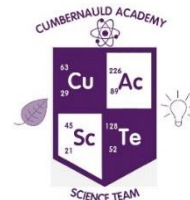


S2 Chemistry – Chemical Reactions Topic

Homework 1 on Lessons 1-3



Name:

Mark : / 10

Homework 1

1a Complete the following sentences to explain how you know a chemical reaction is taking place in each of the diagrams:

a)

I know a chemical reaction occurred because:

(b)

I know a chemical reaction occurred because:

I know a chemical reaction occurred because:

I know a chemical reaction occurred because:

2

1b Why is boiling water **NOT** an example of a chemical reaction even though a gas is released?

Answer:

1

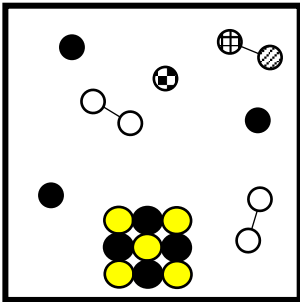
2a Write the words ELEMENT , COMPOUND or MIXTURE under the correct picture.

Answer:

Answer:

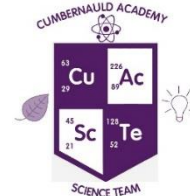
Answer:

1

2b	<p>What is meant by the term element?</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><i>Answer:</i></p> </div>	1										
2c	<p>Mixtures are different to compounds because the substances / atoms of different substances are NOT chemically bonded together. Complete the 'number of each type present' column in the table below by to show how many elements and compounds are in the diagram below:</p> <div style="display: flex; align-items: center; justify-content: space-around; margin-top: 10px;"> <div style="border: 2px solid black; padding: 10px;">  </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Type of substance in mixture</th> <th style="padding: 5px;">Number of each type present</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Elements</td> <td style="width: 100px; height: 40px;"></td> </tr> <tr> <td style="padding: 5px;">Compounds</td> <td style="width: 100px; height: 40px;"></td> </tr> </tbody> </table> </div>	Type of substance in mixture	Number of each type present	Elements		Compounds		1				
Type of substance in mixture	Number of each type present											
Elements												
Compounds												
3a	<p>Complete the following table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Compound Name</th> <th style="padding: 5px;">Elements Present</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">Zinc Chlorate</td> <td style="width: 100px; height: 20px;"></td> </tr> <tr> <td style="padding: 5px;">Aluminium sulfide</td> <td style="width: 100px; height: 20px;"></td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">Iron + oxygen</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">Potassium + nitrogen + oxygen</td> </tr> </tbody> </table>	Compound Name	Elements Present	Zinc Chlorate		Aluminium sulfide			Iron + oxygen		Potassium + nitrogen + oxygen	2
Compound Name	Elements Present											
Zinc Chlorate												
Aluminium sulfide												
	Iron + oxygen											
	Potassium + nitrogen + oxygen											
3b	<p>Write definitions for the following terms in a chemical reaction:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; min-height: 40px;"> <p><i>Definition for REACTANT:</i></p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; min-height: 40px;"> <p><i>Definition for PRODUCT:</i></p> </div>	1										
3c	<p>Write word equations for the following reactions using the descriptions given:</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; min-height: 100px;"> <p><i>Description:</i> Magnesium will react with water slowly over a few days. During this reaction a chemical called magnesium hydroxide is produced. Bubbles of hydrogen are also created in this reaction.</p> <p>Word equation:</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; min-height: 60px;"> <p><i>Description:</i> When heated, copper carbonate breaks down into copper oxide and carbon dioxide.</p> <p>Word equation:</p> </div>	1										
TOTAL		10										

S2 Chemistry – Chemical Reactions Topic

Homework 2 on Lessons 4-6



Name:

Mark : / 10

1a What is meant by the term electrolysis?

