

Creation of life on Alien Planet

20 most Basic Things

In our case effort to list down 20 basic things that we will carry with us to inhabit life on some alien planet, we have made use of the theory of evolution that life oriented on earth in the form of unicellular organism and higher form of flora and fauna get evolved in due course of time.

Thinking on the similar pattern, we have thought of creating a similar sort of condition on that planet as that of initial earth on a smaller scale and if this set up succeeds, then we can replicate the set up to the whole planet. The only difference in the two cases if that on earth, the first living organism was created because of the some chemical reaction facilitated by the atmospheric conditions of early earth, but in our case, we are taking some basic living organisms with ourselves which will be dwelled there in the set up created by us.

Compiled by:

Ajay Singh Barpha (#200101146)

Amit Goel (#200101224)

Kapil Nawab (#200101084)

Nishant Gupta (#200101215)

Pankaj Periwal (#200101201)

Rohit Jain (#200101110)

Sandeep Srivastava (#200101014)

Sidharth Surana (#200101221)

Sourabh Kasliwal (#200101068)

Vipul Jain (#200101108)

Assumptions:

- Sunlight
 - Basic source of energy, which is otherwise impossible to create artificially.
- Ground
 - Rigid crust is very basic to all planets on which whole setup will be created.
- Temperature Range
 - There should not be extreme temperature where the life cannot sustain.
- Gravity
 - It is something, which is impossible to create; and in its absence everything will probably escape in the space.

Solar radiation, lightning, and heat all played a role in producing complex organic compounds, such as amino acids, hydrocarbons, fatty acids, simple sugars, from the original materials dissolved in the oceans.

20 most Basic Things:

1. Carbon
2. Hydrogen
3. Oxygen
4. Nitrogen
5. Phosphorus
6. Sulphur

All of the above elements are the ones that are most abundant in the Universe. Also, the molecules used to obtain them by the living systems are quite common. So, it is reasonable to conclude that life is made of components that are easily available in the environment. These elements combine themselves to form nucleotides, which in turn forms proteins that are the basic components of every cell. Moreover, most of these elements or their compounds are present in gaseous form in our atmosphere like O₂, CO₂, N₂, etc. without which we cannot think of a living planet.

7. Water

- Universal solvent
- High heat capacity

8. Anaerobic Bacteria

- Bacteria that live and reproduce in an environment that contains no free or dissolved oxygen. They get their required oxygen by breaking down chemical compounds that contain oxygen such as sulfate (SO₄) or nitrate (NO₃).

9. Aerobic Bacteria

- Microorganisms that require free oxygen, or air, to live, and that which contribute to the decomposition of organic material in soil or composting systems and also to counter balance the O₂ produced by Anaerobic Bacteria.

10. Algae

- Representative of Flora family, which will further evolve to higher forms of plant and trees in due course of time.

11. Ammonia

12. Methane

- Most basic Hydrocarbon

13. Nutrient Medium

- Example: Agar-Agar

14. Soil

- Taking the worst possible case that if crust is mainly rocky, then the Soil will enable in creating the lithosphere on which higher forms of flora can grow.

15. Pressure controller

- So, as to maintain the pressure for the controlled environment.

16. Temperature modulator system

- So, as to maintain the temperature for the controlled environment

17. Defense mechanism towards the asteroids and meteoroids.

- To prevent the whole setup from unforeseen asteroids and meteoroids which can otherwise destroy the whole created Biosphere and living Organism support by it as happened in the case of Dinosaurs

18. Robot

- Act as mechanical gadget for arranging the whole setup and carrying out the experiments.

19. Communication System

- To be in constant touch with earth station to cater for emergencies and simultaneously conveying them our discoveries regularly.

20. Solar Cells

- For generation of energy from sunlight