

Mastering the Maze
**Science in the Community:
Reaching out with Outreach**



How We Define Outreach?

- **Establishing contacts and fostering long term relationships with schools, colleges, community advocates, etc.**
- **Reaching out to the community by developing audience appropriate educational resources**
- **Accommodating Opportunities**
- **Providing resources for future explorations when available**

Outreach Players:

- **Jan Schwarz, Senior Research Technician, UVM Microscopy Imaging Center, Project MICRO Coordinator**
- **Gerard Bouffard, Ph.D., Director of Bioinformatics, NIH Intramural Sequencing Center, Adjunct Professor, Dept. of Medicine**
- **Janet Murray, Ph.D., Research Professor, Dept. of Biology, Vermont Genetics Network Outreach Coordinator**
- **Tim Hunter, Manager, VCC DNA Analysis and UVM Microarray Core Facilities, VGN Outreach Instructor**

Goals:

To engage and educate statewide community about current technological advancements

To promote scientific literacy

To provide information about research activities at the University of Vermont

Outreach Development and Implementation Considerations:

- **Establishing contacts**
- **Programs offered**
- **Format: Internal vs. External**
- **Funding**
- **Outcomes: tracking**

Targeted Audiences:

- Intermediate Grades and Middle Schools
- High Schools
- Vermont Colleges
- Public Community



Middle Schools:

*Franklin, Chittenden, Lamoille, Addison, Rutland,
Washington, and Caledonia Counties*

Establish Contacts: Personal, Word-of-Mouth, Poster, MAZE

Programs Offered: Project MICRO, Tours, “Hands-On” Labs,
Speakers

Locations: UVM Microscopy Imaging Center Lab; UVM Pathology Museum;
Elementary and Middle Schools; Community Libraries

Funding: New England Society for Microscopy, UVM Women’s Center
Grant, Volunteers

Outcomes: Enthusiasm for the life sciences; Scientific Literacy



Venues

- Tent on Town Green
- Self-contained Classrooms
- Science Labs
- School Library
- Band Room
- UVM Teaching Lab
- Community Library



Logistics

- Meet with Teacher / Visit Venue
- Map Festival Layout - Power Sources
- Prepare Brine Shrimp Larvae / Adults and Pond Water
- Replenish "Kit" Contents
- Set-Up (3 hours)
- Project MICRO Festival (2 ½ hours)
- Take-Down (1 hour)







High Schools:

*MMUHS, CVUHS, EJHS, BFA St. Albans BFA
Fairfax, EHS, Pine Ridge*

- **Establish Contacts:**
 - **Contact through College, Dept., Professional, personal (child), National DNA Day**
- **Programs Offered:**
 - **Tours, “hands-on”, lectures**
 - **Human Genome Project, DNA Sequencing Technology, Microarray Technology, Healthy Lung vs. Tumor Lung Gene Expression Profiling, DNA Day**
- **Location: On site and in schools**
- **Funding: Volunteer, manufacturers, NHGRI**
- **Outcomes: Generate enthusiasm for the life sciences, increase university applicants?, internships**

NIH Intramural Sequencing Center

- High throughput sequencing of EST and SAGE type projects
- BAC-based Comparative Genomics Project
- Large-scale medical sequencing projects
 - ClinSeq
- Human Microbiome NIH Roadmap Project
- Forefront of “Next Generation” DNA sequencing technologies and related techniques

Educational resources available outside of UVM

The screenshot shows a web browser window displaying the 'genome.gov | Educational Resources' page. The browser's address bar shows 'http://www.genome.gov/Education/'. The page header includes the 'genome.gov' logo and 'National Human Genome Research Institute' with the tagline 'Accelerating the Future of Health'. A navigation menu contains links for 'Home', 'About NHGRI', 'Science', and 'Staff'. Below this is a secondary menu with 'Research', 'Grants', 'Health', 'Policy & Ethics', 'Educational Resources', and 'Careers & Training'. The main content area is titled 'Educational Resources' and features a sub-header 'Educational materials about genetics and genomics for students, teachers and the general public'. A prominent banner reads 'Get Ready for the Next National DNA Day!' with a date of 'APRIL 25 2008'. The text explains that National DNA Day is a unique day for learning about genetics and genomics, commemorating the completion of the Human Genome Project in April 2003. It promotes the 'National DNA Day 2008 Newsletter' and 'DNA Day Previews' as resources. A section titled 'Understanding the Human Genome Project' describes a multimedia educational CD. The right sidebar contains a 'See Also' section with links to 'Accessibility and Community Involvement Branch', 'On Other Sites' (listing various educational partners), and 'En Español' (providing a Spanish version of the newsletter).

genome.gov | Educational Resources

http://www.genome.gov/Education/

genome.gov
National Human Genome Research Institute
Accelerating the Future of Health

Home | About NHGRI | Science | Staff

Research | Grants | Health | Policy & Ethics | Educational Resources | Careers & Training

Educational Resources

Educational materials about genetics and genomics for students, teachers and the general public

Get Ready for the Next National DNA Day!

National DNA Day is a unique day where students, teachers and the public can learn more about genetics and genomics! It was created to commemorate the completion of the Human Genome Project in April 2003, and the discovery of DNA's double helix. To learn all About National DNA Day, go to [National DNA Day](#).

National DNA Day 2008 Newsletter
The March 2008 issue of **DNA Day Previews** is now available. **DNA Day Previews** is a monthly newsletter about National DNA Day 2008 brought to you by NHGRI's Education and Community Involvement Branch.

Understanding the Human Genome Project

Understanding the Human Genome Project is a multimedia, educational CD that covers the basics of molecular biology and includes learning modules to help high school students understand genetics, molecular biology and The Human Genome Project.

