**Science 9 – Unit 14, 15, and 16 Assessment – Total Value 45 – November 21, 2019**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DUE: November 21, 2019**

**14.1 Page 438 – 439, 14.4 Page 444-445, 14.6– Page 448-450, 14.7– Page 452 – 453**

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**Section 16 – The International Space Station – Page 498**

1. Multiple Choice – Circle one correct response for each of the following. Value 20
2. In ancient times people believed the arrangement of the universe was based on:
3. A planet centered universe.
4. A moon centered universe.
5. An Earth centered universe.
6. A Sun centered universe.
7. This person was the first too ever use a telescope to look at the night sky. He did not invent the telescope but improved on this instrument greatly.
8. Nicholas Copernicus
9. Galileo Galilei
10. Aristotle
11. Albert Einstein
12. Due to the invention of the telescope we now know:
13. The planets orbit the Sun.
14. The Sun is one of many countless stars that are in countless motion.
15. Stars are gathered in large groups surrounded by gas and dust.
16. All of the above.
17. In the mid 1500’s this person presented mathematical evidence that the planets all orbit the Sun.
18. Nicholas Copernicus
19. Galileo Galilei
20. Aristotle
21. Albert Einstein
22. The grouping of stars that our Sun is in has been named the:
23. Cartwheel Galaxy
24. Andromeda Galaxy
25. Milky Way Galaxy
26. Black Eye Galaxy
27. The term meant you were against the church - because God made the Earth and it was the center of the universe.
28. Heroic
29. Heretic
30. Oppositional
31. Cruel
32. The grouping of stars that our Sun is in has been named the:
33. Milky Way Galaxy
34. Milky Galaxy
35. Milky Centered Galaxy
36. Milky Constant Galaxy
37. A galaxy is defined as:
38. A huge collection of gas, dust, and hundreds of billions of stars and planets.
39. A huge collection of meteors, meteorites, and hundreds of billions of stars and planets.
40. Scientists use a method called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to discover the distance between planets and stars from Earth.
41. scientific inquiry
42. scientific data
43. scientific method
44. scientific notation
45. One common unit used to measure large distances in space is the light-year. One light-year is the distance that \_\_\_\_\_\_\_\_\_\_\_\_\_ travels in \_\_\_\_ year(s).
46. Light, one hundred
47. Light, one thousand
48. Light, one
49. Light, 10
50. Light travels at an enormous speed, about:
51. 30 000 km/s
52. 3 000 km/s
53. 300 000 km/s
54. 3 000 000 km/s
55. The main purpose of a telescope is to discover \_\_\_\_\_\_\_\_\_\_\_\_\_\_ one is not able to see and to see \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than ever before.
56. comets, farther
57. objects, farther
58. meteors, farther
59. aliens, farther
60. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ telescope uses a concave mirror to gather light. Such a mirror can be supported from underneath, so it can be built much larger than the objective lens in a refracting telescope.
61. refracting
62. reflecting
63. radio
64. In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ telescope, light rays refract (bend) as they pass through a light gathering lens, called the objective lens.
65. refracting
66. reflecting
67. radio
68. A main advantage of having a telescope in space (such as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Space telescope) as opposed to looking through a telescope at an observatory on Earth is it can obtain a much more detailed view of distant objects and one can see much farther away than from ground-based telescopes.
69. Hubble
70. Hubert
71. Discovery
72. The reason we cannot see other stars in the sky in the daytime is because the Sun \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the views to other stars in the sky when light is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ on the Earth’s surface (stars are only visible at night).
73. prevents, refracting
74. blocks, refracting
75. prevents, reflecting
76. blocks, reflecting
77. How much energy goes the sun produce every second?
78. 4.85 x 1025 watts of energy
79. 1.92 x 1026 watts of energy
80. 9.64 x 1030 watts of energy
81. 3.86 x 1026 watts of energy
82. How long do scientists estimate that the sun will continue to produce energy?
83. 5 billion years
84. 3 billion years
85. 1 million years
86. 10 million years
87. What two gases make up the highest percentage of the Sun?
88. Carbon and hydrogen
89. Helium and hydrogen
90. Oxygen and carbon
91. Nitrogen and oxygen
92. The sun produces energy through a process called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and occurs in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the Sun.
93. nuclear fission, core
94. nuclear fission, photosphere
95. nuclear fusion, core
96. nuclear fusion, chromosphere
97. The space probe Ulysses was launched to study:
98. the poles of the Earth.
99. the poles of the Sun.
100. the equator of the Earth.
101. the equator of the Sun.
102. The sun is important to us in the following ways:
103. Provide heat
104. Provides light and energy
105. Keeps the planets from crashing into each other
106. All of the above.
107. This is call the surface of the sun. It is made up of moving gases, it is not a solid surface at all. Its average temperature is 5500 degrees Celsius.
108. Chromosphere
109. Corona
110. Photosphere
111. Core
112. This is the inner atmosphere of the sun.

