



Unit 7: Being a Chemist Homework



Homework	Date due	Parent/Guardian Signature	Mark
1 - Space			/10
2 - Life on other planets			/10
3 - Rock Formation			/15
4 - The Earth			/10
5 - Metals from the Earth			/10
6 - Reactivity Series			/10
7 - Metals			/10
8 - Reacting Metals			/10
9 - Soil			/10
Parental Comments			

Homework 1	MARK	/10	%
Comment / Grade			

Find out more....



1.

a. Explain what is meant by the term 'light year'.

1

b. In space, why is the term 'light years' used as a measure of distance instead of metres or kilometres?

1

2. Assuming it takes a time of 8 minutes for light to reach the Earth from the Sun, calculate the distance the light has travelled. (The speed of light can be assumed to be 300,000,000 metres per second)

3

3. Name all the planets in a solar system, in order from the Sun (nearest first)

1

4. Correctly rewrite the following sentences by changing the word in *italics*.

a. The Sun is the *planet* at the centre of our Solar System.

1

b. Our Solar System is part of the *Andromeda* galaxy.

1

5. By carrying out some **research**, explain the barriers to human beings travelling to and landing on Mars.

2

Homework 2	MARK	/10	%
Comment / Grade			

Find out more....



1. Explain what is meant by the term 'habitable zone'.

1

2. Apart from liquid water, name two other requirements for a planet to be able to sustain human life.

1

You may need to carry out some research to answer the following questions.

3. The Kepler mission was launched to try and find earth-like planets. Briefly explain **exactly** what Kepler is looking to for.

2

So-called 'habitable' planets in other solar systems are earth-like but may have some differences such as the amount of gravity, land area or higher/lower average temperature.

Homework 3	MARK	/10	%
Comment / Grade			

Find out more....



- 1.
- a. What is meant by the erosion of a mountain?

_____ 1

- b. What causes it?

_____ 1

2. Describe how bits of rock from a mountain can get into the sea.

 _____ 2

3. Complete the following table by giving two examples of each type of rock.

Igneous	Sedimentary	Metamorphic

3

4. Explain how a sedimentary rock is formed?

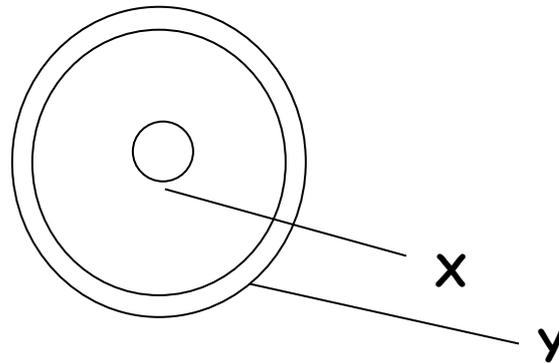
 _____ 2

Homework 4	MARK	/10	%
Comment / Grade			

Find out more...



Look at this drawing of a model of the Earth
For questions 1 and 2



Circle the correct letter for Q1 to 10.

1. What is part X called?

- A inner core
- B outer core
- C crust
- D mantle

2. What is part Y called?

- A inner core
- B outer core
- C crust
- D mantle

3. Which part of the Earth is a liquid layer made up of iron and nickel?

- A inner core
- B outer core
- C mantle
- D crust

4. What is the name of the layer of the Earth on which we live?

- A inner core
- B outer core
- C mantle
- D crust

5. Rocks which are formed from molten material are called

- A carbon rocks
- B fossil rocks
- C igneous rocks
- D sedimentary rocks

7. Which of these rocks is hard and is often used for statues?

- A chalk
- B slate
- C sandstone
- D marble

9. In the rock cycle what is produced from erosion?

- A igneous rocks
- B metamorphic rocks
- C magma
- D sediment

6. Which of these rocks is very hard and contains crystals?

- A granite
- B chalk
- C sandstone
- D limestone

8. Which of these rocks can be used for buildings and is made from grains?

- A chalk
- B slate
- C sandstone
- D marble

10. Heat and pressure can change a sedimentary rock into which other type of rock?

- A carbon rocks
- B metamorphic rocks
- C igneous rocks
- D fossil rocks

Homework 5	MARK	/10	%
Comment / Grade			

Find out more....



