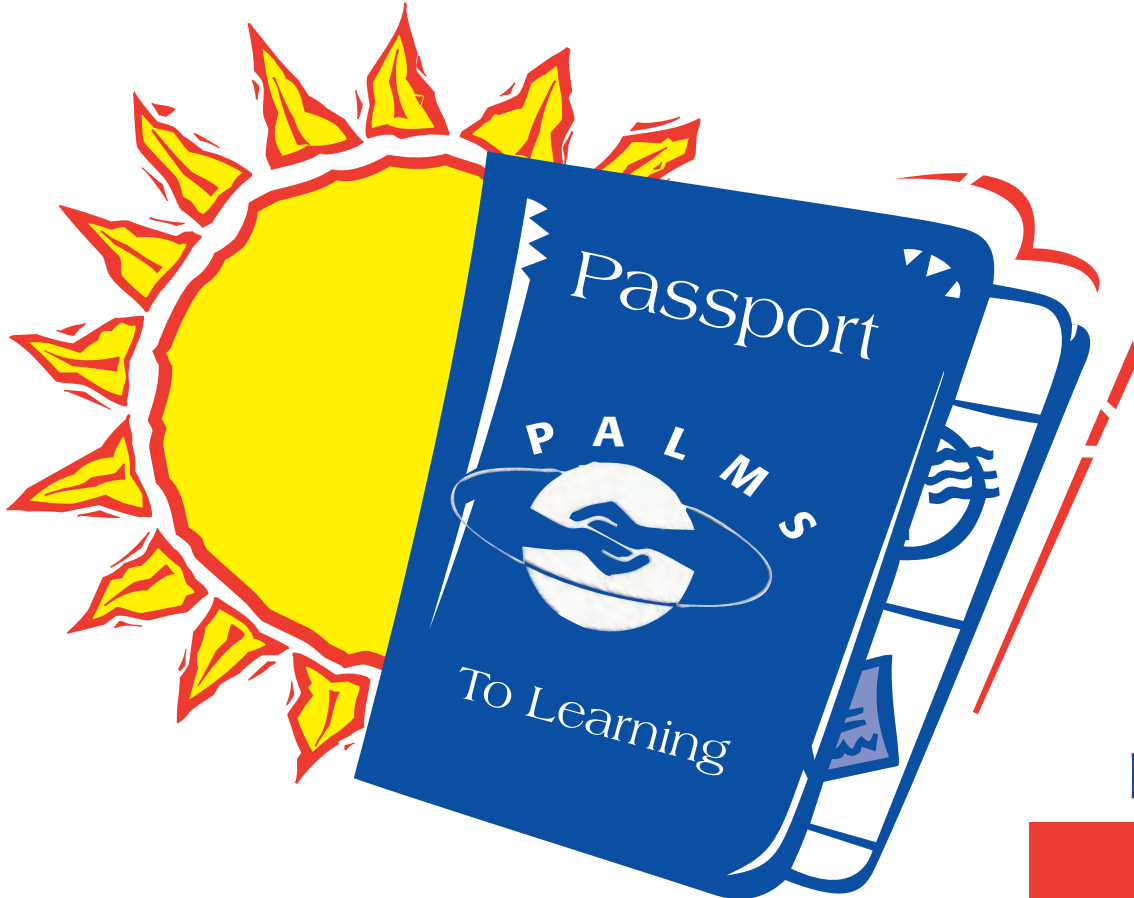


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Massachusetts



Department of
Education



Featuring:

