STUDY FORMULA BOOKLET

Cambridge IGCSE Chemistry 0620 periodic table and formulas

The 0620 page prints only the periodic table and 24 dm3 per mole at r.t.p. Every calculation formula is yours to recall, so learn the list below.

IN THE BOOKLET printed in the official booklet LEARN IT not printed: students must recall it

Based on the official **The Periodic Table of Elements, Cambridge IGCSE Chemistry 0620, (c) UCLES 2020, 0620/01/SP/23 (specimen paper reference)**, with what to learn and exam tips added by CuratedPrep.

Constant printed with the periodic table

The official page prints only the periodic table and this one line.

Molar gas volume at room temperature and pressure

Printed under the periodic table: the volume of one mole of any gas is 24 dm3 at room temperature and pressure (r.t.p.). Supplement.

$$V_m = 24\ \text{dm}^3\ \text{mol}^{-1}$$

IN THE BOOKLET

The periodic table of elements

Printed groups I to VIII are shown as 1 to 7 and 0 (VIII is the noble gases, group 0). A hyphen means no relative atomic mass is printed. Lanthanoids and actinoids are in the two separate rows, as printed.

1	2											3	4	5	6	7	0
1 H hydrogen 1																	2 He helium 4
3 Li lithium 7	4 Be beryllium 9											5 B boron 11	6 C carbon 12	7 N nitrogen 14	8 O oxygen 16	9 F fluorine 19	10 Ne neon 20
11 Na sodium 23	12 Mg magnesium 24											13 Al aluminium 27	14 Si silicon 28	15 P phosphorus 31	16 S sulfur 32	17 Cl chlorine 35.5	18 Ar argon 40
19 K potassium 39	20 Ca calcium 40	21 Sc scandium 45	22 Ti titanium 48	23 V vanadium 51	24 Cr chromium 52	25 Mn manganese 55	26 Fe iron 56	27 Co cobalt 59	28 Ni nickel 59	29 Cu copper 64	30 Zn zinc 65	31 Ga gallium 70	32 Ge germanium 73	33 As arsenic 75	34 Se selenium 79	35 Br bromine 80	36 Kr krypton 84
37 Rb rubidium 85	38 Sr strontium 88	39 Y yttrium 89	40 Zr zirconium 91	41 Nb niobium 93	42 Mo molybdenum 96	43 Tc technetium -	44 Ru ruthenium 101	45 Rh rhodium 103	46 Pd palladium 106	47 Ag silver 108	48 Cd cadmium 112	49 In indium 115	50 Sn tin 119	51 Sb antimony 122	52 Te tellurium 128	53 I iodine 127	54 Xe xenon 131
55 Cs caesium 133	56 Ba barium 137		72 Hf hafnium 178	73 Ta tantalum 181	74 W tungsten 184	75 Re rhenium 186	76 Os osmium 190	77 Ir iridium 192	78 Pt platinum 195	79 Au gold 197	80 Hg mercury 201	81 Tl thallium 204	82 Pb lead 207	83 Bi bismuth 209	84 Po polonium -	85 At astatine -	86 Rn radon -
87 Fr francium -	88 Ra radium -		104 Rf rutherfordium -	105 Db dubnium -	106 Sg seaborgium -	107 Bh bohrium -	108 Hs hassium -	109 Mt meitnerium -	110 Ds darmstadtium -	111 Rg roentgenium -	112 Cn copernicium -	113 Nh nihonium -	114 Fl flerovium -	115 Mc moscovium -	116 Lv livermorium -	117 Ts tennessine -	118 Og oganesson -

57 La lanthanum 139	58 Ce cerium 140	59 Pr praseodymium 141	60 Nd neodymium 144	61 Pm promethium -	62 Sm samarium 150	63 Eu europium 152	64 Gd gadolinium 157	65 Tb terbium 159	66 Dy dysprosium 163	67 Ho holmium 165	68 Er erbium 167	69 Tm thulium 169	70 Yb ytterbium 173	71 Lu lutetium 175
89 Ac actinium -	90 Th thorium 232	91 Pa protactinium 231	92 U uranium 238	93 Np neptunium -	94 Pu plutonium -	95 Am americium -	96 Cm curium -	97 Bk berkelium -	98 Cf californium -	99 Es einsteinium -	100 Fm fermium -	101 Md mendelevium -	102 No nobelium -	103 Lr lawrencium -

Z Sym name A_r — atomic number · symbol · name · relative atomic mass

Relative masses and formulae

Relative molecular or formula mass

Add the relative atomic masses of all atoms in the formula. Use relative formula mass for ionic compounds. Core.

$$M_r = \sum A_r$$

LEARN IT

Relative atomic mass from isotopes Weighted mean using the percentage abundance of each isotope. Supplement.	$A_r = \frac{\sum(\text{isotope mass} \times \text{abundance})}{\sum \text{abundance}}$	LEARN IT
Percentage composition by mass Atoms is the number of atoms of that element in the formula. Supplement.	$\%\text{ of an element} = \frac{\text{atoms} \times A_r}{M_r} \times 100$	LEARN IT
Empirical formula Divide each mass (or percentage) by its Ar, then divide all by the smallest answer to get the simplest whole number ratio. Supplement.	$\text{ratio of atoms} = \frac{\text{mass or }\%}{A_r}$	LEARN IT
Molecular formula from empirical formula Multiply every number in the empirical formula by n. Supplement.	$n = \frac{M_r \text{ of molecule}}{M_r \text{ of empirical formula}}$	LEARN IT

