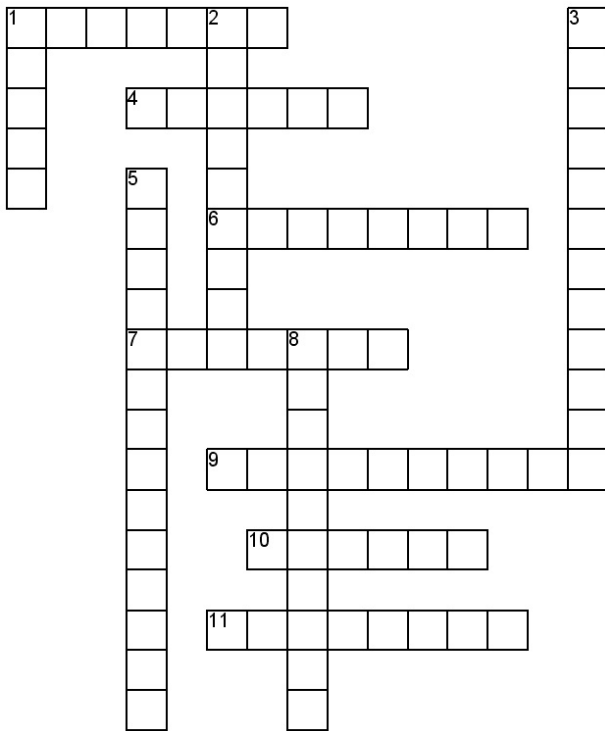


A. Crossword Puzzle

① Read the on-line Earth & Space notes for this chapter (i.e. see "young's-wiki") and complete the crossword.



An (4a) is any period when large parts of Earth's surface was covered with ice. There is (11a) that there have been several ice ages over Earth's history. Each ice age has been followed by a (10a) period. (Note: the last ice age was about 20 000 years ago.) But how can scientists determine what the climate was like thousands of years ago?

Climatologists study past climate conditions using evidence gathered from (3d) (any natural materials that preserve (1d) of climate conditions in the distant past). These include:

- (6a) (bubbles of air trapped as the ice formed can tell us what the air was like when the ice first formed)
- (2d) (narrow/wide rings = poor/good growing years)
- (9a) (thin/thick layers = cool/warm ocean temps)
- (7a) (type of plant = cool/warm climate)
- (5d) in caves due to dripping water (thin/thick layers = little/lots of precipitation)

From these data, scientists can see trends and patterns in Earth's (1a). According to the data, global temperatures are (8d).

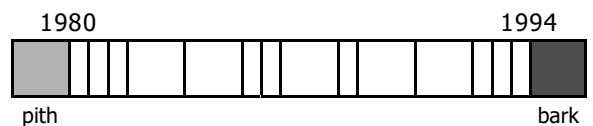
B. Wrap-Up Notes

- ① Take a blank lined page and at the top of the page, in the middle, write the title for this section.
- ② Leave a blank line and then, on the left side, write the heading "WRAP UP NOTES".
- ③ Turn to the last page of the notes (P.299) and add the wrap up notes below this heading. Be sure to write neatly!

C. Questions

- ① Leave a blank line after the wrap up notes and then, on the left side again, write the heading "QUESTIONS".
- ② Answer the questions below under this heading. Be sure to use complete sentences and to write neatly!
- ③ Attach your answers to this sheet when you are finished.

1. What do the ice ages tell us about how Earth's climate has changed in the past?
2. Why do scientists study proxy records, such as tree rings, ice cores, and coral reefs?
3. For every year of its growth, a tree produces a single ring of new wood in its trunk. The width of each ring is affected by the average temperature and moisture conditions during that year.



- (a) How old is the tree?
- (b) What does a width of a ring indicate about the growing and moisture conditions?
4. Suppose a scientist in Ontario found fossil pollen grains of a lily plant that grows only in tropical regions. What climate information could the scientist determine from this proxy record?
5. How can studying fossils help scientists learn about Earth's past climate?