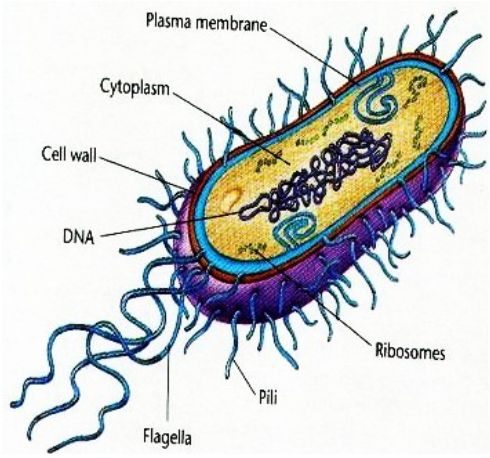
All About Bacteria



Bacteria are single-celled living organisms (similar to cells in human body) which may be present singly or in multiples. They are a bigger in size to viruses (viruses are not truly living organisms)

Bacteria come in many shapes - round, rod, comma, spiral and even square! When in multiple linked colonies they can also take up a variety of shapes. Typically these can be clusters, chains, cubic packets, squares, and grape-like "bunched" clusters.

Bacteria are everywhere and you provide an ideal home for around 400 different species in our gut, 600 in our mouth and similar numbers on our skin and in other parts of our body. Don't worry, most are harmless, and many are beneficial. In fact, we would die without them. They help process our food, some give us protection against certain unfriendly types of bacteria, and others are even thought to be able to provide a calming effect to our body, by producing tranquilizing chemicals. The number of bacteria in our body is greater than the number of cells in our body, by a factor of ten, or maybe a hundred.

Many different types of bacteria appear similar in many respects and until the advent of DNA/RNA sequencing were thought to be closely related, if not the same organism. Since the use of the technique in identifying bacteria, however, it has been estimated that there could be as many as a billion different bacterial species on Earth. To date only some thousands have been identified as specific species.

5,000,000,000,000,000,000,000,000,000,000 bacteria live on Earth.
Rapid reproduce: While the generation cycle for people is around 20 years, that for bacteria multiply every 20 minutes is over 1/2 million times as fast.

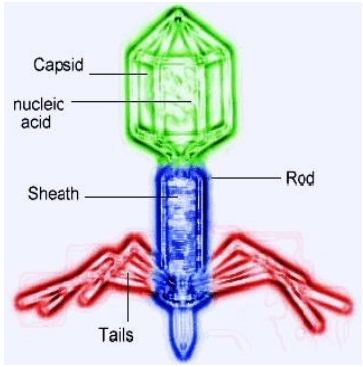
This is why new bacterial diseases apparently appear on a regular basis and why strains of common bacteria, which we could easily destroy only a few years ago, can become resistant to antibiotic treatments. But that is not the whole reason for their ability to adapt.

Bacteria can reproduce rapidly both by simple cell-division and by the exchange of genes between two bacteria in cell to cell contact. Although not strictly sexual reproduction, it is similar in that two individual are involved in providing genetic material from two different ancestries. This latter type of reproduction is another factor that enables them to achieve remarkable rates of evolution.

Some bacteria reproduce as spores, which are highly resilient to unfavorable environments. Spores have a tough outer coat which is both mechanically strong and chemically resistant. About half of all bacteria can move by themselves, the remainder is at the mercy of the medium - e.g. air or water - they are in

Prokaryotes -Their body cell has no distinct nucleus and for this reason they are literally "before the nucleus". They are found in almost every Earth habitat including water, in soil, and on or in other organisms.

Eukaryotes: Have distinct nucleus and similar to cells in our body.



Microbial life has been found living in:

- Arctic and Antarctic - ice lovers
- Volcanic vents on land - thermophiles
- Ocean floor - thermophiles
- Dry places - Dry and hot, dry and cold
- Rock, deep inside the Earth - rock dwellers
- Severe chemical environments harmful to most life-forms - acid, alkali and salt
- High-radiation environments, such as on the control rods of nuclear powerplants for very long periods of time – timetravelers

Virus does not have nucleus