

Dear Parent or Guardian,

This year, your child is using science units developed by SEPUP, the Science Education for Public Understanding Program. SEPUP has developed and published innovative and highly acclaimed middle school curricula for more than 30 years. Much of the development of the SEPUP middle school program has been funded by the National Science Foundation. To learn more about SEPUP, *visit www.seuplhs.org*.

SEPUP's mission is to prepare students with 21st-century skills for future success. To meet that goal, units align with the three dimensions of the Next Generation Science Standards (NGSS): scientific and engineering practices, crosscutting concepts, and disciplinary core ideas.

SEPUP believes that students should be able to explain real-world phenomena, such as the release of wastes that results from using chemicals to make products or the effects of invasive species on people and the environment. Students use their understanding of the disciplinary core ideas while SEPUP provides support by engaging them in the science and engineering practices and applying the crosscutting concepts to explain, justify, and argue their point of view about the phenomena.

The science and engineering practices are used in activities based on the educational approach of scientific inquiry. For example, students plan and carry out investigations to determine the best habitat for a blackworm, analyze and interpret spectral data from sunglasses, and engage in argument from evidence about whether we are in the midst of a sixth extinction. Students discover the nature of science, learn science content, and experience the relevance of science in today's world as they are challenged to design a hand warmer, an artificial heart valve, and a method for preventing erosion.

The crosscutting concepts include patterns; cause and effect; scale, proportion, and quantity; systems and system models; energy and matter; structure and function; and stability and change. In SEPUP, students use these crosscutting concepts as a way of linking ideas across the domains of science. For example, they explore structure and function when exploring chemical reactions at the atomic level, when learning about body systems, and when investigating inherited diseases. Students use patterns to analyze data, such as observations of light refraction, relationships among components in an ecosystem, and inheritance of genetic traits in organisms.

How do we know this is a good way for your child to learn? In general, research on science education supports it. In particular, SEPUP tests its materials with students and their teachers throughout the country, and experts provide scientific review of content. SEPUP believes when students think critically, analyze information, and solve complex problems, they discover that learning and using scientific ideas is a vital and exciting endeavor.

Sincerely,

The SEPUP Staff

The Lawrence Hall of Science

University of California, Berkeley