Name:

**JUNE 2013 EVENING SKIES WORKSHEET (Equatorial Edition)**

Use this sheet in conjunction with the *Skymaps.com Evening Sky Map* for June 2013, equatorial edition. This map shows the sky as it would appear over the equator at 9:00 p.m. in early June, and at 8:00 p.m. in late June. Use the map within one hour of these times to find constellations, bright stars, and planets in the outdoor nighttime sky. Go outside and, with a red filtered flashlight if necessary, identify these objects in the nighttime sky. It is best to view the sky from a dark location.

Look carefully at the sky map. The outer circle represents the horizon. Along the horizon you will find the directions SOUTH, EAST, NORTH, and WEST. At first their positions in relation to one another might seem incorrect; note how east and west appear reversed from that of a traditional Earth map. Sky maps are drawn to represent the sky and not the Earth. When holding the sky map overhead, it can be oriented so as to match the actual directions along the horizon. The center of the star map denotes overhead or straight up; the circular edge of the star map indicates the horizon.

Note that many patterns, constellations and fragments of constellations – called asterisms – fill this representation of the nighttime sky. Note also that some dots representing stars are larger than others. This indicates that stars appear with different brightness. Large dots represent bright stars; small dots represent dim stars. “Pointed dots” represent planets.

Look around the sky map, roughly one-third way up in the sky, until you find the stars of the Big Dipper. In what direction should you look to find the Big Dipper? 1) \_\_\_\_\_\_\_\_ What do you notice about the star at the bend of the handle of the Big Dipper? 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If you can the find the Big Dipper outdoors, you can use it to find your directions. Use the "Pointer Stars", the two stars in the bowl opposite the handle to find the North Star. The North Star is a faint star at the end of the handle of the Little Dipper. It is generally too low in the sky to be seen from the equator. The location of the North Star indicates the direction north.

Returning to the Big Dipper, use it to find many other stars and star patterns. If you punch a hole in the bottom of the Big Dipper, you will “hear” a mighty roar. No, it's not the roar of water rushing out of the Dipper, but the roar of 3) \_\_\_\_\_\_\_\_\_, the Lion. It appears that water is pouring out of the Big Dipper onto his back making him angry. The Lion is characterized by a backward question mark called the 4) \_\_\_\_\_\_\_\_\_\_\_\_\_. The bright star at the bottom of the question mark, 5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_, indicates the heart of the Lion.

Returning to the Big Dipper, follow the bend of the handle upward past two bright stars. The first and brighter star is 6) \_\_\_\_\_\_\_\_\_\_\_\_\_, the brightest star of a kite-shaped constellation called 7) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the Bear Driver. The second star is 8) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, in the constellation of 9) \_\_\_\_\_\_\_\_\_\_\_\_, the Maiden of the Harvest. If you can find these stars in the outdoor sky, compare their colors. One appears orange and the other blue-white. Don't confuse Spica with the planet, 10) \_\_\_\_\_\_\_\_\_\_, which is currently located just east of this brightest star in Virgo.

Many people think that the Big Dipper and Little Dipper are constellations. This is not so. Both of the Dippers are part of larger groups of stars outlining Bears. The Dippers are known as asterisms - groups of stars each associated with a single constellation in this case.

Look over the star map. Find Scorpius, the Scorpion, and it brightest star 10) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What instructions (how high up and in which direction?) would you give to a friend who is looking to find it outdoors? 12) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Low in the east-southeast, just below and to the left of Scorpius, you can find a teapot-shaped figure known as 13) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the Archer. Note that running through is constellation, the constellation of Scorpius, and several other constellations to the left and right as well, we can find a faint glowing patch of light. This is known as the 14) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. What we see is the plane of our galaxy, a system of hundreds of billions of stars. Note, too, that on dark clear nights you can see vast clouds of dust that block out starlight from regions far beyond them.

Trace the dashed line extending from Sagittarius, through Scorpius, Libra, Virgo, Leo, and Cancer. This dashed line is known as the 15) \_\_\_\_\_\_\_\_\_\_\_\_. The constellations through which this line passes are known collectively known as the 16) \_\_\_\_\_\_\_\_\_\_\_\_ - a zone of living things (from the Greek word “zoion” – meaning animal). You will note that any planets that appear on the sky map are always found in or near these constellations. From time to time the moon can be found moving through these constellations, moving from west to east monthly, and yet moving east to west nightly. Planets move in a similar, though slower, fashion among these constellations. This slow motion, resulting from their movement round the sun (as well as Earth’s orbital motion), can help distinguish them from bright stars that are found in and around the zodiac of animals.

Turn your attention to the south, and adjust your sky map so that SOUTH appears at the bottom. About one-third way up in the south you will find a cross-shaped pattern of stars of the constellation 17) \_\_\_\_\_\_\_\_\_\_\_\_\_\_, the Southern Cross. Just to the west of the Cross, is a pair of bright stars labeled α and β. The brighter of these stars is known as Alpha Centauri or Rigil Kentaurus. It is the third brightest star in the sky. Alpha Centauri is actually a 3-star system located 1.34 parsecs or 4.37 light years from the Sun. This makes it the closest star system to the Solar System.