Your task is to carry out an investigation to see how the amplitude, *A*, of vertical oscillation of a mass hanging from two springs in series varies with time, *t*.

Time allowed: You are **advised** to spend 15 minutes to answer parts *(a)* and *(b)* during which time you are allowed to set up and use the equipment for trial readings.

You are provided with the following equipment

500g hanger and masses
2 linked springs
pointer
split cork
2 clamps and stands
G-clamps
Metre rule
Stopwatch
Sticky tape

(a) The relationship between the amplitude of an oscillation, A, and the time t, can be expressed by:

$$A = A_o e^{-\lambda t}$$

where A_o = initial amplitude
and λ = an unknown constant

Rearrange this equation in the form of $y = mx + c$ and explain which graph you will draw to confirm this relationship and also determine the unknown constant λ. [2]

If you are unsure what to do, ask your supervisor for information sheet 1.
You will be deducted 2 marks for this information.

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For supervisor's use only [Tick one box (✓)]	
Yes information sheet **needed**	
No information sheet not **needed**	