

C3.2 Pre-Unit Quiz Mark scheme

Qu	Answer	Marks	Supporting information for fix-it tasks
1	A	1	<p>Answering B shows that pupils have not understood the difference between compounds and mixtures.</p> <p>Answering C shows that pupils may not understand that the same type of atoms are represented by a colour/shape of circle.</p> <p><i>Task: State the definition of an element, a compound and a mixture. Give an example of each and represent each using a particle diagram.</i></p>
2	A	1	<p>Answering B shows that pupils understand that a compound is two or more elements chemically bonded together but not that a molecule can only be non-metal elements.</p> <p>Answering C shows that pupils know a molecule can be a compound or an element but have not identified oxygen as an element rather than a compound.</p> <p><i>Task: State the definition of a compound and a molecule. Explain why elements can be molecules but not all molecules are elements.</i></p>
3	A	1	<p>Answering B or C show that pupils are not secure on the signs of a chemical reaction.</p> <p><i>Task: Explain the difference between a physical and a chemical change.</i></p>
4	C	1	<p>Answering A shows that pupils are not secure on the meaning of subscripts in chemical formulae.</p> <p>Answering B shows that pupils have assumed the four refers to the sodium and oxygen.</p> <p><i>Task: State how many of each type of atom are found in CO_2, H_2O, H_2SO_4 and H_3PO_4.</i></p>
5	B	1	<p>Answering A or C shows that pupils are not secure with the products of reactions between acids and metals/metal compounds.</p> <p><i>Task: State the general equations for the reactions between:</i></p> <p><i>An acid and a metal.</i></p> <p><i>An acid and a metal oxide or hydroxide.</i></p> <p><i>An acid and a metal carbonate.</i></p>

6	A	1	<p>Answering B or C shows that pupils are not secure with balancing equations or ensuring that the number of atoms on each side is equal.</p> <p><i>Task: Explain why equations have to be balanced and balance the following equations:</i></p> $__ \text{N}_2 + __ \text{O}_2 + __ \text{H}_2\text{O} \rightarrow __ \text{HNO}_3$ $__ \text{NaBr} + 1 __ \text{Cl}_2 \rightarrow __ \text{NaCl} + __ \text{Br}_2$ $__ \text{TiCl}_4 + __ \text{H}_2\text{O} \rightarrow __ \text{TiO}_2 + __ \text{HCl}$
7	B	1	<p>Answering A shows that pupils have correctly identified the solute but not the solvent.</p> <p>Answering C shows that pupils have confused the solute and solvent but correctly stated the solution.</p> <p><i>Task: Describe what is meant by a solute, a solvent and a solution. Identify the solute, solvent and solution when sugar is added to tea.</i></p>
8	B	1	<p>Answering A or C shows that pupils are not secure with the concept of conservation of mass.</p> <p><i>Task: Explain what is meant by conservation of mass. Explain why the mass of magnesium oxide is greater than the mass of magnesium before it reacts with oxygen.</i></p>
9	A	1	<p>Answering B shows that pupils are aware that isotopes have a number in common but incorrectly identified this as the mass number rather than the atomic number.</p> <p>Answering C shows that pupils do not know the definition of isotopes.</p> <p><i>Task: Explain why the relative atomic mass (mass number) of most elements is not a whole number.</i></p>
10	C	1	<p>Answering A shows that pupils know the atomic number refers to the number of protons but incorrectly suggested that the number of neutrons is always equal to the number of protons (they may have confused neutrons and electrons).</p> <p>Answering B shows that pupils know that atomic number refers to proton number and that mass number is related to number of neutrons but missed out the calculation.</p> <p><i>Task: Use a periodic table to determine the number of protons and neutrons in the first 10 elements.</i></p>