

NAME: _____

1. What is life?
2. What place in our solar system is the most likely place to *currently* have liquid water?
3. Which planet other than the Earth is most likely to have had some kind of life forms in the past? Describe briefly the main evidence for this conclusion.
4. What is a *habitable zone*?
5. Why are high mass stars not likely places to harbor “life as we know it”?
6. Why are low mass stars not likely places to harbor “life as we know it”?

(OVER →)

7. Why would it be unlikely to find an advanced civilization living on a planet in orbit around a *red giant*, regardless of the mass of the star?
8. Why does *SETI* use radio telescopes for their search?
9. What is the *watering hole*?
10. Come up with your own estimate, based on the *Drake Equation*, of the number of technologically advanced civilizations in our galaxy by filling in your own values for each of the following terms, and then multiplying them together. I will fill in the first one for you, based on what astronomers know, but the rest are up to you. Note that all of the “*f*”s are *fractions* between 0 and 1. That is, they can be 1/2, or 1/10, or 1/100,000,000; but they can also be 9/10 = 0.9, or 999/1000 = 0.999. In other words, they can be as small as you like down to 0, or as close to 1 as you like. A value of 1 is also allowed, which simply means “all of them”; but they cannot be great than 1.

$$N_* = \underline{100,000,000,000}$$

$$f_{life} = \underline{\hspace{2cm}}$$

$$f_p = \underline{\hspace{2cm}}$$

$$f_{civ} = \underline{\hspace{2cm}}$$

$$n_p = \underline{\hspace{2cm}}$$

$$f_{now} = \underline{\hspace{2cm}}$$

$$N = N_* \times f_p \times n_p \times f_{life} \times f_{civ} \times f_{now} = \underline{\hspace{2cm}}$$