

S3 Science: how well is your learning progressing?

Key area 3: Building the Rocket.				
Properties of metals	I can do this.	I need to go over this.	I don't know this.	Level
I can state that carbon in the form of graphite is the only non-metal conductor of electricity.				3
I can state that metals are good conductors of electricity and explain how metals can conduct electricity.				3
I can state useful properties of metals.				3
I can state that alloys are a mixture of metals or metals with non-metals.				4
I can state that if a metal is alloyed, it will change its properties.				4
Rusting and Corrosion	I can do this.	I need to go over this.	I don't know this.	Level
I can state that corrosion is the name given to the process in which metals react with oxygen and				3

water in the air.				
I can state that salt water and acid can speed up corrosion.				3
I can state that rusting is the name given to the corrosion of iron.				3
I can state that ferroxyl indicator can be used to show rusting occurring and describe the result if there is rust present.				4
Protection of metals	I can do this.	I need to go over this.	I don't know this.	Level
I can state that rusting and corrosion can be prevented by physical protection – such as painting, coating in plastic or another metal.				3
I can state that sacrificial protection prevents metals from corroding and I can give an everyday example of this.				4
Electrochemical series	I can do this.	I need to go over this.	I don't know this.	Level
I can state that the voltage produced between metals in a chemical cell can be used to arrange the metals in the electrochemical series.				4
I can state that the further apart the metals are in the electrochemical series, the higher the voltage produced.				4

Reaction of metals	I can do this.	I need to go over this.	I don't know this.	Level
I can state that group 1 metals react quickly with water.				3
I can state that metals that react with oxygen form metal oxides.				3
I can use the results of experiments involving metals and water, acid and oxygen to arrange the metals in order of reactivity.				4
Extraction of metals	I can do this.	I need to go over this.	I don't know this.	Level
I can state that gold is so unreactive that it exists in its pure form in the earth.				3
I can state that most metals exist in the earth as compounds.				3
I can state that unreactive metals like silver can be extracted from their ore by heat alone.				4
I can state that iron is obtained from its ore by heating with carbon and I can describe the process of how it happens.				4
I can state that reactive metals are obtained from their ores by passing electricity through them.				4

Atoms and Bonding	I can do this.	I need to go over this.	I don't know this.	Level
I can state the mass and charge for protons, neutrons and electrons.				4
I can draw a target diagram to show the arrangement of protons, neutrons and electrons in an atom.				4
I can work out the atomic number of an element.				4
I can work out the mass number of an element.				4
I can state that covalent bonds are formed when non-metal atoms join.				4
I can state that an ionic bond is formed between a metal and a non-metal.				4
I can state that covalent substances are non-conductors of electricity in all states.				4
I can state that ionic substances conduct electricity in solution or when liquid but not in the solid state.				4

Chemical formula and valency	I can do this.	I need to go over this.	I don't know this.	Level
I can use valency rules to work out the formulae of compounds.				4
I can calculate the Gram Formula Mass of a substance using the Relative Atomic Mass from the Data Booklet.				4