

## **Seventh Grade Science Course Syllabus 2010 – 2011 School Year**

### **Scientific Method**

- o Science process skills
- o *Hand Soap Consumer Lab*
- o Metric system
- o *Paper Towel Consumer Lab Report*

### **Cells**

- o Mechanics of the microscope – parts and functions
- o Cell structure - including cellular organelles, physiology, and function
- o Life Processes – photosynthesis, respiration, and fermentation
- o Cell Processes - mitosis, meiosis, DNA replication and gene expression
- o Stem Cells
- o *Egg-speriment – a home-based laboratory investigation*
- o *Cell Model Project*

### **Genetics**

- o Mendelian genetics, with an emphasis on human genetics and traits
- o DNA and protein synthesis
- o Genetic diseases
- o Biotechnology and ethical issues
- o *DNA Extraction Lab – cheek cells and strawberries*
- o *Paper Pet Project (Pet's families follow principles of genetic inheritance)*

### **Human Body Systems**

- o Homeostasis/balance between human body systems
- o *Human Disease Project, see [www.curtis1.com](http://www.curtis1.com)*

- o Focus on muscular, skeletal, integumentary, digestive, nervous, endocrine, and reproductive systems
- o Frog Dissection

### **Evolution and Earth's History**

- o Darwin and natural selection
- o Geologic time scale
- o Rock Layers and formation
- o Fossils and their formation
- o Evidence for evolution
- o Classification of living things
- o *Biological Timeline Project*

### **Visible Light Energy and Biological Structures**

- o Nature of energy with special emphasis on light and sound, and how they relate to sight and hearing
- o *Pinhole Camera Project*
- o Forms of energy
- o Energy conversions, with emphasis on energy conversions in living systems
- o *Invention Project*
- o *UV Bead Lab – Optional and only if there is time*

### **Investigation and Experimentation**

- o Along with each unit, students will conduct a variety of student- and teacher-directed inquiries, using the scientific method
- o Each student will conduct controlled experiments in which they formulate a hypothesis and test it; collect, present, and analyze data; and finally, draw conclusions about their original hypothesis using a *formal lab report format*.

## **Final Exam Activities**

- o *100 Question Comprehensive Multiple Choice Test, **Tuesday, June 14th!***
- o *Marshmallow vs. Walnut Calorimeter Group Lab Practicum*