

# Note-taking Worksheet (continued)

## C. Unconformities — gaps in rock layers

1. Angular unconformity — rock layers are tilted, and younger sediment layers are deposited horizontally on top of the eroded and tilted layers.
2. A layer of horizontal rock once exposed and eroded before younger rocks formed over it is called a Disconformity.
3. Non-Conformity — sedimentary rock forms over eroded metamorphic or igneous rock.

D. The same rock layers can be found in different locations; fossils can be used to Correlate those rock layers.

Confirm Same Rock Type

## Section 3 Absolute Ages of Rocks

Chemistry

A. Absolute Age — age, in years, of a rock or other object; determined by properties of atoms

B. Unstable isotopes break down into other isotopes and particles in the process of Radio-Active decay.

① Beta Decay — an isotope's neutron breaks down into a proton and an electron with the electron leaving the atom as a beta particle; a new element forms due to proton gain.

② Alpha Decay — an isotope gives off two protons and two neutrons as an alpha particle; a new element forms.

✓ 3. The time it takes for half the atoms in an isotope to decay is the isotope's Half-Life.

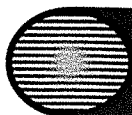
C. Calculating the absolute age of a rock using the ratio of parent isotope to daughter product and the half-life of the parent is called radiometric Dating.

← 1. Potassium-Argon dating is used to date ancient rocks millions of years old.

← 2. Carbon-14 dating is used to date bones, wood, and charcoal up to 75,000 years old.

③ Earth is estimated to be about 4.5 billion years old; the oldest known rocks are about 3.96 Billion years old.

D. Uniformitarianism — Earth processes occurring today are similar to those that occurred in the past.



# Note-taking Worksheet

## Clues to Earth's Past

Orange Book

Ch. 13

### Section 1 Fossils

A. Paleontologists study fossils and reconstruct the appearance of animals.

B. Fossils —remains, imprints, or traces of prehistoric organisms → Animals, Dishes  
People, Tools

1. Fossils can form if the organism is quickly Buried by sediments.

2. Organisms with Hard Parts are more likely to become fossils than organisms with soft parts.

C. Types of Preservation (Actual Remains - Fossilized)

1. Fossils in which spaces inside are filled with minerals from groundwater are called Permineralized remains.

2. Carbon Film results when a thin film or carbon residue forms a silhouette of the original organism; carbonized plant material becomes Coal → Fossil Fuels

3. Mold —cavity in rock left when the hard parts of an organism decay

4. If sediments wash into a mold, they can form a Cast of the original organism.

5. Occasionally Original remains are preserved in a material such as amber, ice, TAR or tar.

D. Trace Fossils —evidence of an organism's activities

a. Can be Footprints / Tracks left in mud or sand that became stone

b. Can be trails or Burrows made by worms and other animals

E. Index Fossils —abundant, geographically widespread organisms that existed for relatively short periods of time

Fossils of old Animals

F. Fossils can reveal information about past land forms and Climate + Weather.

### Section 2 Relative Ages of Rocks

→ Rock layers underground.

A. Principle of Superposition —process of reading undisturbed rock layers

1. Oldest rocks in the bottom layer

2. youngest rocks in the top layers

B. How old something is in comparison with something else is its Relative Age

1. The age of Undisturbed rocks can be determined by examining layer sequences.

2. The age of disturbed rocks may have to be determined by Fossils or other clues.