



## Microbes and You

**Grade Level:** 7<sup>th</sup> grade, 9-12<sup>th</sup> Grade

**Where taught:** Lab or Classroom

**# Students:** maximum of 30 per presentation

**Time required for presentation:** 45 – 60 minutes

**Georgia Performance Standards:** 7<sup>th</sup> grade S7L2 a, b; 9<sup>th</sup>-12<sup>th</sup> grades Biology SB1 a and SB3 a.

The Microbes & You module is designed to educate students about the diverse world of bacteria in their own environment – internal and external! It covers the helpful and harmful bacteria, their differences and similarities, and their relative importance in our world. We emphasize the importance of microbes within the human body which help keep us healthy. We also introduce the role of microbiologists in the modern workforce.

The module begins with a brief introduction to the origins and characteristics of bacteria, followed by activities and discussions that involve the students directly with common practices performed by microbiologists in their labs daily. The students will review the scientific method, learn about bio-safety, collect samples, streak plates, analyze and identify different types of bacteria, and even explore the cause and effect relationship associated with epidemiology.

At both Middle School and High School levels, the Microbes and You module can be taught in one day in a 45-60 minutes period.

The Bio-Bus Program will supply all the needed material. However, we do ask that the classroom be organized into a maximum of six workstations with four to five students per station. We thank you in advance for your cooperation in planning your schedules around these requirements.

\* \* \*

For advanced high school classes we also offer a two day version – one day for the students to streak their plates, and another for them to read the incubated plates and discuss the results. We ask that times be scheduled on consecutive days, and be coordinated so as not to be broken up by a weekend; there can be one day, at most, in between scheduled visits. The time frame is critical because of the incubation time involved with the micro-organisms used. No pathogenic bacteria used in this experiment. All bacteria used in the experiments will be collected from the student's direct environment. This advanced module will also demonstrate to students how different bacteria are able to survive and thrive on several different nutrients. Students will examine the biochemical aspects of bacterial growth, and how these impact pathogenic vs. non-pathogenic bacteria.