Year 10 Strand 1

Topic/Skill	Definition/Tips	Example
1. Percentage Change	$$\frac{Difference}{Original} \times 100\%$$	A games console is bought for £200 and sold for £250. **% change** = $\frac{50}{200} \times 100 = 25\%$
2. Increase or Decrease by a Percentage	Non-calculator: **Find the percentage** and **add** or **subtract** it from the **original** amount. Calculator: Find the **percentage multiplier** and multiply.	<u>Increase 500 by 20% (Non Calc):</u> 10% of 500 = 50 so 20% of 500 = 100 500 + 100 = 600 <u>Decrease 800 by 17% (Calc):</u> 100%-17%=83% 83% ÷ 100 = 0.83 0.83 x 800 = 664
3. Percentage Multiplier	The **number** you **multiply** a quantity by to **increase or decrease** it by a **percentage**.	The multiplier for increasing by 12% is 1.12 The multiplier for decreasing by 12% is 0.88 The multiplier for increasing by 100% is 2.
4. Reverse Percentage	Find the **correct percentage given in the question**, then work backwards to **find 100%** Look out for words like '**before'** or '**original'**	A jumper was priced at £48.60 after a 10% reduction. Find its original price. 100% - 10% = 90% 90% = £48.60 1% = £0.54 100% = £54
5. Simple Interest	Interest calculated as a **percentage of the original** amount.	£1000 invested for 3 years at 10% simple interest. 10% of £1000 = £100 Interest = $3 \times £100 = £300$
6. Compound interest/growth and depreciation/ decay	**Compound growth** (eg compound interest) is when the percentage increase in the first time period is added to the original value, then in the next time period the percentage increase is calculated on the new amount. **Depreciation** is the drop in value of an object over time. **Decay** is the decline in a population or quantity over time.	The population of starlings in a park increases at a rate of 10% per year. If the population started with 80 starlings, how many would there be in 5 years' time? Percentage multiplier is 1.1 80 x 1.1^5 = 128.8408 $\approx$ 129 starlings in 5 years' time A new car costing £9800 depreciates at a rate of 12% per year. How much will the car be worth in 3 years' time? Percentage multiplier is 0.88 9800 x 0.88^3 = £6678.43 (nearest penny)