

## What is KCSI?

The Kansas City Science Initiative (KCSI) is a systemic science education reform program initiated by Bayer in 2003. The KCSI mission is to lay the foundation for development of a competent life sciences workforce equipped with the critical thinking and problem solving skills derived from a quality science education. This means moving from “rote” textbook memorization to hands-on, inquiry-based science learning, essentially learning science the way scientists do – by doing it.

## Who is partnering with KCSI?

KCSI began as a partnership between Bayer and the Kansas City Missouri School District (KCMSD). The Kansas City Area Life Sciences Institute (KCALSI) joined the partnership in 2005. With a three-year seed fund grant from the Bayer Foundation, a project manager was hired and KCSI program management and oversight shifted from Bayer to KCALSI in 2006. Additional partners have joined the program providing a variety of services and support, including Smart Warehousing, Delta Education, Mpress, FedEx, University of Kansas Center for Science Education and OfficeMax Impress.

## How many students and teachers are participating in KCSI?

KCSI piloted in two elementary schools in 2004 and three additional elementary schools were added to the pilot in 2005. In 2007-08, the KCSI program was implemented in 45 KCMSD elementary schools, encompassing nearly 600 teachers and 15,000 students. Initially implemented as a Kindergarten through 5th Grade program, KCSI is now expanding into Grades 6-8 and in negotiations with numerous school districts in Missouri and Kansas regarding delivery of KCSI services.

## How is KCSI funded?

In addition to funding from the Bayer Foundation, KCSI is supported by grants from corporations and foundations, as well as funds from district memberships. KCSI must continually seek funds to expand and sustain the initiative. Purchasing curriculum materials and developing professional development courses requires significant up-front expenditures from KCSI, reinforcing the need for financial support from corporations and foundations.

## Do other organizations believe in this approach?

This type of science teaching and learning is endorsed by virtually every major national science and science education organization in the country including the National Research Council, National Academy of Sciences, National Science Foundation, American Association for the Advancement of Science, National Science Teachers Association, and the National Science Resources Center.

## How does KCSI benefit school districts?

Many school districts believe that this is the best way for students to learn science, but the system required to support this type of science education program is difficult and expensive to develop and even more difficult to sustain. By developing the necessary infrastructure independent of school districts, KCSI is able to capitalize on community support and economies of scale to provide support to districts, enabling them to achieve this long-term, systemic change.

## Do school districts pay for KCSI services?

KCSI is frequently contacted by school districts that are interested in these services. As a result of this extraordinary growth, KCSI has moved to a fee for service program. There is no “cookie cutter” approach to implementing this kind of programming, therefore membership fees vary for each district based upon the district’s needs. KCSI provides high quality services at a rate that is well below what districts may contract individually on their own.

## Is KCSI based on a recognized model for systemic reform?

KCSI incorporates the five key elements of science education reform as defined by the National Sciences Resources Center (NSRC). The five elements include:

- curriculum
- professional development
- centralized materials support
- assessment
- community and administrative support.

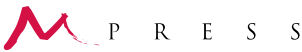
## Who should I contact for more information?

For more information, contact KCSI project manager Nicole Riegel at 816-753-7700 or [nriegel@kclifesciences.org](mailto:nriegel@kclifesciences.org).

SPECIAL THANKS  
TO OUR KCSI PARTNERS



Kansas City, Missouri  
SCHOOL DISTRICT



## The Five Key Elements of Successful Science Education Reform

**CURRICULUM** || Quality curriculum materials are at the heart of implementing this inquiry-centered program. Curriculum modules are National Science Foundation-supported, research-based, grade-level appropriate, and aligned with national, state and local science curriculum standards. Pedigreed curriculum materials include Full Option Science System (developed at the Lawrence Hall of Science, University of California-Berkeley) and Science and Technology for Children (developed by the National Science Resources Center), among others. Curriculum modules are a significant expense, ranging in price from \$500-2,000 each.

**PROFESSIONAL DEVELOPMENT** || Professional development for teachers is a key component for successful implementation of any science education reform program. Moving from textbook-based instruction to an inquiry-based format can be a daunting challenge for many elementary teachers, complicated by the lack of knowledge and comfort with science content. KCSI professional development providers work directly with teachers, helping them shift their teaching methods to an inquiry-based model and increase their science content knowledge. Grade-specific training sessions cover a variety of science topics in the physical, earth and life science strands. Other training courses include an introduction to inquiry and how students learn, formative assessment, content deepening and science notebooking.

**CENTRALIZED MATERIALS SUPPORT** || KCSI provides teachers with all of the materials they need to teach this curriculum in their classroom so they are not spending their time and personal funds purchasing materials and can focus on the important task of teaching. Modules are delivered with enough materials for 32 students. Once the module has been taught in a classroom, it needs to be refurbished. Some materials are consumed and need to be replaced, and the module needs to be stored until it is ready to be used again the next school year. Purchasing the modules is a significant expenditure. By providing this service, we ensure the investment in this curriculum is protected, the quality of the materials is maintained and that teachers have the materials they need to guide their students in the investigations.

**ASSESSMENT** || With the advent of “No Child Left Behind,” assessment that is aligned with national and state standards has become more important than ever. Other similar reform programs have experienced improved student test scores as a result of inquiry-based science classes, as well as improved student attendance and a decrease in behavioral problems. We expect this trend to continue with KCSI, as well. KCSI teacher and student pre- and post-assessments are administered online. This method streamlines the process, delivering usable data quickly and alleviating the need for managing significant amounts of paperwork.

**COMMUNITY AND ADMINISTRATIVE SUPPORT** || In order to accomplish our objectives, KCSI requires the support of both district administrators and community partners. Just as many teachers are unfamiliar with implementing hands-on instruction in their classrooms, so too are many administrators who support these teachers. KCSI provides training for administrators so they may better recognize and reward the appropriate use of inquiry in classrooms. Community partners play a significant role in the expansion of KCSI. Financial support is necessary to purchase curriculum materials and develop additional teacher training opportunities. KCSI’s ability to cover these costs will be critical factors in the program’s success. In addition, awareness of and support for KCSI among business leaders, legislators, educators and parents ensures the program is sustained, providing the time necessary for the long-term benefits of this type of curriculum to be realized.



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