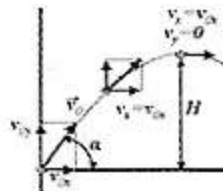
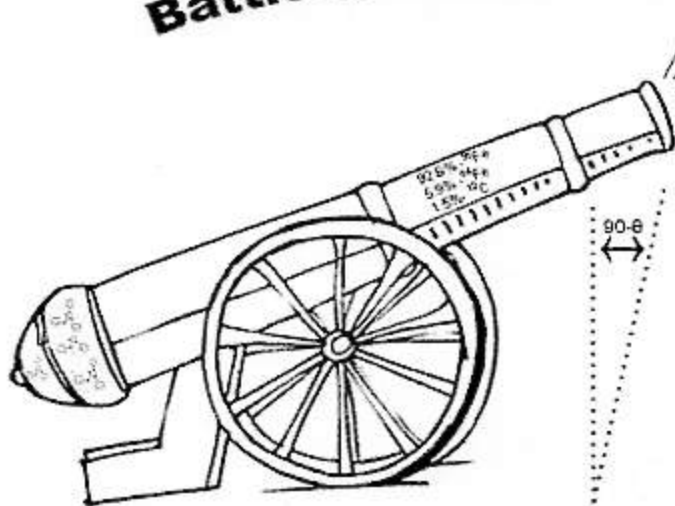
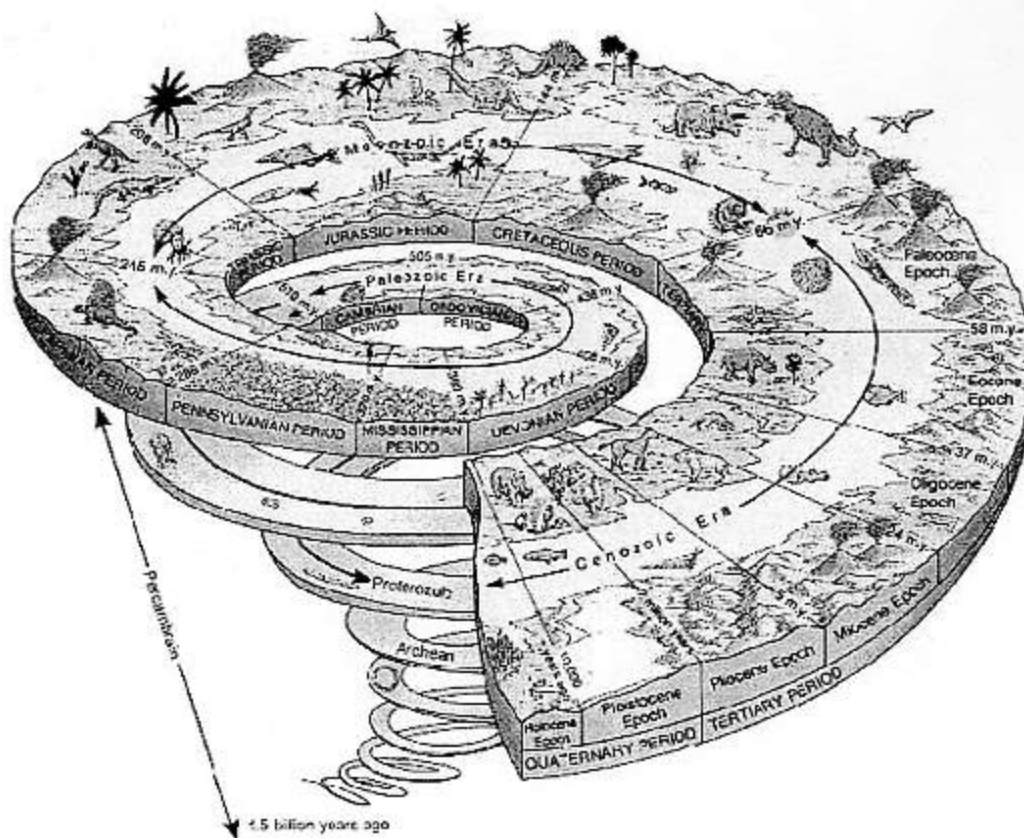


