



Saint Monica Catholic School • Science Curriculum for 4th – 8th grade

FOSS is the leading inquiry-based science program in America! Developed at the Lawrence Hall of Science, this research based curriculum is standards based and supports reading programs with a strong literacy component. Delta Science Modules (DSM) are comprehensive kits. Students investigate key science topics through powerful combination of hands-on activities and reading. The modular series design allows you to select content to tailor your science program to meet students' needs and Common Core and state standards.



Instructional Pedagogies

The FOSS/DSM programs use several instructional pedagogies to make science more efficient for teachers and more productive for students.

1. **Inquiry.** Investigations are guided by questions. Often new questions arise while students seek answers, leading to additional student-motivated inquiries with materials to reinforce and extend concepts.
2. **Hands on Active Learning.** It is widely accepted that children learn science concepts best by doing science. Doing science means hands-on experiences with objects, organisms, and systems. Students investigate, experiment, gather data, organize results, and develop conclusions based on their own actions. The information gathered in such activities enhances the development of scientific ways of thinking.
3. **Multisensory Methods.** Observing is often equated with seeing, but in the programs all five senses are used to promote greater understanding.
4. **Student-to-Student Interaction.** Collaboration is central to the enterprise of science. In investigations students work in groups with each member contributing to management, data collection, data analysis, and reporting of results. Individual students' observations and ideas are always incorporated into group decisions. Hands-on science, where students collaborate in planning, action, and information processing, gives students opportunities to develop deep understanding and rich, thoughtful interactions with other points of view.
5. **Discourse and Reflective Thinking.** Discourse is tremendous exercise for the mind. Have you considered the immense complexity of converting experiences and ideas into words to be spoken or written? An idea or concept must be synthesized from the innumerable bits of stored information and that concept must then be constructed into a string of symbols we call words, and output in a sequence that conveys information.

Discourse takes several forms in FOSS/DSM.

- Focused discussions take place in collaborative groups.
 - Traditional whole-class question-and-answer sessions summarize a lesson and put important points in front of the class.
 - Content/inquiry sessions wrap up each part of each investigation.
 - Student sheets help students collect and organize data and discuss the results in thoughtful ways. (Student-sheet discourse may be an individual or a group effort.)
 - Response sheets elicit individual discourse on specific topics for assessment purposes.
6. **Reading and Research.** In science, reading and research extends their experience beyond the limits of the classroom and the kits; they can enhance their understanding of concepts by exposure to related ideas and they can share in the lives of real and fictitious people who played roles in scientific discovery or applied scientific ideas to life situations. However, we believe strongly that reading should not be the primary source of science information in the elementary curriculum. The primary source should be personal experience. Other research tools recommended in the context of the hands-on activities for students include video excursions, computer software, and the World Wide Web.