

# Rocks and weathering/the rock cycle

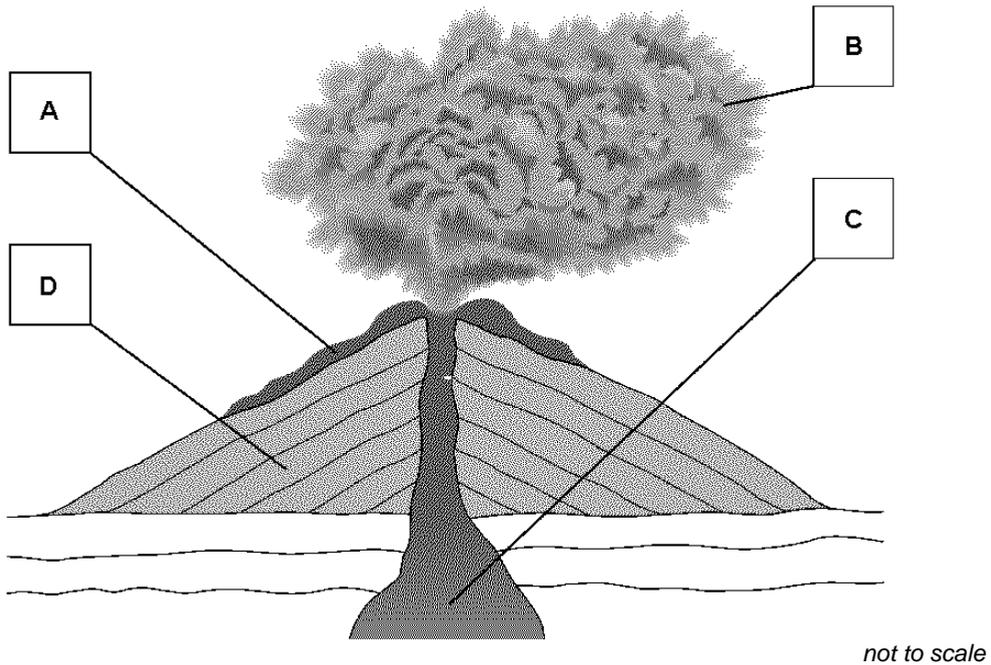
8G & 8H

33 min

35 marks

*Q1-L3, Q2-L4, Q3-L4, Q4-L5, Q5-L5, Q6-L6*

1. The diagram shows a volcano erupting.



- (a) Look at the diagram. Give the letter which labels:

(i) magma;

.....

1 mark

(ii) liquid lava;

.....

1 mark

(iii) old solid rock.

.....

1 mark

(b) When magma and lava cool, they form a hard crystalline rock.  
What is the name of this type of rock?  
Tick the correct box.

igneous rock

metamorphic rock

sedimentary rock

1 mark

(c) The changes listed below take place when a volcano erupts.  
Which **one** of these changes could be reversed?  
Tick the correct box.

Old rock is heated to form a different rock.

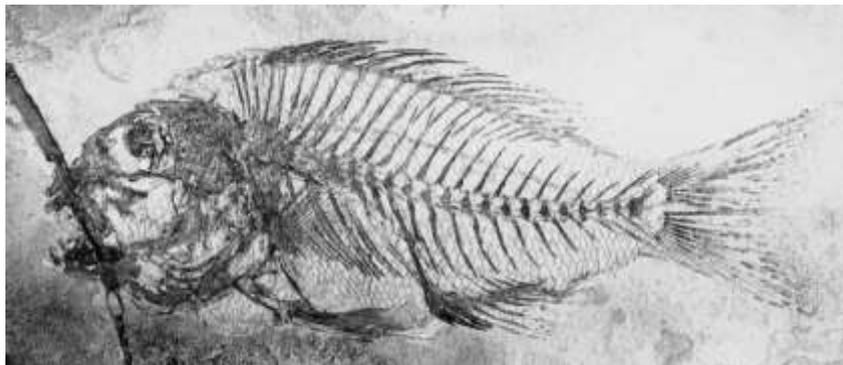
Sulphur burns to form sulphur dioxide.

Water is heated to form water vapour.

1 mark

(d) Ash from a volcano dropped into a lake. All the fish in the lake were killed and buried under the ash in the mud at the bottom of the lake.

The photograph below shows the remains of a fish millions of years later.



(i) The photograph shows the body parts which supported the fish.  
Give the name of these body parts.

.....

