3.1 How cells are studied

Prokaryotic-bacteria and archaea

Eukaryotic- animal, plant, fungal and protist cells

Light Microscopes -optics of the lenses change orientation of the image (left is right; up is down) -uses two sets of lenses -most student microscopes -light passes through and is bent by lens to see specimen -best with living organisms - enlarges X400 Resolving power- ability of microscope to allow eye to see two adjacent structures as separate (high resolution closer objects can be)

Oil impression lens= magnification X1,000

-provide 3D view -clear view of tissue structure and anatomy -2 separate lenses (binocular) -optics that make it so no inverted in get Electron Microscopes -beam of electrons instead of light -higher magnification (more dot in -live coll

-live cells can't be viewed (prep kills organism) -beam of electrons moves back and forth over cell to see by reflection

Cell Theory -proposed by Schlseiden and Schwann in 1830's -all living things are composed of one or more cells -cell is the basic unit of life -all new cells arise from existing cells

3.2 comparing prokaryotic and eukaryotic cells **Prokaryotic Cells** -simple single celled organism -lacks nucleus and any other membrane bound organelle -DNA found in central part of cell AKA nucleoid Four components 1) plasma membrane-separates interior from environment 2)Cytoplasm-Jelly like region in cell 3)DNA