Nature has developed materials, objects, and processes which function from the macroscale to the nanoscale. These have gone through evolution over 3.8 billion years. The emerging field of biomimetics allows one to mimic biology or nature to develop nanomaterials, nanodevices, and processes. Properties of biological materials and surfaces result from a complex interplay between surface morphology and physical and chemical properties. Hierarchical structures with dimensions of features ranging from macroscale to the nanoscale are extremely common in nature to provide properties of interest. Molecular scale devices, superhydrophobicity, self-cleaning/anti-fouling, drag reduction in fluid flow, energy conversion and conservation, high adhesion, reversible adhesion, aerodynamic lift, materials and fibers with high mechanical strength, biological self-assembly, anti-reflection, structural coloration, thermal insulation, self-healing, and sensory aid mechanisms are some of the examples found in nature which are of commercial interest. This talk will provide a broad overview of four selected objects of interest found in nature and applications under development or available in the marketplace. These will include Lotus Effect used to develop superhydrophobic and self-cleaning/anti-fouling surfaces with low adhesion, Rose Petal Effect used to develop superhydrophobic surfaces with high adhesion, Gecko Adhesion to develop surfaces with reversible adhesion, and Shark Skin to develop surfaces with low fluid drag and anti-fouling characteristics.