The Sutton Academy

Knowledge Rich Curriculum Plan

SCIENCE- Physics Year 11

Lesson/Learning Sequence	Intended Knowledge: *Students will know that…*	Prior Knowledge: *In order to know this, students need to already know that…*	Working Scientifically	Tiered Vocabulary and Reading Activity
Lesson: Pressure (triple only)	• Students will know that the pressure in fluids causes a normal force to any surface • Students will know that the pressure at the surface of a fluid can be calculated using: Pressure = force normal to a surface ÷ area of the surface • Students will know that the unit of pressure is pascals, Pa • Students will know that the pressure due to a column of liquid can be calculated using the equation: Pressure = height of the column x density of the liquid x gravitational field strength p = h ρ g • Students will know how to explain why in a liquid pressure at a point increases with the height of the column of liquid • Students will know how to calculate the differences in pressure at different depths in a liquid • Students will know that a partially/ totally submerged object experiences a greater pressure on the bottom surface than on the top surface. This creates a resultant force upwards (upthrust) Students will know the factors that influence floating and sinking	• *Students will already know that a fluid can be either a liquid or a gas* • *Students will already know how to calculate area of simple shapes, such as circles, rectangles and squares* *Students will already know that the unit of density is kg/m3*	Use of formula from the equation sheet	Tier 3 Fluid: liquid or gas Normal: at right angles
Lesson: Pressure in Fluids	• Students will know that the pressure due to a column of liquid can be calculated using the equation: Pressure = height of the column x density of the liquid x gravitational field strength p = h ρ g	• *Students will already know that the unit of pressure is Pascals*	Use of formula from the equation sheet	Tier 2 Submerged: under water

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Lesson: Atmospheric Pressure (triple only)	• Students will know that the atmosphere is a relatively (to the size of the Earth) thin layer of air around the Earth • Students will know that the atmosphere gets less dense with increasing altitude • Students will know that atmospheric pressure is caused by air molecules colliding with a surface. • Students will know that the number of air molecules above a surface decreases as the height of the surface above ground level increases. • Students will know that as height increases there is less air above a surface than there is at a lower height. This means that atmospheric pressure decreases with an increase in height. • Students will know how to describe a simple model of the Earth's atmosphere and of atmospheric pressure	***Students will already know that the Earth's atmosphere consists of gases.***		Tier 2 Tier 3

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	Students will know how to explain why atmospheric pressure varies with height above a surface.			