

Revision Checklist: GCSE AQA Chemistry (Higher Tier)

	1. ATOMIC STRUCTURE AND THE PERIODIC TABLE	<u>Subject Knowledge</u> (how well do I know this)	<u>Practice</u> (quiz/exam questions)
a.	Elements, compounds & mixtures		
b.	Separating mixtures		
c.	Development of atomic model		
d.	Mass & atomic number		
e.	Relative atomic mass		
f.	Electronic structure		
g.	Groups & periods		
h.	Development of periodic table		
i.	Metals & non-metals		
j.	Group 0 elements		
k.	Group 1 elements		
l.	Group 7 elements		
m.	Transition metals		

	2. BONDING, STRUCTURE, AND THE PROPERTIES OF MATTER	<u>Knowledge</u>	<u>Practice</u>
a.	Ionic bonding		
b.	Covalent bonding		
c.	Dot and cross diagrams		
d.	Metallic bonding		
e.	States of matter		
f.	Properties of ionic compounds		
g.	Properties of small molecules		
h.	Polymers & giant covalent structures		
i.	Properties of metals		
j.	Alloys		
k.	Diamond & graphite		
l.	Graphene & fullerenes		
m.	Nanoparticles		

	3. QUANTITATIVE CHEMISTRY	<u>Knowledge</u>	<u>Practice</u>
a.	Balancing chemical equations		
b.	Conservation of mass		
	Relative formula mass		
	Estimating uncertainty		
c.	Moles		
d.	Using moles to calculate masses		

e.	Using moles to balance equations		
f.	Limiting reactants		
g.	Concentration		
h.	Percentage yield		
i.	Atom economy		
j.	Moles & volumes of gases		

	4. CHEMICAL CHANGES	<u>Knowledge</u>	<u>Practice</u>
a.	The reactivity series		
	Reduction & oxidation		
b.	Extracting metals by reduction		
c.	Ionic & half equations		
d.	Reacting acids with metals		
e.	Neutralisation of acids & naming salts		
f.	pH		
g.	Titrations		
h.	Strong & weak acids		
i.	Electrolysis of molten ionic compounds		
j.	Electrolysis of aqueous solutions		

	5. ENERGY CHANGES	<u>Knowledge</u>	<u>Practice</u>
a.	Exothermic & endothermic reactions		
b.	Reaction profiles		
c.	Calculating energy change of reactions		
d.	Cells & batteries		
e.	Hydrogen fuel cell		

	6. THE RATE AND EXTENT OF CHEMICAL CHANGE	<u>Knowledge</u>	<u>Practice</u>
a.	Calculating rate of reaction		
b.	Factors affecting rate of reaction		
c.	Collision theory & activation energy		
d.	Catalysts		
e.	Reversible reactions		
f.	Le Chatelier's principle		
g.	Factors which affect equilibrium		

	7. ORGANIC CHEMISTRY	<u>Knowledge</u>	<u>Practice</u>
a.	Crude oil		

b.	Alkanes		
c.	Fractional distillation		
d.	Properties of hydrocarbons		
	Combustion reactions		
e.	Alkenes		
	Addition reactions		
f.	Cracking		
g.	Alcohols		
h.	Carboxylic acids		
i.	Addition polymerisation		
j.	Condensation polymerisation		
k.	Naturally occurring polymers		

	8. CHEMICAL ANALYSIS	Knowledge	Practice
a.	Purity		
b.	Formulations		
c.	Paper chromatography		
d.	Tests for common gases		
e.	Flame tests		
f.	Identifying metal hydroxides		
g.	Tests for carbonates, halides & sulphates		
h.	Flame emission spectroscopy		
	Instrumental methods		

	9. CHEMISTRY OF THE ATMOSPHERE	Knowledge	Practice
	Composition of Earth's atmosphere		
a.	Evolution of Earth's atmosphere		
b.	The greenhouse effect		
c.	Human activity & greenhouse gases		
d.	Global climate change		
e.	The carbon footprint		
f.	Atmospheric pollutants		

