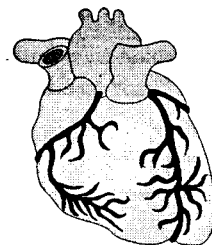


Have Your Students Experience the Excitement of Scientific Discovery Firsthand on a Medical College Campus!



The Medical College of Wisconsin (MCW)
Center for Science Education
offers programs for Kindergarten through 12th grade.

A Day as a Scientist

Students travel to the MCW Center for Science Education to participate in our **A Day as a Scientist** program. These hands-on laboratories utilize the equipment and expertise of the Medical College to provide grade-appropriate experiments and activities emphasizing hypotheses-based problem solving and inquiry-based scientific exploration. Prior to arrival, educators will receive an overview of the laboratory and its relationship to the new National Science Standards. See reverse side for a detailed description of available topics.

Science on Wheels

Science on Wheels, presented by the MCW Center for Science Education, provides exciting laboratory exercises to complement your science and math curriculum without leaving your classroom. Prior to the Center's visit, educators will receive an overview of the laboratory and its relationship to the new National Science Standards. A morning and afternoon class may be booked on a single day. See reverse side for a detailed description of available topics.

Advanced Laboratories

The **Advanced Laboratory Program** at the MCW Center for Science Education offers a number of challenging laboratory experiences for high school science students. These units present an integrated approach to science and are appropriate for students enrolled in biology, chemistry, physics, or anatomy and physiology. Labs are designed to interface with school curricula and provide access to technology not readily available in the classroom. See reverse side for a detailed description of available topics.

Maximum class size is 30 students. If you would like to bring more than 30 students at one time, we may be able to schedule two classes simultaneously. Fees are listed below.

Day as a Scientist	\$5.00 per student (minimum charge \$75.00)
Science on Wheels	\$5.00 per student plus \$50.00 van fee (minimum charge \$125.00)
Advanced Laboratories	\$9.00 per student (minimum charge \$135.00)
Adv. Laboratories on Wheels	\$9.00 per student plus \$50.00 van fee (minimum charge \$185.00)

Visits can be adjusted in length to meet your class schedule and needs. Average lengths for the labs are 3-4 hours for high school, 2.5-3 hours for middle school, 2-2.5 for upper elementary and 0.5-1.5 for lower elementary grades. The fee for K-3 students is \$3.00 per student (minimum charge \$45.00) plus van fee, if applicable. See reverse side for labs available to K-3. Visit our website <http://instruct.mcw.edu/cse> for more information.

If you are interested in reserving a place for your class,
please call us at (414) 456-8191.



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over



Programs offered in A Day as a Scientist and Science on Wheels

The Cardiovascular System:

Dance to The Beat! (grades 4-9)

By measuring their own heart rates and examining actual specimens, students explore the components of the cardiovascular system (heart, lungs, veins, arteries, & capillaries) and learn to see them as interconnected elements of a single dynamic system.

The Digestive System:

You Are What You Eat (grades K-9)

Through building a life-size model, investigating the role of enzymes, and examining actual specimens, students are encouraged to visualize the process of digestion and become familiar with the organs involved in transforming the food they eat into the energy their cells need to function.

The Skeletal System:

Your Skeleton's Alive! (grades 4-9)

By constructing a life-size skeleton, performing a bone dissection, and participating in an egg drop experiment, students will explore how their skeleton provides structure and support, enables movement, serves as a mineral reserve, and produces blood cells.

The Respiratory System:

Every Breath You Take (grades 4-9)

By constructing a functioning model lung, determining lung volume, and examining actual specimens, students will become familiar with the basic structure and function of the respiratory system.

Molecular Genetics:

It's All in Your Genes (grades 4-9)

Students gain a basic understanding of the mechanics of genetics as revealed through the structure and function of the hereditary material, DNA. Students in grades 4 through 6 construct a fictitious "dinosaur chromosome". Students in grades 7 through 9 extract DNA from duck blood and analyze human chromosome number and form (karyotyping).

Space Physiology:

Living in Space (grades K-9)

Students will learn about the problems astronauts face when living and working in space by experiencing the effects of movement in a space suit and the importance of teamwork. Younger students prepare and eat space pudding, while 4th through 8th grade students construct a robotic arm and determine how to survive a crash landing on Mars.

Advanced Laboratories (Grades 9-12)

DNA Fingerprinting:

Finding Answers with DNA Analysis

Students experience some of the basic techniques of molecular biology through DNA restriction enzyme digestion, gel electrophoresis and plasmid mapping.

Bacterial Transformation:

Cloning and Expressing a Protein that Glows

Students learn about gene expression and the structure-function relationship of proteins by experiencing a technique basic to recombinant technology.

Investigating Chromatography:

Pharmacology and Toxicology

Students learn the principles of paper, column, and thin layer chromatography while exploring the basics of pharmacology and toxicology using the mechanism of action of several common analgesics as examples.

Molecules and Mutation:

Sickle Cell Anemia

Students will explore protein structure using hemoglobin and sickle cell anemia as a model system. The molecular genetics of the globin protein is discussed and protein electrophoresis of hemoglobin samples is performed to help understand the principles underlying current diagnostic techniques.

Exercise Physiology:

The Aerobic Machine

Students perform mild to moderate levels of exercise, while others monitor changes in the exercising student's heart rate, blood pressure, temperature and glucose levels. Students then use this data to investigate the biological principle of *homeostasis*.

Other opportunities offered by the Center for Science Education

Mini-Medical School

Open to the public, Mini Medical School allows community members to explore the rapidly changing world of medicine and health care in a friendly and relaxed environment. The faculty and staff of the Medical College of Wisconsin teach this popular lecture and laboratory series. Call (414) 456-8191 to receive the mailing for the next Mini Medical School.

Summer Mini-Medical School is designed for high school students who are interested in pursuing medical or science careers. Many classes include hands-on laboratories, illustrating and reinforcing the scientific principles learned in the lectures. Call (414) 456-8191 to receive the mailing for the next Summer Mini Medical School.

Professional Development

The Center for Science Education also offers quality professional development in science for elementary, middle and high school teachers. Course content is designed to assist teachers in meeting the new science and math standards and offers examples of and guidance in the design of inquiry-based teaching modules and laboratory exercises. Call (414) 456-8191 to explore the possibilities with us.