

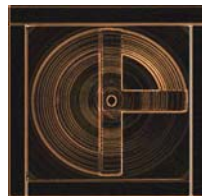
ARTS AND CULTURAL CONNECTIONS

We provide performances (such as for school assemblies), classroom presentations, and professional development workshops showing relationships among the arts (music, dance, visual arts) and mathematics-science. Assumptions about who does mathematics and who does science can have a significant influence upon how these disciplines are presented and engaged by teachers and students. Exploring mathematics and science content in art and cultural contexts provides opportunities to increase student awareness of contributions to the fundamental development of mathematics and science from various world cultures, including those from the African Diaspora.

In addition, these presentations model the habit of mind of "making connections." We are deliberate about showing the power of actively making connections across disciplines and areas of passion. One aim is to have students incorporate into their learning behaviors a disposition towards actively asking and seeking answers to the question, "How does what I am studying relate to _____?" The intent is to provide alternatives to the tendencies of students to ask this question as an "act of resistance" and of educators to predigest this critical function (through viewing making connections as their responsibility).

Finally, creativity is an underutilized habit of mind in the service of mathematics and science learning, although, ironically, creative thinking is at the heart of these endeavors. Blurring the line amongst art, mathematics, and science helps inspire students to harness their own powers of creativity in the engagement of school learning.

For further information about the ways that we work with staff, students, and families, please contact us at:



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CROSSPULSE CONSULTANTS

*Producing Fierce Mathematics, Science, and
Technology Learners*



CrossPulse Consultants is an organization established by a team of African American professionals with collective experience

in the domains of mathematics, science, technology, the arts, and entrepreneurship.

The CrossPulse Consultants mission is to produce "fierce" (fearless and powerful) African American mathematics, science, and technology learners, through "reenergizing" African American communities around academic excellence, producing learning and teaching tools that support academic mastery, and forging sustainable school, community, and business partnerships. We aim to increase the numbers of individuals who will go on to pursue higher education in mathematics, science, and technology and, eventually, pursue careers in those fields.

PRODUCTS AND SERVICES



ACTIONABLE ASSESSMENT

We use an approach to assessment that we call Actionable Assessment. There are three fundamental components to this approach:

Assessing the Assessment

This component involves applying a “lensing” process to assessment tasks, based upon various competency lenses, which include conceptual understanding, procedural fluency, problem solving strategies, literacy, making connections, and communication. As well as assessing a prepackaged assessment, this component of Actionable Assessment can also be used to develop and/or modify personally designed assessments.

Identifying Focus Areas

In this phase, areas of particular concern and focus are identified through re-stating/asking problems and questions to determine competency areas most likely involved in how students perform.

Targeted Response

Interventions, linked to the particular competency areas, are employed at this phase. Possible interventions include literacy tools and strategies (such as anticipation guides, vocabulary development tools, and open response templates), problem solving tools and strategies (such as a problem solving process and/or a WINS worksheet), and self-paced curriculum modules.

LITERACY TOOLS AND STRATEGIES

We have identified and/or developed a set of tools and strategies that help address literacy issues that arise in the contexts of mathematics and science. Literacy competencies are at the heart of student success as mathematics and science learners. Mathematics and science text is typically “dense.” The verbal and symbolic vocabulary is highly specialized. Mathematics grammar is particularly complex as it may involve a combination of reading left to right, top to bottom, inside to outside, right to left, and so on.

PROBLEM SOLVING TOOLS AND STRATEGIES

Typically, two questions predominate student’s thinking during mathematics class. What is the teacher thinking? Am I right (wrong)? We have identified and/or developed a set of tools and strategies that help students become competent, confident, strategic problem solvers, as well as expand the repertoire of questions that guide how students think about problem solving. These approaches take into account literacy considerations, ways of attacking problems, reading and writing strategies, and building problem solving efficacy.

TECHNOLOGY AND LEARNING

We help schools use technology thoughtfully as a component of student learning. This involves a combination of integrating technology into teaching and learning practices across disciplines as well as supporting students’ and teachers’ mastery of technology competencies.

CUSTOM SOFTWARE DEVELOPMENT

Our aim is to provide added capacity to schools, and the networks and communities of which they are a part, by partnering with them to develop a deep understanding of their technology needs. We focus upon projects that provide true value to your school and that have an impact upon student learning. Ideally, we provide technology solutions that are too large or time demanding to be developed by your school’s existing staff and that either fall outside the scope of work done through the district’s technology support services or that fall between the cracks because of smallness of scale. An aspect of this process involves, where possible, customizing tools that you are already using, such as Microsoft Office suite, or, where necessary, developing a new application.

Potential Projects

One example of custom data analysis applications tuned to your school’s particular needs is working with your staff to collect, organize, and/or coordinate data (student performance and administrative) from disparate sources, as well as to create customized analysis tools to more effectively inform teaching, learning, and curriculum.

Another potential project is to help create or enhance your school’s web site to more flexibly and effectively support appropriate accessibility to critical information, such as homework assignments, meeting minutes, and upcoming events. The web site can be a powerful mechanism for supporting communication among school, family, and community, sharing of teaching and learning best practices, and displaying exemplary student work.