

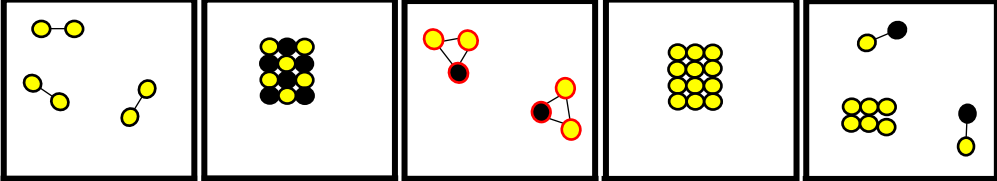
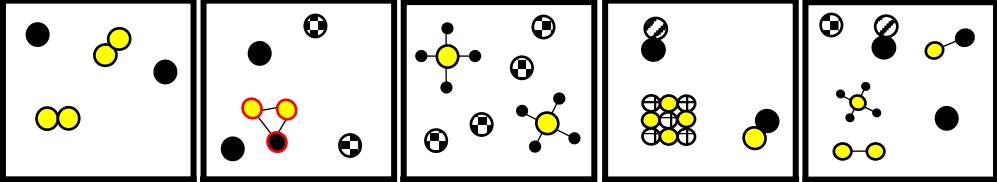


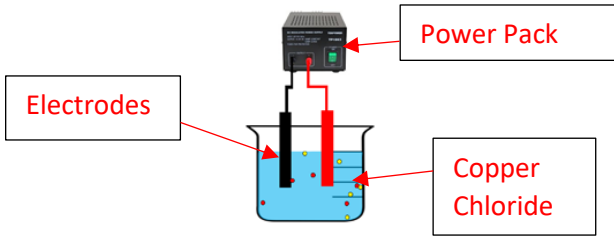
## S2 Chemistry – Chemical Reactions Summary Questions



Use your notes to help you complete these summary questions.

Name:		Mark: / 57	%:
1a	Q. What happens in all chemical reactions?	Answer: <b>A new substance is made</b>	Marks  1
1b	What are the four signs that a chemical reaction has taken place?  1. <b>Colour Change</b> 2. <b>Gas Released</b> 3. <b>Precipitation(solid formed)</b> 4. <b>Energy Change (temp change/heat given off)</b>		<b>1 each</b>  4
1c	When Artie mixed two colourless liquids together a yellow 'sludge' appeared in the mixture. It became so hot he had to put the beaker down.  What <b>THREE</b> pieces of evidence suggest that a chemical reaction had taken place?  1. <b>Colour Change</b> 2. <b>Heat given off</b> 3. <b>Precipitation</b>		3
1d	Pablo made a list of observations around him that he thought were chemical reactions.  1. Kettle boiling    2. Ice melting    3. Salt dissolving    4. Puddle drying  Pablo's classmate William told Pablo that the observations he made were not chemical reactions but Pablo could not figure out why. Write an explanation to help Pablo understand why his observations were not chemical reactions.  Explanation:  <b>No new substance made</b>		1
2a	Circle the correct phrase in the box to make an accurate statement about compounds:  The properties of a compound are usually <span style="border: 1px solid black; padding: 2px;"><b>different to</b></span> the elements that make them up.		1