Conestoga High School Battle at Valley Forge Invitational



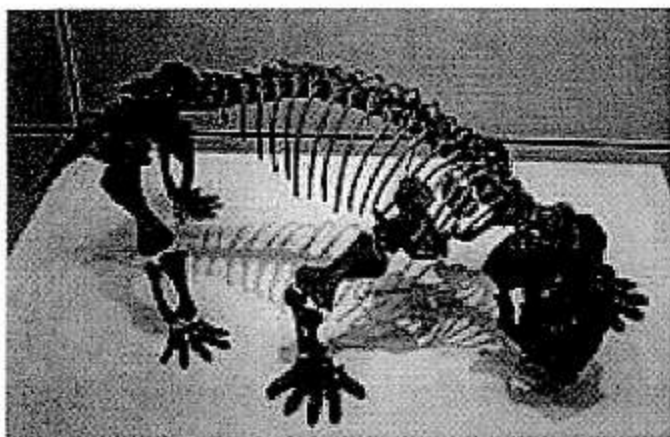
FOSSILS EXAM



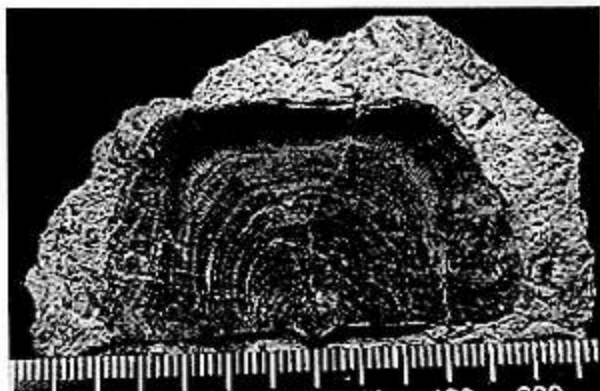
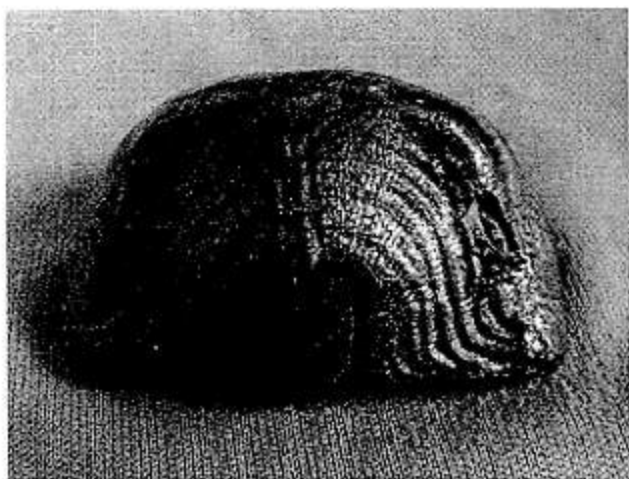
SCHOOL NAME _____ TEAM NUMBER _____

INSTRUCTIONS

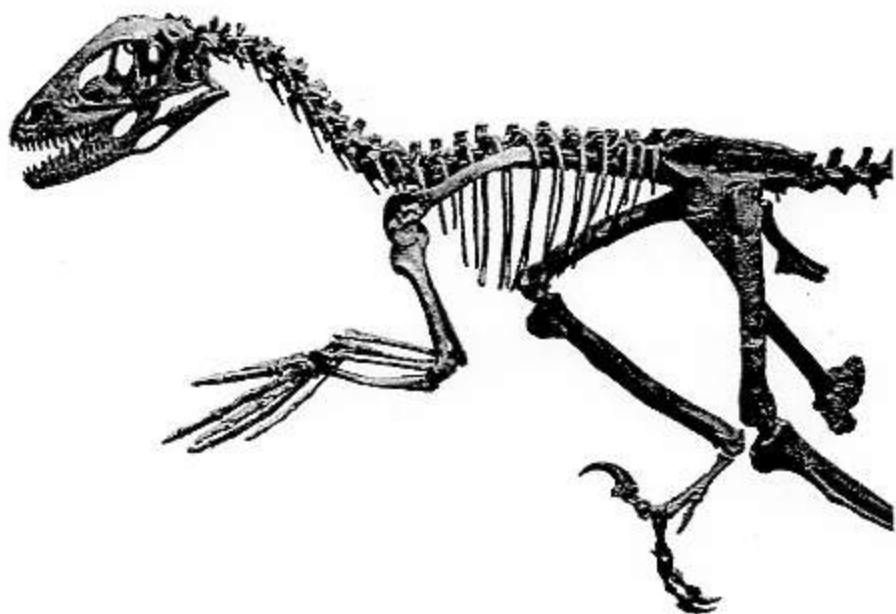
1. Turn in all exam materials at the end of this event. *Missing exam materials will result in immediate disqualification of the team in question.* There is an exam packet and a blank answer sheet.
2. You may separate the exam pages. Keep the answer sheet separate when you submit your materials to the supervisor.
3. *Only* the answers provided on the answer page will be considered. Do not write outside the designated spaces for each answer. Write LEGIBLY.
4. Write your school name and team number in the appropriate locations on the answer sheet as well as on the title page. Write LEGIBLY.
5. Each question is worth 1 point. Tiebreaker questions are identified with (T#) indicating the first, second, third, etc. There are 15, and they do not appear in numerical order. *Tiebreaker questions count toward the overall grade, and are only used as tiebreakers in the event of a tie.*
6. When the time is up, *the time is up.* Continuing to write after the time is up risks immediate disqualification. This is not a station event, but it would be wise for you to treat it as such. Each set of images has 4 questions associated with it; there are 25 "stations."
7. Mocking, inappropriate, and/or nonsensical answers WILL result in disqualification.
8. Resource is as per the Science Olympiad Student Manual. "One magnifying glass, one published field guide that they may tab and write in, and one 3-ring binder (any size) containing information in any form from any source."



