

GEOLOGY 12
THE FOSSIL RECORD WORKSHEET 1

Refer to your handouts and notes along with pp. 88-91 of the text to answer the following questions.

1. The term **Phanerozoic** means *visible life*, and refers to the modern Geologic Time Scale.
 - a) Why is this eon of time so-named?
 - b) About what percent of the earth's history does this eon cover?
 - c) Explain why the Geologic Time Scale has been divided into the **Paleozoic**, **Mesozoic**, and **Cenozoic** eras.

2.
 - a) About how much of the earth's history, in years, is **Precambrian**?
 - b) Why is it difficult to subdivide this time span?

3. The age of fossils (found in sedimentary rock layers) cannot be directly determined using radiometric dating techniques. How is it that geologists can determine when these organisms existed?

4. Use the Development of Life Through Time chart to determine the indicated time unit for each of the following events in Earth history:

a) emergence of humans → period?	e) peak of trilobite population → period?
b) dominance of dinosaurs → era?	f) ice age → period?
c) widespread swamps, coal beds → period?	g) first mammals, birds appear → period?
d) existence of trilobites → era?	h) age of mammals → era?

5. The oldest known rock formation on Earth has been determined to be around 3.9 Ba (billion years). What evidence allows scientists to give the Earth an older age of 4.6 Ba?

6. Examine the chart to the right; it shows fossils found in four different layers of strata, all from the Silurian Period.

	FOSSIL U	FOSSIL V	FOSSIL W	FOSSIL X	FOSSIL Y	FOSSIL Z
Layer 4						
Layer 3						
Layer 2						
Layer 1						

- a) Name each of fossils U through Z.
- b) Which of the six fossils shown would make a good index fossil for the Silurian Period, based on this chart? Explain why.
- c) If **Layer 3** represented a specific unit of time, which of the six fossils shown would make a good index fossil for that time? Again, explain why.

7. Explain how **ammonites** are useful guide fossils for dating sedimentary rock units around the Comox Valley and Vancouver Island.
8. a) Explain how **brachiopods** can be distinguished from bivalves such as clams and scallops.
b) In which era would brachiopods make good index fossils? Explain.
9. What unique feature distinguishes **Echinodermata** from other phyla?
10. To which phylum do **trilobites** belong? Name some modern descendents.
11. a) Which group is represented by the **Coelenterata** phylum?
b) How is this group typically found as a fossil? (2 answers here)
12. What distinguishes **vertebrates** from other phyla?
13. a) Why is a shark tooth considered a good guide fossil?
b) Explain why the only fossil evidence of ancient sharks is the shark tooth.