2b	<p>Write the word ELEMENT, MIXTURE or COMPOUND under the following diagrams:</p>  <p>Element      Compound      Compound      Element      Mixture</p>	1 each  5																						
2c	<p>Write down the composition of the mixtures below (eg 2 elements, 1 compound):</p>  <p>2 elements      2 Elements 1 Compound      1 Element 1 Compound      3 Compounds      3 Compounds 3 Elements</p>	1 each  5																						
3a	<p>Shade in/highlight the <b>ELEMENTS</b> in the following list:</p> <p>Water      <b>Copper</b>      Air      Lithium chloride      Ammonia      Sand</p> <p><b>Iron</b>      Carbon dioxide      <b>Vanadium</b>      <b>Gold</b>      Sodium hydroxide</p>	1 each  4																						
3b	<p>Complete the following table:</p> <table border="1" data-bbox="280 1317 1241 1944"> <thead> <tr> <th>Compound Name</th> <th>Elements Present</th> </tr> </thead> <tbody> <tr> <td>Copper Chloride</td> <td>Copper, Chlorine</td> </tr> <tr> <td>Potassium sulfate</td> <td>Potassium, sulfur, oxygen</td> </tr> <tr> <td>Hydrogen fluoride</td> <td>Hydrogen, fluorine</td> </tr> <tr> <td>Iron oxide</td> <td>Iron, oxygen</td> </tr> <tr> <td>Calcium carbonate</td> <td>Calcium, carbon, oxygen</td> </tr> <tr> <td><b>Magnesium bromide</b></td> <td>Magnesium, bromine</td> </tr> <tr> <td><b>Potassium chlorate</b></td> <td>Potassium, chlorine, oxygen</td> </tr> <tr> <td><b>Silver nitrate</b></td> <td>Silver, nitrogen, oxygen</td> </tr> <tr> <td><b>Lead iodide</b></td> <td>Lead, iodine</td> </tr> <tr> <td><b>Sodium phosphate</b></td> <td>Sodium, phosphorus, oxygen</td> </tr> </tbody> </table>	Compound Name	Elements Present	Copper Chloride	Copper, Chlorine	Potassium sulfate	Potassium, sulfur, oxygen	Hydrogen fluoride	Hydrogen, fluorine	Iron oxide	Iron, oxygen	Calcium carbonate	Calcium, carbon, oxygen	<b>Magnesium bromide</b>	Magnesium, bromine	<b>Potassium chlorate</b>	Potassium, chlorine, oxygen	<b>Silver nitrate</b>	Silver, nitrogen, oxygen	<b>Lead iodide</b>	Lead, iodine	<b>Sodium phosphate</b>	Sodium, phosphorus, oxygen	0.5 each  5
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3c	<p>When calcium metal is placed in hydrochloric acid, hydrogen gas is released and calcium chloride is formed.</p> <p>Write a word equation for this reaction in the space below:</p> <p><i>Word Equation:</i></p> <p style="text-align: center;"><b>Calcium + hydrochloric acid → hydrogen + calcium chloride</b></p>	1												
4a	<p>What is needed to break a chemical bond? <b>energy</b></p>	1												
4b	<p>Give the definition for electrolysis:</p> <p><i>Definition:</i></p> <p style="text-align: center;"><b>Breaking up a compound using electricity</b></p>	1												
4c	<p>Draw a labelled diagram showing the electrolysis of copper chloride. <b>Make sure you label; the power pack, electrodes and copper chloride</b></p> <p><i>Labelled diagram of electrolysis technique(circles not needed in beaker):</i></p> 	<p>1 for pic 1 each for label</p> <p>4</p>												
4d	<p>When copper chloride is electrolysed, it breaks down into copper and chlorine. Write a word equation for this reaction in the space below:</p> <p><i>Word Equation:</i></p> <p style="text-align: center;"><b>Copper chloride → copper + Chlorine</b></p>	1												
5a	<p>Draw lines to match the gases to the % of the air they make up:</p> <table border="0" style="width: 100%;"> <tr> <td style="border: 1px solid black; padding: 5px;">Oxygen</td> <td style="text-align: right;">→</td> <td style="border: 1px solid black; padding: 5px;">78%</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">Carbon Dioxide</td> <td style="text-align: right;">→</td> <td style="border: 1px solid black; padding: 5px;">21%</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">Argon</td> <td style="text-align: right;">→</td> <td style="border: 1px solid black; padding: 5px;">&lt;1%</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">Nitrogen</td> <td style="text-align: right;">→</td> <td style="border: 1px solid black; padding: 5px;">&lt;1%</td> </tr> </table>	Oxygen	→	78%	Carbon Dioxide	→	21%	Argon	→	<1%	Nitrogen	→	<1%	<p>1 each</p> <p>4</p>
Oxygen	→	78%												
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Nitrogen	→	<1%												
5bi	<p>Which gas burns with a pop? <b>Hydrogen</b></p>	1												
5bii	<p>What is the test for oxygen? <b>Relights a glowing splint</b></p>	1												

5biii	What is the test for carbon dioxide? <b>Turns lime water cloudy</b>	1												
5ci	What gas is used to make soft drinks 'fizzy'? <b>Carbon dioxide</b>	1												
5cii	Why is argon added to lightbulbs instead of normal air? <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <i>Answer: Prevent the bulb burning out / unreactive / prevent oxygen reacting with bulb filament or similar</i> </div>	1												
5ciii	Give a use for nitrogen. <b>Freezing food / filling crisp packs etc</b>	1												
5civ	Give a use for oxygen. <b>Burning / mixed with fuels (rockets/welding) / breathing etc</b>	1												
6a	Complete the following table about rates of reaction: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Effect of increasing temperature on rate:</th> <th style="width: 33%;">Effect of increasing concentration on rate:</th> <th style="width: 33%;">Effect of decreasing particle size on rate:</th> </tr> </thead> <tbody> <tr> <td><b>Increases Rate</b></td> <td><b>Increases Rate</b></td> <td><b>Increases Rate</b></td> </tr> <tr> <td>Explanation:</td> <td>Explanation:</td> <td>Explanation:</td> </tr> <tr> <td><b>Particles move faster, more collisions</b></td> <td><b>More particles in same volume/space, more collisions</b></td> <td><b>Higher surface area, more collisions</b></td> </tr> </tbody> </table>	Effect of increasing temperature on rate:	Effect of increasing concentration on rate:	Effect of decreasing particle size on rate:	<b>Increases Rate</b>	<b>Increases Rate</b>	<b>Increases Rate</b>	Explanation:	Explanation:	Explanation:	<b>Particles move faster, more collisions</b>	<b>More particles in same volume/space, more collisions</b>	<b>Higher surface area, more collisions</b>	1 each  6
Effect of increasing temperature on rate:	Effect of increasing concentration on rate:	Effect of decreasing particle size on rate:												
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6b	What is meant by a 'fair' experiment? <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <i>Answer: Only 1 variable/thing can be changed at a time</i> </div>	1												
6c	How can the results of an investigation be made more reliable? <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <i>Answer: Repeat the experiment</i> </div>	1												
6d	Roberto was investigating the effect of increasing the temperature on the rate of reaction. Here are his results: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Temperature (°C)</th> <th style="width: 60%;">Time taken for reaction to end (seconds)</th> </tr> </thead> <tbody> <tr> <td>20</td> <td>400</td> </tr> <tr> <td>30</td> <td>200</td> </tr> <tr> <td>40</td> <td>100</td> </tr> </tbody> </table> What conclusion can Roberto make from his results? <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <i>Conclusion: Increasing the temperature, increases the rate of reaction              Or similar (increasing temp, decreases time taken for reaction to end)</i> </div>	Temperature (°C)	Time taken for reaction to end (seconds)	20	400	30	200	40	100	1				
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20	400													
30	200													
40	100													
	<b>Total</b>	<b>57</b>												