

Chapter 1

Web Text Box 5 and Animation 1.2

From person to proton: an illustration of scale

The animation proceeds in steps of 10 x magnification. We focus in first to the level of a single cell, then to a single protein, then a single atom and finally the single proton that forms the nucleus of the hydrogen atom.

If we start with a whole human being and jump in using three steps of 100,000 times magnification we see four of different worlds: the first step takes us to single epithelial cells, which fit well in a panel 10 μm across. The next step of 100,000 times magnification takes us to an atom, 0.1 nm across. The last step of 100,000 times magnification takes us to the atomic nucleus. Our book is largely concerned with structures and processes encompassed by the second 100,000 times scale span – from single atoms to single cells. The first span – from the cell to the whole body – is the world of developmental biology, anatomy and physiology. The third, below the size of the atom, is the domain of subatomic physics.

[See Animation 1.2](#)