Chemistry C2.3 Metals and Acids

Section 1: Acids and metals

1	**Observations with metal and acid reactions**	Magnesium: Bubbles vigorously Zinc/iron: Bubbles steadily Lead: Few bubbles
2	**Products**	A salt and hydrogen
3	**Test for hydrogen**	Put a lit splint in the gas and there will be a squeaky pop

Section 2: Metals and oxygen

State symbols		
4	**(s)**	Solid
5	**(l)**	Liquid
6	**(g)**	Gas
7	**(aq)**	Solution

Reactions with oxygen		
8	**magnesium**	Burns vigorously
9	**Zinc**	Burns less vigorously
10	**Iron**	Burns
11	**lead**	Does not burn
12	**Copper**	
13	**Gold**	No reaction

reactive
potassium
sodium
lithium
calcium
magnesium
aluminium
zinc
iron
lead
copper
silver
gold
unreactive

Section 3: Metals and water

14	**Reactivity series**	A list of metals in order of how vigorously they react
15	Metals at the top of the reactivity series have very vigorous reactions. Going down the list, the metals get less reactive	

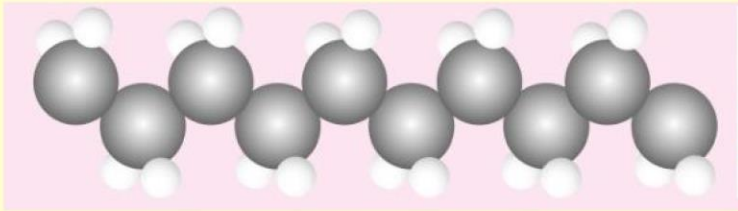
Section 4: Metal displacement reactions

16	**Displace**	A more reactive metal displaces – or pushes out – a less reactive metal from its compound
17	**Displacement**	In a displacement reaction, a more reactive metal displaces a less reactive metal from its compound
18	**Thermite reaction**	Aluminium + iron oxide → aluminium oxide + iron

Section 5: Extracting metals

19	**Ore**	A rock that you can extract a metal from
20	**How metals are extracted from their ore**	1. Separate the metal oxide from its ore 2. Use chemical reactions to extract the metal from its metal oxide
21	**Chemical reactions**	The chemical reactions involve heating the metal oxide with charcoal (carbon). Any metal that is below carbon in the reactivity series can be displaced from its compounds by carbon

magnesium
aluminium
carbon
zinc
iron
lead
copper



Section 6: Materials

	Material	Description	Properties	Uses
22	**Ceramics**	A compound such a metal silicate or oxide that is hard, strong and has a high melting point	• Hard • Brittle • Stiff • Solid at room temperature • Strong • Break easily • Electrical insulators	• Bricks – are strong which makes them suitable for buildings • Electrical power-line insulators – ceramics do not conduct electricity
23	**Polymers**	A substance made up of very long molecules	• Does not conduct electricity • Poor conductors of heat	• Carrier bags (low-density polyethene) • Artificial joints (high-density polyethene)
24	**Composites**	A mixture of materials with properties that are a combination of those of the materials in it	Has properties that are a combination of the properties of the materials it is made up of	• Carbon-fibre-reinforced plastic • Glass-fibre-reinforced aluminium

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