

EARTH PATTERNS

Answer the following questions using the data provided.

1 Locate and give two examples of each of the following topographic features.

*oceanic ridges
oceanic trenches
island arcs
shield areas
platform areas
rift valleys
mountain ranges*

2 What kind of topography is displayed by the areas of the continents exposing the oldest rocks; are they relatively flat or relatively rugged?

3 Are these old areas geologically active, or inactive (that is are they characterised by volcanic and seismic activity)?

4 Are mountainous areas (above 3,000m) such as the Alps, Andes, Himalayas and Rockies composed of relatively young or old rocks bearing in mind that the earth is 4.500Ma old?

5 What is the relationship between the topography of the Atlantic Ocean and the ages of the crust that forms the sea bottom below it.

6 Do you notice any relationship between oceanic topography and the distribution of seismic and volcanic activity. For example are ridges associated with a particular kind of activity and trenches with another? For seismic activity give the depth as shallow or shallow to deep and for volcanic activity say whether it is basic or intermediate.

Teacher's section

This is an exercise in extracting data from maps. Students will need to have access to the following

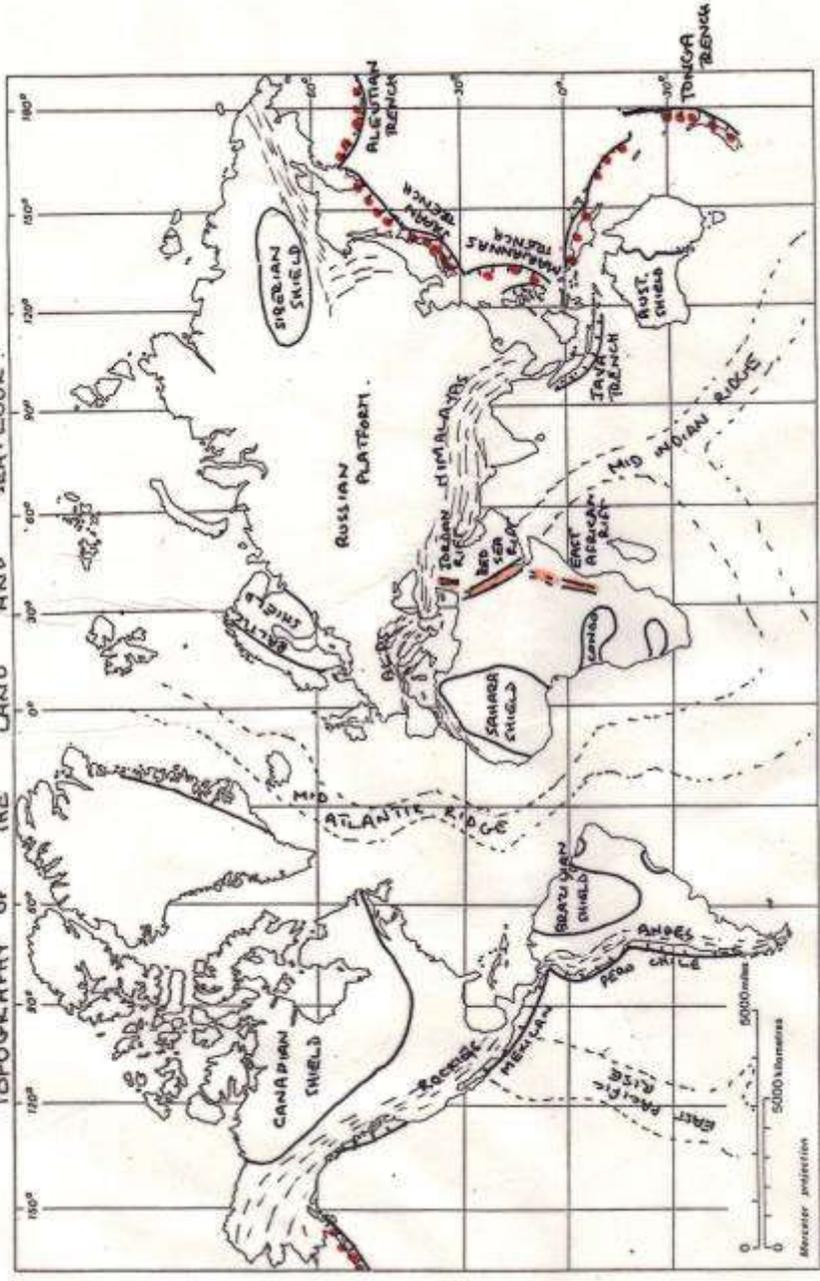
- 1. Map showing ages of the sea floor and of the land areas*
- 2. Map showing distribution and depths of earthquakes*
- 3. Map showing the distribution of active volcanoes and showing whether they are dominantly basic or intermediate/acid*
- 4. Map showing the topography of the earth's surface with the following marked and named:
shield areas, platforms, mountain ranges, oceanic ridges, trenches*

It is best if each pair of students have their own set of maps. It saves a lot of time which is wasted if students are queuing to see a single classroom map.

Map 1 I have used an Open University map and so is not included for copyright reasons.

Modified from an activity designed by the Open University.

TOPOGRAPHY OF THE LAND AND SEAFLOOR



KEY

-  mountain range
 -  shield area
 -  rift valley
 -  oceanic ridge
 -  trench
 -  island arc
- remaining land areas are platforms
 remaining oceanic areas are mostly abyssal plain

4

DEPTH OF EARTHQUAKE FOCI

