Definitions and Concepts for Edexcel Physics GCSE

Topic 15: Forces and Matter

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*Definitions in **bold** are for higher tier only*

Definitions marked by '' are for separate sciences only*

***Atmosphere:** The thin layer of air surrounding the Earth, which gets less dense with increasing altitude. The pressure also decreases with increasing altitude.

Distortion: The changing of an object's size or shape as a result of a deforming force.

Elastic Distortion: A non-permanent deformation for which the object will return to its original shape when the deforming forces are removed.

Elastic Limit: The force beyond which an object will no longer deform elastically, and will instead deform plastically.

***Floating:** **An object will float if the volume of liquid it displaces has a greater weight than that of the object itself. The upthrust acting on the object is greater than its weight.**

Fluid: A liquid or gas.

Hooke's Law: The extension of a spring is directly proportional to the force applied to it, up to the limit of proportionality. The constant in this relationship is known as the spring constant.

Limit of Proportionality: The point beyond which the extension of an elastic object is no longer directly proportional to the force applied to it.

Linear Relationship: A relationship between two variables where if one variable increases, so does the other by the same factor. They produce straight lines when plotted.

Plastic Distortion: A permanent deformation for which the object will no longer return to its original shape when the deforming forces are removed.

***Pressure in a Liquid Column:** **Equal to the product of the height of the column, the density of the liquid and the gravitational field strength.**

***Sinking:** **An object will sink if the volume of liquid it displaces has a lower weight than that of the object itself. The upthrust acting on the object is lower than its weight and so there is a resultant downwards force.**

Spring Constant: A measure of a spring's stiffness. The higher the spring constant, the smaller the extension is for a given force.

***Upthrust:** **The upward force acting on an object in a fluid, due to it experiencing a greater pressure below it than above it. It is equal to the weight of the fluid displaced by the object.**

Weight: The force acting on an object due to gravity. It is equal to the product of the object's mass and the gravitational field strength at its location.