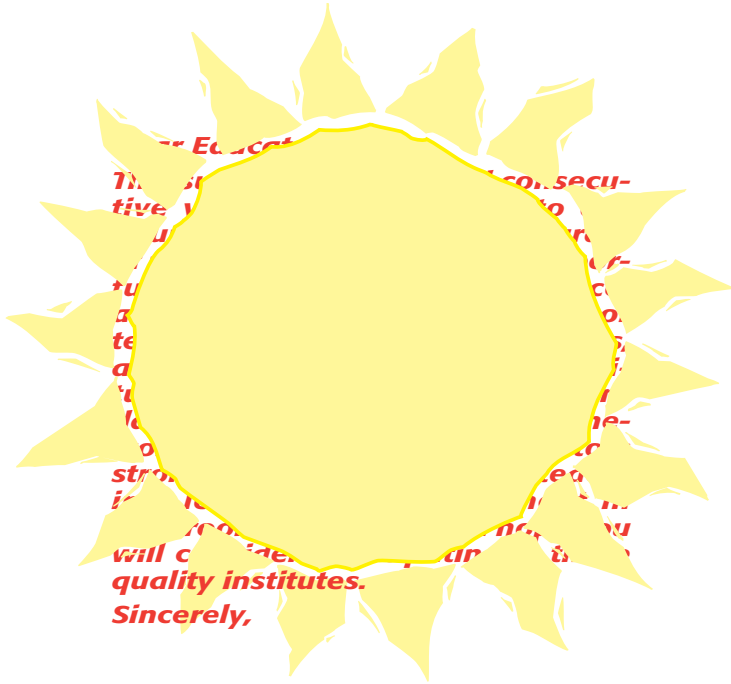
Math

Science

Technology

Curriculum Frameworks

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Robert V. Antonucci,
Commissioner of Education

Math, Science, and Technology Content Programs In Partnership with PALMS

This summer, the twenty-four institutes being made available are sponsored in part either by PALMS or by PALMS partner organizations. PALMS (Partnerships Advancing the Learning of Mathematics and Science) has been a cooperative initiative of the Massachusetts Department of Education and the National Science Foundation since 1992.

Each institute has been described in this brochure by the partner organization. Leading educational collaboratives, museums, and institutions of higher education, are offering programs that explore quality mathematics, science and technology standards-based curricula and assessment through hands-on, cooperative, team learning. All institutes provide opportunities for inquiry, interdisciplinary connections, authentic assessment strategies, and the use of educational technology to support student learning.

Eligibility

The number of spaces reserved for PALMS participants is indicated in each program listing. Teams from PALMS School Districts will receive priority registration. Please note, districts should define appropriate team members. These may include Teacher Leaders, teachers, administrators or Leadership Team partners.

Teams of educators from other school districts including vocational and charter schools that have demonstrated a commitment to systemic change in mathematics, science, and technology education will receive second priority placement.

Registration

For specific registration information, please refer to the contact individual(s) indicated for each program. For general information, contact the Massachusetts Department of Education, 617-388-3300, ext. 303.

Since spaces are limited, please plan to register early. Each team member should commit to attend the entire selected program, including follow-up days. Professional Development Points will be issued at the completion of each program. Many of these programs also offer graduate credit and a weekly stipend. Please note: Some programs are offered more than once during the summer. Specify exact date(s) and location when registering!



"Mathematics for the Elementary, Middle, and High School"

Westfield State College

Grade Levels: Elementary/Middle/Secondary

Date: July 7-11 and July 14-18, 1997

Location: Westfield State College, Westfield

Registration: 20 spaces available

Call: Maureen Bardwell, 413-572-5350

This institute will acquaint teachers with the NCTM Standards and the Massachusetts Curriculum Frameworks for Mathematics. Participants will develop an understanding of basic spatial and geometric concepts, intuitive logic, and inductive and deductive processes as they relate to mathematical problem-solving. Additional topics include discrete probability, inferential statistics, the technology of graphing calculators, and applications of the Internet to the mathematics and science classroom.

10 days plus 4 follow-up days
3 Graduate Credits Available



"Calculus and the Internet"

Harvard University

Grade Levels: Secondary

Date: Aug. 4-8, 1997

Location: Harvard University, Cambridge

Registration: 35 spaces available

Call: Regina Boyland, 617-495-0311

This institute will focus on ways of building students' conceptual understanding of calculus. The use of multiple representations of the central ideas of calculus, with particular emphasis on definite integrals, will be discussed. Participants will get hands-on experience with the Internet and its use in teaching. The links between the Mathematics Curriculum Framework and the new national calculus curriculum will be underscored.