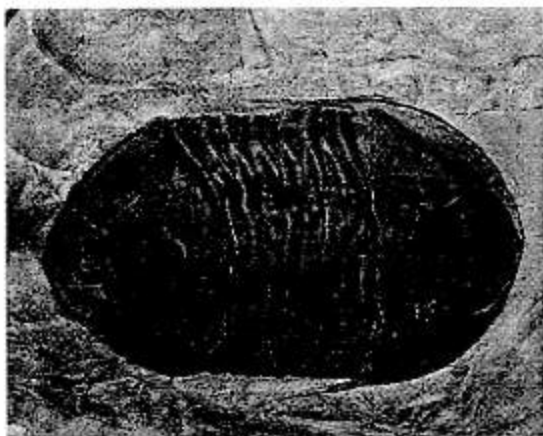
1. Identify this fossil specimen by genus name.
2. What major extinction event did this genus survive?
3. During which period was this genus the dominant land animal?
4. What does the genus name mean?



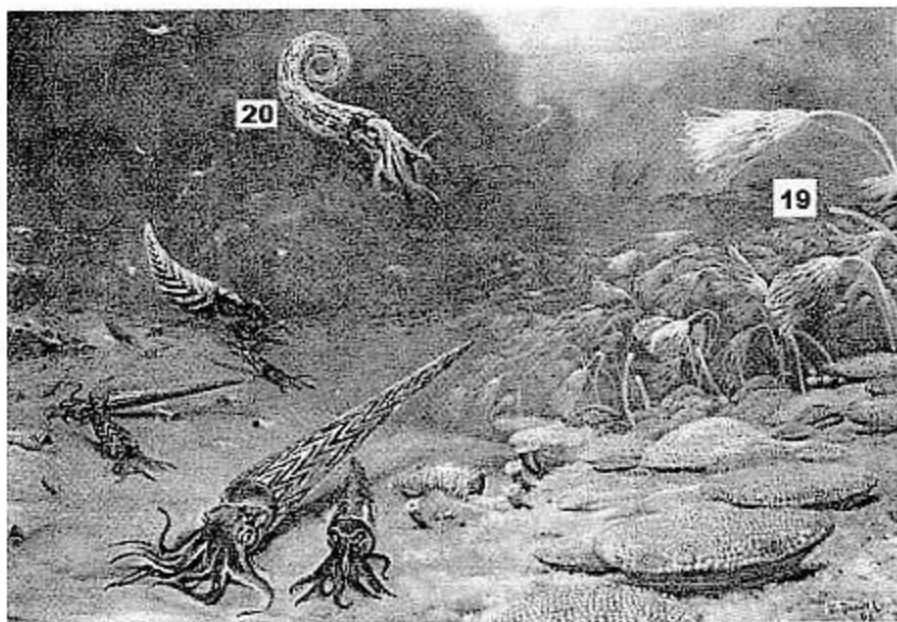
5. Identify this fossil specimen by genus name.
6. What is the phylum to which this organism belongs?
7. These organisms had a particular feeding structure – what is it called?
8. What is the name of the stalk-like organ that holds this type of organism to the substrate?



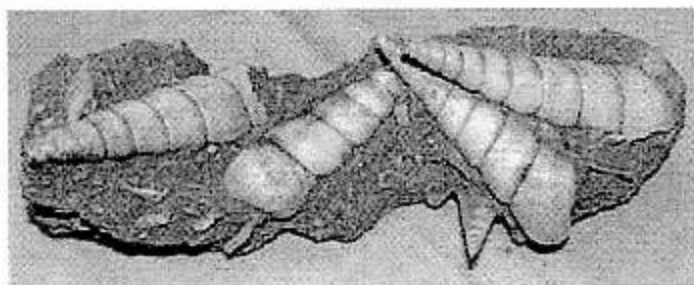
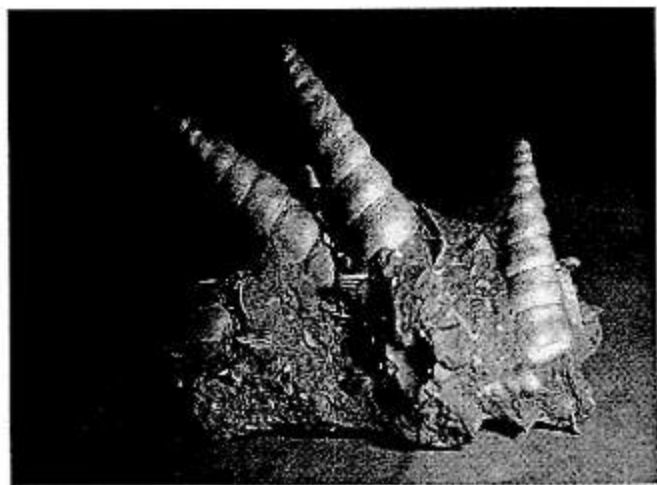
9. Identify this fossil specimen by genus name.
10. During what period did this organism live?
11. To what family of dinosaurs did this organism belong?
12. (T7) According to the fossil record, what was this organism's most common prey?



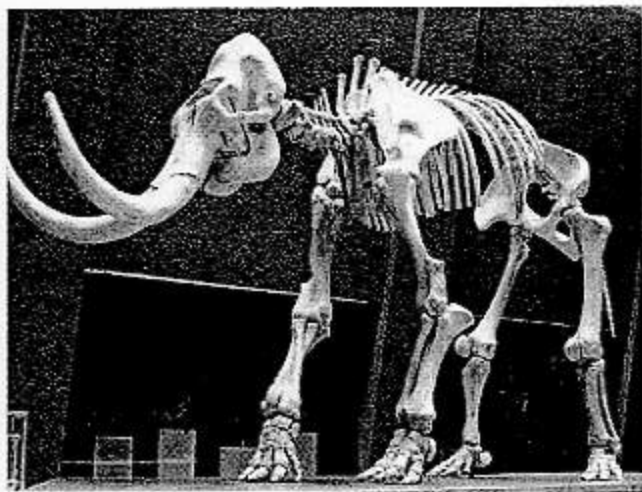
13. Identify these fossil specimens by genus name.
14. To what phylum do these specimens belong?
15. What is the tail section of this organism called?
16. What is the mouth plate of this organism called?



