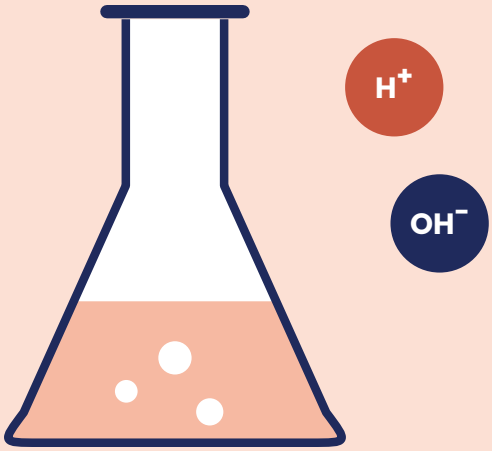
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Acids, Bases & Salts



Mark Scheme – Teacher Copy

Answers, marking points and guidance for the Acids, Bases and Salts worksheet.

pH scale | Indicators | Neutralisation | Making salts | Crystals | Solubility

KEY IDEAS IN THIS WORKSHEET

YEAR 10–11

Name: _____ Class: _____

Date set: _____ Date due: _____

What's inside

Section A	Acids, alkalis and pH	17 marks
Section B	Reactions of acids	14 marks
Section C	Making salts	16 marks
Section D	Solubility and salt rules	8 marks

Marking notes

- (1) = one mark for each marking point.
- / separates alternative answers.
- Allow error carried forward in calculations.
- Accept any correct, clearly expressed alternative.

Total marks

55

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Acids, Bases and Salts Worksheet – Mark Scheme

Total: 55 marks. (1) = one mark. Accept any scientifically correct alternative wording.

Section A – Acids, alkalis and pH

Q	Answer	Mark	Guidance
1(a)	H^+; OH^-	2	1 mark each
1(b)	pH; neutral	2	
1(c)	neutralisation; salt	2	
2	Litmus: red; blue. Methyl orange: red; yellow. Phenolphthalein: colourless; pink.	6	1 mark for each correct box
3	strong acid: 0–1 (1); weak acid: 4–6 (1); strong alkali: 13–14 (1)	3	allow 0–2 for strong acid
4	a strong acid is completely ionised in water (1); a concentrated acid has a lot of acid in a given volume (1)	2	
	Section A total	**17**	

Section B – Reactions of acids

Q	Answer	Mark	Guidance
5	magnesium chloride (1) + hydrogen (1); copper sulfate (1) + water (1); sodium nitrate (1) + water (1); calcium chloride (1) + water and carbon dioxide (1)	8	for calcium carbonate, both water and carbon dioxide are needed for the second mark
6	$HCl(aq) + NaOH(aq) \rightarrow NaCl(aq) + H_2O(l)$	3	correct formulae (1); correctly balanced (1); correct state symbols (1)
7	$H^+(aq) + OH^-(aq) \rightarrow H_2O(l)$	1	state symbols not required
8	bubble the gas through limewater (1); it turns cloudy / milky (1)	2	
	Section B total	**14**	

Section C – Making salts

Q	Answer	Mark	Guidance
9	warm the dilute sulfuric acid (1); add copper oxide a little at a time until it is in excess / no more dissolves (1); filter to remove the excess copper oxide (1); heat the filtrate to evaporate some water until crystals start to form (1); leave to cool and crystallise (1); filter and dry the crystals between filter paper / in a warm place (1)	6	
10	to make sure all the acid has reacted (1); so the solution contains only copper sulfate (and water) (1)	2	
11	measure 25 cm^3 of sodium hydroxide into a conical flask using a pipette (1); add a few drops of indicator (1); add acid from a burette until the indicator changes colour (1); repeat with the same volumes but without the indicator (1); evaporate some water and leave to crystallise (1)	5	
12	chlorides (1); sulfates (1); nitrates (1)	3	
	Section C total	**16**	

Section D – Solubility and salt rules

Q	Answer	Mark	Guidance
13	(a) soluble (1); (b) soluble (1); (c) insoluble (1); (d) insoluble (1)	4	(c) allow 'insoluble except sodium, potassium and ammonium carbonates'
14	mix lead nitrate solution with a soluble sulfate solution such as sodium sulfate (1); a white precipitate forms (1); filter, wash with distilled water and dry (1); precipitation (1)	4	
	Section D total	**8**	

Worksheet total: 55