a. Chromosphere

b. Corona

c. Photosphere

d. Core

1. This is the hot outer part of the sun. Here the temperatures reach about 1 million degrees Celsius.

a. Chromosphere

b. Corona

c. Photosphere

d. Core

1. This travels out of the chromosphere through the corona. They travel at a tremendously fast speed and only last a few minutes.

a. Solar flare

b. Corona

c. Photosphere

d. Core

1. This is where nuclear fusion happens. Nuclear fission is when hydrogen nuclei bond together to make helium nuclei.

a. Solar flare

b. Solar prominence

c. Photosphere

d. Core

1. What phenomenon are solar flares responsible for?
2. Produce auroras seen over the North Pole only.
3. Produce auroras seen over the South Pole only.
4. Produce auroras seen over the North and South Poles.
5. What is the name of the auroras seen over the North Pole?
6. Aurora Borealis
7. Aurora Australis
8. What is the name of the auroras seen over the South Pole?
9. Aurora Borealis
10. Aurora Australis
11. Indicate which statements below are NOT true about solar flares that affect Northern communities in Canada.
12. Solar flares emit charged particles, which travel much more slowly than light.
13. When particles reach Earth, they are focused, by the Earth’s magnetic field, at the north and south poles.
14. They cause extreme weather conditions (extreme hot and cold) at the equator.
15. Resulting electrical effects in the atmosphere interfere with the transmission of radio waves (lose of communication for days at a time).
16. This term is when an enormous explosion that occurs at the end of a large star’s life. The end result of the core collapsing is either a neutron star or a black hole. These are very rare events in history.
17. Red Supergiant
18. Red Giant
19. Supernova
20. This is an older star the size of our Sun or smaller that is running out of hydrogen; it is swelling up and cooling down at the same time.
21. Red Supergiant
22. Red Giant
23. Supernova
24. This is the same as a red giant but the star is at least 10 times bigger than our Sun.
25. Red Supergiant
26. Red Giant
27. Supernova
28. This is a star about 30 times the mass of our Sun that has “died”. The resulting core is a small, very dense object with a force of gravity so strong that nothing can escape from it. Even light cannot be radiated away from its surface! These are extremely rare objects in the universe.
29. Neutron Star
30. Pulsar
31. Black hole
32. This is a type of neutron star that emits very high energy radio waves. They are small (only 20km across) and they rotate while emitting their energy. By the time it reaches Earth, we only get it in pulses (like the light from a lighthouse).
33. Neutron Star
34. Pulsar
35. Black hole
36. This is a star about 10 times larger than our sun that has “died”. The resulting core is composed of neutrons that are so tightly packed that there is no space between them. One cupful of a neutron star would have a mass of millions of kilograms!

a. Neutron Star

b. Pulsar

c. Black hole

1. The study of the origin and changes of the universe is called:
2. Cosmology
3. Cosmetic
4. Constitution

HOW A STAR IS BORN

1. All stars being their lives in \_\_\_\_\_\_\_\_\_\_, which are huge clouds of dust and gases, mainly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Supergiants, dust, gases
3. Nubulas, dust, gases
4. Black hole, dust, comets
5. The dust and gas \_\_\_\_\_\_\_\_\_\_\_\_ around, breaking into clumps and contracting because of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. dissolve or disappear, gravitational forces
7. swirl, gravitational forces
8. contract, gravitational forces
9. As the clumps \_\_\_\_\_\_\_\_\_\_\_\_\_\_ into one another and get \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, their gravity gets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and they are able to attract more particles and pack more tightly together.
10. bump, bigger, stronger
11. crash, smaller, weaker
12. Eventually the clumps are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ enough and \_\_\_\_\_\_\_\_\_\_\_ enough for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to start.
13. dense, cold, nuclear fission
14. dense, hot, nuclear fusion

1. No two stars are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ just as no two clouds or snowflakes are the same.
2. identical
3. the same color
4. the same size
5. The benefits of space exploration include:
6. Generate scientific knowledge
7. Inspiration (around the world)
8. Countries work together (agreements)
9. Development of new technologies
10. All of the above.
11. There are multiple cxperiments that occur on the ISS (International Space Station) such as:
12. Robotics
13. Growing plants
14. The effects of exercise with almost zero gravity on the human body
15. All of the above.

**TOTAL VALUE 45**