

Sec.: _____ Name: _____

Experiment: Determining Relative Ages
(E. Science 9-13-2d)

Purpose: To determine relative order of events in layers of rock.

Materials: brain

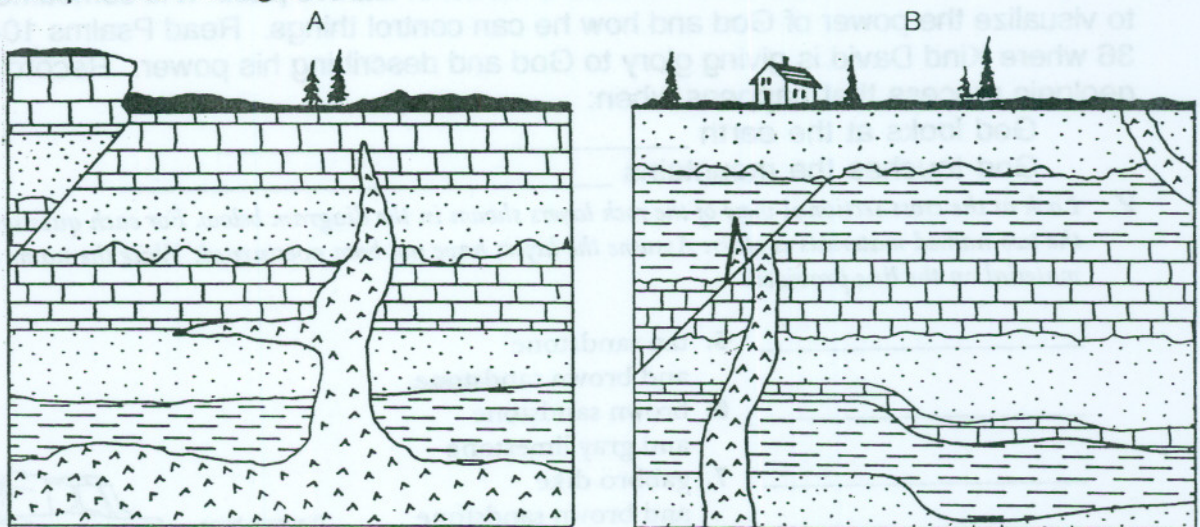
Methods:

1. Study figure A and B below. The legend provided will help you interpret the figures.
2. Label igneous dike (refer to textbook pg. 347 for definition), and fault in both diagrams.

Determine the relative ages of the rock layers and unconformities in each figure.

3. Beside diagram A, indicate on it the relative age of each rock layer, igneous dike, fault, and unconformity. For example, the shale layer is the oldest, so mark it with "1." mark the next oldest feature with a "2" and so on.
4. Repeat step 3 but with figure B.

Results:



Granite



Limestone



Sandstone



Shale

Conclusions:

Figure A

1. Were any layers of rock deposited after the igneous dike formed? Explain.
2. What type of unconformity is shown?
3. Is it possible that there were originally more layers of rock than are shown here? Explain.
4. What type of fault is shown (refer to ch. 11)?

5. Based on the figure alone, do you know whether the shale was deposited before or after the fault occurred? Assume that the layers have not been overturned.
6. Is it possible to determine if the igneous dike formed before or after the fault occurred? Explain.

Figure B

7. What type of fault is shown (refer to chapter 11)?
8. Is the igneous dike on the left older or younger than the unconformity nearest the surface? Explain.
9. Are the two igneous dikes shown the same age? How do you know?
10. Which two layers of rock may have been much thicker at one time than they are now?

Discussion:

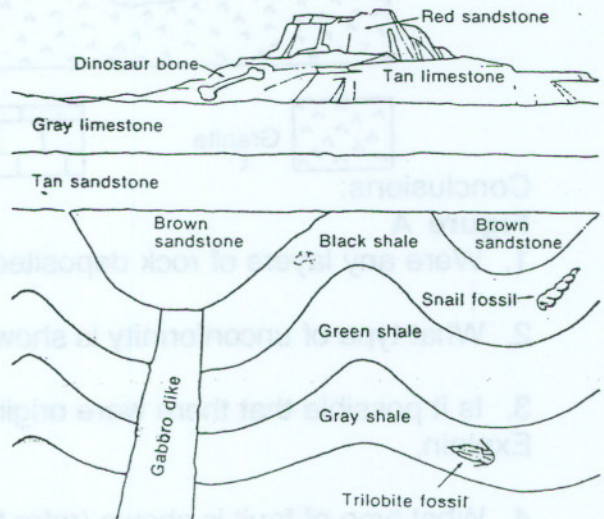
1. The last number of days we've examined geologic processes and have tried to interpret evidences in the Earth to build a model of Earth's past. It is sometimes hard to visualize the power of God and how he can control things. Read Psalms 104: 31 - 36 where King David is giving glory to God and describing his power. Record the geologic process that happens when:

God looks at the earth _____

God touches the mountains _____

2. Look at the cross-sectional view of the rock layers shown in the diagram below. For each question, decide which of the two named materials is older. Assume the layers have not been overturned. Write the name of the older material on the line provided.

- | | |
|-------|---------------------------------------|
| _____ | 5. tan sandstone and brown sandstone. |
| _____ | 6. brown sandstone and gray limestone |
| _____ | 7. gabbro dike and brown sandstone |
| _____ | 8. gabbro dike and gray shale |
| _____ | 9. snail fossil and trilobite fossil |
| _____ | 10. snail fossil and dinosaur bone |
| _____ | 11. snail fossil and green shale |
| _____ | 12. dinosaur bone and red sandstone |
| _____ | 13. red sandstone and gray limestone |
| _____ | 14. tan limestone and tan sandstone |
| _____ | 15. tan limestone and gray limestone |



Complete the following statement.

16. The type of unconformity shown in the diagram is a(n) _____.