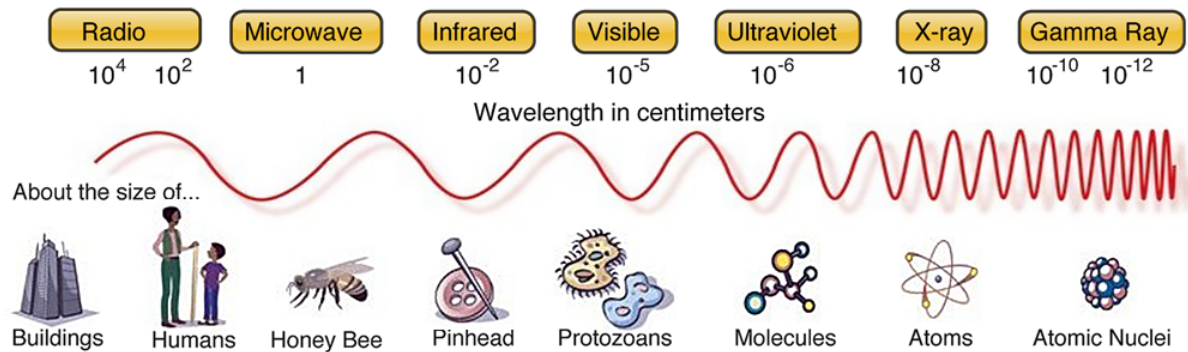


4.4: The Electromagnetic Spectrum

The **Electromagnetic Spectrum**, or **EMS**, is the range of frequencies of electromagnetic radiation. Electromagnetic Radiation is a fundamental phenomenon of electromagnetism, acting as waves and as particles – photons, which move through space carrying radiant energy.



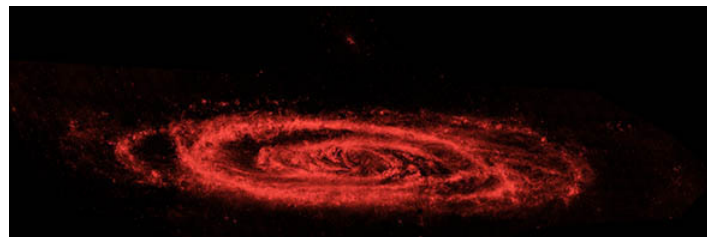
Public Domain | Image courtesy of NASA.

We see the **Visible light** portion of the EMS, wavelengths of 400 nm to 700 nm. The **wavelengths** longer than visible light include Radio, Microwave, and Infrared (IR) waves. **Visible Light**; sometimes called **ROYGBIV**, includes Red, Orange, Yellow, Green, Blue, Indigo, and Violet. Visible light is a very small part of the EMS. **Shorter Wavelengths** than visible light include Ultraviolet (UV), X-rays, and Gamma Rays. Only radio, some IR, and visible light gets through Earth's atmosphere.

A mnemonic to remember the EMS in correct order from the longer to shorter wavelengths is **R** eal **M** en **I** n **V** irginia **U** se **X** tra **G** lue.



Andromeda Galaxy in Visible Light Public Domain | Image courtesy of NASA / Hubble Space Telescope.



Andromeda Galaxy in IR Public Domain | Image courtesy of NASA / Spitzer Space Telescope.

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