Guided notes for Geological time scale

By examining layers of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rock, geologists developed a time scale for dividing up earth history.

Earlier in the 20th century, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ techniques allowed scientists to put absolute dates on divisions in the geologic time scale.

determine whether the rock is older or younger than other rocks\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

use radiometric dating techniques to determine how long ago the rock formed in the exact number of years\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

form of an element that has additional neutrons\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

isotope that spontaneously decays, giving off radiation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

time it takes for one-half of the radioactive material to decay.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Stable isotope is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" formed from decay of radioactive "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Determining the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of parent isotope to daughter product reveals the number of half-lives that has elapsed.

half-life of carbon 14 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ years

Principle of Uniformitarianism:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_realized that most sedimentary layers were deposited from gradual, day-to-day processes. He realized that it took a long time to form these rocks.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Rock layer above is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_than the ones below it. (Oldest on bottom, youngest on top)

Sedimentary layers are deposited in approximately horizontal sheets.

 If layers are folded, episode of deformation must have occurred after rocks formed. Age of folding is younger than youngest deformed rock unit.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Any feature (e.g. fault or intrusion) that cuts across rocks is younger than the youngest rock that is cut.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Organisms have evolved and gone extinct through time

 Fossil content of rock changes in a systematic way, reflecting evolutionary changes

 Fossil content can be used to help determine age of rock and correlate rocks.

 Paraphrased as "Organisms within rock units change with time\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rocks above and below unconformity have different orientations. Shows that there was a period of deformation, followed by erosion, and then renewed deposition. Easiest of the three types to recognize because the units are at an angle truncated with the units above them.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

s in a horizontal fashion were eroded down to igneous bedrock material at which time subsequent deposition of sedimentary layers commenced. Shows that there was a period of deformation, followed by erosion, and then renewed deposition. Represents the greatest amount of time left out of the geologic rock record.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Rocks in a nearly horizontal fashion were eroded and an erosional profile remains covered by subsequent sedimentary deposition. Shows that there was a period of erosion and then renewed deposition in nearly horizontal layers. Most difficult to recognize because the units are nearly horizontal and only a small discontinuous layer can be observed (rubble zone or soil profile).\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_