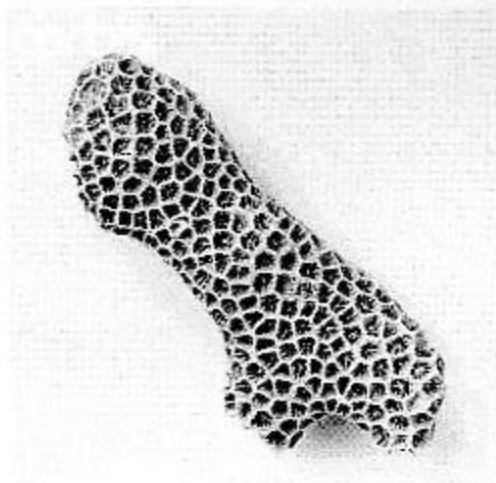
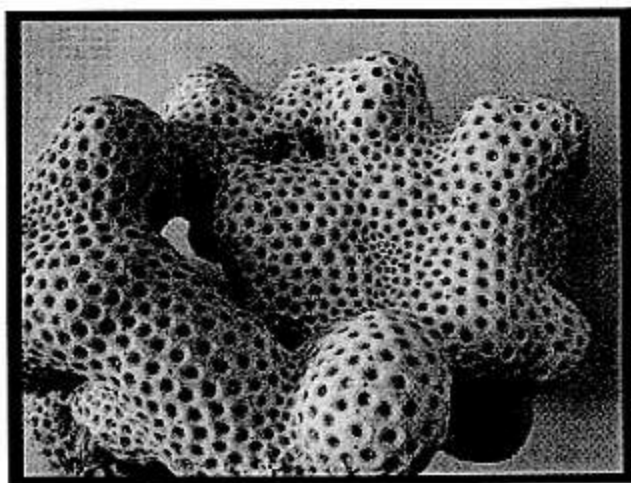
17. (T8) What period is depicted in the image shown above?
18. What is a common index fossil for this period?
19. What organisms are shown around #19 in the image?
20. What organism is shown by #20 in the image?



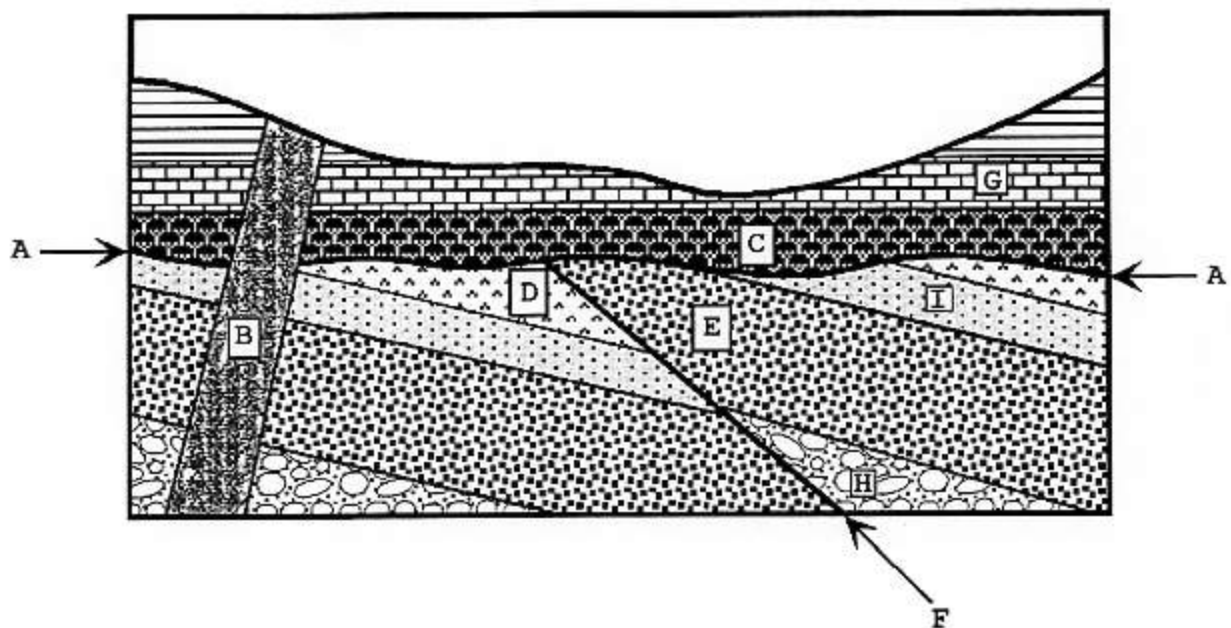
21. Identify these fossil specimens by genus name.
22. To what *class* does this organism belong?
23. This organism possessed a horny plate that closed off its aperture when the animal retracted into the shell. What is this plate called?
24. (T4) When did this genus go extinct?



