

FORM 3 GEOGRAPHY NOTE 8

ii. HIGH ISLANDS

STRUCTURE OF THE EARTH.

The structure of the earth is divided into 3 major components:

- i. Crust
- ii. Mantle
- iii. Core

The crust

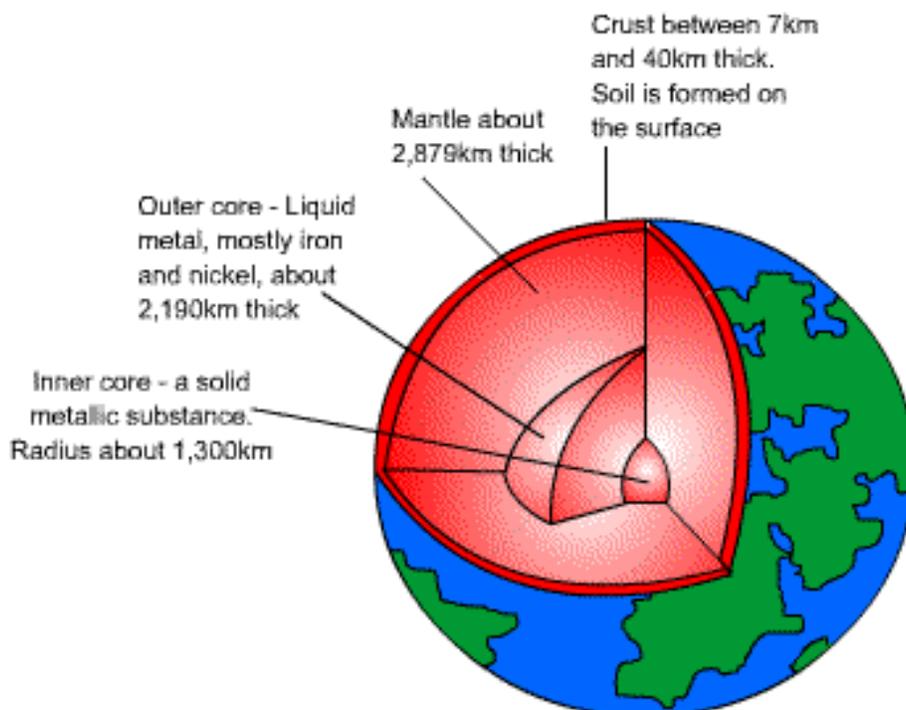
- This is the **outside layer** of the earth and is made of solid rock, mostly basalt and granite.
- There are **two types** of crust; **oceanic** and **continental**.
- Oceanic crust is denser and thinner and mainly composed of basalt.
- Continental crust is less dense, thicker, and mainly composed of granite.

The mantle

- The mantle lies below the crust and is up to 2900 km thick.
- It consists of hot, dense, iron and magnesium-rich solid rock.
- The crust and the upper part of the mantle make up the lithosphere, which is broken into plates, both large and small.

The core

- The core is the **center** of the earth and is made up of **two parts**: the **liquid outer core** and **solid inner core**.
- The outer core is made of nickel, iron and molten rock.
- Temperatures here can reach up to 50,000 C.



VOLCANIC ISLANDS

- Volcanic islands are also known as oceanic islands.
- They are formed by eruptions of volcanoes on the ocean floor.
- They are formed by volcanic activity on the seabed, often near the boundaries of the tectonic plates that form Earth's crust.
- It rises to the surface from the floor of an ocean.

Features of a volcanic islands

- Are also called high islands.
 - Mountains with rugged mountain tops
 - Some may be active or dormant.
 - Some have high cliffs
 - Almost no lagoon along the coastal areas.
 - Hard for ships to dock.
 - Difficult to build a wharf there.
- The high islands in Tonga are **found along** the **Western chain** of Tonga which runs from **Niuafóú** in the North down to **Áta Island** in the South.

