

## Amount of substance

Specification reference	Checklist questions	
2.1.1 e	Can you use the terms <i>relative molecular mass</i> , $M_r$ , and <i>relative formula mass</i> and their calculation from relative atomic masses?	<input type="checkbox"/>
2.1.3 a i	Can you explain and use the term <i>amount of substance</i> ?	<input type="checkbox"/>
2.1.3 a ii	Can you explain and use the term <i>mole</i> (symbol 'mol'), as the unit for amount of substance?	<input type="checkbox"/>
2.1.3 a iii	Can you explain and use the term the <i>Avogadro constant</i> , $N_A$ (the number of particles per mole, $6.02 \times 10^{23} \text{ mol}^{-1}$ )?	<input type="checkbox"/>
2.1.3 a iv	Can you explain and use the term <i>molar mass</i> (mass per mole, units $\text{g mol}^{-1}$ )	<input type="checkbox"/>
2.1.3 a v	Can you explain and use the terms <i>molar gas volume</i> (gas volume per mole, units $\text{dm}^3 \text{ mol}^{-1}$ )?	<input type="checkbox"/>
2.1.3 b i	Can you use the terms: <i>empirical formula</i> (the simplest whole number ratio of atoms of each element present in a compound)	<input type="checkbox"/>
2.1.3 b ii	Can you use the terms: <i>molecular formula</i> (the number and type of atoms of each element in a molecule)?	<input type="checkbox"/>
2.1.3 c	Can you calculate empirical and molecular formulae, from composition by mass or percentage compositions by mass and relative molecular mass?	<input type="checkbox"/>
2.1.3 d	Can you explain the terms <i>anhydrous</i> , <i>hydrated</i> and <i>water of crystallisation</i> ?	<input type="checkbox"/>
2.1.3 d	Can you calculate the formula of a hydrated salt from given percentage composition, mass composition or based on experimental results?	<input type="checkbox"/>

Specification reference	Checklist questions	
2.1.3 e i	Can you perform calculations, using amount of substance (in moles), involving mass?	<input type="checkbox"/>
2.1.3 e ii	Can you perform calculations, using amount of substance (in moles), involving gas volume?	<input type="checkbox"/>
2.1.3 e iii	Can you perform calculations, using amount of substance (in moles), involving solution volume and concentration?	<input type="checkbox"/>
2.1.3 f	Can you give the ideal gas equation: $pV = nRT$ ?	<input type="checkbox"/>
2.1.3 g	Can you use stoichiometric relationships in calculations?	<input type="checkbox"/>
2.1.3 h i	Can you use calculations to determine the percentage yield of a reaction or related quantities?	<input type="checkbox"/>
2.1.3 h ii	Can you use calculations to determine the atom economy of a reaction?	<input type="checkbox"/>
2.1.3 i	Can you describe the techniques and procedures required during experiments requiring the measurement of mass, volumes of solutions and gas volumes?	<input type="checkbox"/>
2.1.3 j	Can you describe the benefits for sustainability of developing chemical processes with a high atom economy?	<input type="checkbox"/>