AQA B PHYB5a

Spec Ref	Topic	TAP episode	comment
3.5.1 A	**Brownian motion**	601	
	pV = 1/3Nm(c²)	603	
	1/2m(c²) = 3/2kT	603	
	Avogadro constant	602	
B	**internal energy *U***	605	
	specific heat capacity	607	
	engine cooling using continuous flow of fluid		
	power input or output = (Δ *m*/ Δ *t*) *c* Δϑ		
	the zeroth law of thermodynamics	601	
	first law of thermodynamics Δ*U* = *Q* + *W*	605	
	work done = *p*Δ*V*	605-1	
	four-stroke internal combustion engine	x	
	work done in engine cycles including the Carnot cycle	x	
	efficiency of engines	606	
C	**entropy, Δ*S* = *Q*/*T***	x	
3.5.2 A (D in spec)	**electric field; ions**	406	
	uniform electric fields, *E*=*V*/*d*, = *F*/*Q*	408, 409	
	Coulomb's law	407	
	thermionic emission, Electron gun	103, 103-2	
	bending beams using magnetic fields	413	
	EQ = BQv		
	cyclotron frequency = 2π*m*/*BQ*	x	
	relativity, the effects on accelerators such as the LHC	x	
	length contraction/time dilation, the decay of muons	x	
	equations for mass and time effects	x	