OBHS Core Questions:

Subject: Science

Year and Term: Year 10 Autumn Term 1

Topic: C3 Quantitative Chemistry

Learn these questions to build a strong foundation of knowledge for this half-term. Ask family or friends to test you regularly, or practise on your own using the 'Look, Say, Cover, Write' method.

Question	Answer
1. What does the law of conservation of mass state?	Atoms are not made or lost in a reaction, so the mass stays the same. The mass at the start of the reaction is equal to the mass at the end.
2. Why do we need to balance chemical equations?	To show that the number of atoms of each element is the same on both sides.
3. What does a big number in front of a formula mean? For example 2NaO.	It shows how many molecules or moles there are.
4. What does a small number after a symbol in a formula mean? For example: H_2O	It shows how many atoms of that element are in the molecule.
5. What is relative formula mass (M_r)?	It is the total of the relative atomic masses of all the atoms in a compound.
6. How do you calculate relative formula mass?	Add up the atomic masses of each atom in the compound.
7. If the relative atomic mass of oxygen is 16 and the relative atomic mass of hydrogen is 1, what is the relative formula mass of H_2O?	H = 1 x 2 = 2 O = 16 2+16 = **18**
8. Why is the mass the same on both sides of a balanced equation?	Because atoms are not lost or made in a chemical reaction.
9. What could cause a change in mass during a reaction?	A gas might escape or be taken in.
10. Give an example of when mass seems to increase during a reaction.	When a metal reacts with oxygen from the air.
11. Give an example of when mass seems to decrease during a reaction.	When gas escapes the reaction
12. What does uncertainty mean in a measurement?	It means we are not exactly sure of the result. This could be caused by mistakes made when reading result off of equipment – such as a thermometer or not being sure when a reaction has finished.
13. How can we show uncertainty in results?	uncertainty = ± half the range
14. What unit is chemical amount measured in? (HT)	Moles (mol).
15. What is the mass of one mole of a substance equal to? (HT)	It is equal to its relative formula mass in grams.
16. What is the Avogadro constant? (HT)	6.02 x 10^^{23} particles per mole.

17. What does one mole of any substance contain? (HT)	The same number of particles as one mole of another substance.
18. How do you calculate the number of moles? (HT)	Divide the mass in grams by the Mr. Mass/M_r
19. How can we use moles to balance equations? (HT)	By working out the ratio of moles of each substance.
20. What does a balanced equation show in terms of moles? (HT)	The ratio of moles of reactants and products.
21. What is a limiting reactant? (HT)	The reactant that runs out first and limits how much product is made.
22. Why do we sometimes use an excess of one reactant? (HT)	To make sure all of the other reactant is used up.
23. What happens if a reactant is limiting? (HT)	The amount of product depends on the amount of that reactant.
24. What is concentration?	The amount of solute in a certain volume of solution.
25. What is the unit of concentration?	Grams per dm^3 (g/dm^3).
26. How do you calculate the mass of solute in a solution?	Multiply the concentration by the volume.