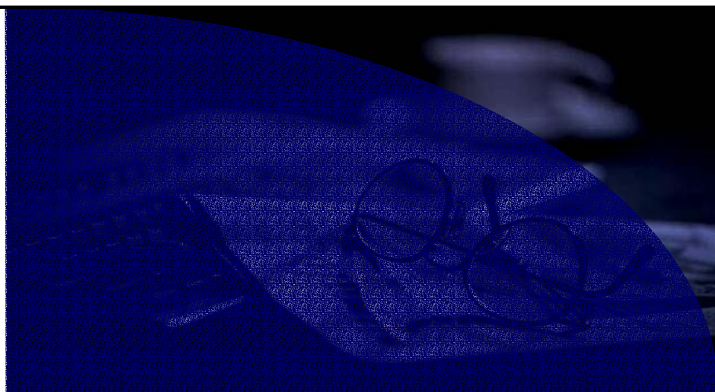


assessment for learning

year 8



Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT

web: www.science-interactive.co.uk

8H The rock cycle

Assessment for learning...year 8 (level 3-6)

Answer all questions:

Total marks	30
Time allowed	25 mins.

Question 1:

(a) (i) When sedimentary rock is buried it may change into metamorphic rock.

Describe **two** causes of this change.

1.

2.

2 marks

(ii) Name a rock formed by the metamorphism of limestone.

.....

1 mark

(b) Metamorphic rock can be changed to form igneous rock.

Give **two** main processes which are involved in this change.

1.

.....

2.

2 marks

(c) Igneous rock may be changed back into sedimentary rock. The list shows four of the processes involved in this change.

burial weathering deposition transport

These processes must take place in a particular order.
 Place the **four** processes in the correct order.

1.
2.
3.
4.

1 mark

Maximum 6 marks

Question 2:

Five different rocks, A, B, C, D and E, are described in the table.

(a) From the information given, classify each rock as:

igneous, metamorphic or sedimentary.

One has been done for you.

rock	description of the rock's surface	classification
A	The rock is crystalline. It has interlocking crystals of different colours and no layers can be seen.	
B	The rock is made of many rounded sand grains.	
C	The rock is crystalline with distinct black and grey bands.	metamorphic
D	Pieces of shells can be seen in the rock.	
E	The rock is very fine-grained, hard, and splits into thin layers.	

4 marks

(b) Look at the descriptions of the rocks A, B, C, D and E.

(i) Sheets of slate are used as roofing material.
Which rock could be slate?

Give the letter

1 mark

(ii) When limestone is weathered, fossils sometimes appear in the surface.
Which rock could be limestone?

Give the letter

1 mark

(iii) Granite is a crystalline rock. Its surface is speckled with a number of colours. It can be used for road chippings. Which rock could be granite?

Give the letter

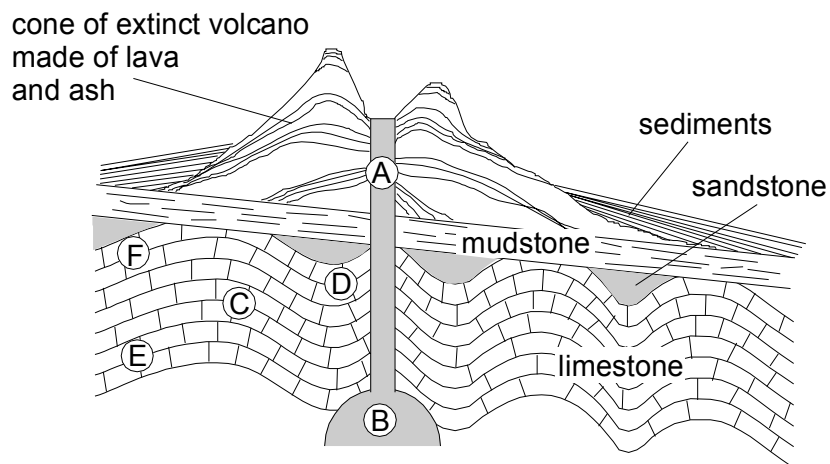
1 mark

Maximum 7 marks

Question 3:

The diagram shows a geological section of a rock sequence.

The letters show sites where rocks are found.



(a) Some of the events which caused this rock sequence are listed below in alphabetical order.

