

Bacteria are extremely small living things.

While we measure our own sizes in inches or centimeters, bacterial size is measured in microns.

One micron is a thousandth of a millimeter a pinhead is about a millimeter across.

Rod shaped bacteria are usually from two to four microns long, while rounded ones are generally one micron in diameter Thus if you enlarged a founded bacterium a thousand times, it would be just about the size of a pinhead.

An adult human magnified by the same amount would be over a mile(1.6 kilometers) tall.

Even with an ordinary microscope, you must look closely to see bacteria.

Using a magnification of 100 times, one finds that bacteria are barely visible as tiny rods or dots One cannot make out anything of their structure.

Using special stains, one can see that some bacteria have attached to them wavy - looking "hairs" called flagella.

Others have only one flagellum.

The flagella rotate, pushing the bacteria though the water.

Many bacteria lack flagella and cannot move about by their own power while others can glide along over surfaces by some little understood mechanism.

From the bacterial point of view, the world is a very different place from what it is to humans. To a bacterium, water is as thick as molasses is to us.

Bacteria are so small that they are influenced by the movements of the chemical molecules around them.

Bacteria under the microscope, even those with no flagella, often bounce about in the water.

This is because they collide with the water molecules and are pushed this way and that.

Molecules move so rapidly that within a tenth of a second the molecules around a bacterium have all been replaced by new ones. Even bacteria without flagella are thus constantly exposed to a changing environment.