



FIGURE 4.1

A comparison of Venus, Earth, and Mars. This diagram depicts Earth's unique qualities as a habitable planet based on its distance from the Sun, the composition of its atmosphere, and its surface temperature.

atmosphere and large quantity of surface water. Furthermore, these temperature extremes are distributed not only daily, but also seasonally between winter and summer as the Earth tilts on its axis.

The critical size of the Earth is also important. If it were much larger, the size or mass of the Earth would have retained through gravitational attraction a heavy, smog-like cover of harmful gases. If the Earth's mass were much smaller, it could not exert enough gravitational force to retain its present atmosphere, especially the oxygen component so critical to life.

It is fairly obvious to most people that the planet Earth has a special atmosphere and water supply at its surface. What is not so obvious is the special nature of the Earth below its surface. Basically,