

Worksheet_8: Drake Equation, SETI

$$N = R^* \cdot f_p \cdot n_e \cdot f_l \cdot f_i \cdot f_c \cdot L$$

N — The number of civilizations in The Milky Way Galaxy whose electromagnetic emissions are detectable.

R^* — The rate of formation of stars suitable for the development of intelligent life.

f_p — The fraction of those stars with planetary systems.

n_e — The number of planets, per solar system, with an environment suitable for life.

f_l — The fraction of suitable planets on which life actually appears.

f_i — The fraction of life bearing planets on which intelligent life emerges.

f_c — The fraction of civilizations that develop a technology that releases detectable signs of their existence into space.

L — The length of time such civilizations release detectable signals into space.

1. Discuss the Drake Equation in groups of 2 or 3 people.
Using $R^* = 10$, $f_p=0.2$, fill in the remaining values and solve for “N”.
2. What does the acronym SETI stand for?
3. What is the Fermi Paradox?
Choosing two (2) possible answers from the list of “paradox” solutions, why do you think we haven’t detected intelligent life yet? Explain