

## Assess your learning - Indices and Logs

Where is your learning at? <b>Be Honest!</b>	 red	 orange	 green	Revised for 10 Week	Revised for Summer
<b>Can you answer the following questions?</b>					
I can use the laws of indices to simplify numbers written in index form, without using a calculator. E.g. Simplify $32^{-\frac{1}{5}}$					
I can solve equations involving indices. E.g. Solve the equation below: $2^{2x-1} = \left(\frac{\sqrt{8}}{16}\right)^4$					
I can solve indices equations involving a substitution. E.g. Solve the equation below: $2^{2x+1} - 5(2^x) + 6 = 0$					
I can use the definition of a log to switch between index form and log form. E.g. Write the value below in index form: $\log_{27} 81$					
I can use the laws of logs to simplify expressions involving Logs E.g. Simplify $\log_3 2 + 2 \log_3 3 - \log_3 18$ .					
I can solve equations involving logs. E.g. Solve the equation below: $\log_3(x + 1) - \log_3(x - 1) = 1$ .					
I can solve equations involving the change of base law. E.g. Solve the equation below: $\log_2(x + 1) + \log_4(x) = \log_4(x^3 + 1)$ .					
I can use logs to solve equations involving certain indices. E.g. Solve the equation $3^x = 25$					
I can solve word problems using logs. E.g. The radioactive substance Iodine-131 has a half life of eight days i.e. the quantity of Iodine-131 decays by a factor of 2 in eight days. A hospital purchases 30g of the substance. In eight days 15g remain. The decay can be modeled using the exponential model: $Q = ae^{bt}$ , where a and b are constants, t is time measured in days and Q is the quantity of the substance. i) Find the value of the constants a and b. ii) What quantity of the substance will remain after 20 days? iii) Find the time taken for the substance to decay to 1.49g.					