PLATE TECTONIC THEORY IN TONGA

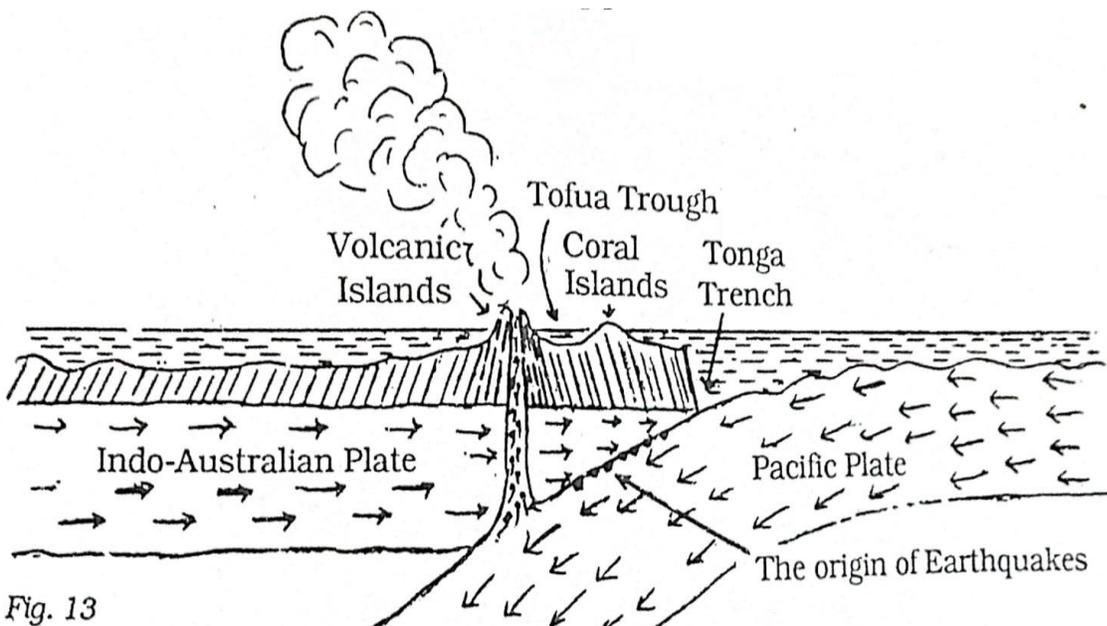
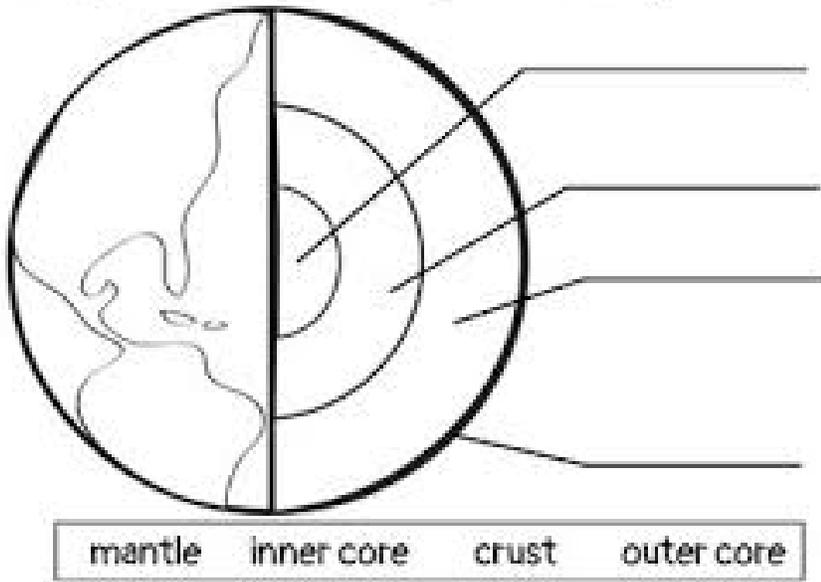


Fig. 13

- The islands of Tonga are formed from **2 tectonic plates**. They are the **Indo-Australian** and **Pacific Plate**.
- The two plates push against each other. Indo Australian plate is lighter than the Pacific plate (heavy) so the heavy plate dives while the lighter plate goes on top.
- When this subduction occurs the Pacific plate pushes through to the mantle where there is hot liquid called magma.
- The magma then pushes upward forming volcanoes and the magma comes out of the mouth of the volcano as lava.
- So as you can see on the image above is that the volcanic islands in Tonga are found in the Western side while the coral islands are found in the East.

ACTIVITY 1: Use the diagram below to answer the questions that follow.

A.



1. Insert each layer into the diagram. Study it carefully before naming each layer of the earth into the diagram.
2. For each layer describe what you know about it.
 - i. Mantle
 - ii. Crust
 - iii. Core

B. Draw your own diagram of the plate tectonic theory in Tonga. After you have drawn it, use your own understanding on how the islands were formed.

C.



1. Explain how volcanic islands are formed.
2. Describe features of a volcanic island.
3. Provide an example of a volcanic island in Tonga.