2004 NSO "Reach for the Stars" Exam	State:	Team # B		
Life Cycles of Stars	School Name: _			
Participant Names:	and _			
Question values: Question 1 = 5 points; que	estion 22 = 6 point	s; all others = 1 point each.		
Card Series 1: Select the following number the remaining cards aside. Arrange these cards are the numbers, in ord death.	cards to sequence	the life of a low-mass star beginning		
16	or			
	13			
<u>Directions</u> : Using these same cards identif tive phrases provided.	fy the stage – by c	card number – to match the descrip-		
2 Mid-sized star	6	Formation of a planetary system		
3 White dwarf	7	Planetary nebula		
4 Red giant	8	Binary system		
5 Stellar nursery				
Directions: On the line preceding the quest	ions, enter the card	d number of the stage described.		
9 Includes a star that will explode	Includes a star that will explode if its mass becomes greater than 1.4 solar masses			
10 Star that fuses hydrogen to hel	lium at its core			
11 The densest stage in the life of	a medium-sized s	tar		
12 Star that fuses helium at its cor	re			
13 Star composed mostly of carbo	Star composed mostly of carbon created by the fusion of helium			
14 Fusion of hydrogen occurs out	Fusion of hydrogen occurs outside this star's core.			
15 Shell of gas which was once th	Shell of gas which was once the outer layers of a medium-sized star			
16 This stage will cool very, very s	This stage will cool very, very slowly to eventually become a black dwarf			
17 A stage in which a star has exh	A stage in which a star has exhausted all, or nearly all, its nuclear fuel			
18 Its physical size is nearly equal	Its physical size is nearly equal to that of Earth.			
19 &Select card number 1	&Select card number 18 from the remaining cards. Between which two cards			
in Series 1 could Card 18 be p				
20 &Select card number	19. Between which	two cards in Series 1 could Card		
19 be properly placed?	0			
21 Select Card 20. Which card in	Series 1 depicts th			
event recorded on Card 20?		(Continued on the opposite side)		

Arrange the	es 2: Select the following numbered care ese cards, in order, to sequence the life	of a very high	gh mass star beginning with Card		
6. Record the numbers, in order, following the evolutionary sequence from birth to death. Note					
that a high	mass stars may have two different outco	omes, i.e. illu: 3	strated on cards 3 and 11.		
22					
		11_			
<u>Directions</u> : Using these same cards identify the stage – by card number – to match the descrip-					
tive phrase	s provided.				
23	Red giant	27	Supernova		
24	Supernova remnant	28	Formation of a planetary system		
25	Main sequence star	29	Black hole		
26	Neutron star or pulsar	30	Stellar nursery		
<u>Directions</u> : On the line preceding the questions, enter the number of the stage described.					
31	A pulsating core remnant				
32 A protostar remains here until fusion of hydrogen begins					
33	Formation of many of the heavier elements				
34	Star's most stable stage				
35	_ Its escape speed is greater than the speed of light				
36	This stage has a core of helium surrounded by an envelope of hydrogen				
37	The lifetime of this stage is about 10% that of its main sequence lifetime				
38	This stage experiences a helium flash				
39	This stage may be described as a singularity				
40	This object's outer limit boundary is located at a point where escape speed equals				
	the speed of light				
41	Under special circumstances this stage may be a pulsar				
42	This event may outshine all other stars in the galaxy in which it occurred				
43	This object's outer boundary is referred to as its event horizon				
44	Choose card number 21. Which event, in Series 2, is depicted by this graph?				
45	Choose card number 22. Which stage, in Series 2, is depicted in this graph?				