

QUESTION	ANSWER
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Quiz Cards: Quantitative Chemistry

How to use the quiz cards to learn the key facts

- 1) Take 6 quiz cards at a time and read through them
- 2) Cover up the answer side of the page.

Question	Answer
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- 3) Take the first quiz card and ask yourself the question. Either write the answer down or say it out loud.
- 4) Check your answer using the answer side of the card.
- 5) Do this question again until you get it right.
- 6) Repeat the process for the second question.
- 7) Before going onto the third question repeat question one and two.
- 8) When you have gone through all of the questions try and do them in a random order to really test your knowledge.

ONCE YOU HAVE LEARNT THEM ALL

- 9) Complete some exam questions to apply your knowledge.
- 10) Check your answer with the mark scheme and correct any errors in green pen.
- 11) Repeat steps 9-10 until you get the answers correct all of the time.

QUESTION	ANSWER
<p>What is the law of conservation of mass?</p>	<p>The law of conservation of mass states that no atoms are lost or made during a chemical reaction so the mass of the products equals the mass of the reactants.</p>
<p>What two experiments may not obey the law of conservation of mass?</p>	<p>When a metal reacts with oxygen the mass of the oxide produced is greater than the mass of the metal</p> <p>or</p> <p>in thermal decompositions of metal carbonates carbon dioxide is produced and escapes into the atmosphere leaving the metal oxide as the only solid product.</p>
<p>How do you find the relative formula mass (Mr) of a compound?</p>	<p>Add all the relative atomic masses of the atoms in the formula.</p>
<p>What is an isotope?</p>	<p>Isotopes are atoms of the same element with different numbers of neutrons but the same number of protons.</p>
<p>What is the mass and charge of a proton?</p>	<p>Mass = +1 Charge = 1</p>
<p>What is the mass and charge of an electron?</p>	<p>Mass = 0 Charge = -1</p>

QUESTION	ANSWER
<p>What is the mass and charge of a neutron?</p>	<p>Mass = +1 Charge = 0</p>
<p>In the periodic table, which number tells you how many protons are in an atom of an element?</p>	<p>Atomic proton number (the smaller one)</p>
<p>In the periodic table, which number tells you how many protons + neutrons are in an atom of an element?</p>	<p>Atomic mass number (the bigger one)</p>
<p>In the periodic table, which number tells you how many electrons are in an atom of an element?</p>	<p>Atomic proton number (the smaller one)</p>
<p>How could you calculate the number of neutrons in an atom of an element?</p>	<p>Mass number - Atomic proton number</p>
<p>How do you calculate the percentage of an element in a compound?</p>	<ol style="list-style-type: none"> 1. Calculate the formula mass of the compound 2. $\% = \frac{\text{atomic mass of the element}}{\text{Formula mass of compound}} \times 100$

QUESTION	ANSWER
<p>What is a mole?</p>	<p><u>One mole</u> of any substance is its relative formula mass, in grams.</p> <p>The number of atoms, molecules or ions in a mole of a given substance is the Avogadro constant. The value of the Avogadro constant is 6.02×10^{23} per mole.</p> <p>One mole of carbon (C) the number of atoms is the same as the number of molecules in one mole of carbon dioxide (CO₂).</p>
<p>What is concentration measured in?</p>	<p>mass per given volume of solution, eg grams per dm³ (g/dm³) or mol/dm³.</p>
<p>Why do we use excess reactants in a chemical reaction?</p>	<p>to ensure that all of the other reactant is used.</p>
<p>What is the yield of a chemical reaction?</p>	<p>how much product is made.</p>
<p>How do you calculate percentage yield?</p>	<p>Percentage yield = $\frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100 \%$</p>

QUESTION	ANSWER
<p>Why may it not be possible to make the calculated yield?</p>	<p>some product may be left in the apparatus or it may be hard to separate the product from other chemicals.</p>
<p>What is a reversible reaction?</p>	<p>In a reversible reaction the products can react to make the original reactants.</p> $A + B \rightleftharpoons C + D$ <p>E.g. ammonium chloride \rightleftharpoons ammonia + hydrogen chloride</p>
<p>Why do reversible reactions not have a high yield?</p>	<p>Reversible reactions may not have a high yield as the reactants may not have all reacted.</p>
<p>How do you calculate percentage atom economy</p>	$\frac{\text{Relative formula mass of desired product from equation}}{\text{Sum of relative formula masses of all reactants from equation}} \times 100$
<p>What is atom economy (atom utilisation)?</p>	<p>a measure of the amount of starting materials that end up as useful products. It is important for sustainable development and for economic reasons to use reactions with high atom economy</p>