1 mark

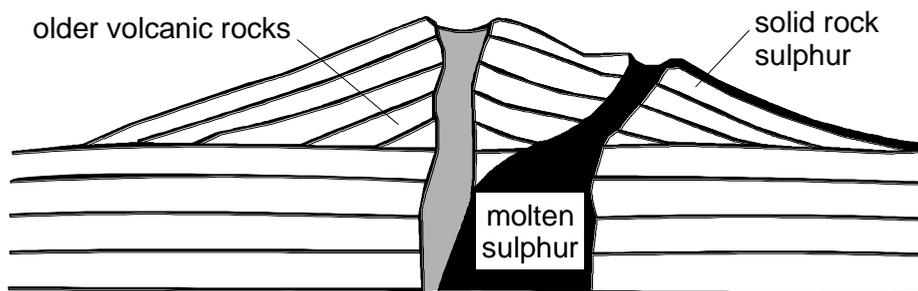
- (ii) Give the name for animal **and** plant remains that are found in a rock after millions of years.

.....

1 mark

Maximum 7 marks

2. A Japanese volcano erupted in 1936. Molten sulphur poured out of the volcano. When it cooled it formed rock sulphur.



- (a) (i) Which word describes molten rock that is underground?  
Choose from **lava** or **magma** or **oil**.

.....

1 mark

- (ii) Which type of rock do volcanoes produce?  
Choose from **igneous** or **metamorphic** or **sedimentary**.

.....

1 mark

- (b) Sulphur is a **non-metallic** element. It is yellow and melts at 115°C.

Complete the sentences about sulphur.

- (i) Sulphur is a poor conductor of

.....

1 mark

- (ii) At 115°C sulphur changes from

a ..... into a .....

2 marks

- (c) Sulphur burns in air to form an oxide.  
What gas in the air reacts with sulphur when it burns?

.....

1 mark

Maximum 6 marks

3. These photographs show how the cliffs on the coastline by a church changed between the years 1886 and 1919.



the church and coastline in 1886



the church and coastline in 1904



the church and coastline in 1912



the church and coastline in 1919

photographs by kind permission of Dunwich museum

(a) (i) How can you tell from the photographs that the coastline has changed?

.....  
.....

1 mark

(ii) What made the coastline change? Tick the correct box.

the rain	<input type="checkbox"/>	the sea	<input type="checkbox"/>
the Sun	<input type="checkbox"/>	the wind	<input type="checkbox"/>

1 mark

(b) On the seashore, pebbles that are rough and uneven become smooth and rounded. Explain how they become smooth and rounded.

.....  
.....

1 mark

(c) The photograph below shows a carved limestone head. The surface of the limestone has changed over many years.



(i) Which process made the surface of the limestone change over many years? Tick the correct box.

carving	<input type="checkbox"/>	polishing	<input type="checkbox"/>
melting	<input type="checkbox"/>	weathering	<input type="checkbox"/>

1 mark

- (ii) Name a substance in the air which made the surface of the limestone change.

.....

1 mark

Maximum 5 marks

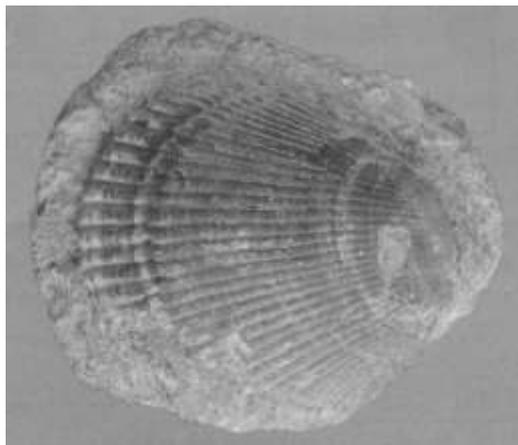
4. (a) Over many years, cliffs may be affected by weathering. Describe **one** effect of weathering on a cliff.

.....

.....

1 mark

- (b) The photograph shows a piece of sandstone.



- (i) The sandstone in the photograph contains a fossil. What is a fossil?

.....

.....

1 mark

- (ii) What group of rocks does sandstone belong to?

.....

1 mark

- (c) Granite and basalt are igneous rocks. They contain crystals but **no** fossils.

- (i) How are igneous rocks formed?

.....

.....

1 mark

(ii) Explain why igneous rocks do **not** contain fossils.

.....  
.....

1 mark

(iii) Granite takes much longer to form than basalt.  
How will the size of the crystals in granite be different from the size of the crystals in basalt?

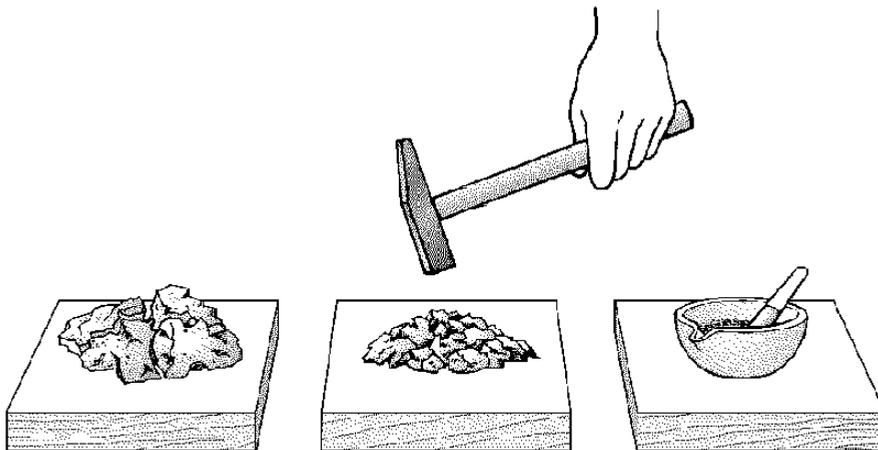
.....  
.....

