**REACH FOR THE STARS**

SCHOOL NAME:

TEAM NUMBER:

**PART 1** (1 point each 1 to 20)

1. List the stars of the Summer Triangle and the constellation in which they appear.
2. The star \_\_\_\_\_\_\_\_\_ is found in the constellation \_\_\_\_\_\_\_\_\_\_\_\_.
3. The star \_\_\_\_\_\_\_\_\_ is found in the constellation \_\_\_\_\_\_\_\_\_\_\_\_.
4. The star \_\_\_\_\_\_\_\_\_ is found in the constellation \_\_\_\_\_\_\_\_\_\_\_\_.
5. In which constellation is the Big Dipper found?
6. Ursa Major
7. Gemini
8. Canis Major
9. Canis Minor
10. List 2 star clusters found in the constellation of Taurus the Bull.
11. Pleiades
12. Beehive Cluster
13. Hyades
14. Great Globular Cluster
15. List the 2 brightest stars in the constellation of Gemini.
16. Pollux
17. Propus
18. Castor
19. Athena
20. List the stars of the Heavenly G.
21. \_\_\_\_\_\_\_\_\_\_
22. \_\_\_\_\_\_\_\_\_\_
23. \_\_\_\_\_\_\_\_\_\_
24. \_\_\_\_\_\_\_\_\_\_
25. \_\_\_\_\_\_\_\_\_\_
26. \_\_\_\_\_\_\_\_\_\_
27. \_\_\_\_\_\_\_\_\_\_
28. What asterism is found in the constellation Leo the Lion?
29. The Summer Triangle
30. The Big Dipper
31. The Winter Triangle
32. The Sickle
33. Into how many equally sized hour segments has the celestial equator been divided?
34. 8
35. 12
36. 16
37. 24
38. What is the right ascension located at arrow “e”



1. What type of deep sky object is M33 south of Andromeda?
2. Star Cluster
3. Galaxy
4. Star
5. Constellation
6. What are the names of the double stars located near the end of Ursa Major’s tail?
7. Mizar and Alcor
8. Alpha Centauri and Proxima Centauri
9. Canis Major and Canis Minor
10. Castor and Pollux
11. In which constellation can one find the only galaxy visible to the naked eye?
12. Libra
13. Aquarius
14. Andromeda
15. Gemini
16. The Beehive is to Cancer as the Pleiades is to \_\_\_\_\_\_\_\_.
17. Pollux
18. Orion
19. Taurus
20. Gemini
21. Regulus is to Leo as Antares is to \_\_\_\_\_\_\_\_\_\_.
22. Pollux
23. Orion
24. Taurus
25. Scorpius
26. What is the asterism in Sagittarius?
27. Orion’s Belt
28. Teapot
29. The Summer Triangle
30. The Big Dipper
31. Earth overtakes Mars August 11-14, this motion is called\_\_\_\_\_\_\_\_\_\_\_\_.
32. What are the oldest parts of the moon \_\_\_\_\_\_\_\_\_\_\_?
33. Mare
34. Lunar Highlands
35. Impact Craters
36. None
37. If Star 1 has a greater luminosity than Star 2, is it brighter or dimmer\_\_\_\_\_\_\_\_\_\_\_\_?
38. Brighter
39. Dimmer
40. Same
41. If Star 1 has a greater magnitude than Star 2, is it brighter or dimmer\_\_\_\_\_\_\_\_\_\_\_\_?
42. Brighter
43. Dimmer
44. Same
45. If Star 1 has same temperature and twice the radius of Star 2 is it brighter or dimmer \_\_\_\_\_\_\_\_\_\_\_?
46. Brighter
47. Dimmer
48. Same
49. If Star 1 has the same radius and twice the temperature of Star 2, is it brighter or dimmer\_\_\_\_\_\_\_\_\_\_\_?
50. Brighter
51. Dimmer
52. Same
53. From question 19, how many times more luminous is Star 1 than Star 2?
54. 2
55. 4
56. 8
57. 16

**PART 2**

Identify the 12 constellations (12 points total)



**PART 3**

1. points each)
2. Plot the following stars on the HR diagram

Star Spectral class Absolute Magnitude

The Sun G2 4.8

Sirius A0 1.8

Vega A0 0.6

Arcturus K2 -0.1

Rigel B8 -6.7

Capella G6 -0.3

Procyon F5 2.7

Spectral Class



1. Identify Main sequence, Red Giants, Blue Giants, and White Dwarfs
2. Label the color associated with the spectral class on the X- axis.
3. Of the stars listed above, which star is similar in magnitude and spectral class to the sun?
4. Rigel is a B8 star with an absolute magnitude of about -7, give a description of this star.
5. Our closest star is Alpha Centauri, It is also a G star, and about the same magnitude as the sun. Place this star on the diagram.

**PART 4**

Short Answer Questions: (depending upon the answer, can be used as tie breakers)

1. What is Inverse Square Law (3 points)
2. Describe Distance modulus (3 points)
3. List 2 fundamental properties of the main sequence stars (3 points)
4. What is Planck’s Law and Wein’s Law? (2 points)
5. What type of objects are X- rays best at observing? (2 points)

**PART 5**

1. Please look at the images below and list the name of the object, constellation and type. (total 18 pts – 1pt for each correct answer)

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| --- | --- | --- | --- |
| Image | Name | Constellation | Type/ or stars |
| C:\Users\jasdeep.gill\Desktop\auriga.jpg

|  |
| --- |
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 |   |   |   |
| C:\Users\jasdeep.gill\Desktop\cygnus.jpgC:\Users\jasdeep.gill\Desktop\perseus.jpg

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|   |   |   |   |
| C:\Users\jasdeep.gill\Desktop\orion.png

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| C:\Users\jasdeep.gill\Desktop\rosetteani.gif

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| C:\Users\jasdeep.gill\Desktop\crab.jpg

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