5 days plus 3 follow-up days • No Graduate Credit



"K-12 Mathematics Forum"

Hampshire Educational Collaborative, Berkshire Community College and Smith College

Grade Levels: Elementary, Middle, Secondary

Date: July 14-18, 1997 (Session 1);
Aug. 4-8, 1997 (Session 2)

Location: Berkshire Community College, Pittsfield (Session 1)
Smith College, Northampton (Session 2)

Registration: 65 spaces available in each session

Call: (Session 1) Julie Hannum, 413-499-4660, ext. 337
(Session 2) Lucia Foley, 413-586-4900 or 800-278-4244

Three parallel training sessions will introduce replacement units from curricula for elementary, middle, and high school: Investigations, Connected Mathematics, and the Interactive Math Program (IMP). In the morning, administrators will participate in training sessions with teachers; in the afternoon, they will attend a separate session addressing effective supervision. Follow-up meetings and onsite classroom support will guide participants in exploring one grade-level appropriate inquiry-based curriculum. Team participation is encouraged.

5 days plus follow-up days (TBA)
3 Graduate Credits Available



"Strengthening Teacher Competency to Help All Students Achieve Science Learning Standards"

Science Education Solutions

University of Houston

Grade Levels: Secondary

Date: July 21-Aug. 1, 1997

Location: Massachusetts Academy of Math and Science at WPI, Worcester

Registration: 20 spaces available

Call: Bill G. Aldridge, 702-436-6685,
FAX 800-331-1162,
email bgaldridge@ssandc.org
<http://www.ssandc.org/palms>

This institute provides science content and pedagogy in a complementary context and in terms of science learning standards, including the National Science Education Standards, the 2061 Benchmarks, the SS&C Framework, and, in particular, the Massachusetts Science & Technology Framework. Workshop components include science, in a study of the laws and theories associated with light; pedagogy, in the context of this science; student assessments for depth of understanding; technology, in the creation of a sun photometer; and creation of a coordinated or integrated implementation plan for a full-year science course. Materials will be provided to participants, including a CD-ROM of 3000 pages of student science activities and teacher materials from the SS&C Micro-units.

10 days plus 3 follow-up sessions • Graduate Credit Available



"Extended Inquiry in Physical Science and Design Technology for Middle School Teachers"

Education Development Center

Grade Levels: Middle
 Date: July 21-25, July 28-Aug.1, 1997
 Location: EDC, Newton
 Registration: 35 spaces available
 Call: Bernard Zubrowski, 617-969-7100, ext. 2557

This institute focuses on two curriculum programs: Models in Physical Science Program and A World in Motion II. Participants will build working technological models using a design, inquiry approach. Connections will be made to the Curriculum Frameworks, embedded assessment, and the integration of technology, science, and math.

10 days plus 2 follow-up sessions
 Graduate Credit in negotiation



"Middle School Connections for Math, Science, and the Frameworks"

Salem State College Collaborative-CPMSIE Merrimack Education Center

Grade Levels: Middle
 Date: July 14-18, 21-25, 1997
 Location: Higgins Middle School, Peabody
 Registration: 70 spaces available
 Call: Jane Seibel, 508-686-8912

This integrative institute explores mathematics and physical science using concepts such as simple machines, bridges and architecture, flight and aerospace, scales and balances with measuring, and statistics. Connections are made to the Massachusetts Curriculum Frameworks.

2 five-day institutes plus 4 follow-up sessions
 3 Graduate Credits Available



"IMaST"

Illinois State University at Bridgewater State College

Grade Levels: Middle
 Date: July 14-18, 1997
 Location: Bridgewater State College, Bridgewater
 Registration: 32 spaces available
 Call: John Marvelle, 508-697-1367

This standards-based program incorporates integration of mathematics and science & technology using hands-on experiences to problem-solve major real-world issues such as food production, waste management, manufacturing, human settlements, and communication networks.

5 days plus 4 follow-up days • 3 Graduate Credits Available



"SEA Connections II"

Schooner ERNESTINA. UMass Dartmouth

Grade Levels: Elementary, Middle, Secondary
 Date: Aug. 4-7, Aug. 11-15, 18, 1997
 Location: New Bedford area and at sea
 Registration: 24 spaces available
 Call: Alan Lee Hankin, 508-993-4176

Schooner ERNESTINA, University of Massachusetts at Dartmouth, Dr. Alan Hankin, and the Lloyd Center collaborate to provide participants with a rich, research experience focusing on the marine environment. In the first week, participants will design investigations for their ocean experience by developing questions and strategies related to the standards in the Curriculum Frameworks. The following week they will conduct field studies and develop curricula onboard the Schooner ERNESTINA.

