2010 Colorado Science Olympiad Fossils **Team Name: _____**

Team #: _____

Total points possible: 128 **Names of students:**

_____

_____

Directions: Make sure you record what is being asked for. Answer the multiple choice questions by placing the letter of the correct choice in the space provided. Some stations require you to fill in your answers in the space provided. Be careful, spelling counts, and you must write legibly. Please print. [* indicates tie-breaker question]

Station 1: pts=6

1. _____C_____1_____

2. _____Pleistocene____1_____

*3. _____A, B, C, F_____4_____

Station 2: pts=10

4._____E_____1_____

5._____B__(igneous)___1 _____

6. [put the letter of the daughter isotope on the blank] 6

_E_ Carbon-14
_A_ Potassium-40
_F_ Rubidium-87
_D_ Thorium-232
_C_ Uranium-235
_B_ Uranium 238

7._____C_____1_____

8._____Principle of inclusions ___1_____

(16 pts possible)

Station 3: pts=15

*9. **Geologic Age Range of Fossils-** Plot the geologic range of the fossils in question 9 on this chart. Use arrows or shading to indicate the range for each fossil. 5pts

ERA	GEOLOGIC PERIOD	*Fossil A*	*Fossil B*	*Fossil C*	*Fossil D*	*Fossil E*
CENOZOIC	Recent (1.6-0 my)	x	x			x
	Tertiary (65 -1.6 my)	x	x		x	x
MESOZOIC	Cretaceous (142-65 my)	x	x	x	x	x
	Jurassic (206-142 my)	x	x		x	
	Triassic (251-206 my)	x	x		x	
PALEOZOIC	Permian (290-206 my)	x	x		x	
	Carboniferous (363-290 my)	x	x		x	
	Devonian (418-362)	x			x	
	Silurian (443-418 my)	x				
	Ordovician (490-443 my)					
	Cambrian (544-490 my)					

10. _____Cretaceous____1_____

11. ____Fossil C; shortest geologic range____2___

12. _____ 1 (*Exogyra*), 2 (*Baculites*)____2_____

*13.
1) _____ *Exogyra* _____1_____
2) _____ *Baculites* _____1_____
3) _____ *Juresania* _____1_____
4) _____ *Stegosaurus* _____ 1_____
5) _____ *Cypraea* _____1_____

(15 pts possible)

Station 4: pts=7

14. _____A (*Glossopteris*)_____1_____

*15. _____ A(*Glossopteris*), B (*Metasequoia*), & D (*Ginkgo*) ___3__

16. _____C (*Annularia*/*Calamites*) _____1_____

17. _____ B (*Metasequoia*) & D (*Ginkgo*) __2_

Station 5: pts=5

18. _____A (*Mesohippus*)_____1_____

19. _____B (*Equus*)_____1_____

20. _____ A (*Mesohippus*) _____1_____

21. _____ B (*Equus*) _____1_____

22. _____ B (*Equus*) _____1_____

Station 6: pts=11

23._____ Fossil evidence of biological activity of extinct organisms ___1_____

24. _____ insect gallery/boring/trail on petrified wood _____1_____

25. _____ diet, whether herbivore or carnivore (coprolite) _____1_____

26. ___ burrow exterior and cast/internal mold of burrow; (D=*Ophiomorpha* cast and C=burrow)_2

27. Specimen E-___ E=boring through *Pecten* shell _____1_____
Specimen F-_____ F= [arthropod] tracks _____1_____

28. __T___ 4
__F___
__T___
__T___

(23 pts possible)

Station 7: pts=6

29. __A lagerstatte is a sedimentary deposit that exhibits extraordinary fossil richness or completeness__1_

30. ____ shale _____1_____

31. ____ Osteichthyes or Osteichthyans ("bony fish" is worth a half point)__1_

32. _____ Cambrian _____1_____

33. A) ___ *Tullimonstrum* __1_____
B) ____either Pennsylvanian or Carboniferous are acceptable answers_1__

Station 8: pts=7

*34. _____B_____(grain size)_____1_____

35. _____ B or conglomerate _____1_____

36. _____ A or Ripple marks _____1_____

37. _____ D or Shale _____1_____

38. _____ C or basalt _____1_____

39. _____D_____1_____

40. _____D_____1_____

Station 9: pts=6

*41. __A, B, C, D_____4_____

42. _____ Whale Ear Bone ___1_____
_____ (whale neck) vertebra __1_____

(19 pts possible)

Station 10: pts=10

43. ___ order from oldest to youngest is B, E, C, A, D__5__

*44. _____ Layers A and D _____2_____

45. _____ C_____1_____

46. _____ Angular unconformity ___1____

47. _____ C _____1_____

Station 11: pts=12

48. _____ A, B, E, F, H _____5_____

49. _____ C, D _____2_____

50. _____ G, I _____2_____

51. _____ C _____1_____

52. A) _____ crown _____1_____
B) _____ root _____1_____

Station 12: pts=11

53._____ Saurischian (lizard-hipped) dinosaurs ____1_____

54. _____ F (*Apatosaurus*), E (*T. Rex*) _____2____

55. _____ C (*Parasaurolophus*), D (*Triceratops*)___2_____

56. __ T ___ 6
__ T ___
__ F ___
__ T __
__ F __
__ T __

(33 pts possible)

Station 13: pts=9

57. _____ A (*Acer*) & C (palm) __2_____

58. _____ B (gymnosperm) _____1_____

*59. _____ A (*Acer*) & C (palm) ____2_____

60. _____ D (fern), B (gymnosperm), A (*Acer*), & C (palm)_ 4__

Station 14: pts=13

61. _____ Devonian _____1_____

62. _____ D (*Favosites turbinatus* specimen)_ 1

63. ____ Porifera (*Astraeospongia*)_____1_____

64. _____ E (*Heliophyllum*), F (*Hexagonara*)_2__

65. ____D (*Favosites*), G (*Favosites*), F (*Hexagonara*) _3_

66. _____ Pennsylvania _____1_____

67. ___ cephalon _____ 3
____ thorax _____
_____ pygidium _____

68. _____ *Orthoceras* ____ 1

(22 pts possible)