1. What is an ore?

1

2. Name two metals that can be found by simply digging into the ground (unreacted)?

2

3. Copper can be extracted from its ore by heating it with a black powder. Name the black powder.

1

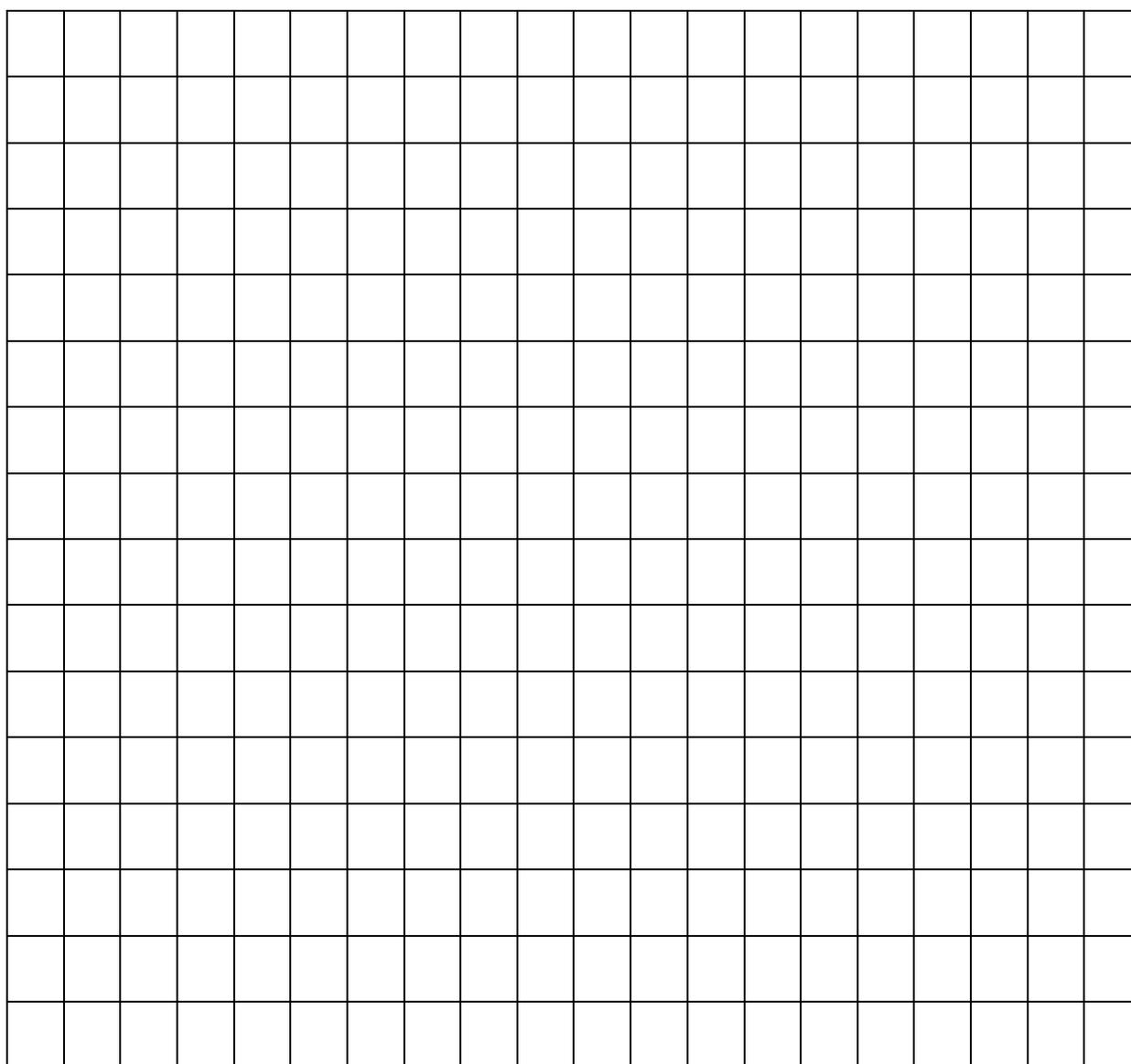
4. Another method of extracting metals from their ores is called electrolysis. In the space below draw a labelled diagram which shows the electrolysis of copper from copper chloride.

3

5. In one year the consumption of the metal copper was as follows:

Country	Copper Consumed (Thousand tonnes)
Germany	700
France	450
Italy	350
UK	300
Belgium	250
Canada	300

Present this information in a bar graph.



Homework 6	MARK	/10	%
Comment / Grade			

Find out more....



Fill in the blanks

1. Metals take part in some important chemical _____

Metal oxides are produced in the reactions of metals with _____, e.g. magnesium reacts with oxygen to form _____.

