

NUCLEUS

ENGLISH FOR SCIENCE AND TECHNOLOGY

GEOLOGY

Colin Barron
Ian Stewart

Series Editors

Martin Bates and Tony Dudley-Evans

Science Adviser to the Series

Arthur Godman C. Chem., MRIC

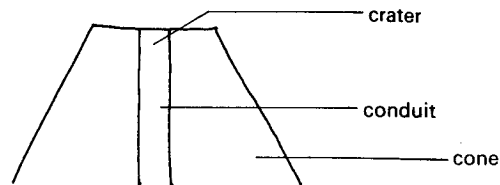
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Unit 3 Structure

Section 1 Presentation

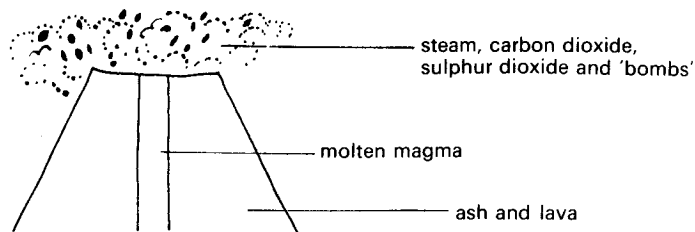
1. Look and read:



A dormant volcano

Volcanic mountains can be divided into two simple types: those which are active and those which are dormant.

A dormant volcano *consists of* a crater, a conduit and a cone. The crater is circular in shape and is situated at the top of the mountain. It often *contains* a lake. The conduit is cylindrical and contains solid magma. This *is composed of* silica, iron and magnesia. The cone consists of lava and ash, but sometimes it also *includes* pieces of igneous rock. These came from inside the volcano when it was active, and are called volcanic bombs.



An active volcano

Answer the following questions:

- What does the conduit contain?
- What is the magma composed of?
- Does the volcanic cloud include bombs?
- Does it also include lava?
- What is the volcanic cloud composed of?
- What does the cone consist of?

2. Now compare the two types of volcano using the words given:

Examples: magma / minerals

The magma in both volcanoes is composed of silica, iron and magnesia.

conduit / magma

The conduit of an active volcano contains molten magma but the conduit of a dormant volcano contains solid magma.

- crater / lake
- cone / ash and lava
- volcano / cone, crater, conduit
- cone / bombs

3. Look at this table:

The structure of the Earth

Section	Parts	Composition	Examples
the atmosphere		gases	oxygen (O) and nitrogen (N)
the crust	lithosphere hydrosphere	metamorphic, igneous and sedimentary rocks water	mountains oceans and rivers
the mantle		solid matter	
the core	outer core inner core	molten metal solid metal	nickel (Ni)

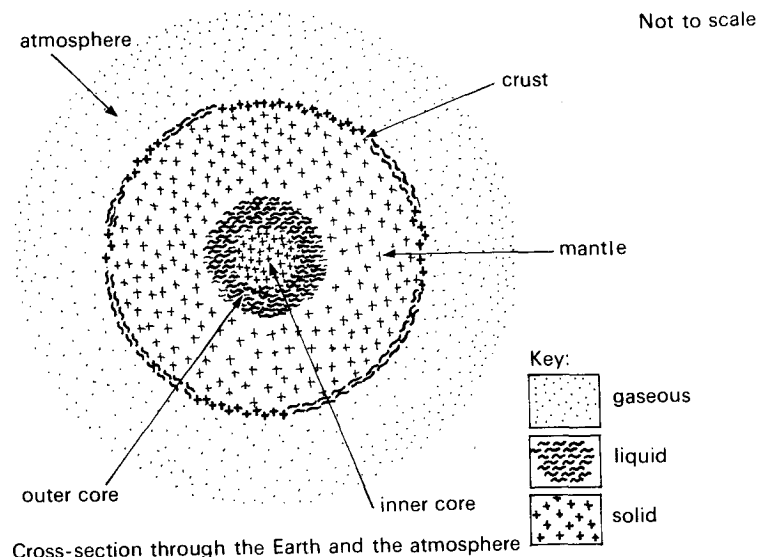
Now ask and answer questions based on the table above and below:

What is the	atmosphere crust mantle core Earth	composed of?
What does the	crust core Earth	consist of?
What does the	crust core Earth	include?
How many parts is the	crust core Earth	divided into?

