Grade 8 Science Long Range Plans 2016-2017

*All units consist of homework, chapter tests, in class demonstrations and in-class activity/project. The students have science three times per week. Homework and/or lab reports are usually assigned after each class (unless there is a project work period) and tests are usually every third week*

**September – November: Unit A - Systems in Action**

Chapters 1-3 *Introducing Systems* – inputs, outputs, side effects, systems thinking

*Getting to Work* – simple machines, forces, calculating mechanical advantage, calculating work

*Designing Efficient Systems* - energy loss in systems, calculating mechanical efficiency

**November - February: Unit B - Cells**

Chapters 4-6 *Cells: The Basic Unit of Life* – characteristics of living things, cell theory, compound microscope, wet/dry mount slides, plant and animal cell components, electron microscopes

*Cells in their Environment* – cell membrane, diffusion, osmosis, endocytosis, exocytosis

*Organizing Cells* - classifying organisms, unicellular organisms, needs and interactions of multicellular organisms

**March - April: Unit C - Fluids**

Chapters 7-9 *Fluids on the move:* – characteristics of fluids, flow rate and viscosity, controlling fluid flow

*Density and Buoyancy*– weight, mass, volume, density, buoyancy

*Fluids under Pressure* - fluids in a closed system, external pressure on fluids, pressure/volume/temperature relationship, valves, applications of hydraulics and pneumatics

**May - June: Unit D – Water Systems**

Chapters 10-12 *Safe Drinking Water*– water cycle, reducing personal water consumption, making water drinkable, water filtration devices

*Water Quality* – fresh and salt water, contaminants in water, testing water quality, watersheds, wastewater treatment

*Water, Weather, and Climate* - surface water and climate, glaciers, polar ice, and global warming, water exports, floods and droughts