

The Standards Addressed in Clusterbusters

The National Science Education Standards (National Research Council, 1996) available online at <http://www.nap.edu/readingroom/books/nses/html/> set goals for achieving scientific literacy in the 21st century. The Clusterbusters modules address many of the recommended content standards. In addition the modules provide new methods for teaching and learning about science using online activities and technology. Science Teaching Standards are also addressed. The tables below summarize the standards addressed by Clusterbusters.

Content Standards: 5-12 Addressed by Clusterbusters

Unifying Concepts and Processes <ul style="list-style-type: none"><input type="checkbox"/> Systems, order, and organization.<input type="checkbox"/> Evidence, models, and explanation.<input type="checkbox"/> Change, constancy, and measurement.<input type="checkbox"/> Form and function.
Science as Inquiry – Content Standard A <ul style="list-style-type: none"><input type="checkbox"/> Abilities necessary to do scientific inquiry<input type="checkbox"/> Understandings about scientific inquiry
Science and Technology – Content Standard E <ul style="list-style-type: none"><input type="checkbox"/> Abilities of technological design<input type="checkbox"/> Understandings about science and technology
Science in Personal and Social Perspectives – Content Standard F <ul style="list-style-type: none"><input type="checkbox"/> Personal and community health<input type="checkbox"/> Environmental quality<input type="checkbox"/> Natural and human-induced hazards<input type="checkbox"/> Science and technology in local, national, and global challenges
History and Nature of Science – Content Standard G <ul style="list-style-type: none"><input type="checkbox"/> Science as a human endeavor<input type="checkbox"/> Nature of scientific knowledge<input type="checkbox"/> Historical perspectives

**Science Teaching Standards
Addressed by Clusterbusters**

<p>Teachers of science plan an inquiry-based science program for their students – Teaching Standard A</p> <ul style="list-style-type: none"><input type="checkbox"/> Select science content and adapt and design curricula to meet the interests, knowledge, understanding, abilities, and experiences of students.<input type="checkbox"/> Select teaching and assessment strategies that support the development of student understanding and nurture a community of science learners.
<p>Teachers of science guide and facilitate learning – Teaching Standard B</p> <ul style="list-style-type: none"><input type="checkbox"/> Focus and support inquiries while interacting with students.<input type="checkbox"/> Orchestrate discourse among students about scientific ideas.<input type="checkbox"/> Challenge students to accept and share responsibility for their own learning.<input type="checkbox"/> Recognize and respond to student diversity and encourage all students to participate fully in science learning.<input type="checkbox"/> Encourage and model the skills of scientific inquiry, as well as the curiosity, openness to new ideas and data, and skepticism that characterize science.
<p>Teachers of science engage in ongoing assessment of their teaching and of student learning – Teaching Standard C</p> <ul style="list-style-type: none"><input type="checkbox"/> Use multiple methods and systematically gather data about student understanding and ability.<input type="checkbox"/> Guide students in self-assessment.
<p>Teachers of science design and manage learning environments that provide students with the time, space, and resources needed for learning science – Teaching Standard D</p> <ul style="list-style-type: none"><input type="checkbox"/> Structure the time available so that students are able to engage in extended investigations.<input type="checkbox"/> Create a setting for student work that is flexible and supportive of science inquiry.<input type="checkbox"/> Ensure a safe working environment.<input type="checkbox"/> Make the available science tools, materials, media, and technological resources accessible to students.<input type="checkbox"/> Identify and use resources outside the school.
<p>Teachers of science develop communities of science learners that reflect the intellectual rigor of scientific inquiry and the attitudes and social values conducive to science learning – Teaching Standard E</p> <ul style="list-style-type: none"><input type="checkbox"/> Display and demand respect for the diverse ideas, skills, and experiences of all students.<input type="checkbox"/> Nurture collaboration among students.<input type="checkbox"/> Structure and facilitate ongoing formal and informal discussion based on a shared understanding of rules of scientific discourse.<input type="checkbox"/> Model and emphasize the skills, attitudes, and values of scientific inquiry.
<p>Teachers of science actively participate in the ongoing planning and development of the school science program – Teaching Standard F</p> <ul style="list-style-type: none"><input type="checkbox"/> Participate in decisions concerning the allocation of time and other resources to the science program.