25. Identify these fossil specimens by genus name.
26. What peculiarity is associated with the morphology of the teeth?
27. How many sets of teeth did this organism use in its natural lifespan?
28. At the end of which epoch did this organism go extinct?



29. Identify these fossil specimens by genus name.
30. To what phylum does this organism belong?
31. (T9) What is the sessile stage of this organism's life cycle called?
32. What is this organism's mode of feeding?



33. In the rock profile shown above, what is the oldest lettered feature shown?
34. What feature is indicated by the letter A in the rock profile?
35. What feature is indicated by the letter B in the rock profile?
36. What feature is indicated by the letter F in the rock profile?



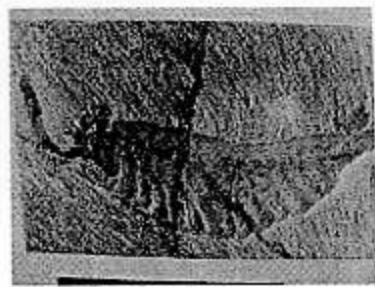
A



B



C

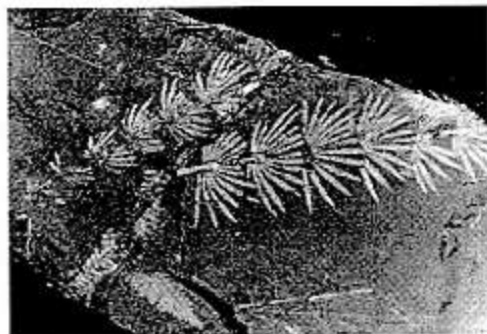


D

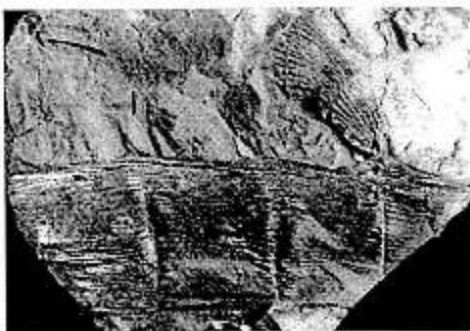
37. (T10) What fossil assemblage did these organisms come from?
38. In what geological period were these fossils living organisms?
39. Who discovered this fossil assemblage?
40. Name any one of these fossils (include the letter)



41. Identify these fossil specimens by genus.
42. To what family did this organism belong?
43. What is the common name for the order to which this organism belonged?
44. (T15) What is the term for the planktonic larva of this type of organism?



A

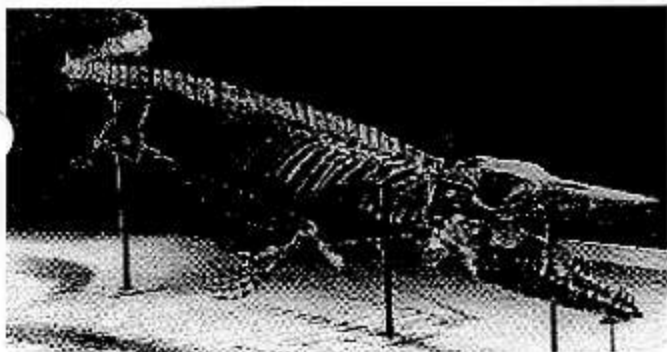


B



C

45. Identify these fossil specimens by genus name.
46. What is the common name for this type of organism?
47. What is the name for the structure fossilized in image B?
48. What is the most common mode of fossilization for this organism, shown in image C?

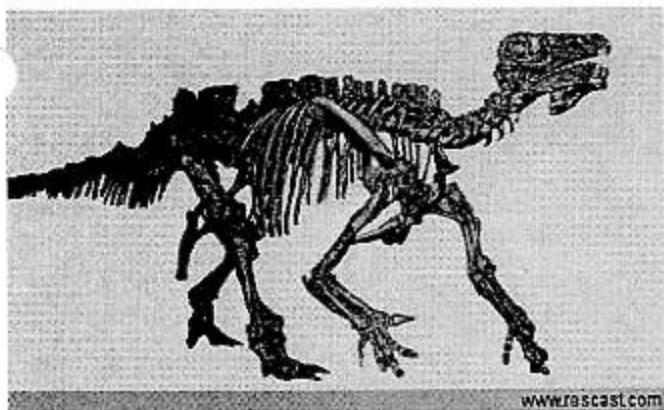


49. Identify these fossil specimens by family name.

50. These specimens were unearthed in sedimentary rock formed when much of the interior North American continent between the Appalachians and the Rockies was under a shallow sea. What was the name of this inland sea?

51. (T1) These creatures superseded what order as dominant marine predators?

