Year 9 Science Personalised Learning Checklist- Autumn 1
Chemistry Fundamentals

	Learning Statements	Tier	R	A	G
1	Describe and draw a model of the three states of matter	F			
2	Use the particle model to explain melting, boiling, freezing and condensing	F			
3	Explain the limitations of the particle theory	HT			
4	Identify a substance's state using its melting and boiling point	F			
5	Classify a substance as an element or compound	F			
6	Identify the symbol for the first 20 elements	F			
7	Name common compounds from their formula	F			
8	Define 'pure substances' and explain the difference between its scientific and everyday meaning	F			
9	Use melting and boiling point data to establish pure substances from mixtures	F			
10	Describe what a 'formulation' is and give examples (Fuels, cleaning agents, paints, medicines, alloys, fertilisers and foods)	F			
11	Use key terms (soluble, insoluble, solute, solvent and solution) correctly to describe a substance dissolving	F			
12	Explain how to separate given mixtures (filtration, crystallisation, simple distillation, fractional distillation, chromatography)	F			
13	Describe the two phases (stationary and mobile) of chromatography and its purpose	F			
14	Calculate Rf values	F			
15	Interpret chromatograms to decide whether a substance is pure of a mixture	F			
16	RP Chromatography: Use paper chromatography to investigate the colours within different substances and calculate Rf values	F			
17	Explain the difference in difficulty of separating compounds compared to mixtures	F			
18	Describe the plum pudding model of the atom	F			
19	Describe the current (nuclear) model of the atom giving the relative charge and mass of the subatomic particles	F			
20	Recall the radius of an atom and it's nucleus	F			
21	Calculate protons, neutrons and electrons for an atom linking to mass and atomic number	F			
22	Draw the electronic structure and work out the electronic configuration for a given atom	F			
23	Define an 'isotope'	F			
24	Link isotopes to relative atomic mass to explain why this is an average	F			
25	Calculate the relative atomic mass of an element given the percentage abundance of it's isotopes	F			
26	Calculate the relative formula mass of a substance	F			
27	Describe how Mendeleev has arranged the periodic table	F			
28	Explain why something is classified as a metal or non-metal	F			
29	Describe the uses of metals	F			
30	Define a 'chemical reaction' and given examples	F			
31	Explain what an alloy is and how it's properties differ from a pure metal	F			
32	Describe the key properties (state, easy to cut, appearance) of group 1	F			
33	Describe and explain how the reactivity changes as you move down group 1 (oxygen, chlorine, water)	F			
34	Describe the key properties (molecular mass, boiling and melting point) of group 7	F			
35	Describe and explain how the reactivity changes as you move down group 7	F			
36	Describe the key properties (boiling point, density, reactivity) of group 0	F			
37	Describe and explain how the reactivity changes as you move down group 0	F			
38	Describe the gas test for carbon dioxide, hydrogen, oxygen and chlorine	F			