

Activity - Where to Look

© Project Exploration

Background Information

Luck plays only a small part in discovering fossils. Paleontologists use three sources of information to decide where to search:

- Geographic maps
- Geologic maps
- Scientific reports

The geographic maps shows you the location of the cities, roads, major sand dunes, and mountains. With this type of map you can also determine which areas are covered by sand or trees.

The geologic map tells the age of the rocks (mammal era, dinosaur era, or older). Dinosaurs are found only in the rocks of Mesozoic age (dinosaur era). These rocks are divided into three time periods:

Mesozoic Era

- Triassic Period 245-208 million years ago
- Jurassic Period 208-145 million years ago
- Cretaceous Period 145-65 million years ago

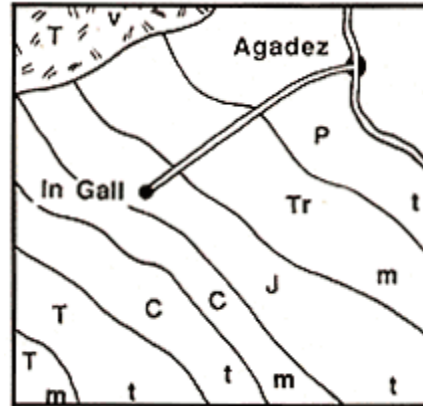
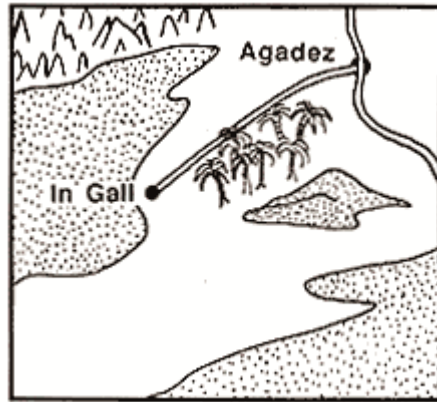
A geologic map also indicates where the rocks were formed (on land, in the sea, or in a volcano). Dinosaurs are almost always found in terrestrial rocks (formed on land). Dinosaurs or other land animals are never found in volcanic rocks and are rarely found in marine rocks. From a geologic map, therefore, you can determine the ages and the types of rock in a region.

Directions

You are a paleontologist and want to discover new Cretaceous dinosaurs in the Sahara Desert in Africa.

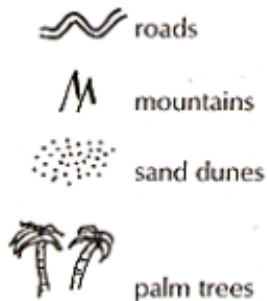
First, you go to the library to look for previous scientific reports on the area. You find one report with pictures of large pieces of fossil bones that look like they might belong to a dinosaur. The report also mentions that there is a large area of exposed rock where the fossil fragments were found. This sounds interesting, but there is no map that shows exactly where the fossil fragments were found. All you know is that the fossils were found somewhere near an oasis called In Gall.

You return to the library to study maps of the area. You find a geographic map and a geologic map of the area (see next page). Now you have the information you need to lead an expedition to the area and decide the best place to look for fossils.

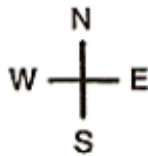


Geographic Map

Map Key



100 miles



Geologic Map

Map Key:

Rock Age:
 T Tertiary rocks (mammal era)
 C Cretaceous rocks
 J Jurassic rocks
 Tr Triassic rocks
 P Paleozoic rocks (pre-dinosaur)

Rock Type:

t terrestrial
 m marine
 v volcanic

1. Can the town of In Gall be reached by truck? Do you need to pass through any other towns?
2. What is the area around In Gall like? Where is the rock covered by sand or trees? (HINT: Describe your answer using the compass directions by saying "North of In Gall there are...". See the compass below the maps.)

3. Determine the ages and types of the rocks by locating the rock age symbols (T, C, J, etc.) and the rock type symbols (t, m, v) in the map key.

Do you think it is possible to find dinosaurs of Triassic age in this area?

Why or why not?

4. You need to know where to search for Cretaceous dinosaurs. Are there rocks of Cretaceous age?

If so, are any of these Cretaceous rocks terrestrial (formed on land)?

Color in this rock area on the geologic map with your pencil.

5. If terrestrial Cretaceous rocks exist in the map area, are any exposed at the surface? (HINT: Look at the geographic map for areas not covered by dunes)

5. If you were camping in In Gall, where would you take your team to search for new Cretaceous dinosaurs? (HINT: You must give a direction from In Gall, using the compass, and a distance from In Gall, using the distance scale under the map)