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| **%** | **I can …** | **Prove it!** |
| 80% + | 1. Explain the limitations of the particle theory
2. Calculate Rf values
3. Describe the key properties (state, easy to cut, appearance) of group 1
4. Describe and explain how the reactivity changes as you move down group 1 (oxygen, chlorine, water)
5. Describe the key properties (boiling and melting point) of group 7
6. Describe and explain how the reactivity changes as you move down group 7
7. Describe the key properties (boiling point, density, reactivity) of group 0
8. Describe how density and boiling points change as you move down group 0
 | 1. State the limitations of the particle theory.
2. Calculate the Rf value of a substance which move 44 mm, when the mobile phase moves 50 mm.
3. Are group 1 metals harder or softer than transition metals?
4. State how the reactivity of group 1 metals changes.
5. How do the properties of group 7 elements change as you go down the group?
6. How does the reactivity of group 7 elements change as you go down the group?
7. Why are group 0 elements unreactive?
8. How do the properties of group 0 elements change as you go down the group?
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| 70% | 1. Use key terms (soluble, insoluble, solute, solvent and solution) correctly to describe a substance dissolving
2. Describe the two phases (stationary and mobile) of chromatography and its purpose
3. Describe the uses of metals
4. Describe the key properties of the transition metals (chromium, manganese, iron, cobalt, nickel and copper) (triple only)
5. Define a ‘chemical reaction’ and give examples
6. Describe corrosion as a reaction and explain how to prevent it (triple only)
7. Explain what an alloy is and how it’s properties differ from a pure metal
8. Link the properties and use of different alloys to their composition (bronze, brass, gold, steel, aluminium alloys) (triple only)
 | 1. Compare sand in water and salt in water using the key terms at left.
2. In paper chromatography, what is the stationary phase?
3. Why are metals useful as wires?
4. How are compounds of transition metals different from group 1 metals?
5. What does a chemical reaction always produce?
6. How might I prevent the corrosion of a bike chain?
7. Why is an alloy stronger than a pure metal?
8. State the composition of brass, and steel.
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| 60% | 1. Name common compounds from their formula
2. Use melting and boiling point data to establish pure substances from mixtures
3. Explain how to separate given mixtures (filtration, crystallisation, simple distillation, fractional distillation, chromatography)
4. Explain the difference in difficulty of separating compounds compared to mixtures
5. Recall the radius of an atom and its nucleus
6. Draw the electronic structure and work out the electronic configuration for a given atom
7. Define an ‘isotope’
8. Link isotopes to relative atomic mass to explain why this is an average
9. Calculate the relative atomic mass of an element given the percentage abundance of its isotopes
10. Calculate the relative formula mass of a substance
 | 1. Give the name of the following compound: MnO
2. If a substance melts over a range of temperatures, is it a pure substance or a mixture?
3. How would I obtain pure salt crystals from salt water?
4. Why is it harder to separate elements in a compound than substances in a mixture?
5. What is the radius of an atom?
6. Draw the electronic structure of sodium.
7. How is an isotope different from an atom?
8. What is relative atomic mass?
9. Why is relative atomic mass not an integer?
10. What is the Mr of glucose, C6H12O6?
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| **%** | **I can …** | **Prove it!** |
| 50% | 1. Use the particle model to explain melting, boiling, freezing and condensing
2. Identify a substance’s state using its melting and boiling point
3. Classify a substance as an element or compound
4. Define ‘pure substances’ and explain the difference between its scientific and everyday meaning
5. Describe what a ‘formulation’ is and give examples.
6. Interpret chromatograms to decide whether a substance is pure of a mixture
7. Describe the current (nuclear) model of the atom giving the relative charge and mass of the subatomic particles
8. Calculate protons, neutrons and electrons for an atom linking to mass and atomic number
 | 1. Describe the particles in a solid.
2. State the freezing and melting point of water.
3. Is carbon dioxide an element or a compound?
4. Image result for chromatogram paper Is copper sulphate solution a pure substance or a mixture?
5. Give an example of a formulation.
6. What compounds are in M in the chromatogram at right?

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| --- | --- | --- |
| Subatomic particle | Mass | charge |
| Proton |  |  |
| Neutron |  |  |
| Electron |  |  |

1. Complete the table.
2. How many protons, neutrons, and electrons are in an atom of carbon-12?
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| 40% | 1. Describe and draw a model of the three states of matter
2. Identify the symbol for the first 20 elements
3. Describe the plum pudding model of the atom
4. Describe how Mendeleev has arranged the periodic table
5. Explain why something is classified as a metal or non-metal
6. Describe the gas test for carbon dioxide, hydrogen, oxygen and chlorine
 | 1. Draw the particle arrangement in a gas.
2. Give the element symbols for neon, argon, potassium, sulfur, and phosphorus.
3. Draw the plum pudding model of the atom.
4. Why did Mendeleev leave gaps on his periodic table?
5. Why is potassium classified as a metal, even though it is quite soft?
6. State the test for chlorine gas.
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