3
2. What is the reactivity series of metals?

1
3. Describe the reaction when sodium is added to water.

2
4. Name the gas produced when magnesium reacts with hydrochloric acid.

1
5. Name the metal that turns green when it reacts to air and water.

1
6. Name the metal that reacts very quickly with water and explodes when put into acid.

1
7. Name an unreactive metal.

1

Homework 7	MARK	/10	%
Comment / Grade			



ALUMINIUM MAGNESIUM IRON
RAILWAY GOLD ELEMENTS
PIPES

**USE THE WORD
BOX TO FILL IN
THE BLANKS**

Some metals, e.g. silver and 1 _____ are formed un-combined in the Earth's crust.

Most metals are found combined with other 2 _____

Some metals, e.g. 3 _____ are extracted from their ores by heating with carbon.

Some metals, e.g. 4 _____, are extracted from their ores using electricity

The uses of metals are related to their properties, e.g.

METAL	USE	PROPERTY
Iron	5 _____ lines	strong
6 _____	Making aeroplanes	lightweight
Copper	Water 7 _____	corrosion resistant

8. Would it matter if you wore a gold ring while washing the car?

Explain your answer.

Explanation

1

9. Would it matter if you used magnesium for making water pipes?

Explain your answer.

Explanation

1

10. Would it matter if aluminium drinks cans were filled with acid?

Explain your answer.

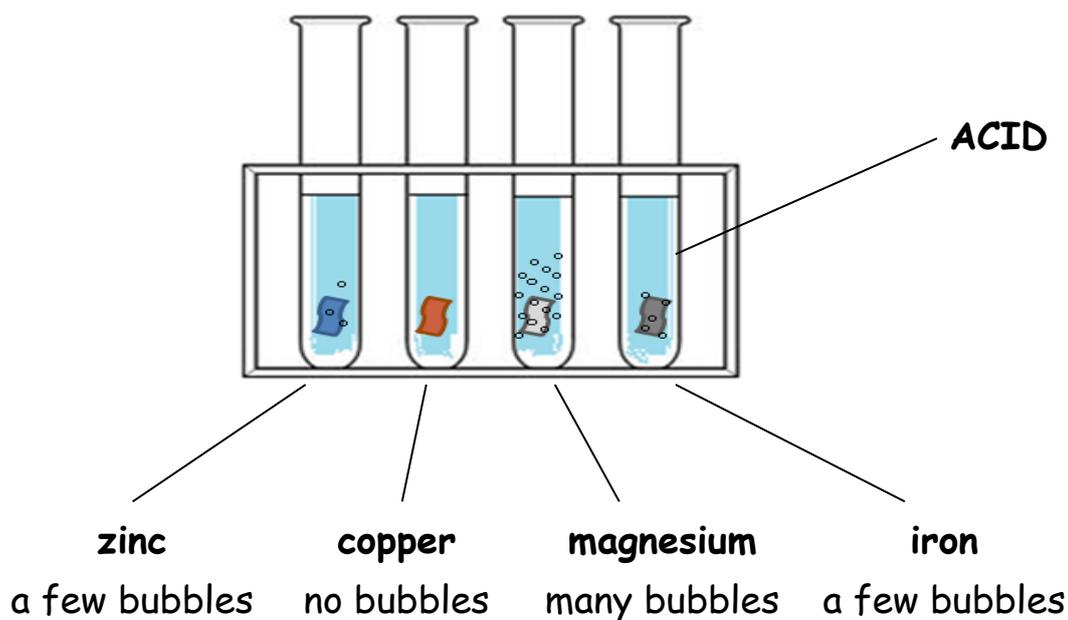
Explanation

1

Homework 8	MARK	/10	%
Comment / Grade			



Look at these metals in **dilute sulphuric acid** for questions 1-4.



1. Which metal reacts most easily? _____ 1

2. Which metal reacts the least? _____ 1

3. What is in the bubbles? _____ 1

4. If the same metals were added to a different dilute acid,
which metal would give the most bubbles?

_____ 1

5. The following data shows the iron ore production of various countries. (All figures are in millions of tonnes): Brazil 100; Australia 87; USA 75; South Africa 29; Sweden 20.

a. Display this information in the table shown below.