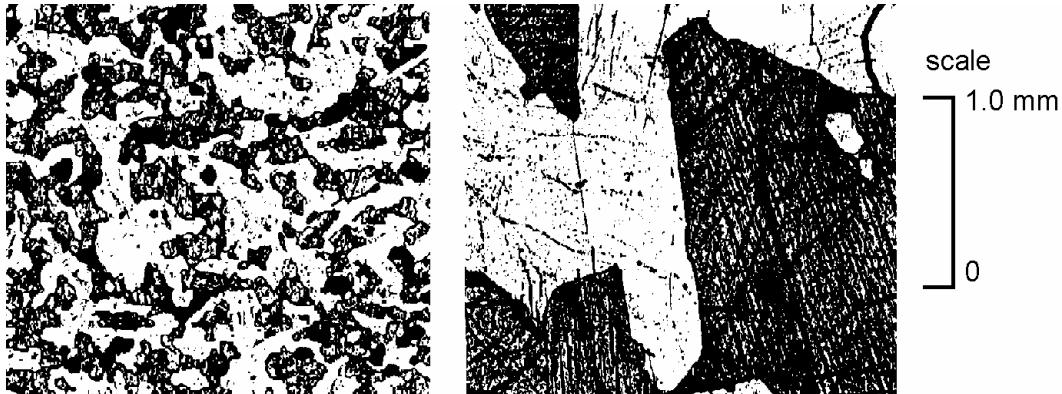
1. Limestone deposited.
2. Mudstone deposited.
3. Rocks folded and eroded.
4. Sandstone deposited.
5. Volcano eroded to form sediment.
6. Volcano formed.

Suggest the order in which the events took place. Write the appropriate number in each box, starting on the left with the earliest.

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1 mark

(b) The photographs show thin sections of two igneous rocks. They are of equal magnification. One rock is from site A, and the other is from site B.



How do you know that rock 1 is more likely to be found at site A than at site B?

.....
.....

1 mark

(c) Limestone is mainly calcium carbonate. When limestone is heated strongly it forms calcium oxide and carbon dioxide.

(i) Write a balanced equation for this reaction.

.....

1 mark

(ii) Sand grains may be found in limestone. Sand is mainly silica, SiO_2 . A new mineral can be formed by the reaction of calcium carbonate with silica. This is calcium silicate, CaSiO_3 .

Write a balanced equation for this reaction.

.....

1 mark

(iii) A different rock is formed when new minerals such as calcium silicate form within limestone. To which group of rocks does this new rock belong?

.....

1 mark

(iv) From which site, C, D, E or F, would a specimen of limestone containing calcium silicate crystals be obtained?

.....

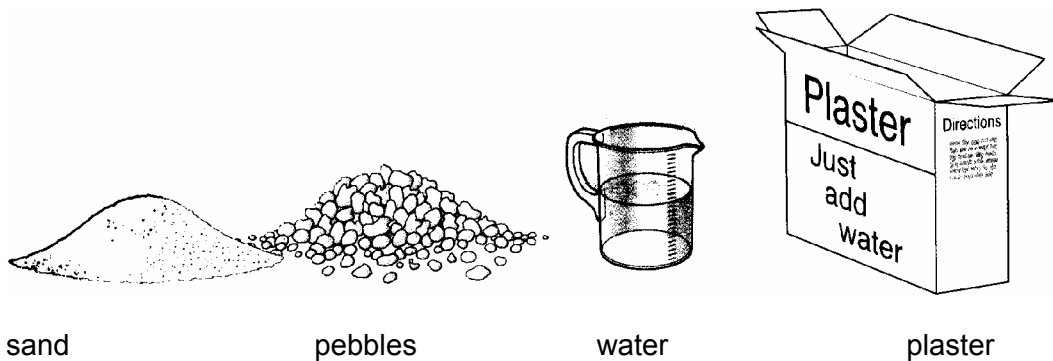
1 mark

Maximum 6 marks

Question 4:

(a) Joseph and Meena did some experiments to show how new rocks can be formed.

(i) Joseph used the following materials.



Joseph mixed these materials and left the mixture to go hard. The solid looked like this.