	10. USING RESOURCES	Knowledge	Practice
a.	Using Earth's resources		
b.	Potable water		
c.	Waste water treatment		
d.	Low-grade copper ores		
e.	Life cycle assessment		
f.	Recycling		
g.	Preventing corrosion		
h.	Uses of alloys		
i.	Ceramics, polymers & composites		
j.	The Haber process		
k.	NPK fertilisers		

	PRACTICALS	Knowledge
	RP 1: "Prepare a pure, dry sample of a soluble salt from an insoluble oxide or carbonate."	
	RP 2: "Determine the concentration of one of the solutions when reacting a strong acid and a strong alkali by titration (when the concentration of the other solution is known)."	
	RP 3: "Investigate the electrolysis of aqueous solutions (a hypothesis must be formed and developed)."	
	RP 4: "Investigate factors affecting temperature change when reacting solutions together."	
	RP 5a: "Investigate how concentration affects the rate of reaction by measuring the volume of gas produced (a hypothesis must be formed and developed)."	
	RP 5b: "Investigate how concentration affects the rate of reaction by observing a colour change (a hypothesis must be formed and developed)."	
	RP 6: "Use paper chromatography to separate coloured substances and determine R _f values."	
	RP 7: "Use appropriate chemical tests to identify unknown ionic substances (all ions covered in sections 8e, 8f and 8g)."	
	RP 8: "Identify pH and amount of dissolved solids in water samples from different sources, and use distillation to purify them."	

	ASSESSMENTS	Duration	Marks	Topics
	Paper 1	1 hour 45 minutes	100 marks	Topics 1 – 5
	Paper 2	1 hour 45 minutes	100 marks	Topics 6 - 10

The Periodic Table of Elements

The periodic table shows elements arranged in groups and periods. Key elements include Hydrogen (1), Helium (2), Lithium (3), Beryllium (4), Boron (5), Carbon (6), Nitrogen (7), Oxygen (8), Fluorine (9), Neon (10), Sodium (11), Magnesium (12), Aluminium (13), Silicon (14), Phosphorus (15), Sulphur (16), Chlorine (17), Argon (18), Potassium (19), Calcium (20), Scandium (21), Titanium (22), Vanadium (23), Chromium (24), Manganese (25), Iron (26), Cobalt (27), Nickel (28), Copper (29), Zinc (30), Gallium (31), Germanium (32), Arsenic (33), Selenium (34), Bromine (35), Krypton (36), Rubidium (37), Strontium (38), Yttrium (39), Zirconium (40), Niobium (41), Molybdenum (42), Technetium (43), Ruthenium (44), Rhodium (45), Palladium (46), Silver (47), Cadmium (48), Indium (49), Tin (50), Antimony (51), Tellurium (52), Xenon (54), Barium (56), Lanthanum (57), Cerium (58), Praseodymium (59), Neodymium (60), Promethium (61), Samarium (62), Europium (63), Gadolinium (64), Terbium (65), Dysprosium (66), Holmium (67), Erbium (68), Thulium (69), Ytterbium (70), Lutetium (71), Hafnium (72), Tantalum (73), Tungsten (74), Rhenium (75), Osmium (76), Iridium (77), Platinum (78), Gold (79), Mercury (80), Thallium (81), Lead (82), Bismuth (83), Polonium (84), Astatine (85), Radon (86), Francium (87), Radium (88), Actinium (89), Thorium (90), Protactinium (91), Uranium (92), Neptunium (93), Plutonium (94), Americium (95), Curium (96), Berkelium (97), Californium (98), Einsteinium (99), Fermium (100), Mendelevium (101), Nobelium (102), Lawrencium (103), Rutherfordium (104), Dubnium (105), Seaborgium (106), Bohrium (107), Hassium (108), Tennessine (109), Oganesson (110).

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted.
Relative atomic masses for Ga and Bi have not been rounded to the nearest whole number.