

Workshop 3

Math/Science Skills—What's Important?

PRINCIPLE: Principal as Reality Checker

FOCUS QUESTION: With the political, social, and educational demands, how can a school do it all?

There has been a lot of public discussion about how well prepared students leaving the public schools are for higher education or for entering the work force. In this workshop, principals examine what teachers, college and business leaders, and parents believe kids should know and be able to do to be successful in math and science. Video segments examine a number of ways to reach these goals.

Preparatory Readings

We suggest that you read the following article, included in the Appendix at the back of this Guide, prior to viewing Workshop 3:

“A Conception of Authentic Human Achievement” and “Authentic Assessment Tasks.” *A Guide to Authentic Instruction and Assessment: Vision, Standards and Scoring*. Chapters 1 and 2 (Newmann, Secada, Wehlage)

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Video Clips

Bates College

"What do colleges and employers want?"

At Bates College, a liberal arts college in Lewiston, ME, President Don Harward describes what he is looking for in students and why his college dropped the SAT and ACT standardized tests as an admissions requirement.

Larry Myatt—Fenway High School/CVS Pharmacy Partnership

"Building organizational, cooperative, and communication skills through business/school partnerships"

Fenway High School 11th graders work collaboratively to design and build a simulated CVS pharmacy retail store and present their plans to CVS corporate management. Current and former Fenway students reflect on their experiences in the CVS/Fenway partnership.

Larry Myatt—Fenway High School/MUSEUM OF SCIENCE PARTNERSHIP

"Collaborating with institutional partners"

A different set of Fenway High School 11th graders are engaged in a partnership with the Boston Museum of Science. Each week, Fenway students spend an entire school day at the Museum where they take regularly scheduled classes taught by Museum staff and Fenway teachers. They are also engaged in programs in the Museum's labs and work areas, and they participate in an active volunteer program. In this segment, Fenway students in the volunteer program share their "insider's knowledge" of the Museum with Boston 2nd graders.

Laura Baker/Ron Berger—Shutesbury High School

"Water project"

In Shutesbury, a small rural town in western Massachusetts, Principal Laura Baker leads a K-5 school where all the teachers base their curriculum on long-term projects. 4th/5th grade teacher Ron Berger is conducting a year-long intercurricular unit on water. Until now, no one has researched patterns in the geographical distribution of pollutants such as heavy metals in the town's drinking water. His students have taken water samples from private wells across the town, worked in collaboration with Hampshire College to identify trace metals in the samples, and used Microsoft Excel to analyze and graph their results. Afterwards, the class will report their results and interpretations to the public.

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College/University that Eliminated or Reduced SAT & ACT Requirement

Number of Colleges/Universities: Eliminated SAT/ACT Requirements 136

Reduced SAT/ACT Requirements..... 145

State	Eliminated SAT/ACT	Reduced SAT/ACT	State	Eliminated SAT/ACT	Reduced SAT/ACT
AK	1	–	AL	1	5
AR	3	2	AZ	1	2
CA	11	21	CO	2	–
CT	1	1	DC	2	1
DE	–	1	FL	6	4
GA	2	2	GU	1	–
HI	1	–	IA	–	–
ID	–	1	IL	5	1
IN	2	2	KS	2	6
KY	3	4	LA	2	9
MA	6	1	MD	2	1
ME	6	–	MI	11	5
MN	3	1	MO	3	5
MS	2	–	MT	2	–
NC	1	1	ND	–	2
NE	–	4	NH	2	–
NJ	1	–	NM	2	–
NV	1	1	NY	17	9
OH	6	6	OK	–	3
OR	4	3	PA	4	4
PR	2	–	RI	1	–
SC	2	2	SD	4	1
TN	–	–	TX	2	30
UT	–	–	VA	2	–
VT	3	1	WA	1	–
WI	–	2	WV	–	1
WY	–	–			

SCANS Report What Work Requires of Schools

Foundation Skills

- Basic Skills
- Thinking Skills
- Personal Qualities

Competencies

- Resources
- Interpersonal Skills
- Information
- Systems
- Technology

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Discussion Questions

(remember to choose a Structure from those listed on pages 12 to 14)

How do you say out loud “we can’t do it all”?

Who gets to decide what’s important to learn?

If we can’t teach it all, how do I know if we’re making the right choices?

How can we include the voices of business and the community without having them take over?

How can we use community partnerships to improve the quality of learning in our schools?

How can we teach skills and still have project-based work?

How do we reconcile the process vs. skills debate?

What needs to happen to get all voices heard in the conversation?

Bibliography

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Epstein, J. “School/family/community partnerships.” *Phi Delta Kappan* Vol. 76, 1995: 701-712.

Farrell, A. M. Industry Internships and Professional Development. *Professional Development for Teachers of Mathematics, 1994 Yearbook*. Eds. D.B. Aichele and A. F. Coxford. Reston, VA: The National Council of Teachers of Mathematics, 1994: 276-85.

Glickman, C.D. *Renewing America’s Schools: A Guide for School-Based Action*. San Francisco: Jossey-Bass, 1993.

Loucks-Horsley, S. et al. *Continuing to Learn: A Guidebook for Teacher Development*. Andover, MA: The Regional Laboratory for Educational Improvement of the Northeast and Islands and Oxford, OH: National Staff Development Council, 1987.

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National Science Teachers Association. *Scope, Sequence and Coordination of Secondary School Science: The Content Core*. Washington, DC: NSTA, 1991.

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Sarason, S. *Parent Involvement and the Political Principal*. San Francisco: Jossey-Bass.

Task Force on K–12 Science and Mathematics Education. In the National Interest. *The Federal Government in the Reform of K–12 Science and Math Education*. New York: Carnegie Commission on Science, Technology and Government, 1991.

Web Sites

Columbia School of Education link to ERIC.

Internet Address: <http://eric-web.tc.columbia.edu/families>

Explore & Discover: A Museum School Partnership Internet Address:

<http://world.std.com/~brd/index.html>

FAIRTEST and statistics regarding SATs: Internet Address: <http://www.fairtest.org/optstat.htm>

List of site regarding standards by state, subject area: Internet Address:

<http://putwest.boces.org/Standards.html>

Math/Science Resources on the Internet: Internet Address:

<http://www.englib.cornell.edu/ice/lists/mathematics.html>

NASA homepage: Internet Address: <http://www.nasa.gov>

SCANS Report (complete digest). Internet Address:

<http://www.academicinnovations.com/report.html>

Other Sources

Elementary Science Leadership Institutes. National Science Resources Center, Washington, DC.
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