General Science: **The Relative Size of Particles**

When you look around you, what do you see? The world is filled with all sorts of things. Trees, birds, people ……. The list goes on and on. If you look up at night sky you may see moon, stars and even distant planets. Some of them are million and million miles away. Isn't it amazing you can see them with your own eyes?

Would you, however, believe that there are all sorts of things that you can't see? That is true! Things like bacteria, germs …… even dust mites … are all around us and invisible to naked eye.

Here is an interesting picture of relative sizes of our somewhat familiar particles, ranging from 0.045 µm (micron) to 180 µm. [1 micron = $1x10^{-6}$ meter].

We know the names of many of these particles but we usually do not have any idea about their sizes, especially their relative sizes. Also the comparison of different sizes is equally interesting to know. Since 40-50 µm (i.e. 40-50 $x10^{-6}$ meter) objects are the smallest things visible to the naked eye, these extremely small dimensions can be hard to remember.

Experts believe that the naked eye – a normal eye with regular vision and unaided by any other tools – can see objects as small as 0.08 millimeter to 0.1 millimeter. Example is human hair, about 0.08 millimeter (80 micrometer or microns).

To see even smaller objects, there are high resolution microscopes. Light microscopes let us look at the objects as small as 0.2 micrometer (2×10^{-7} m) whereas the most powerful electron microscopes allow us to see objects as small as an atom (10^{-10} m) in array. However these microscopes can't visualize single atom.