MathsWatch clips (Qualification GCSE) 29, 82, 131, 154, 188 75, 77

Further reading/discussion

Reading / Enrichment	Literacy	Numeracy Links	Careers Links
http://passyworldofmathematics.com/exponents-in-the-real-world/			Cryptologist Astronomer Physicist Engineer