4. Now write a short description of the structure of the Earth.

Section 2 Development

5. Look at this diagram:



Now complete this passage:

The Earth . . . five sections. Each section . . . matter which is gaseous, solid or liquid (see the key). In the centre of the Earth there is an inner core which . . . solid nickel and iron. Around this inner core there is an . . . which . . . molten metal. Between the outer core and the . . . , there is a deep area which . . . solid matter. This area is called Above the mantle is a thin area which is called This . . . rocks and minerals and it . . . all the water on the Earth. Surrounding the Earth is a thick layer of gases called The Earth with the atmosphere . . . a sphere.

6. Answer these questions:

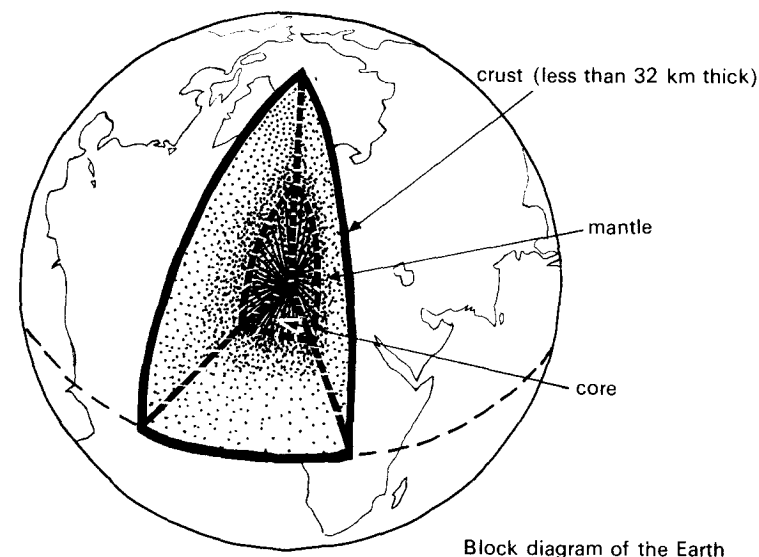
- Which section is composed of nickel and iron?
- Which section includes nickel and iron?
- Which section consists of liquid material?
- Which section includes liquid material?
- What does the liquid material consist of in questions (c) and (d)?

7. Write four sentences from this table:

The liquid part of the crust	is divided into	gases.
The core	includes	a sphere.
The Earth	is composed of	rivers.
The atmosphere	is shaped like	two parts.

Section 3 Reading

8. Look and read:

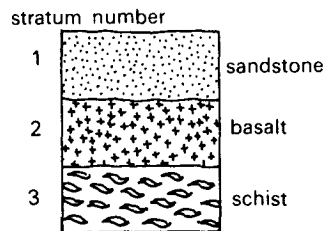


The crust of the Earth

The crust of the Earth is the very thin layer on the surface, like the skin of an orange. It is thickest under the mountains and thinnest under the ocean basins. It contains all the minerals used by man, e.g. oil, copper and gold. The liquid part of the crust is called the hydrosphere and this consists of all the water on the Earth. The solid part of the crust is called the lithosphere and is composed of rocks and minerals. There are three types of rocks: metamorphic, sedimentary and igneous. Metamorphic and sedimentary rocks are divided into strata (see diagram p. 22). Usually the oldest rocks are at the bottom and the youngest are at the top. Igneous rocks sometimes intrude through the strata, as in the conduit in the diagram, and are therefore younger than the rocks surrounding them.

