

Spec Ref	Topic	TAP episode	comments
1.1	scalar and vector quantities	201	
	force, Newton's 3rd law of motion,	212	
	free body diagrams for forces on a body,		No reference
	$\Sigma F = ma$	211	
	add, subtract, resolve coplanar perpendicular vectors,	201, 202	
	turning effect of a force, principle of moments;	203	
	centre of gravity, toppling, stability, equilibrium	203	
1.2	velocity, acceleration, $v/t$ , $a/t$ graphs	205	
	equations for motion in a straight line,	206	
	falling bodies – terminal velocity,	209	
	projectile motion	207	
1.3	W.D. = $Fx \cos \theta$	214-1	
	Hooke's law $F = kx$ , and elastic energy	227	
	$FS = \frac{1}{2}mv^2 - \frac{1}{2}mu^2$ , $E_k = \frac{1}{2}mv^2$	216	
	conservation of energy, $mg \Delta h$ & $\frac{1}{2}mv^2$	214, 217	
	power, dissipative forces & efficiency	218	Efficiency only in 606 – Heat engines
1.4	static charge		Not specifically covered
	electrons and protons, the coulomb, $e$ ,	102	
	$I = \Delta Q/\Delta t$ , the ampère	102	
	$I = nAve$	103 → 104	
1.5	potential difference, the volt, $V = JC^{-1}$	105	
	$I - V$ graphs for a diode lamp, and metal	108	
	Ohm's Law, resistance, $\Omega = VA^{-1}$	108, 109	
	$P = IV = I^2R = V^2/R$	106, 115	
	$R = \rho l/A$	112	
	resistance with temperature for a metal wire;	110	
	superconductivity, transition temperature; uses	110, 110-3	
1.6	Kirchoff's Laws and conservation of energy	117	
	resistors in series and parallel;	114	
	the potential divider, $V/V_{total} = R/R_{total}$	118	
	e.m.f., internal resistance $V = E - Ir$	120 → 121	