Subject	Year	Month	
Mathematics	11	September	Balcarras *From strength to strength*

Topic:

Multiplicative reasoning
4 lessons

Content (Intent)

Prior Learning
Year 10 Integers and place value September
Year 10 Real life graphs June
Year 10 Percentages January

Future Learning

Objectives

- Understand and use compound measures: density; pressure; speed:
- convert between metric speed measures;
- read values in km/h and mph from a speedometer;
- calculate average speed, distance, time – in miles per hour as well as metric measures;
- use kinematics formulae from the formulae sheet to calculate speed, acceleration (with variables defined in the question);
- change d/t in m/s to a formula in km/h, i.e. d/t × (60 × 60)/1000 – with support;
- Express a given number as a percentage of another number in more complex situations;
- Calculate percentage profit or loss;
- Make calculations involving repeated percentage change, not using the formula;
- Find the original amount given the final amount after a percentage increase or decrease;
- Use compound interest;
- Use a variety of measures in ratio and proportion problems:
- currency conversion;
- rates of pay;
- best value;
- Set up, solve and interpret the answers in growth and decay problems;
- Understand that X is inversely proportional to Y is equivalent to X is proportional to $\frac{1}{Y}$;
- Interpret equations that describe direct and inverse proportion.

Pedagogical notes (implementation)	How will understanding be assessed & recorded (Impact)
Encourage students to use a single multiplier. Include simple fractional percentages of amounts with compound interest and encourage use of single multipliers. Amounts of money should be rounded to the nearest penny, but emphasise the importance of not rounding until the end of the calculation if doing in stages. Use a formula triangle to help students see the relationship for compound measures – this will help them evaluate which inverse operations to use. Help students to recognise the problem they are trying to solve by the unit measurement given, e.g. km/h is a unit of speed as it is distance divided by a time.	**End of half term** no **End of Year** Year 11 mocks in November
	How can parents help at home?
	MathsWatch clips **Qualification KS3:** R9ab, R11ab, R12 **Qualification KS4:** 41, 109, 110, 142 164, 199, 216ab

Further reading/discussion			
Reading / Enrichment	Literacy	Numeracy Links	**Careers Links** Accounting & Finance, Retail Engineering Physicist