

Question number			Answer	Notes	Marks
9	(a)	Clip diagram	<p>Any five from:</p> <p>Basic plan –</p> <p>MP1. Add (known value) masses one at a time;</p> <p>MP2. Measure length of the spring;</p> <p>MP3. Find extension;</p> <p>Results –</p> <p>MP4. Draw graph with suitable named axes;</p> <p>Accuracy –</p> <p>MP5. Detail of spring measurement, e.g. measure from same part each time/ fiducial marker;</p> <p>MP6. Make sure spring stationary before reading;</p> <p>MP7. repeat readings by taking off masses;</p> <p>MP8. Check value of masses on a balance;</p> <p>MP9. Check ruler vertical or parallel to spring/ hold ruler in clamp / avoid parallax errors;</p>	<p>allow suitable labelled additions to diagram</p> <p>Force or load or mass against extension or length</p>	5
9	(b)		<p>MP1. straight line only;</p> <p>MP2. axes labelled force/weight and extension;</p> <p>MP3. DOP line through origin;</p>	<p>units not needed, any orientation</p> <p>allow for 2 marks max:</p> <p>graph of force and length, st line with intercept</p>	3
	(c)		<p>returns to original length / shape;</p> <p>when (stretching) force is removed;</p>		2

Total 10 marks