10 days plus 2 follow-up sessions • Graduate Credit Available



"Connected Geometry"

Education Development Center

Grade Levels: Middle, Secondary
 Date: July 7-11, 1997
 Location: EDC, Newton
 Registration: 30 spaces available
 Call: Helen Lebowitz, 617-969-7100
 or 800-225-4276, ext. 2431
 email: hlebowitz@EDC.org

Participants will explore investigations from the Connected Geometry curriculum that emphasize problem solving, reasoning, and mathematical connections aligned with the Curriculum Frameworks and the NCTM standards. The mathematical content focuses on geometry, but integrates algebra and ideas from precalculus. Participants will learn how to use these materials to build a one-year high school geometry course or as supplements to infuse middle and secondary integrated mathematics classes with a strong geometric strand.

5 days plus 3 follow-up sessions
 Graduate Credit in negotiation



"Project SEED"

Northeastern University

Grade Levels: Middle
 Date: June 30-July 11, 1997 (SEED Part A)
 July 14-26, 1997 (SEED Part B)
 Location: Northeastern University, Boston
 Registration: 30 spaces available (Part A)
 20 spaces available (Part B)
 Call: Deirdre Murphey, 617-373-8388

This institute provides an integrated, activity-based experience with strong connections to the Massachusetts Curriculum Frameworks in Mathematics, Science & Technology and the National Science Education Standards. Workshops feature both simple demonstrations and quantitative experiments. Initial sessions use a variety of measuring activities and the appropriate mathematics to develop the basic concepts of physical science. The remaining SEED A sessions investigate the basic principles of specific topics in physical science: force, pressure, buoyancy, simple machines, and motion. SEED B builds on these concepts and focuses on the following topics: earth as a planet, mixtures and compounds, temperature and heat, optics, sound, electricity and magnetism.

2 ten-day institutes plus 2.5 days follow-up
 CEUs Available



"TIMI (Technology in Mathematics Instruction)"

Worcester State College

Grade Levels: Secondary
 Date: July 14-July 25, 1997
 Location: Worcester State College
 Registration: 30 spaces available
 Call: Ann M. Pierce,
 508-793-8000, ext. 8548

Teams will explore the integration of technology tools: calculators (TI series) and the Internet to develop a curriculum with a problem-solving focus, and/or investigate computer-assisted learning using the Geometer's Sketchpad, Minitab for statistics, and graphing tools to enhance understanding of algebra through calculus. Participants will make connections between these inquiry-based programs and the Curriculum Frameworks.

10 days plus 4 follow-up sessions
 Graduate Credit Available



"Discovering Science and Math in Everyday Places"

Museum Institute for Teaching Science-MITS

Grade Levels: Elementary, Middle
 Date: July 7-18, 1997
 Location: 8 sites
 Outer Cape Cod: Cape Cod Museum of Natural History
 Southeast area: Lloyd Center for Environmental Studies
 Northeast area: Essex Shipbuilding Museum
 Greater Boston area: Massachusetts Audubon Society
 Lowell area: Tsongas Industrial History Center
 Northern Berkshire area: The Berkshire Museum
 Springfield area: Springfield Science Museum
 Worcester area: New England Science Center

Registration: 400 spaces available
 Call: 617-695-9771

Teachers and administrators, in groups of 30-60, will meet at a regional lead museum and explore the resources of at least 3 other area museums. Participants visit the museums to enhance science content knowledge, identify resources, and hands-on teaching strategies to enhance students' content knowledge. This institute provides an opportunity for inquiry, interdisciplinary connections, authentic assessment strategies, and investigations.

