

Philosophy of Middle School Science

The Howard County Public School System (HCPSS) believes that an effective student-centered science program includes an approach to learning that engages students physically and mentally in an inquiry-based laboratory program. The major goal of the program is to develop substantive science literacy in all students. The program must provide students with opportunities to expand, change, enhance, and modify the ways in which they view the world. Teachers should provide an environment that promotes students' thinking, honesty, curiosity, and questioning. Students should be empowered to express and share points of view, solve problems, and make decisions based on evidence.

As a human endeavor, science seeks to provide an explanation of phenomena occurring in the natural world. This endeavor utilizes two major components: scientific inquiry and scientific knowledge.

- Scientific inquiry is made up of the procedures used to generate scientific knowledge and is grounded in sound cognitive, manipulative, and investigative processes.
- Scientific knowledge represents the laws, principles, theories, concepts, and data that the scientific community recognizes as the most accurate and useful.

Science questions all things, rejects the labeling of statements as unalterable, and opens itself to continual scrutiny and modification. It is a creative process, which attempts to discover and understand. An ideal setting for discovery includes hands-on activities that provide for the active involvement of students. Science is a never-ending process of discovery, interpretation, and evaluation.

The curriculum shall provide a flexible program for the acquisition of knowledge and utilization of the scientific processes appropriate to the level of the student. The science curriculum and instruction presented to students in science classes need to be differentiated to provide appropriate rigor and challenge for all learners. The essential curriculum identifies the core that all students are to learn. Teachers must add to the core to meet the unique needs of the students in their classes. For example, students participating in G/T science classes should participate in a program that has a level of rigor and challenge appropriate for high ability learners. Students with special needs may require instruction on content and skills that specifically addresses their special needs. All teachers should include topics that are of special interest to them and the students in their classrooms. The ultimate goal is to lead students to intelligent decision-making through the assimilation of scientific knowledge and the application of scientific inquiry.

Safety in the science classes is an ongoing part of the curriculum. However, there are safety objectives that are pertinent to specific grade levels. All teachers will include these specific grade level safety procedures as well as review procedures taught in previous years.

The HCPSS middle school science program is closely aligned with Maryland State Department of Education (MSDE) Voluntary Science Curriculum and with national standards for science education. Middle school science courses are designed to prepare students to meet with success on state assessments and other assessments aligned with national science standards as stated in *Benchmarks for Science Literacy* and the *National Science Education Standards*.