1.1 Discovering Cells

(as students share their notes, record the page number)

What are cells? (pg 4 -5)

- All living things are made of cells
- Cells form the parts of an organism and carry out its function
- Cells = basic structure and function of living things
- Structure = what its made of and what parts put it together
- Structure of living things determined by how cells are put together

What are cells? (pg 4 -5)

- Function = processes that let organisms live, grow, and reproduce
  - Obtain oxygen, food, get rid of waste
  - Cells are involved with all functions
- Food = energy for growth
- Cells in lungs = get oxygen
- Single cell has same functions has whole organism

What is the cell theory? (pg 6)

- Before 1600s = no one knew about cells
- Hooke = built own microscope, first to see cells from a cork (1663)
- Leeuwenhoek = first to see living cells, found a variety of one-celled organisms, called animalcules (“little animals”)

What the cell theory says? (pg 7)

- The cell theory:
  - All cells produced from other cells (helps scientists study growth and reproduction)
  - Cells are basic unit of structure and function of living things
  - All living things are composed of cells
- Schwann = found that animals are made of cells
- Schleiden = found that plants are made of cells
- Virchow = found all cells come from cells

How do Microscopes work? (pg 8)

- Some microscopes focus light through lenses to produce a magnified image, others use beams of electrons
- Microscopes have two properties: magnification and resolution
- Magnification is condition of things appear bigger than they really are
- Convex lens = center is thicker than its edge

Compound Microscopes (pg 9)

- Compound microscope = uses two lenses to magnify objects
- Each lens has different magnifying power
- Can magnify an object more than a single lens can
- Total magnification = magnification of the two lenses multiplied together
  - Eyepiece lens = 10x
  - Nose piece lens = 4x, 10x, 40x

Measuring Microscopic Objects and Resolution (pg 10)

- Resolution = degree to which two separate structures that are close together can be distinguished
- Better resolution= more detail
- You can estimate the size of an object by measuring the width of the field of the microscope
- Good resolution = makes it easier to study cells

Electron Microscope (pg 11)

- Early researchers all used light microscopes
- 1930s = electron microscopes developed
- Electron microscope = use beam of electrons to produce an image
- Electron microscope more effective than light microscope