PA State Science Olympiad 2012 — Astronomy C Division — KEY

	1. Carina Nebula		26. Image 3
T11	2. Bok globules		27. Hind's Variable Nebula
	3. Eta Carinae		28. Image 22
	4. BP Psc		29. Image 8
	5. Image 6		30. Puppis
	6. Image 12		31. 5
T3	7 . Image 13		32. Image 9
	8. SNR 0509-67.5		33. 71
	9. Image 1		34. IV
	10. NGC 2244		35. RR Lyrae
	11. Image 17		36. D
	12. U Scorpii		37. A
	13. January 2010		38. 4.5 - 5 billion years
	14. Image 20		39. 10 billion years
T10	15. Omicron Ceti	T9	40. Not enough mass to begin H fusion
	16. Image 21		41. Instability due to photons tearing star apart
	17. August 21-31, 2012		42. Horizontal branch
	18. 5		43. Asymptotic Giant Branch (AGB)
	19. Image 25		44. Red Giant Branch (RGB)
	20. Image 27		45. White dwarfs
	21. Image 4		46. Blue stragglers
	22. Image 14 or 15		47. Main sequence turnoff
T4	23. Davies, Elliott, Meaburn (HII regions in LMC)		48. 1.56E8 years (150 million)
	24. Image 10		49. Double degenerate progenitor
	25. T-Tauri star	T5	50. Cobalt, "iron peak" elements

School #	School Name	SCORE
	Participants	

51. -19.3

52. 4 to 5 billion times (4.5E9)

53. Minkowski and Zwicky

54. M

55. G

56. E

57. A

58. Main sequence

59. Instability strip

60. Interstellar extinction

T12 61. 210-220 nm

62. graphite (carbon)

63. fragmentation

64. Jeans mass

T6 65. Hayashi Track

66. Lithium

67. An accretion disk

68. P-Cygni profile

69. mass

70. Kelvin-Helmholtz timescale

T7 71. Zero-Age Main Sequence

72. CO Carbon Monoxide

73. -0.28

74. B

75. 4-5

76. 8-9

77. 3-4

78. 4

79. 8

80. 9-10

81. 200 parsecs

T2 82. -4.4

83. 2400 K - 2600 K

84. 2.78 M_{sun}

85. 1.78 M_{sun}

86. 5000 L_{sun}

87. 340 - 400 R_{sun}

88. 4.07 AU

89. 5.38 km/s

90. Herbig-Haro Objects

91. Vorontsov-Velyaminov scheme

T1 92. Herbig-Ae/Be stars (HAEBE)

93. OH/IR stars

94. deflagration

T8 95. ZZ Ceti or DAV

96. Electron degeneracy pressure

97. Schönberg-Chandrasekhar Limit

98. Initial Mass Function (IMF)

99. Oosterhoff class/group

100. Main sequence fitting

Bonus **Chusiro Hayashi**