10 days plus 2 follow-up days • 4 Graduate Credits Available



"Physics for Physics and Non-Physics Teachers II"

Tufts University

Grade Levels: Middle, Secondary
 Date: July 14-18, 1997
 Location: Tufts University, Medford
 Registration: 21 spaces available
 Call: Ronald K. Thornton,
 617-628-5000, ext. 2825

This institute models hands-on, inquiry-based learning using Microcomputer-Based Laboratory equipment, software, and curriculum materials that connects to the learning standards in the Massachusetts Curriculum Frameworks for Science & Technology. Participants will explore the physical science concepts of motion, changing motion, and force.

5 days plus 3 days follow-up and school visits
 No Graduate Credit



"Inquiry-based Science Education Using Telecommunications"

Simmons College

Grade Levels: Elementary, Middle
 Date: June 25-27, 30, July 1, 1997
 Location: Simmons College, Boston
 Registration: 40 spaces available
 Call: Randi Lite, 617-521-2660,
 email: lite@whale.simmons.edu
 Paul Colombo, 617-521-2665
 email: colombo@whale.simmons.edu

This institute is for 10 teams of 2-4 teachers, nurses, or administrators who will learn models for integrating computers and telecommunications. Participants will explore EnviroNet and HealthNet, investigating topics such as acid rain, birds, vernal pools, food choices, energy levels and hours of sleep, and hygiene. Participants will discuss connections to the Curriculum Frameworks.

1 week plus 3 follow-up days
 Graduate Credit Available



"CityLab/Moakley Center Summer Institute"

Boston University School of Medicine

Grade Levels: Middle, Secondary
 Date: July 28 - Aug. 1, 1997
 Location: Bridgewater State College
 Registration: 12 spaces available
 Call: Constance Phillips, 617-638-5622

This institute uses telecommunications in an educational setting to engage participants in inquiry-based investigations focusing on techniques in molecular biology and DNA science. The institute targets Brockton and Bridgewater-Raynham Public Schools.

5 days plus 4 follow-up sessions
Graduate Credit in negotiation



"Interactive Mathematics"

New England Regional Center for IMP

Grade Levels: Secondary
 Date: July 7-11, 1997 (Part 1);
 Aug. 18-22, 1997 (Part 2)
 Location: Cape Cod area (Part 1);
 Amherst-Northampton area (Part 2)
 Registration: 40 spaces available
 Call: Mary Hogan, 617-489-3066

Participants will explore the IMP (Interactive Mathematics Program) curriculum through Baker's Choice, a unit representing problem situations using discrete structures, geometric concepts, estimation, and inductive and deductive reasoning. This program features the use of graphing calculators and strategies for implementation in the classroom.

2 five-day institutes plus follow-up days
Graduate Credit Available



"Mathematics as Problem Solving"

Fitchburg State College

Grade Levels: Middle, Secondary
 Date: Aug. 11-15, 1997
 Location: Alliance for Education, Worcester
 Registration: 25 spaces available
 Call: 508-754-9425

This institute provides challenging experiences in number theory, patterns and functions, probability, statistics, geometry, and discrete mathematics. Participants will engage in learning investigations that emphasize problem solving, reasoning, communications, and real-life applications.

5 days plus 3 follow-up sessions
Graduate Credit in negotiation



"INTEC"

The Concord Consortium

Grade Levels: Middle, Secondary
 Date: Session begins July 7, 1997
 Follow-up begins early October, 1997
 Location: Participant's home district
 Registration: 20 or more spaces available
 Call: Ray Rose, 508-369-4925
<http://www.concord.org/intec/intec.html>

INTEC is the International Netcourse Teacher Enhancement Coalition. This institute, open to teams of 4 or more, uses the INTEC netcourse (a body of study offered via worldwide digital electronic communications) and is designed to increase participants' knowledge of inquiry and project-based instruction. INTEC will help district teams harness the power of Lotus Notes to design standards-based curricula in mathematics and science & technology based on the Curriculum Frameworks. Participants will focus on content support for inquiry and various teaching tools by exploring NSF-funded curricula such as BioQuest, SimCalc, Hands-on Physics, & Image Processing.

