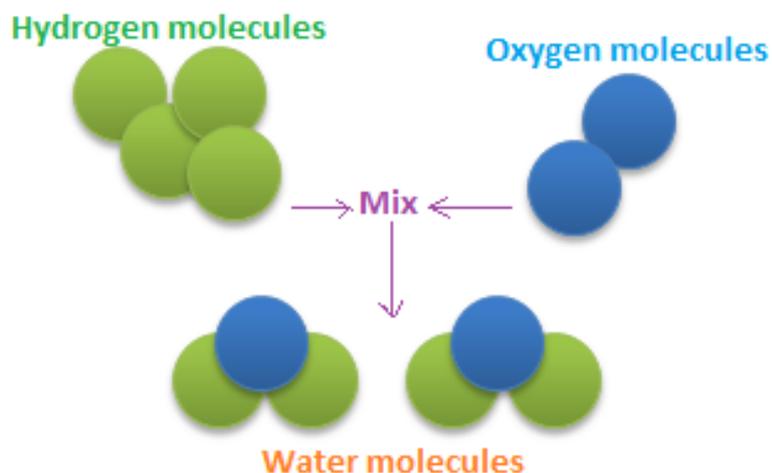


Lockerbie Academy



S1 Science Chemical Reactions Homework Booklet



Homework 1: Chemical Reactions and Reaction Rates

1. Name three signs that would tell you that a chemical reaction has occurred

3

2. Explain each of the following;

(a) Small sticks of wood burn faster than logs. 1

(b) When bellows are used to blow air on to a fire, the fire burns brighter. 1

(c) Food is preserved longer when stored in a fridge. 1

(d) Plants grow faster in a green-house than in the open-air. 1

(e) Large potatoes take longer to cook than small potatoes. 1

3. Different chemical reactions happen at different speeds. Give an example of an everyday reaction which

(a) is finished after a few seconds . 1

(b) takes between a few minutes and a few hours to be finished goes on for many years. 1

4. Hydrogen is highly reactive. When it is ignited, it reacts violently with the oxygen in the atmosphere to cause a large explosion. The engineering industry is looking at using hydrogen to fuel cars, as there is a large amount of energy given out in this reaction, and the hydrogen reacts with the oxygen to give water, which does not cause pollution.



(a) Identify the **reactants** in the reaction described above. 2

(b) Identify the **product** of the reaction. 1

(c) Why would hydrogen make a good fuel? 1

Homework 2: Acids, Alkalis and Neutralisation

For questions 1 – 5 **copy out each question** and **choose the correct answer from the list.**

1. What colour is pH paper when in an acid?

Red / Blue / Green 1

2. What colour is pH paper when in an alkali?

Red / Blue / Green 1

3. What colour is pH paper when in neutral substances?

Red / Blue / Green 1

4. Name two common solutions which are acidic.

Lemon Juice / Bleach / Washing powder / Vinegar 2

5. Name two common solutions which are alkali.

Lemon Juice / Bleach / Washing powder / Vinegar 2

6. Copy and complete the sentences below

a) 2 Lab alkalis are _____ 2

b) 2 common alkalis are _____ 2

c) When you add an acid to an alkali water and a _____ are formed

– this is called _____ . 2

Homework 3: Acids, Alkalis and Neutralisation



1. Read the passages below to help you answer the questions that follow.

Indigestion

If you have indigestion, your stomach has probably produced too much acid. Some people take indigestion medicine. This contains very mild alkalis such as magnesium hydroxide. The alkalis neutralise the extra acid.

Growing Cabbage

Most plants like to grow in soils that have a pH of slightly less than 7. Some garden soils are too acidic. Gardeners use a mild alkali called lime to neutralise garden soil. A few plants, such as cabbage, like the pH to be about 8. Cabbages are lime-loving plants.

Buzzingly Painful Neutralisations

When a bee stings you, it injects an acid into your skin. You can treat bee stings by bathing them with sodium bicarbonate. This is an alkali that neutralises the acid in the sting.

When a wasp stings you, it injects an alkali into your skin. You can treat the sting with vinegar. Vinegar contains a weak acid called ethanoic acid. This neutralises the wasp sting.

Wash-day Blues

We normally wash clothes with artificial detergents. Manufacturers make these from molecules in crude oil. First they turn them into strong acids. Then they neutralise the acids with the alkali, sodium hydroxide. This makes the detergent.