52. This family displayed vigorous speciation during which age of the Cretaceous?

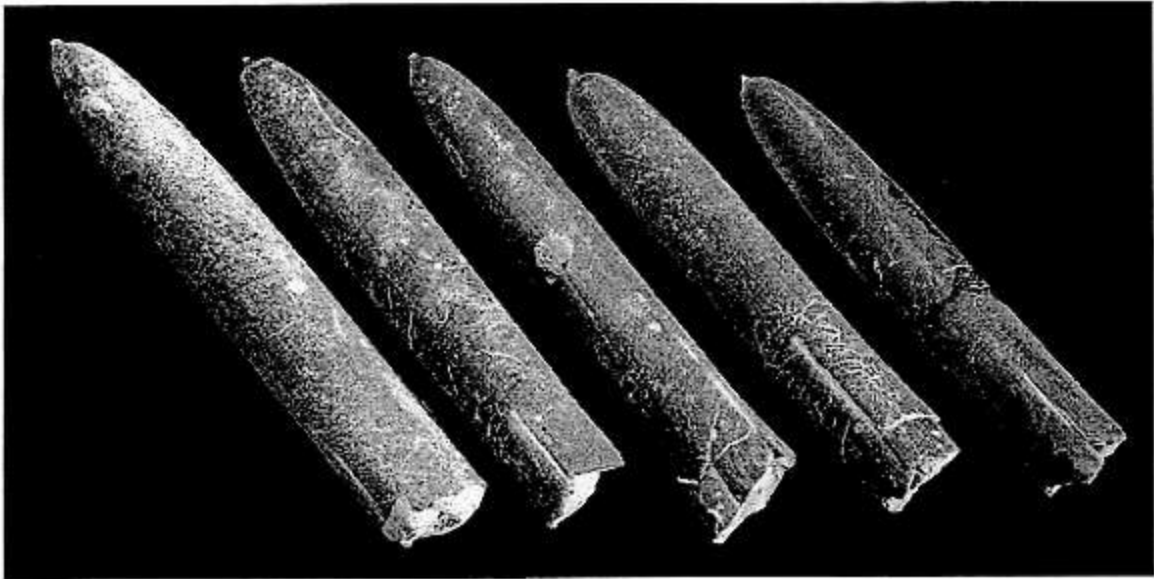


53. Identify these fossil specimens by genus name.

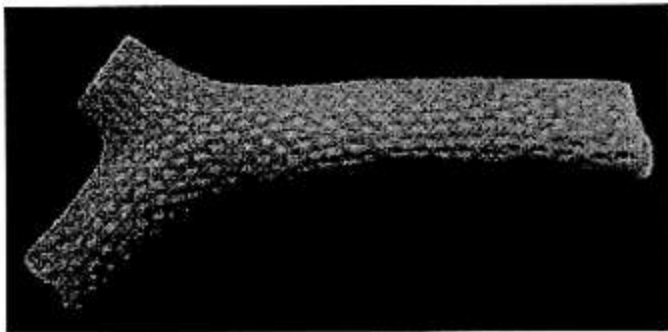
54. In what order are these organisms classified?

55. (T14) On the characteristics of what anatomical structure is this classification based?

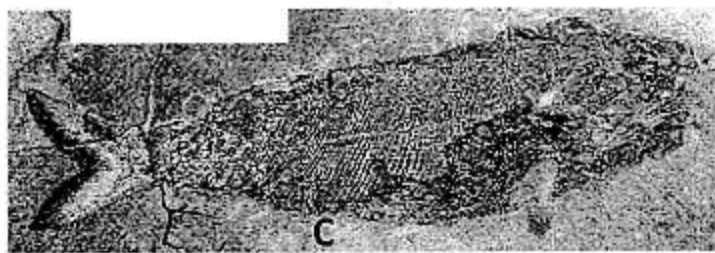
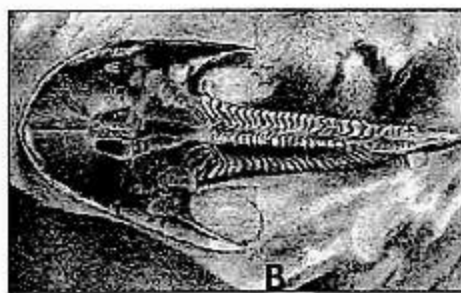
56. Early restorations of this beast misplaced the thumb spike; where was it placed?



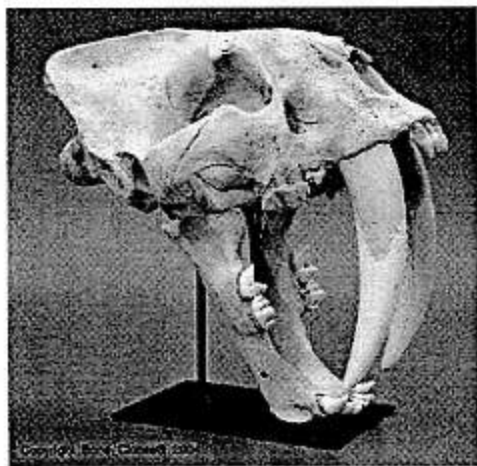
57. Identify these fossil specimens by genus name.
58. To what class did these organisms belong?
59. These fossils represent which part of the animal?
60. (T11) What is the significance of the genus name?