See: [Understanding the Human Genome Project](#)

See Also:

[Accessibility and Community Involvement Branch](#)

On Other Sites:

- Center for Education Outreach at the University of Kansas, Medical Center
- Human Genome Education Web Consortium, SUNY Albany
- The March Newsletter of The American Society of Human Genetics
- National Coalition for Health Professional Education in Genetics

En Español:

[Genética y Genómica: El primer paso](#)
Un glossario de los términos más importantes relacionados con la genética y la genómica.

[De Paso a Futuro](#)
Recursos al mundo de la genética y la genómica de Proyecto Humano de Genética y del Futuro de Genética y Genómica.

National DNA Day

April 25, 2008 is National DNA Day!

National DNA Day Home | [Online Chatroom](#) | [Webcasts & Podcasts](#) | [Ambassador Program](#) | [Teaching Tools](#) | [News & Features](#) | [Feedback](#)



National DNA Day is a unique day where students, teachers and the public can learn more about genetics and genomics! It was created to commemorate the completion of the Human Genome Project in April 2003, and the discovery of DNA's double helix.

New for DNA Day 2008!

- **Remember to participate in our annual live [Online Chatroom!](#)** new
 - The chatroom will be open from 8:00 a.m. to 6:00 p.m. (Eastern) on April 25, 2008, National DNA Day.
 - Students, teachers, everyone, can chat with leading researchers in the field of genetics.
 - Browse last year's (2007) [Online Chatroom Transcript](#)
- **The American Society of Human Genetics Essay Contest** new

At 2 p.m. on April 25, learn the winners selected by the [American Society of Human Genetics](#) [ashg.org] for their [DNA Day Essay Contest](#) [genednet.org]. The Third Annual DNA Day Essay Contest is sponsored Hudson Alpha Institute for Biotechnology and Applied Biosystems.
- **Read the [February 2008 DNA Day Previews](#)** new

Community of Genetic Educators

The screenshot shows a web browser window with the address bar displaying <https://www.coge.nih.gov/Default.aspx>. The page title is "Welcome to the Community of Genetic Educators". The main header features the CoGE logo (a green square with a white DNA double helix) and the text "COMMUNITY OF GENETIC EDUCATORS". Below the header is a navigation menu with links for "WELCOME", "MY PAGE", "RESOURCES", "EVENTS", "MEMBERS", and "DISCUSSIONS", followed by a search box. The main content area is divided into several sections:

- Login and Register:** A yellow box containing "Register" and "Sign In" buttons, with links for "Register (New Members)" and "Sign-In (Existing Members)".
- Resource Highlights: A Closer Look At What 's Inside:** A yellow box with a note: "Note: All of these links are active inside the CoGE website in the 'Resources' panel". It includes a "Planning DNA Day?" section with a "DNA Day 2008 U.S. Postcard" image and text: "Experts are live to offer tips and support every Wednesday, 3-5pm ET in the CoGE forum." Below this is a "DNA DAY Newsletter" section: "It's new monthly and loaded with tips. Sign-up inside at the 'Event' page in DNA Day 2008." At the bottom of this section is a "Meet CoGE Featured Member: Toby Horn" section with a photo of a woman and text: "CoGE helps you meet one another in many ways. One is through our 'Featured Member' area."
- Events / Conferences / Courses / Meetings:** A yellow box listing "National DNA Day 2008 / April 25, 2008", "NABT / Future Conferences", and "NSTA / National Conference / Boston: Mar. 27-30, 2008".
- CoGE News Links for the Busy Educator:** A yellow box with text: "CoGE includes an up-to-date compendium of online news stories about research and happenings in genetics and biology - all gathered with the science teacher in mind. Here's a sample. A larger list is ready to use in the CoGE 'Resource' area." Below this is a section for "Recent Science Education Newslinks:".

Additional High School Offerings

- CVU Grad Challenge Mentors
- “Clearinghouse” for surplus equipment, supplies, “out-dated” antibodies, etc.
- Summer internships
- MedQuest Camps
- Governor’s Institute of Vermont
- Pathology specimen “hands-on” lab experience



Vermont Colleges:

Castleton State College, Green Mountain College, Johnson State College, Lyndon State College, Marlboro College, Middlebury College, Norwich University, St. Michael's College, University of Vermont

- **Establish Contacts:**
 - **Contact through College Faculty of Administration**
- **Programs Offered:**
 - **Microarray Module**
 - **Bioinformatics Module**
 - **Field trips**
- **Location: At Vermont Colleges with an onsite tour**
- **Funding: Vermont Genetics Network (NCRR-INBRE)**



Undergraduate Outreach Outcomes

Students



Exposure to Cutting Edge Technology
Interactions with Faculty at UVM
Internships
Career Networking



Baccalaureate Faculty

Gaining Expertise
Curriculum Development
Granting Opportunities
Collaborations
More Scientific Colleagues

UVM Core Facility

Collaborations
Facility Usage
Networking Throughout the State
Interactions with Students



Community Outreach in Vermont: Breast Cancer Survivor Conference, Community Rounds,

- **Establish Contacts:**
 - Contact through College, Dept., Professional, personal
- **Programs Offered:**
 - Tours, lectures
 - **Current State of the Art Technologies in Molecular Genetics, Pharmacogenomics**

- **Location: On site**
- **Funding: Volunteer, Dept.**



- **Outcomes: Generate enthusiasm for the life sciences, Better understanding of current research activities and the role they play in health maintenance, Dispel University Myths, Donations?, New advocates**

Presentation can be viewed or downloaded at the following URL's

- <http://www.uvm.edu/~vgn/index.php?ContentID=78>
 - Vermont Genetics Network
- <http://vermontcancer.org/index.php?page=dna-educational-series>
 - Vermont Cancer Center, DNA Analysis Facility