

Philosophy of High 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 cognitively in a rich and rigorous inquiry-driven laboratory program, where students operate as “Student Scientists”. 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 practices 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 needs to be differentiated to provide appropriate rigor and challenge for all learners. Using the curriculum to identify the core concepts that all students are to learn, teachers will provide students with authentic, real world tasks. Each task contains carefully planned pathways to meet the unique needs of each individual student. Teachers must add to the core concepts 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. All teachers should include investigations of problems 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 High School Science program is aligned with the Maryland College and Career Readiness Next Generation Science Standards (<http://mdk12.org/instruction/curriculum/science/>) and includes learning opportunities that support the Maryland Environmental Literacy Standards (http://mdk12.org/instruction/curriculum/environmental_education/index.html). Maryland adopted the *Next Generation Science Standards* (<http://www.nextgenscience.org/>) in June 2013 with the goal of full NGSS implementation by 2017-18. Throughout the transition period, the

HCPSS curriculum will reflect revisions from the state and the priorities defined with *Vision 2018: Fulfilling the Promise of Preparation* (<http://www.hcpss.org/vision/>).