3

b. Which country produces three times more iron ore than South Africa? _____ 1

c. What percentage of the ore production shown is produced by Australia? **Show your working below.**

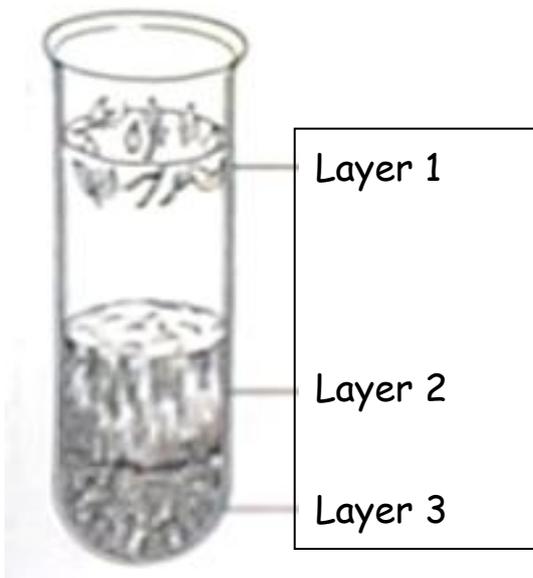
2

Homework 9	MARK	/10	%
Comment / Grade			



Circle the correct answers for Q1 and 2.

1. Look at this drawing of soil and water in a test-tube. The test-tube was shaken up and the soil was left to settle.



The three layers are

	<i>layer 1</i>	<i>layer 2</i>	<i>layer 3</i>
A	gravel	clay	acid
B	gravel	clay	sand
C	humus	acid	sand
D	humus	clay	sand

1

2. The salts in sea water have come from

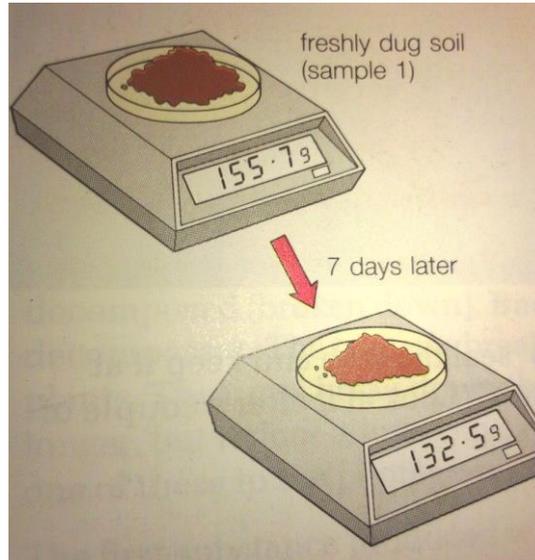
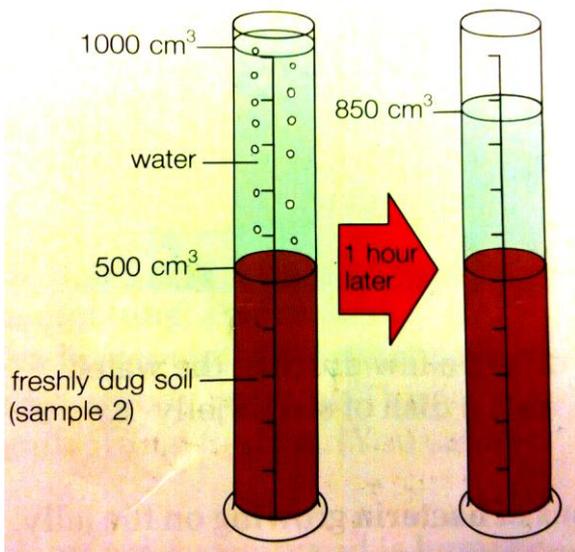
- A oil
- B oxygen
- C dissolved rocks
- D dissolved nitrogen

1

3. From the diagrams below work out:

a. the mass of water in soil sample 1. _____g 1

b. the volume of air in soil sample 2. _____cm³ 1



4. 25 grams of fresh soil was analysed to determine the composition. The following information was collected. Complete the table below.

Soil Component	Mass (g)	%
Gravel	10	
Clay		20
Sand	5	
Water		8
Humus	3	

2

5. Plants need water, carbon dioxide and essential elements from the soil to help them to survive. Name the three essential elements.

1

6. Humus contains all the essential elements required by plants. What is humus?

1

7. Fill in the missing word in each of the following sentences.

a. _____ soils are made from tiny grains which are stuck together. These soils have few air spaces.

1

b. _____ soils have bigger grains with larger spaces. These soils drain easily.

1