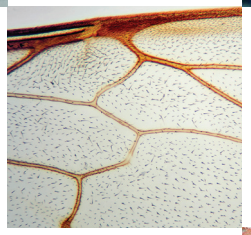
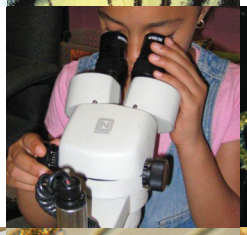
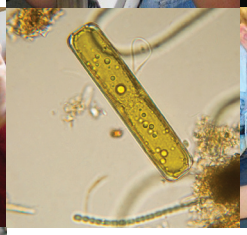
What is Project MICRO?

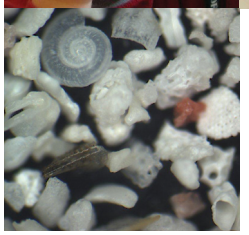
The popular press is full of articles about the poor state of science education, and the scientific press adds editorials about the need for help from science professionals. Microscopists are particularly valuable as volunteers in the schools, because a microscope is arguably the best "tool of science" to use to introduce scientific inquiry. It's certainly exciting for a child who has never used one before! Because of this, the Microscopy Society of America (MSA) has developed Project MICRO, an outreach program for middle schools. It provides microscopy-based teaching materials, member-volunteers to help in the classroom, and online resources. Since middle school students are studying general science, rather than various elective sciences, it's possible to reach them all. MICRO's goal isn't to teach microscopy; the microscope is used to introduce critical observation and inquiry.

CAROLINE SCHOOLEY
MSA National Coordinator for Project MICRO
www.microscopy.org/education/projectmicro/index.cfm





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COLLEGE OF MEDICINE

Vermont Cancer Center
University of Vermont • Fletcher Allen Health Care

Project MICRO

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Using MSA's Microscopic Explorations which was written in collaboration with the science education specialists at the Lawrence Hall of Science (LHS), the UVM College of Medicine's Microscopy Imaging Center provides materials, equipment, and staff to facilitate the experience designed for grades 5–8.

APPROPRIATE FOR GRADES 5-8

Pertains to the following Vermont Standards:

COMMUNICATION

1.8 In written reports, students organize and convey. information and ideas accurately and effectively
1.17 Interpret and communicate using mathematical, scientific, and technological representation.

REASONING AND PROBLEM SOLVING

2.2 Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.
2.6 Apply prior knowledge, curiosity, imagination, and creativity to solve problems.
2.12 Modify or change original ideas and/or ideas of others to generate innovative solutions.

PERSONAL DEVELOPMENT

3.3 Demonstrate respect for themselves and others.
3.10 Students perform effectively on teams that set and achieve goals, conduct investigations, solve problems, and create solutions (e.g., by using consensus-building and cooperation to work toward group decisions).

INQUIRY, EXPERIMENTATION, AND THEORY

7.2 Students design and conduct a variety of their own investigations and projects.
7.5 Students analyze the roles and responsibilities of scientists, mathematicians, and technologists in social, economic, cultural, and political systems.
7.11 Students analyze and understand living and non-living systems (e.g., biological, chemical, electrical, mechanical, optical) as collections of interrelated parts and interconnected systems.
7.12 Students understand forces and motion, the properties and composition of matter, and energy sources and transformations.
7.13 Students understand the characteristics of organisms, see patterns of similarity and differences among living organisms, understand the role of evolution, and recognize the interdependence of all systems that support life.
7.17 Students apply knowledge and understanding of technological systems to respond to a variety of issues.

What we will bring:

- 5 dissecting microscopes
- 5 compound microscopes
- 10 pocket microscopes (30x)
- Hand lenses
- All materials and printed instructions for 10 Learning Stations
- Master copy of Student Booklet for teacher to photocopy
- 1-2 Microscopy professionals to lead and supervise the Micro Festival

What you need to supply:

- Tables or lab benches for 10 Learning Stations
- Access to power for 8 Learning Stations (flashlights are acceptable for 3 of the stations)
- 10-40 Interested students in groups of 2-4
- Copy of Student Booklet or Journal for each student
- 2-2.5 hours of class time for the Micro Festival

10 Learning Stations

UP CLOSE

Construct water drop magnifiers and investigate properties of magnifying lenses.

FINGERPRINT RIDGES

Lift impressions of fingerprints; find details of ridge patterns.

SALTS

Observe and compare crystals of various salts; identify a salt involved in a make-believe highway spill.

DOTS AND DOLLARS

Examine a range of imaging and printing techniques; determine how images are formed.

FABRICS

Observe a variety of fabrics; determine how each is made.

FLOWER POWER

Observe plant materials and dissect a flower.

SAND

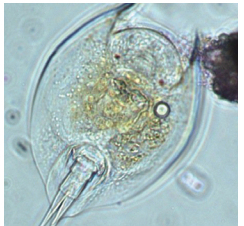
Compare sand samples from several geographic locations.

SMALL CREATURES

Study structures of dried insects, spiders, isopods and more.

BRINE SHRIMP

Observe live Brine shrimp; compare appearance; specific structures, and movement patterns of adults, larvae and eggs.



POND LIFE

Compare animal and plant life found in a pond.