Answer:

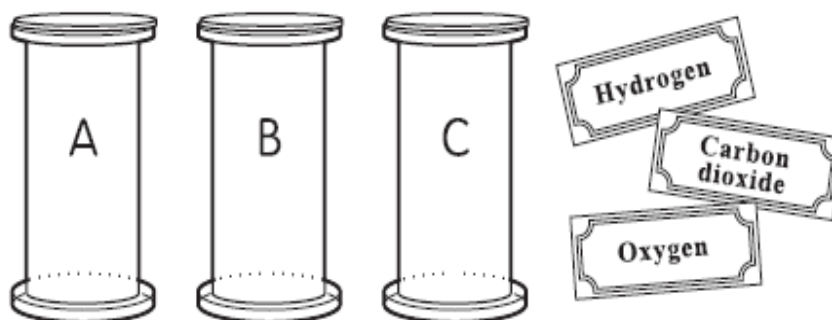
1

1b Using a ruler, draw a labelled diagram of the apparatus needed for the electrolysis of lead bromide in the space below. Make sure you label the **power pack**, **electrodes** and **lead bromide**.

Answer:

1

2a A pupil noticed that the labels had fallen off of three sealed gas jars. She knew they contained three different gases and wanted to identify them.



She carried out experiments on each gas to help her. Here are her results:

Gas A relight a glowing splint

Gas B burned with a 'pop' sound

Gas C turned limewater cloudy

Draw a line from each label to the correct gas jar.

1

2b Complete the following table:

Gas	% of air	Common Uses
		Used to fill lightbulbs
	21	
Nitrogen		
	<1	

1

3a Complete the following sentences by circling the correct answer in the brackets:


1. Decreasing the temperature, (increases / decreases) reaction rate.

2. (Increasing / Decreasing) particle size, increases reaction rate.

3. Decreasing the concentration, (increases / decreases) reaction rate.

1

3bi Martin wanted to find out which size of marble pieces would 20cm³ of gas the fastest.



Size of marble	Time taken to collect 20cm ³ gas(seconds)
Large Lump	25
Small chips	
Thin flakes	18
powder	

Powder Thin flakes Small chips Large lump

Complete the table on the right to estimate the time taken for the chips and powder to produce 20cm³ of gas.

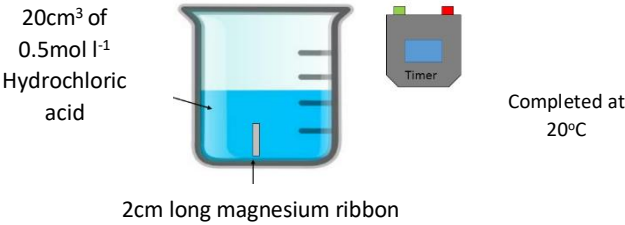
1

3bii Would it take more or less time to collect 20cm³ of gas from each tube if the concentration of the acid was increased in each one?

Answer:

1

3ci Walter was investigating the effect of **concentration** on reaction rate. He timed how long it would take magnesium to disappear in different concentrations of acid.



20cm³ of 0.5mol l⁻¹ Hydrochloric acid

2cm long magnesium ribbon

Completed at 20°C

Write down THREE variables that would need to be controlled to make this experiment fair test.

Answer:

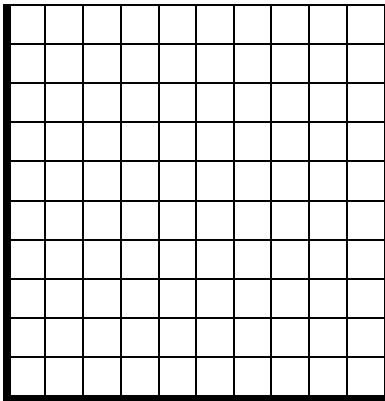
1

3cii Complete the average column in Walter's results table below:

Concentration of acid (mol l ⁻¹)	Time taken for magnesium to disappear (seconds)		
	Experiment 1	Experiment 2	Average
0.5	455	445	
1	220	280	
2	18	22	

1

3ciii Draw a graph of Walter's results on the graph paper below (only the average results should be put on the graph):



1

TOTAL 10

