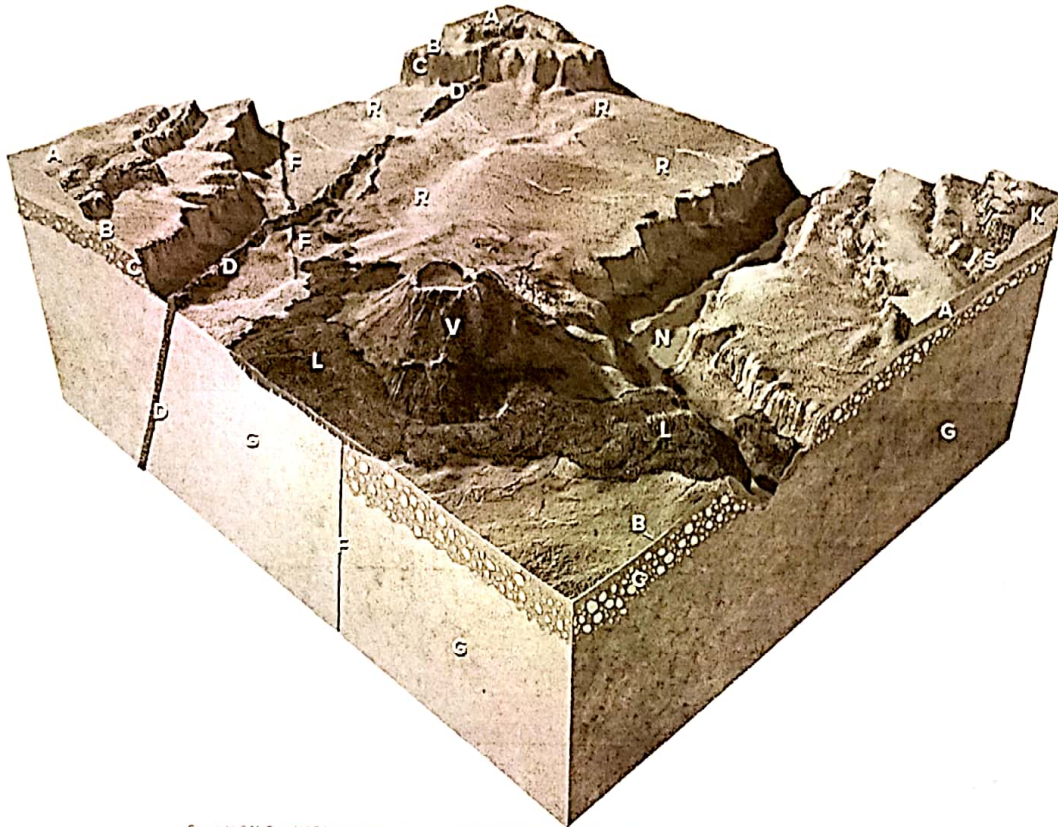


To complete this worksheet, see the instructions in the textbook (Chapter 4 Investigation).

Table 1. Descriptions of Features

Read the descriptions in the textbook for the features labeled on the figure below (Chapter 4 Investigation), and determine the order in which the features formed. At the end of the exercise, enter the letters of each feature in Table 4. From observations in nearby areas, the fault (F) occurred after units A, S, and K.



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Table 2. Relative Ages of Rock Units and Sediment

Examine the six fossils in the table in the textbook, and the geologic period to which each is assigned; list the letters of all the rock units in order, from oldest to youngest. The rock units and sediments include: A, B, C, D, G, K, L, R, S, and V. If two units are the same age, draw a horizontal line joining them together in the list below. List only the rock units, not other geologic features, such as the fault. Draw a vertical line where a nonconformity, or disconformity, separates two adjacent units (except if it involves units D, L, R, and V).

Oldest G | C | B | A | S | K | D | R | V-L Youngest

"Greenish shale with marine fossils, including Ordovician trilobites. The top of the unit was weathered and eroded prior to deposition of unit A, but the layers in the two units are parallel to each other and to their mutual contact."

Table 3. Calculations of Isotopic Ages

Use these data to calculate the isotopic ages of the granite (G) and dike (D). Calculate the number of half lives that have passed and multiply this by the half life of the measured isotope.

Rock Unit	Half-Life of Isotope	# Parent Atoms	# Daughter Atoms	# of Half Lives that Have Passed	Age
Granite (G)	500 million years	125	875	3	1,500,000,000 years old
Dike (D)	40 million years	500	500	1	40,000,000 years old

Table 4. Sequence of Events

Using all the information, number the events in order from oldest to youngest.

Order (1 for oldest to 12 for youngest)	Event
* <u>5.</u>	Deposition of tan sandstone (A)
* <u>4.</u>	Deposition of greenish shale (B)
* <u>3.</u>	Deposition of coarse sandstone (C)
* <u>9.</u>	Formation of dike (D)
* <u>8.</u>	Movement along fault (F)
* <u>1.</u>	Formation of granite (G)
* <u>7.</u>	Deposition of gray limestone (K) *
* <u>12.</u>	Eruption of lava flow (L) and formation of volcano (V)
* <u>11.</u>	Erosion to form narrow canyon (N)
* <u>10.</u>	Deposition of older river gravels (R)
* <u>6.</u>	Deposition of reddish sandstone (S)
* <u>2.</u>	Development of a nonconformity on granite (not assigned a letter)