

Materials

Specification reference	Checklist questions	
3.4.1 a	Can you define and describe tensile and compressive deformation, and extension and compression?	<input type="checkbox"/>
3.4.1 b	Can you state Hooke's law?	<input type="checkbox"/>
3.4.1 c	Can you determine the force constant k of a spring or wire using $F = kx$?	<input type="checkbox"/>
3.4.1 d i	Can you sketch and interpret force–extension (or compression) graphs for springs and wires?	<input type="checkbox"/>
3.4.1 d ii	Can you describe techniques and procedures used to investigate force–extension characteristics for arrangements which may include springs, rubber bands, and polythene strips?	<input type="checkbox"/>
3.4.2 a	Can you use a force–extension (or compression) graph to determine the work done in extending (or compressing) the material?	<input type="checkbox"/>
3.4.2 b	Can you calculate elastic potential energy using $E = \frac{1}{2}Fx$ and $E = \frac{1}{2}kx^2$?	<input type="checkbox"/>
3.4.2 c	Can you define stress, strain, and ultimate tensile strength?	<input type="checkbox"/>
3.4.2 d i	Can you calculate the Young modulus of a material using tensile stress and tensile strain?	<input type="checkbox"/>
3.4.2 d ii	Can you describe techniques and procedures used to determine the Young modulus for a metal?	<input type="checkbox"/>
3.4.2 e	Can you interpret and sketch stress–strain graphs for typical ductile, brittle, and polymeric materials?	<input type="checkbox"/>
3.4.2 f	Can you describe elastic and plastic deformations of materials?	<input type="checkbox"/>