4 Graduate Credits Available
Funded by the Concord Consortium



"The Watershed Model: Online and Community Resources Linked to the Curriculum Frameworks"

University of Massachusetts Boston Mass Bays Education Alliance

Grade Levels: Middle, Secondary
 Date: July 28-31 & Aug. 4-7, 1997
 Location: UMass/Boston
 Registration: 20 spaces available
 Call: Bobbie Robinson, 617-287-7654

This institute promotes watershed education, stewardship, and community problem-solving integrating educational technology. Participants will use an inquiry-based, hands-on approach to watershed education connecting environmental issues to real world problems. The institute includes field studies of the Neponset watershed.

8 days plus follow-up sessions • Graduate Credit Available



"Summer Institute for Secondary Math, Science and Technology Teachers"

The Regional Alliance for Math and Science
Museum Institute for Teaching Science
Massachusetts Audubon Society
Essex Shipbuilding Museum

Grade Levels: Secondary
Date: Aug. 18-22, 1997
Location: Ipswich River Wildlife Sanctuary, Topsfield
Registration: 10 spaces available
Call: Rosalie Toubes, 617-547-0430

This institute will engage teachers in an examination of: ways to infuse inquiry into the teaching of math, science, and technology concepts; how a curriculum can be enriched by use of investigations and applications in the real world; and building an accessible curriculum based on the Curriculum Frameworks for all students to achieve success. It will especially interest teachers who have experience in curriculum design or development and an interest in helping to design a model for other math, science, and technology teachers. A housing subsidy is available for those wishing to stay on site.

5 days plus follow-up days • 4 Graduate Credits Available
Funded by the Regional Alliance for Math and Science Education



"Technology Education in the Science & Technology Curriculum Framework"

University of Massachusetts Boston
Grade Levels: Elementary, Middle, Secondary
Date: July 28 - Aug. 1, 4-6, 1997
Location: UMass/Boston
Registration: 20 spaces available
Call: Sumner Rotman, 617-287-7919
FAX: 617-287-7922

This institute focuses on how the concepts of science are used to satisfy societal needs. Participants will explore the third strand of the Science & Technology Framework which connects science, technology, and human affairs.

8 days plus follow-up sessions • 3 Graduate Credits Available



"Science and Math in the Schoolyard"

Massachusetts Audubon Society
Grade Levels: Elementary, Middle
Date: Aug. 11-20, 1997
Location: National Fish Hatchery, North Attleboro
Registration: 25 spaces available
Call: Emily Brunkhurst or Kate Harris, 508-223-3060

Using the natural resources of the schoolyard and an inquiry-based, learner-directed approach, this institute applies the Curriculum Frameworks to outdoor science and math and facilitates the creation of interdisciplinary lessons and projects. There will be a strong emphasis on natural science content.

8 days plus 2 follow-up sessions
Graduate Credit in negotiation



"SummerMath for Teachers"

Mount Holyoke College
Grade Levels: Elementary, Middle, Secondary
Date: Grades K-6: June 29-July 11, 1997
Grades 7-12: July 20-Aug 1, 1997
Grades K-12*: July 20-Aug 1, 1997
* for teachers who attended last summer
Location: Mount Holyoke College, South Hadley
Registration: 36 spaces available
Call: SummerMath for Teachers, 413-538-2063 or Virginia Bastable, 413-538-2071

This institute casts teachers in the role of students in a classroom setting that allows them to pose questions, formulate and test conjectures, solve problems, debate ideas, describe and predict patterns, and develop their own solution procedures. Participants will make connections to the Frameworks using problem-solving and inquiry approaches.

10 days plus 3 follow-up sessions
4 Graduate Credits Available



"Math Connections"

Wesleyan University
Grade Levels: Secondary
Date: July 28 - Aug. 2, 1997
Location: Wesleyan University, CT or a site in Massachusetts (TBA)
Registration: 20 spaces available
Call: Dr. June Ellis, 860-244-1900
mathconx@aol.com

Participants will investigate the NSF-funded program Math Connections: A Secondary Mathematics Core Curriculum Initiative. Teams of teachers will explore a real world of mathematics where they will make choices, take on challenges, and develop projects. The program blends the math concepts of algebra, geometry, probability, statistics, and discrete mathematics.

6 days plus follow-up sessions
Graduate Credit in negotiation



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Malden, MA 02148



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