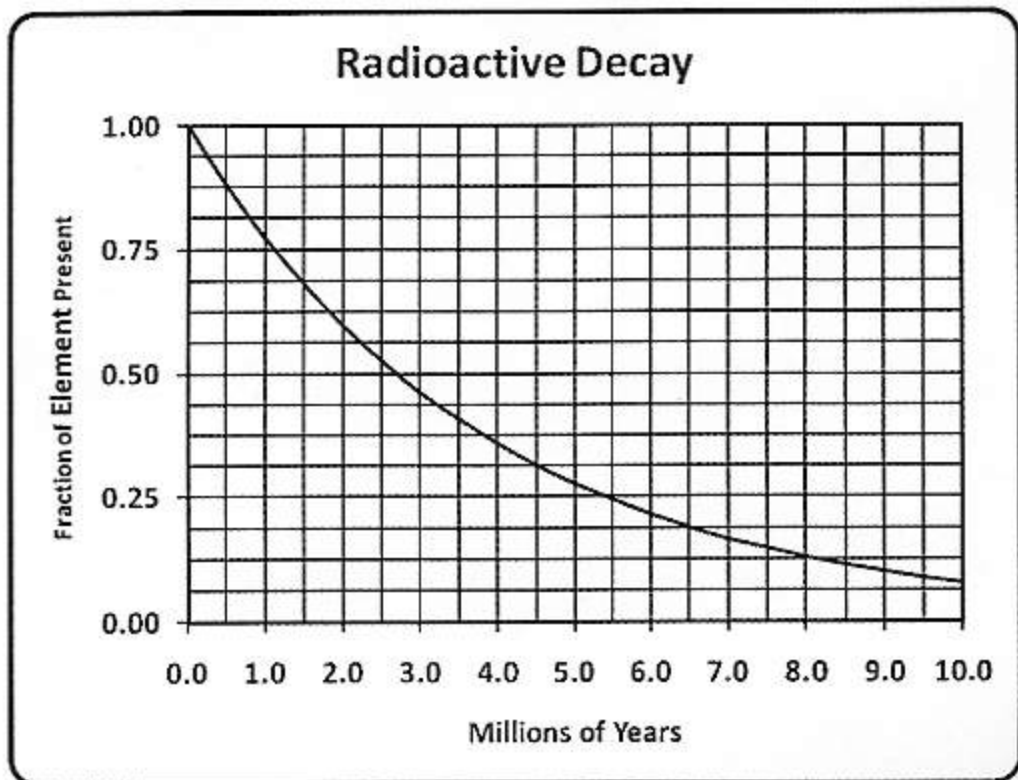
61. Identify these fossil specimens by genus name.
62. These organisms were colonial. What is one individual organism called?
63. During which period did these organisms first appear in the fossil record?
64. (T12) Some individual organisms in the colony develop defensive strategies such as snapping or "biting" at predators. What are such individuals called?



65. Which of the above is (or was) benthic and motile?
66. Which of the above is (or was) benthic and nektonic?
67. Which of the above is (or was) benthic and sessile?
68. Which of the above is (or was) pelagic?



69. Identify the fossil specimen by genus.
70. What is this organism's common name?
71. The *gape* is described as how wide the mouth could be opened. What was this animal's gape?
72. (T2) This animal could roar. What structures allowed this?



73. What is the half-life of this radioactive element?
74. What is the decay constant for this element?
75. What is the time constant for this element?
76. (T3) What is the SI unit for disintegrations per second?



77. Name the landmass indicated by number 77 in the Earth map shown.
78. Name the landmass indicated by number 78 in the Earth map shown.
79. Name the ocean indicated by number 79 on the Earth map shown.
80. (T5) During which period were the continents arranged this way?



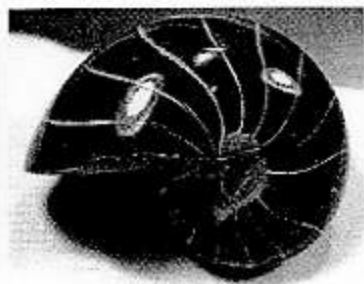
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B

