Revision Checklist: GCSE AQA Physics (Higher Tier)

	1. ENERGY	Subject Knowledge (how well do I know this)	Practice (quiz/exam questions)
a.	Energy stores		
b.	Changes in energy		
c.	Kinetic energy		
d.	Gravitational & elastic potential energy		
e.	Specific heat capacity		
f.	Power & work done		
g.	Conduction		
h.	Unwanted energy transfers		
i.	Efficiency		
j.	Energy resources (renewable & non-renewable)		
k.	Energy resources (environmental impact)		

	2. ELECTRICITY	Knowledge	Practice
a.	Circuit diagram symbols		
b.	Charge & current		
c.	Current, resistance & potential difference		
d.	I-V characteristic curves		
e.	LDR & thermistor		
f.	Series & parallel circuits		
g.	D.C. & A.C.		
h.	Mains electricity		
i.	Power in circuits		
j.	Energy transfers in electrical appliances		
k.	The national grid		
l.	Role of transformers		
m.	Static electricity		
n.	Electric fields		

	3. PARTICLE MODEL OF MATTER	Knowledge	Practice
a.	Density		
b.	Changes of state		
c.	Internal energy		
d.	Specific heat capacity *(again)*		
e.	Specific latent heat		
f.	Particle motion in gases		
g.	Pressure & volume of gases		
h.	Work done on a gas		

	4. ATOMIC STRUCTURE	Knowledge	Practice
a.	Structure of an atom		
b.	Mass/atomic number & isotopes		
c.	Development of atomic model		
d.	Radioactive decay		
e.	Properties of nuclear radiation		
f.	Nuclear equations		
g.	Half life		
h.	Contamination & irradiation		
i.	Background radiation		
j.	Half-life & hazards		
k.	Uses of nuclear radiation		
l.	Nuclear fission		
m.	Nuclear fusion		

	5. FORCES	Knowledge	Practice
a.	Scalars & vectors		
b.	Contact & non-contact forces		
c.	Gravity & weight		
d.	Resultant forces		
e.	Vector diagrams		
f.	Work done		
g.	Springs & elasticity		
h.	Moments		
i.	Pressure in a fluid		
j.	Pressure in a column of liquid		
k.	Upthrust		
l.	Atmospheric pressure		
m.	Distance & displacement		
n.	Speed & velocity		
o.	Distance-time graphs		
p.	Acceleration		
q.	Velocity-time graphs		
r.	Terminal velocity		
s.	Newton's first law		
t.	Newton's second law & inertia		
u.	Newton's third law		
v.	Stopping distance & reaction time		
w.	Factors affecting braking distance		
x.	Momentum		
y.	Car safety features		

	6. WAVES	Knowledge	Practice
a.	Transverse & longitudinal waves		
b.	Properties of waves		
c.	Reflection		
d.	Refraction		

e.	Ray diagrams (reflection & refraction)		
f.	Sound waves		
g.	Waves for detection & exploration		
h.	Electromagnetic (EM) spectrum		
i.	Radio waves		
j.	Risks of EM radiation		
k.	Uses of EM waves		
l.	Ray diagrams (lenses)		
m.	Visible light		
n.	Infrared radiation		
o.	Black bodies & radiation		

	7. MAGNETISM & ELECTROMAGNETISM	Knowledge	Practice
a.	Bar magnets		
b.	Magnetic fields		
c.	Electromagnets		
d.	The motor effect & Fleming's left-hand rule		
e.	Electric motors & loudspeakers		
f.	The generator effect		
g.	Alternators & dynamos		
h.	Microphones		
i.	Transformers		

	8. SPACE PHYSICS	Knowledge	Practice
a.	Our solar system		
b.	The life cycle of a star		
c.	Orbital motion		
d.	Natural & artificial satellites		
e.	Red shift		
f.	The big bang theory		

PRACTICALS	Knowledge
RP 1: "An investigation to determine the specific heat capacity of one or more materials."	
RP 2: "Investigate the effectiveness of different materials as thermal insulators, and factors that affect the thermal insulation properties of a material."	
RP 3a: "Investigate how the length of a wire at constant temperature affects the resistance of electrical circuits."	
RP 3b: "Investigate how combinations of resistors in series and parallel affect the resistance of electrical circuits."	
RP 4: "Use circuit diagrams to investigate the I-V characteristics of a filament lamp, a diode and a resistor at constant temperature."	
RP 5: "Determine the densities of regular and irregular solid objects and liquids."	
RP 6: "Investigate the relationship between force and extension of a spring."	
RP 7: "Investigate separately how varying the force and mass of an object affect its acceleration."	
RP 8: "Measure the frequency, wavelength and speed of waves in a ripple tank, and waves in a solid."	
RP 9: "Investigate the reflection of light off different surfaces, and the refraction of light by different substances."	
RP 10: "Investigate how the amount of infrared radiation absorbed and radiated changes depending on the type of surface."	

EQUATIONS *(not given in exam)*	
Weight = mass x gravitational field strength	$W = m\,g$
Work done = force x distance	$W = F\,s$
Force (applied to a spring) = spring constant x extension	$F = k\,e$
Moment = force x distance (between pivot and line of action of force)	$M = F\,d$
Pressure = $\frac{\text{normal force}}{\text{area}}$	$p = \frac{F}{A}$
Distance = speed x time	$s = v\,t$
Acceleration = $\frac{\text{change in velocity}}{\text{time}}$	$a = \frac{\Delta v}{t}$
Resultant force = mass x acceleration	$F = m\,a$
Momentum = mass x velocity	$p = m\,v$
Kinetic energy = 0.5 x mass x (speed)^2	$E_K = \frac{1}{2} m\,v^2$
Gravitational potential energy = mass x gravitational field strength x height	$E_P = m\,g\,h$
Power = $\frac{\text{energy transferred}}{\text{time}}$	$P = \frac{E}{t}$
Power = $\frac{\text{work done}}{\text{time}}$	$P = \frac{W}{t}$
Efficiency = $\frac{\text{useful energy out}}{\text{total energy in}}$	
Efficiency = $\frac{\text{useful power out}}{\text{total power in}}$	
Wave speed = frequency x wavelength	$v = f\,\lambda$
Charge = current x time	$Q = I\,t$
Potential difference = current x resistance	$V = I\,R$
Power = potential difference x current	$P = V\,I$
Power = (current)^2 x resistance	$P = I^2\,R$
Energy transferred = charge x potential difference	$E = Q\,V$
Density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$

ASSESSMENTS	Duration	Marks	Topics
Paper 1	1 hour 45 minutes	100 marks	Topics 1 – 4
Paper 2	1 hour 45 minutes	100 marks	Topics 5 - 8