Topic: Growth and Decay

Topic/Skill	Definition/Tips	Example
1. Exponential Growth	When we **multiply** a number **repeatedly** by the **same number** ($\neq 1$), resulting in the number **increasing by the same proportion** each time. The original amount can grow very quickly in exponential growth.	$1, 2, 4, 8, 16, 32, 64, 128 \ldots$ is an example of exponential growth, because the numbers are being multiplied by 2 each time.
2. Exponential Decay	When we **multiply** a number **repeatedly** by the **same number** ($0 < x < 1$), resulting in the number **decreasing by the same proportion** each time. The original amount can decrease very quickly in exponential decay.	$1000, 200, 40, 8 \ldots$ is an example of exponential decay, because the numbers are being multiplied by $\frac{1}{5}$ each time.
3. Compound Interest	Interest paid on the **original amount and the accumulated interest**.	A bank pays 5% compound interest a year. Bob invests £3000. How much will he have after 7 years. $3000 \times 1.05^7 = £4221.30$
4. Exponential Graph	The equation is of the form $y = a^x$, where a is a number called the **base**. If $a > 1$ the graph **increases**. If $0 < a < 1$, the graph **decreases**. The graph has an **asymptote** which is the **x-axis**. The **y-intercept** of the graph $y = a^x$ is $(0, 1)$**s**	