

## Year 9 C4 Reactions FACT SHEET

<b>Reactions (done during the topic)</b>	
<b>1. What do we call chemicals present at the start of a reaction?</b>	<b>Reactants</b>
<b>2. What do we call chemicals made in a reaction?</b>	<b>Products</b>
<b>3. What is the state symbol for a solid?</b>	<b>(s)</b>
<b>4. What is the state symbol for a liquid?</b>	<b>(l)</b>
<b>5. What is the state symbol for a gas?</b>	<b>(g)</b>
<b>Exothermic and endothermic reactions</b>	
<b>6. What happens in an endothermic reaction?</b>	<b>Heat is taken in from the surroundings</b>
<b>7. State an example of an endothermic reaction</b>	<b>Thermal decomposition</b>
<b>8. What happens during an exothermic reaction?</b>	<b>Heat is given out to the surroundings</b>
<b>9. List examples of exothermic reactions</b>	<ul style="list-style-type: none"> <li>• <b>Combustion</b></li> <li>• <b>Oxidation</b></li> <li>• <b>Neutralisation</b></li> </ul>
<b>10. Give an example of a use of exothermic reactions</b>	<b>Self-heating cans / hand warmers</b>
<b>11. Give an example of a use of endothermic reactions</b>	<b>Sports injury packs</b>
<b>Metals reacting with oxygen</b>	
<b>12. Metal + oxygen →</b>	<b>Metal oxide</b>
<b>13. Zinc + oxygen →</b>	<b>Zinc oxide</b>
<b>14. What do we call a reaction in which a metal gains oxygen?</b>	<b>Oxidation</b>
<b>15. What do we call a reaction in which a metal loses oxygen?</b>	<b>Reduction</b>
<b>16. What type of reaction is this? Why?</b> <b>Lead + oxygen → lead oxide</b>	<ul style="list-style-type: none"> <li>• <b>Oxidation</b></li> <li>• <b>Lead gained oxygen</b></li> </ul>
<b>17. Is the copper oxidised or reduced?</b> <b>How can you tell?</b> <b>Copper oxide + carbon → copper + carbon dioxide</b>	<ul style="list-style-type: none"> <li>• <b>Reduced</b></li> <li>• <b>Copper lost oxygen</b></li> </ul>

<b>Metals reacting with water</b>	
18. Describe the reactions of potassium, sodium and lithium with water (see also C1 fact sheet)	<ul style="list-style-type: none"> <li>• Fizz, give off hydrogen</li> <li>• Move around</li> <li>• Spark</li> <li>• Turn water blue if it has universal indicator in it</li> </ul>
19. Describe the reactions of calcium, magnesium, zinc, iron, copper with water	Don't react immediately (you probably won't see any reaction)
<b>Metals reacting with acid</b>	
20. Describe the reactions of magnesium, zinc and iron with hydrochloric and sulfuric acid	<ul style="list-style-type: none"> <li>• Fizz</li> <li>• Hydrogen gas released</li> <li>• Exothermic (get hot)</li> </ul>
<b>Reactivity series and displacement reactions</b>	
21. Put the following in order of their reactivity: zinc, magnesium, iron, copper, sodium, potassium, lithium	Potassium, sodium, lithium, calcium, magnesium, zinc, iron, copper
22. A ____ reactive metal will displace a less reactive metal	More
<b>Acids, alkalis and salts</b>	
23. State the pH range for an acid	Between 1-6
24. State the pH range for an alkali	Between 8 and 14
25. What pH does a neutral solution have?	7
26. State 2 ways to measure the pH of a solution	<ul style="list-style-type: none"> <li>• Universal indicator</li> <li>• pH probe</li> </ul>
27. State the colour of a strong acid with universal indicator	Red
28. State the colour of a weak acid with universal indicator	Orange/ yellow
29. State the colour of a neutral solution with universal indicator	Green
30. State the colour of a weak alkali with universal indicator	Blue
31. State the colour of a strong alkali with universal indicator	Purple
32. Which ions make a solution acidic?	H <sup>+</sup>

<b>33. Which ions make a solution alkaline?</b>	<b>OH<sup>-</sup> (hydroxide ion)</b>
<b>34. Is H<sub>2</sub>SO<sub>4</sub> and acid or alkali?</b>	<b>Acid</b>
<b>35. Is LiOH an acid or alkali?</b>	<b>Alkali</b>
<b>Neutralisation and salts</b>	
<b>36. How do you neutralise an acid?</b>	<b>Add an alkali</b>
<b>37. Write the neutralisation reaction in terms of the ions involved</b>	<b>H<sup>+</sup> + OH<sup>-</sup> → H<sub>2</sub>O</b>
<b>38. How many parts are there to a salt's name?</b>	<b>2</b>
<b>39. Where does the first part of a salt's name come from?</b>	<b>The metal in the reaction</b>
<b>40. Where does the second part of a salt's name come from?</b>	<b>The acid in the reaction</b>
<b>41. Which acid makes salts called chlorides?</b>	<b>Hydrochloric acid</b>
<b>42. Which acid makes salts called nitrates?</b>	<b>Nitric acid</b>
<b>43. Which acid makes salts called sulphates?</b>	<b>Sulphuric acid</b>
<b>44. Acid + alkali →</b>	<b>Salt + water</b>
<b>45. Acid + base →</b>	<b>Salt + water</b>
<b>46. Acid + metal →</b>	<b>Salt + hydrogen</b>
<b>47. Acid + metal carbonate →</b>	<b>Salt + water + carbon dioxide</b>
<b>RPA Making soluble salts</b>	
<b>48. Outline how to make a soluble salt</b>	<ul style="list-style-type: none"> <li>• <b>Mix the acid and the base</b></li> <li>• <b>Filter - remove unreacted base</b></li> <li>• <b>Evaporate the water (crystallisation)</b></li> </ul>