

Science

Our Science curriculum is based on the Next Generation Science Standards (NGSS). The Science Fusion books the school uses promotes a student-centered approach for

- ✚ learning science concepts and vocabulary
- ✚ building inquiry, STEM, and 21st Century skills
- ✚ incorporate math and writing in science lessons

Both Next Generation Science Standards (NGSS) and Common Core State Standards (CCSS) aim to streamline what elementary, middle school and high school students should be learning in each grade to prepare them for life after high school. CCSS focuses on math, English and literacy while NGSS solely targets the subject of science. While the two were developed independent of each other, they are designed so educators may use them together effectively.

The Common Core State Standards (CCSS) and the Next Generation Science Standards (NGSS) are K-12 content standards, developed in Mathematics, English Language Arts, and Science, to illustrate the curriculum emphases needed for students to develop the skills and concepts required for the 21st century.

The intersections between *NGSS* and *Common Core* teach students to analyse data, model concepts, and strategically use tools through productive talk and shared activity. These practice-based standards help teachers foster a classroom culture where students think and reason together, connecting around the subject matter and core ideas.

NGSS outlines the science students should learn at each grade level from kindergarten through high school. Within the NGSS there are three distinct and equally important dimensions to learning science. Crosscutting Concepts (CCC), Disciplinary Core Ideas (DCI), and Science and Engineering Practices (SEP). These dimensions are combined to form each standard- or performance expectation- and each dimension works with the other two to help students build a cohesive understanding of science over time. NGSS is structured around performance expectations for each grade level, each of which outlines the three components, along with ideas on how to tie in elements of the Common Core State Standards.

Crosscutting Concepts (CCCs) help students explore connections across the four main domains of science, including Physical Science, Life Science, Earth and Space Science, and Engineering Design. These concepts help our students develop a coherent and scientifically based view of the world around them.

Science and Engineering Practices (SEPs) describe what scientists do to investigate the natural world and what engineers do to design and build systems. Our science lessons explain and extend what is meant by “inquiry” in science and the range of cognitive, social, and physical practices that is requires. Students engage in practices to build, deepen, and apply their knowledge of core ideas and crosscutting concepts.

Disciplinary Core Ideas (DCIs) are the key ideas in science that have broad importance within and across multiple science or engineering disciplines. These core ideas build on each other as students' progress through grade levels and are grouped into the following four domains: Physical Science, Life Science, Earth and Space Science, and Engineering.

- ✚ Grade 6 focus is on Physical Science (Matter and Energy), Earth Science (The Dynamic Earth), and Life Science (Ecology and the Environment)
- ✚ Grade 7 focus is on Physical Science (Sound and Light), Life Science (Cells and Heredity & The Human Body)
- ✚ Grade 8 focus is on Physical Science (Motion, Forces, and Energy), Earth Science (Water and Atmosphere & Space Science)
- ✚ Grade 9 focus is on Physics, Chemistry, and Biology