# 10. Deformation of solids

**10.1 Stress, strain**

**10.2 Elastic and plastic behaviour**

*(a)* appreciate that deformation is caused by a force and that, in one dimension, the deformation can be tensile or compressive

*(b)* describe the behaviour of springs in terms of load, extension, elastic limit, Hooke’s law and the spring constant (i.e. force per unit extension)

*(c)* define and use the terms stress, strain and the Young modulus

Definition:

*(d)* describe an experiment to determine the Young modulus of a metal in the form of a wire

*(e)* distinguish between elastic and plastic deformation of a material

*(f)* deduce the strain energy in a deformed material from the area under the force-extension graph

*(g)* demonstrate knowledge of the force-extension graphs for typical ductile, brittle and polymeric materials, including an understanding of ultimate tensile stress.

**Paper 1 questions**

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**Paper 2 questions**

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