The mole and the Avogadro constant

Amount of substance n in mol, m mass in g, M molar mass in g/mol (numerically equal to Mr or Ar). Rearrange for mass or molar mass. Supplement.	$n = \frac{m}{M}$	LEARN IT
Number of particles The Avogadro constant is 6.02 × 10^{23} particles per mole: atoms, ions or molecules. Supplement.	$N = n \times 6.02 \times 10^{23}$	LEARN IT
Gas volume at r.t.p. Use only at room temperature and pressure. The value 24 dm3 is printed on the periodic table page. Supplement.	$V\ (\text{dm}^3) = n \times 24$	LEARN IT
Volume unit conversion Divide cm3 by 1000 to get dm3 before using a concentration or gas volume equation. Supplement.	$1\ \text{dm}^3 = 1000\ \text{cm}^3$	LEARN IT

Concentration and titration

Concentration in g/dm3 Concentration can be measured in g/dm3 or mol/dm3. Core for the statement; calculations are Supplement.	$c\ (\text{g/dm}^3) = \frac{\text{mass of solute (g)}}{\text{volume (dm}^3\text{)}}$	LEARN IT
Concentration in mol/dm3 n is moles of solute, V the volume of solution in dm3. Supplement.	$c\ (\text{mol/dm}^3) = \frac{n}{V\ (\text{dm}^3)}$	LEARN IT
Converting between concentrations Multiply mol/dm3 by Mr for g/dm3; divide g/dm3 by Mr for mol/dm3. Supplement.	$c\ (\text{g/dm}^3) = c\ (\text{mol/dm}^3) \times M_r$	LEARN IT
Moles of solute in a solution Use with titration results: find moles of the known solution, then use the equation ratio for the other. Supplement.	$n = c \times \frac{V\ (\text{cm}^3)}{1000}$	LEARN IT

Reacting masses, yield and purity

Reacting masses from an equation Use the balanced equation's mole ratio, then convert to mass, gas volume or solution volume. The limiting reactant is the one that runs out first. Simple reacting masses in proportion (no moles) are Core; mole-based versions are Supplement.	$\frac{n_A}{\text{coefficient of A}} = \frac{n_B}{\text{coefficient of B}}$	LEARN IT
Percentage yield Both yields in the same unit, g or mol. Supplement.	$\%\text{ yield} = \frac{\text{actual yield}}{\text{theoretical yield}} \times 100$	LEARN IT

Percentage purity Supplement.	$$\% \text{ purity} = \frac{\text{mass of pure substance}}{\text{mass of impure sample}} \times 100$$	LEARN IT

Energy changes and chromatography

Relationships the 2026 to 2028 syllabus names, none of which is printed on the periodic table page.

Enthalpy change from bond energies Bond breaking is endothermic and bond making is exothermic. A negative ΔH means exothermic. Bond energies are given in the question. Supplement.	$$\Delta H = \text{energy to break bonds} - \text{energy released making bonds}$$	LEARN IT
Rf value Measure both distances from the origin line. The value is between 0 and 1 and has no unit. Supplement.	$$R_f = \frac{\text{distance travelled by substance}}{\text{distance travelled by solvent}}$$	LEARN IT

Learn these: not in the booklet

Group number and outer electrons

For Groups I to VII, the number of outer shell electrons equals the group number. Group VIII noble gases have a full outer shell. The number of occupied shells equals the period number.

Moles from mass

$$n = \frac{m}{M}$$

The most used relationship in 0620 calculations.

Gas volume

$$V = n \times 24 \text{ dm}^3$$

At room temperature and pressure only.

Concentration

$$c = \frac{n}{V}$$

V in dm3. Convert cm3 to dm3 by dividing by 1000.

Percentage yield and purity

Yield is actual over theoretical times 100. Purity is mass of pure substance over mass of sample times 100.

Isotopes

Isotopes have the same number of protons and different numbers of neutrons, so the same electrons and chemical properties.

Using the booklet in the exam

- Use the relative atomic masses printed in the table: they are whole numbers except chlorine at 35.5.
- Write the formula, convert units (cm3 to dm3, kg to g), then substitute.
- For titrations, find the moles of the solution you know, then use the balanced equation ratio to get the moles of the other.
- For gas volumes at r.t.p. multiply moles by 24, and give the unit dm3.
- Show each step in a calculation: marks are for the moles, the ratio and the final answer with its unit.

Based on: Cambridge IGCSE Chemistry 0620, The Periodic Table of Elements, (c) UCLES 2020, 0620/01/SP/23; syllabus for 2026, 2027 and 2028, Version 2. Statistical tables are calculated by CuratedPrep to the same layout. Updated 31 October 2026. Always practise with the version of the official booklet your exam uses. More free sheets and topic worksheets at curatedprep.com.