Historical Geology
Learning Objectives and Study Questions for Chapter 17

1. Cite two features of **angiosperms** (flowering plants) than have enabled them to displace conifers and other gymnosperms from many terrestrial environments since their appearance during Cretaceous time.

2. Referring to a paleogeographic map of Pangaea/North America during Mesozoic time, identify the approximate period depicted and describe the significances of the features you used to arrive at your answer.

3. Describe three features observed in the **K/T boundary deposits** that you might be able to use to determine if another stratum associated with a mass extinction is also related to an asteroid impact.

4. Suggest how a geologist working in the west-central United States might distinguish geologic features related to the **Sevier Orogeny** from those formed during the **Nevadan Orogeny**, and briefly describe what was happening tectonically to create these differences.

1. The dominant reef builders of the Cretaceous were a group of mollusks called the _____.
   A. ammonites
   B. gastropods
   C. bivalves
   D. rudists
   E. belemnites

2. Teleost fish are recognized, in part, by their _____.
   A. larger eyes
   B. relatively long jaws
   C. non-overlapping scales
   D. symmetrical tails
   E. generalized fins

3. The major group of plants to evolve during Cretaceous time are the _____.
   A. sporophytes
   B. angiosperms (flowering plants)
   C. gymnosperms
   D. conifers
   E. cycads

4. In addition to the development of flowers which attracted animal pollinators, angiosperms have been very successful because of their _____.
   A. larger leaves
   B. lesser need for water
   C. smoother bark
   D. double fertilization
   E. more compact forms

5. The development of the secondary palate enabled mammals to __________ as they ate.
   A. hear
B. breathe
C. climb
D. see
E. party

6. Compared to today, the Cretaceous world was _________ and sea levels were _________.
   A. warmer, higher
   B. warmer, lower
   C. cooler, higher
   D. cooler, lower
   E. same temperature, similar

7. The suggestion that an asteroid caused the K/T extinction is supported by all of the following observations, except _____.
   A. Ir anomaly in the K/T boundary layer
   B. shocked quartz in the K/T boundary layer
   C. glass spherules in the K/T boundary layer
   D. high sea levels at the end of the Cretaceous
   E. ringed impact basin at Chicxulub

8. Coccolithophores flourished in the warm shallow sea that covered northern Europe and deposited this layers of ______.
   A. chalk
   B. diatomite
   C. quartz sandstone
   D. shale
   E. tuff

9. During Cretaceous time, shallowing subduction of the Farallon Plate led to eastward migration of the fold-and-thrust belt during the ______.
   A. Antler Orogeny
   B. Sonoman Orogeny
   C. Nevadan Orogeny
   D. Sevier Orogeny
   E. Laramide Orogeny