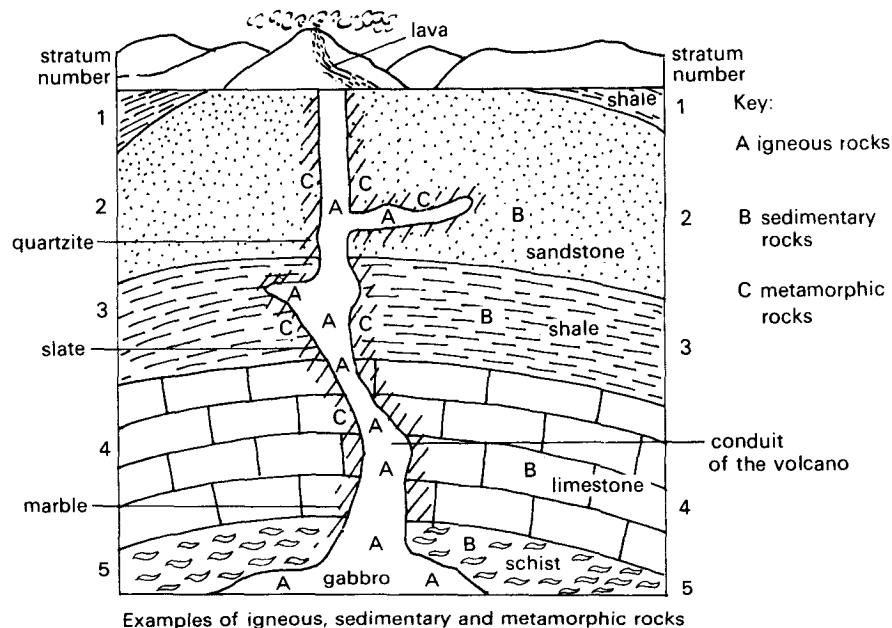
Now answer these questions:

- Why is the crust of the Earth like the skin of an orange?
- Here is the depth of the crust in two places:
A – 7 km
B – 40 km
What does the surface at A consist of?
What does the surface at B consist of?
How do you know?
- Why is the lithosphere important to man?
- Look at this list: the Caspian Sea, the River Nile, the Atlantic Ocean, Mount Everest, Niagara Falls.
Does the hydrosphere include all of these? If not, why not?
- Look at this diagram:



- Which stratum consists of the youngest rocks?
- Which stratum consists of the oldest rocks?
- How many types of rock are these strata composed of?

9. Look at this diagram:



Now answer these questions:

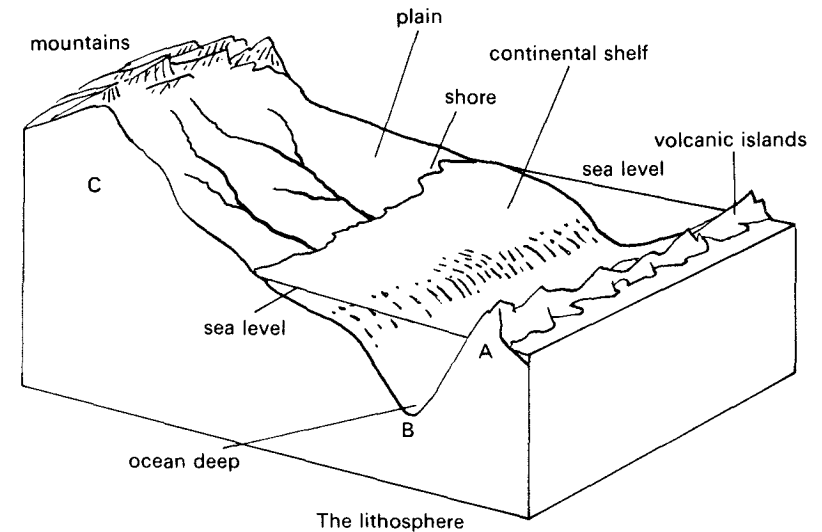
- How many strata are composed of sedimentary rocks?
- What does the volcano consist of?
- How many kinds of rock are included in stratum 3?
- Which is the older rock, limestone or sandstone, and why?
- Which section contains the youngest rock?
- Which section consists only of igneous rock?
- Which stratum consists mostly of metamorphic rock?

Section 4 Listening

10. Listen carefully to the passage. Write down the correct word or phrase from each pair.

contain/contains
forms/form
is composed of/composed of
include/includes
contained in/is contained in
is called/called

11. Listen again to the passage and look at this diagram:



Key: A igneous rocks
B sedimentary rocks
C metamorphic rocks

12. Now complete these tables using information from the passage you have just heard:

State	Occurrence	Location
gas		
liquid	water	
solid		

Type of rock	Mode of formation
sedimentary	
igneous	
metamorphic	

13. Now answer these questions:

- a) In the diagram, what is A composed of?
- b) What is B composed of?
- c) What is C composed of?