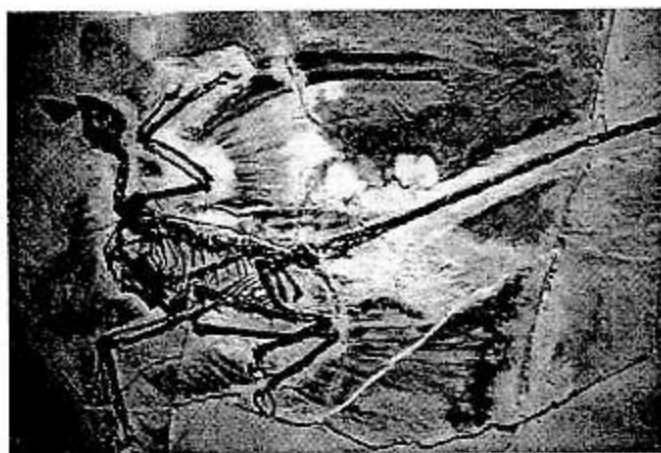


C

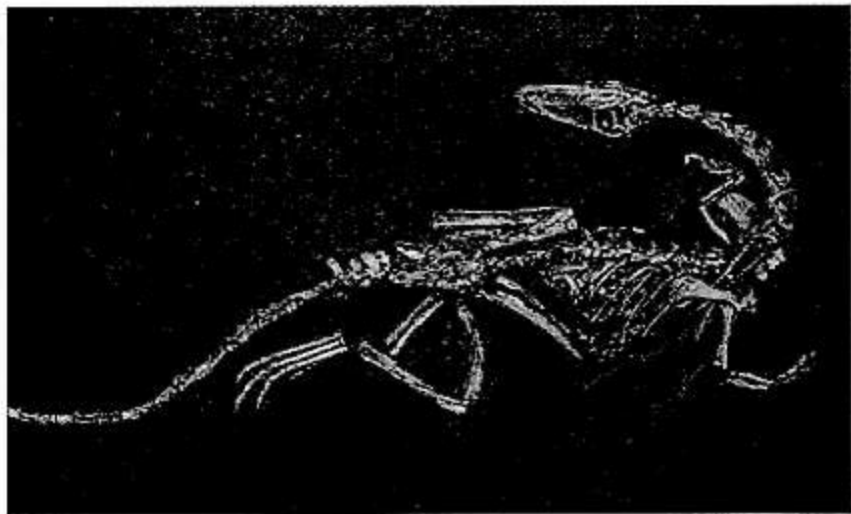


D

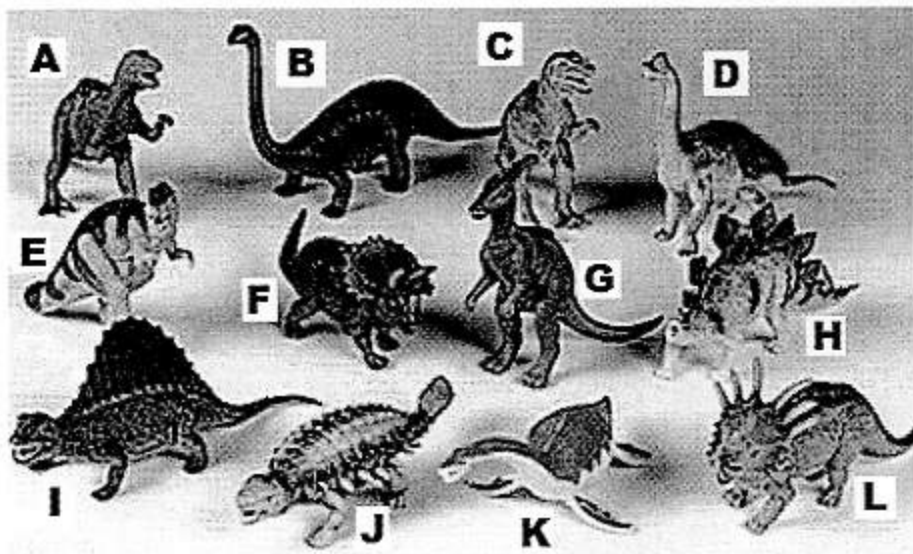
81. Order these images according to suture pattern: Nautiloid, Goniatite, Ceratite, Ammonite
82. To which class did these organisms belong?
83. What is the chambered part of these organisms' shells called?
84. These organisms controlled buoyancy by removing water from the chambers through a tube. What was this tube called?



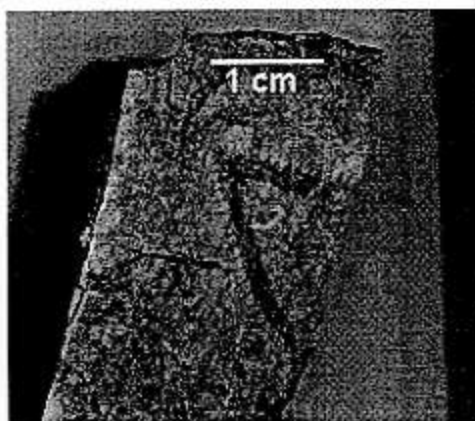
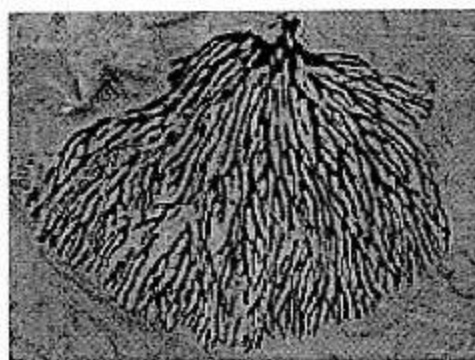
85. What unusual feature do these two dinosaur fossils display?
86. Where were they discovered?
87. (T6) To what genus do these fossils belong?
88. What related features were subsequently discovered on *Velociraptor* specimens?



89. Identify this fossil specimen by genus.
90. To what does the genus name refer?
91. What behavior was originally associated with this organism, but recently debunked?
92. Where were several hundred of these fossils found, leading to its designation as State Fossil?



93. This is a popular "dinosaur play set." Which two lettered toys do not belong?
94. Name the two toys that do not belong (to the level specified on the official fossil list).
95. How many of these *dinosaurs* appear on the Official 2011 Fossil List C?
96. Name the hadrosaur in the toy set by genus.



97. Name these fossil specimens by class.
98. What is a colony of these organisms called?
99. State the range of this class in the fossil record by period – when does it first appear, and when does it go extinct?
100. (T13) Each member of this colonial organism lived in a chamber; what is this chamber called?



BATTLE AT VALLEY FORGE INVITATIONAL 2011 FOSSILS C DIVISION



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TEAM NUMBER

SCHOOL

SCORE