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| **Topic heading** | **Syllabus Ref** | **Idea cluster** | **Question 1** | **Question 2** | **Question 3** | **Question 4** | **Question 5** |
| **Particles** | **KS3 C1a** | **Properties of states of matter** | How are the particles arranged in a liquid?   1. Particles are randomly arranged, close together and touching 2. Particles are randomly arranged, close together but not touching 3. Particles are regularly arranged and touching 4. Particles are randomly arranged, far apart | Why do liquids take the shape of the container?   1. The particles are move freely in all directions 2. The particles can separate from each other 3. The particles are able to move over each other while still touching 4. The particles have no attractions between each other | What is the name of the change of state from gas to liquid?   1. Freezing 2. Melting 3. Condensing 4. Evaporating | What is meant by the melting/ freezing temperature?   1. The temperature at which a liquid changes to gas and a gas changes to a liquid 2. The temperature at which a solid changes to liquid and a liquid changes to a solid 3. The temperature at which a solid changes to gas and a gas changes to a solid 4. The temperature at which a solid changes to liquid and a liquid changes to a gas | What happens to particles when they are heated?   1. Particles move more slowly 2. Particles get larger 3. Particles move closer together 4. Particles move faster |
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| **Particles** | **KS3 C1b** | **Solutions** | What is a solute?   1. A liquid which dissolves a solid 2. A solid which dissolves in a liquid 3. A solid which doesn’t dissolve in a liquid 4. A liquid which dissolves in another liquid | What is a solution?   1. A mixture of an insoluble solid (solute) and a liquid (solvent) 2. A mixture of two dissolved liquids (solvents) 3. A mixture of a soluble solid (solute) and a liquid (solvent) 4. A mixture of a soluble solid (solute) and an insoluble solid. | What word is used to describe a solution in which no more solute will dissolve?   1. Insoluble 2. Super soluble 3. Concentrated 4. Saturated | What method is used to separate two or more solutes from a solution?   1. Filtration 2. Chromatography 3. Crystallisation 4. Dissolving |  |
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| **Particles** | **KS3 C1c** | **Energy of particles** | When particles are heated, what happens to their level of kinetic energy?   1. Increases 2. Decreases 3. Decreases to zero 4. Stays the same | For a fixed mass of the same substance, which state of matter would have the most energy?   1. Solid 2. Liquid 3. Gas 4. All the same | When two particles collide, how does the energy transfer?   1. From the high energy particle to the low energy particle 2. From the low energy particle to the high energy particle 3. Both particles take 50% of the energy 4. Both particles retain their original level of energy | What pressure does a 20,000N elephant exert on the ground through its feet (total area 1000cm2)?   1. 0.05 N/cm2 2. 20 N/cm2 3. 21,000 N/cm2 4. 20,000,000 N/cm2 |  |
|  |  |  | a | c | a | b |  |
| **Acids & Alkalis** | **KS3 C3a** | **Properties of acids & alkalis** | Acids and alkalis are corrosive substances. Which symbol represents ‘corrosive’?   1. Image result for hazard symbols 2. Image result for hazard symbols 3. Image result for hazard symbols 4. Image result for hazard symbols | What would the pH of an acid be?   1. 1-7 2. Less than 7 3. Greater than 7 4. 7-14 | What is pH a measure of?   1. Concentration of acid (H+) ions 2. Amount of acid (H+) ions 3. Volume of acid (H+) 4. Pressure of acid (H+) ions | An acid reacts with an alkali to form a salt and water – what type of reaction is this?   1. neutralisation 2. combustion 3. acidification 4. titration |  |
|  |  |  | c | b | a | a |  |
| **Acids and Alkalis** | **KS3 C3b** | **Acid and alkali reactions** | What colour would Universal Indicator change in a weak acid?   1. Blue 2. Green 3. Red 4. Yellow | What is the formula for sulfuric acid?   1. HCl 2. H2SO4 3. HNO3 4. MgSO4 | What is the general word equation for a reaction between acid + alkali?   1. Acid + alkali 🡪 water + carbon dioxide 2. Acid + alkali 🡪 salt + carbon dioxide 3. Acid + alkali 🡪 water 4. Acid + alkali 🡪 salt + water | What salt is produced when hydrochloric acid and sodium hydroxide react?   1. Sodium chlorine 2. Sodium chloride 3. Sodium hydrochloride 4. Sodium acid |  |
|  |  |  | d | b | d | b |  |
| **Chemical reactions** | **KS3 C4a** | **Chemical equations** | What are the starting materials in a chemical reaction called?   1. Reactants 2. Reactions 3. Ingredients 4. Products | Which one of these observations shows a chemical change?   1. Fizzing 2. Dissolving 3. Melting 4. Evaporating | What is the symbol equation for the reaction between magnesium and oxygen?   1. 2Mg + CO2 🡪 2MgO 2. 2Mg + O2 🡪 2MgO 3. Mg + Cl2 🡪 MgCl2 4. 2Mn + O2 🡪 2MnO | How many atoms are found in a molecule of sulfuric acid (H2SO4)?   1. 3 2. 4 3. 7 4. 10 | What happens to the mass of chemicals during a reaction?   1. Increases 2. Decreases 3. Decreases to zero 4. Stays the same |
|  |  |  | a | a | b | c | d |
|  |  | **Energy in reactions** | What is the test for hydrogen?   1. Relights a glowing splint 2. Lit splint ‘squeaky pops’ 3. Turns limewater cloudy 4. Turns litmus paper blue | What is the definition of ‘thermal decomposition’?   1. Joining atoms using heat 2. Breaking down using heat 3. Heating up a substance 4. Chemicals rotting | What is the definition of an exothermic reaction?   1. A reaction that absorbs energy from the surroundings 2. A reaction which takes in heat energy from the surroundings 3. A reaction which gives out energy to the surroundings 4. A substance that speeds up a reaction | What word describes a reaction in which energy is released so quickly that it causes the reaction to burst into flames?   1. Oxidation 2. Combustion 3. Endothermic 4. Evaporation |  |
|  |  |  | b | b | c | b |  |