

1.1	26 30 26	must be this order	1 1 1	AO2 4.1.1.4 4.1.1.5
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Source: AQA 2018 Triple Award Paper 1 mark scheme

2.1	B		1	AO1 4.1.1.3
2.2	C		1	AO2 4.1.1.3
2.3	A		1	AO2 4.1.1.3

Source: AQA 2018 Triple Award Paper 1 mark scheme

3.1	g	do not accept upper case (G) do not accept gas	1	AO1 5.1.2.6
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Source: AQA 2018 Combined Science Paper 1 mark scheme

4.1	filtration / filter	allow magnet or decant ignore heating	1	AO1 5.1.1.2
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Source: AQA 2018 Combined Science Paper 1 mark scheme

5.1	$\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$	allow multiples	1	AO2 5.1.1.1 5.7.1.3
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Source: AQA 2018 Combined Science Paper 2 mark scheme

6.1	(neutron) 1 0 proton 1 (+1)	both needed allow (neutron) 1 neutral both needed	1 1	AO1 4.1.1.4 4.1.1.5
6.2	most (alpha) particles passed (straight) through (the gold foil) (so) the mass of the atom is concentrated in the nucleus / centre or (so) most of the atom is empty space some (alpha) particles were deflected / reflected (so) the atom has a (positively) charged nucleus / centre	if not awarded for MP2, allow (so) the mass of the atom is concentrated in the nucleus / centre.	1 1 1	AO1 4.1.1.3

7.1	$2\text{CH}_4(\text{g}) + 3\text{O}_2(\text{g}) \rightarrow 2\text{CO}(\text{g}) + 4\text{H}_2\text{O}(\text{g})$	allow correct multiples / fractions	1	AO2 4.9.3.1
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Source: AQA 2019 Triple Award Paper 2 mark scheme

8.1	(aq)	allow aq ignore aqueous ignore formulae	1	AO1 5.2.2.2
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Source: AQA 2019 Combined Science Paper 1 mark scheme

9.1	$2 \text{C}_4\text{H}_{10} + 9 \text{O}_2 \rightarrow 8 \text{CO} + 10 \text{H}_2\text{O}$	allow correct multiples / halves	1	AO2 5.7.1.3 5.9.3.1 5.1.1.1
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Source: AQA 2019 Combined Science Paper 2 mark scheme

10.1	filter / filtration	allow a description of filtration	1	AO2 4.1.1.2
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Source: AQA 2020 Triple Award Paper 1 mark scheme

11.1	any three from: (nuclear model) • mostly empty space • the positive charge is (all) in the nucleus • the mass is concentrated in the nucleus • the electrons and the nucleus are separate	allow the plum pudding model has no empty space allow the plum pudding model is solid allow in the plum pudding model the atom is a ball of positive charge (with embedded electrons) do not accept reference to protons allow in the plum pudding model the mass is spread out do not accept reference to neutrons allow in the plum pudding model the electrons are embedded allow in the nuclear model the electrons are in orbits	3	AO1 4.1.1.3
11.2	electrons orbit the nucleus electrons are at specific distances from the nucleus	do not accept reference to protons / neutrons allow electrons are in energy levels around the nucleus or allow electrons are in shells around the nucleus	1 1	AO1 4.1.1.3

12.1	atoms have a positively charged nucleus. mass is concentrated in the nucleus in the centre of atoms.		1 1	AO1 5.1.1.3
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Source: AQA 2020 Combined Science Paper 1 mark scheme

13.1	$\text{C}_3\text{H}_8 + 5 \text{O}_2 \rightarrow$ $3 \text{CO}_2 + 4 \text{H}_2\text{O}$	allow multiples	1	AO2 5.1.1.1 5.7.1.3
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Source: AQA 2020 Combined Science Paper 2 mark scheme

14.1	(number of electrons) = 31 (number of neutrons) = 38		1 1	AO2 4.1.1.4 4.1.1.5
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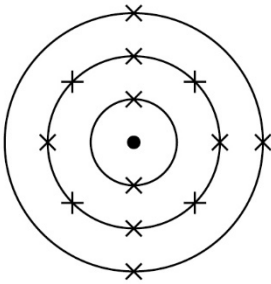
15.1	B		1	AO2 5.1.1.3
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15.2	A		1	AO3 5.1.1.3
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Source: AQA 2021 Combined Science Paper 1 mark scheme

16.1	(aq)	allow aq ignore aqueous ignore HNO ₃	1	AO1 5.2.2.2
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Source: AQA 2021 Combined Science Paper 1 mark scheme

17.1		allow any combination of x, •, o, e ⁽⁻⁾ for electrons	1	AO2 4.1.1.7
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18.1	(s)		1	AO3 5.1.2.6 5.2.2.1 5.2.2.2
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Source: AQA 2022 Combined Science Paper 1 mark scheme

19.1	distillation		1	AO1 5.10.1.2
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Source: AQA 2022 Combined Science Paper 2 mark scheme

20.1	a ball of positive charge with (negative) electrons embedded	do not accept references to protons, nuclei, neutrons	1 1	AO1 4.1.1.3
20.2	(earliest) electrons protons (latest) neutrons		1	AO1 4.1.1.3

Source: AQA 2023 Triple Award Paper 1 mark scheme

21.1	(l)		1	AO2 5.2.2.2
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Source: AQA 2023 Combined Science Paper 1 mark scheme

22.1	$4\text{Na} + \text{O}_2 \rightarrow 2\text{Na}_2\text{O}$	allow multiples	1	AO2 5.1.1.1 5.1.2.5 5.3.1.1 5.4.1.1
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Source: AQA 2023 Combined Science Paper 1 mark scheme

23.1	electron → proton → neutron		1	AO1 5.1.1.3
23.2	46		1	AO2 5.1.1.5

Source: AQA 2023 Combined Science Paper 1 mark scheme

Question	Answers	Extra information	Mark	AO / Spec. Ref.
24.1	$\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$		1	AO2 5.7.1.3

Source: AQA 2023 Combined Science Paper 2 mark scheme