Differentiation of Cells

When we look at different places around the body we start to see that cells look very different from one place to the next. This is because humans are very complex creatures with many organ systems all of which have diverse functions. The cell’s external structure and what is inside of it changes greatly between (and even within) organ systems.

1. In the liver we are constantly detoxifying blood.
   1. What might a liver cell need more of to continuously keep up with this process?
   2. What might happen to the cells over time if a person consumes more and more toxins?
2. Lysosomes, as well as being used for cell death, are also used for digestion and breakdown of molecules. Where might you expect to find cells with more lysosomes in them?
3. Skin cells react to light, producing more melanin (a pigment that protects us from UV light) when we are in the sun more often. Melanin is a type of protein. What organelle might you expect to find lots of in skin cells?

1. The human bladder is a very stretchy organ! It can go from the size of 1/8th of a cup to 2 cups many times each day. In contrast bones grow very slowly and do not have much flexibility. What organelle might you expect to see more in bone cells than bladder cells?
2. The cells lining your intestines have an important role in transporting the digested nutrients from the space down the middle of the intestine (the lumen) across into your blood vessels. What parts of the cell would be larger or in greater number in these intestinal cells compared to the other body cells?