

## **INTRODUCTION TO VIRUSES AND BACTERIA**

**By Karen Harrison, Bordentown Regional High School, Bordentown, NJ**

### **Lesson plan Viruses**

Introduce DNA and RNA viruses, and lytic and lysogenic cycles. Show the DVD clip on viral infection in vitro.

Discuss whether viruses are the ultimate primitive neo-life forms or the ultimate degenerate parasites. Show video clip “Campbell’s primordial soup” from Dr. Thomas Cech’s 1995 holiday lectures on ribozymes (*The Double Life of RNA*).

Show DVD animation of genetic recombination in influenza virus. Discuss.

### **Lesson plan Bacteria I**

Introduce 3-domain classification and compare to 5-kingdom classification. Point out how the 3-domain system is dominated by bacteria and relate it to the time scale of life on earth. Compare the structure and biochemistry of Archea, Eubacteria and Eukaryota. Discuss how archea may meet the needs of the xenozoic theory of the origin of life on earth (Play music from *The X-Files*).

Lecture and notes on classification of bacteria by gram stain, shape, biochemistry and more recently DNA sequence. Pass out Skittles, M and Ms, Good and Plenty. and pieces of Twizzlers—an excellent way of reinforcing the 3 basic bacterial shapes.

Inoculate prepared NA plated with bacteria from around the school.

### **Lesson plan Bacteria II**

Discuss gross quantities of bacteria cultured from different places as indicated by numbers of colonies on plates. Point out that it is normal to live in a bacteria-laden environment.

Using strict sterile technique, gram stain and observe cultured bacteria.

**Footnote:** I used the animation of *Salmonella* being taken into a cell, and protecting itself against lysosomes, when discussing the endosymbiotic theory of how mitochondria and chloroplasts could have originated from free living bacteria taken into other cells.