1 mark

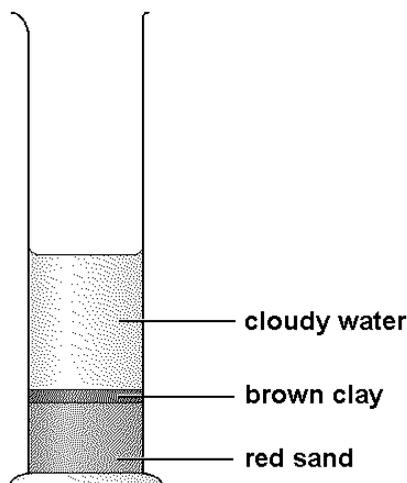
Maximum 6 marks

5. Linda had a piece of red sandstone.

She hammered it into pieces and then ground them into a powder using a pestle and mortar.



She put the powder into a measuring cylinder with water and shook the mixture. The contents settled.



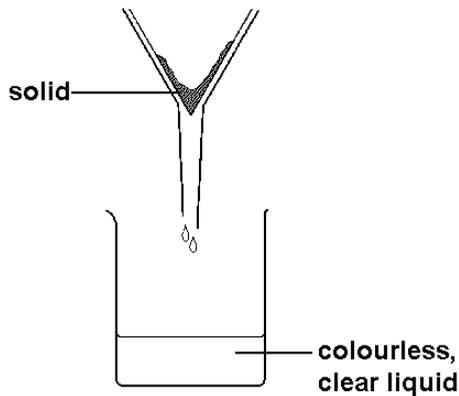
(a) Linda said her results showed that sandstone is a mixture of two substances.

How could she tell, from the results, that sandstone is a mixture of substances?

.....  
.....

1 mark

- (b) Linda then poured the cloudy water from the measuring cylinder through filter paper in a filter funnel.



She said there might be salts dissolved in the colourless, clear liquid that came through the filter.

- (i) What could Linda do to find out if there were salts dissolved in the colourless, clear liquid?

.....  
.....

1 mark

- (ii) What would she see if there had been salts dissolved in the colourless, clear liquid?

.....  
.....

1 mark

- (c) Sandstone is a sedimentary rock. Four stages in the formation of sedimentary rock are listed below.  
They are **not** in the correct order.

**compacted      deposited      weathered      transported**

Put these stages in the correct order. One has been done for you.

stage 1 .....**weathered**.....

stage 2 .....

stage 3 .....

stage 4 .....

1 mark

Maximum 4 marks

6. (a) The list below gives some processes which occur in the rock cycle.

1. Grains of sediment collect in layers on the sea bed.
2. Large crystals form as molten magma cools deep below the Earth's surface.
3. A glassy rock forms as molten magma erupts into sea water.
4. Grains of sediment are cemented together as they are buried deep under thick layers of other sediments.
5. New crystals form in layers as rocks are affected by high temperature and increased pressure deep in the Earth's crust.
6. New minerals form with flat crystals when layers of mudstone are squeezed.

- (i) Give the number of **one** metamorphic process.

.....

1 mark

- (ii) Give the number of **one** igneous process.

.....

1 mark

- (iii) Give the numbers of the **two** steps which could lead to the formation of sandstone.

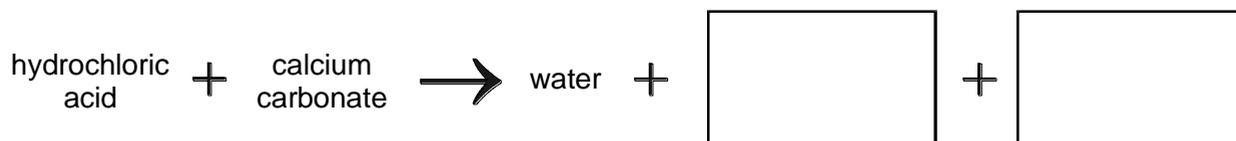
..... and then .....

2 marks

Limestone and sandstone are two different rocks.

- (b) Limestone is mainly calcium carbonate. It reacts with dilute hydrochloric acid to produce bubbles of gas.

Complete the word equation for the reaction.



2 marks

- (c) Sandstone is mainly silicon dioxide. Glass for test tubes is also made from silicon dioxide.

Suggest what, if anything, will happen when dilute hydrochloric acid is added to a piece of sandstone.

.....

1 mark

Maximum 7 marks