- a) Name a plant that grows in mild alkaline soils 1
- b) What is acid indigestion and name an alkali that can treat this condition? 2
- c) Wasp stings can be treated with a weak acid called vinegar. What is the chemical name for vinegar? 1
- d) Sometimes, by mistake, soap powder manufacturers make the detergents that wash your clothes too acidic. What can happen to your clothes if you wash them in such a detergent? 1

Homework 4: The Rock Cycle



1. Copy and complete the table below

Rock Name	Rock description (hard, soft, rocks with grains, rocks with crystals)	Rock Type Igneous, Sedimentary or Metamorphic
Sandstone		
Limestone		
Marble		
Slate		
Basalt		

10

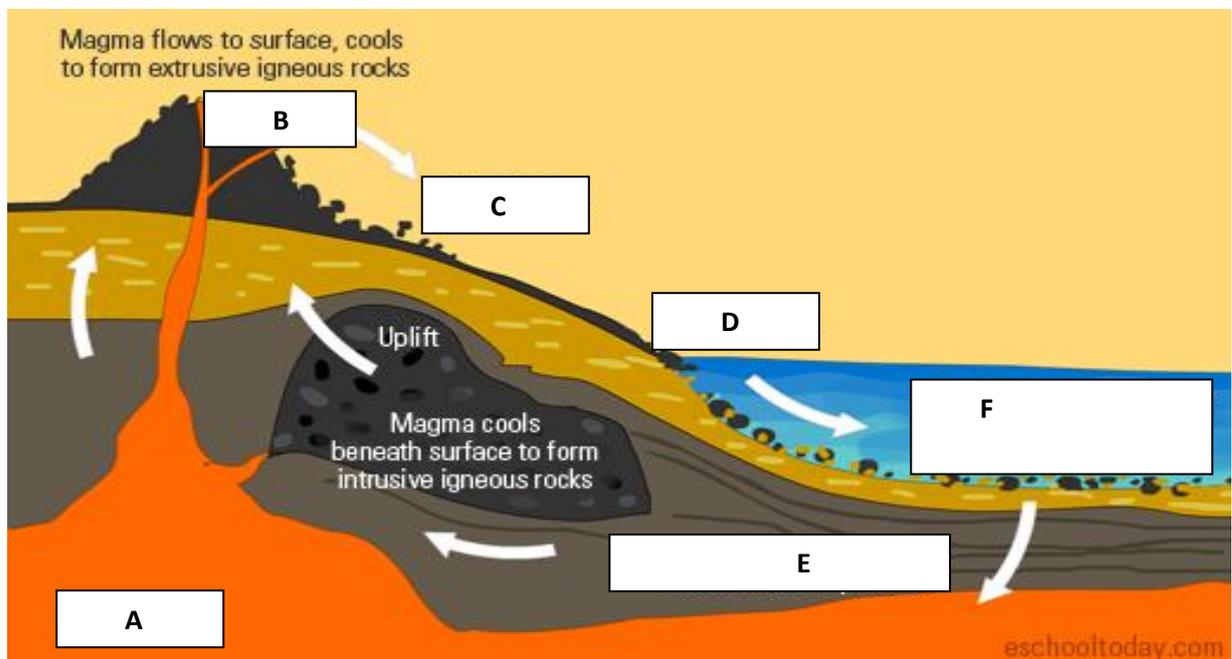
2. Why is slate a good building material?

1

3. Builders usually use stone from a local quarry. Find out the type of stone that houses in Dalbeattie, Aberdeen and Yorkshire are mainly made from.

3

4. The rock cycle. Collect a diagram of the rock cycle and fill in the words from the word bank below.



Word Bank

Igneous Rocks

Transport

Metamorphic

Weather and erosion

Magma

Sedimentary

Homework 5: Graph Work



Line Graph

Collect two pieces of graph paper from your teacher

1. Arctic seas support more life than might be expected. This is mainly due to the greater availability of dissolved oxygen in the colder water. The table shows the relationship between the temperature of the water and the amount of dissolved oxygen.

Temperature of water / °C	0	20	40	60	70	80
Concentration of dissolved oxygen / grams in each cubic metre	69.0	43.0	30.0	22.0	18.0	13.0

- (a) Draw a **line graph** to show these results. (3)



Bar Graph

2. Sulfuric acid is a very important chemical. The table below shows its uses.

Use of sulfuric acid	Percentage of sulfuric acid used (%)
Fertilisers	30
Detergents	13
Paints	12
Fabrics	9
Dyes	5
Other	31

- a) Draw a **bar graph** to show these results. (3)