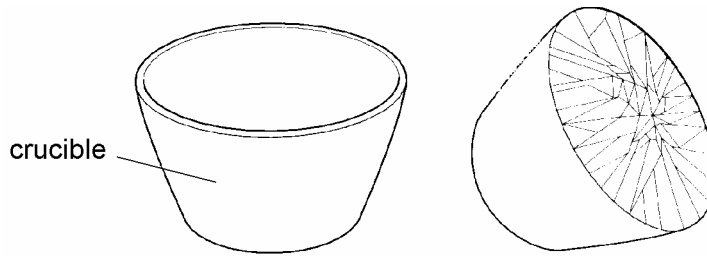
Rocks are grouped into three types: **igneous**, **metamorphic** and **sedimentary**.

Which of these types of rock is most like Joseph's 'rock'?

.....

1 mark

(ii) Meena took some crystals. She put them in a crucible and heated it until the crystals melted. She let the crucible cool very slowly until the contents went solid. The solid she tipped out from the crucible looked like this.



Which of the three types of rock is most like Meena's 'rock'?

.....

1 mark

(b) Rocks can be broken by weathering when:

1. Water gets into cracks in rocks.
2. The water in the cracks turns to ice and expands.
3. The rocks split into smaller pieces.

What else must happen during this part of this weathering process?
Tick **two** boxes.

The temperature stays the same.

The temperature falls below freezing point.

The temperature stays above freezing point.

Expansion forces the cracks in the rock to close.

Expansion forces the cracks in the rock to open.

Expansion forces all of the water out of the cracks.

2 marks

Maximum 4 marks

Question 5:

(a) The table gives the names of three different rocks and how they are classified.

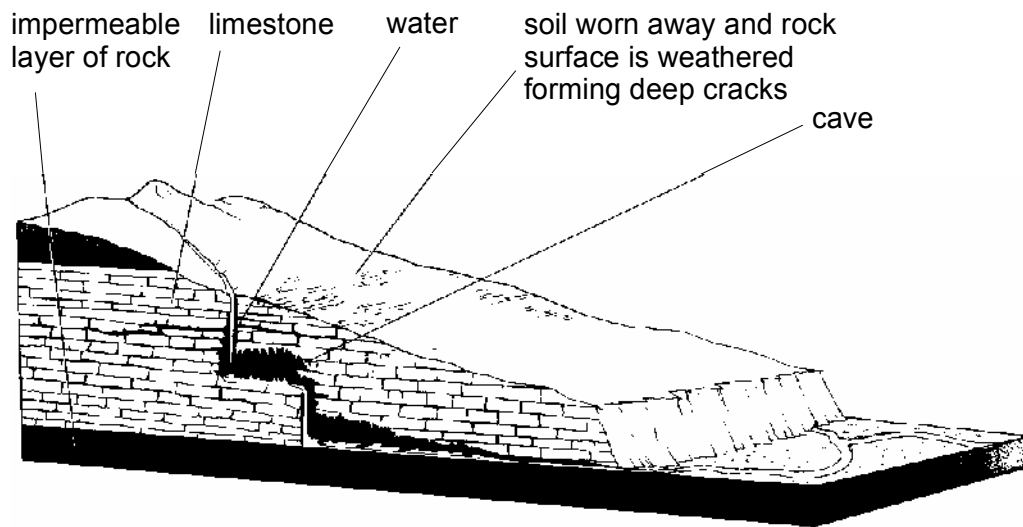
name of rock	class of rock
granite	igneous
marble	metamorphic
shale	sedimentary

In the table below, draw lines to connect the name of each rock to the description of how the rock was formed and then to the correct description of features of the rock.

how the rock was formed	name of rock	features of the rock
layers of mud and tiny dead animals compressed and turned into rock	granite	large interlocking crystals
magma cooling slowly underground in the Earth's crust	marble	crumbly, layered, containing fossils
limestone changed by heat and pressure	shale	hard, shiny, white with veins of colour, fizzes with acid

3 marks

(b) The diagram shows a section through a limestone cliff.



(i) There are caves in the limestone.

Explain how **chemical** weathering causes caves to form in limestone.

.....

.....

.....

.....

2 marks

(ii) Limestone is a porous rock. Water can enter the spaces in limestone. Describe how this causes **physical** weathering of the limestone.

.....

.....

.....

2 marks
Maximum 7 marks