

SCIENCE EXPLORATION DAYS 2008

SENIOR HIGH DAY

Grades (9) 10-12

Wednesday, May 14

9:30 am - 1:00 pm

Sponsored by
Central Western Section
Science Teachers Association of New York State

St. John Fisher College
Rochester, New York 14618

201. STOP DWI – FATAL VISION GOGGLES

Jean Triest (Monroe County Office of Traffic Safety)

A discussion of the impact other people's choice to drink and drive can have on your life.

202. WILDLIFE DETECTIVE

Ron Schroder (NYS Department of Environmental Conservation, retired)

You'll learn how to detect the wildlife that lives around us by identifying the clues they leave behind. Hands-on samples will aid your sleuthing.

203. EYE, TISSUE, AND ORGAN DONATION

Karen Guarino (Rochester Eye and Tissue Bank)

Team up with others to play an interactive game "STAT RUN" that is fast paced, full of fascinating information, and designed to teach and explore the field of organ and tissue donation.

204. FORENSIC DENTISTRY

Dr. Frederick J. Halik (Office of the Monroe County Medical Examiner)

Teeth are often the only remains of a decayed or burnt body. They can be used to identify the victim and solve crimes. (Not for the squeamish!)

205. WHITE-TAILED DEER: HISTORY AND BIOLOGY

John R. Hauber (New York State Department of Environmental Conservation)

While our forebears and Native Americans once depended on deer for survival, now the deer depend on us. We will discuss deer biology, including antler development and deer aging techniques.

206. ETHNOGRAPHY: STUDYING OTHERS

Dr. John Rhoades (St. John Fisher College)

We will explore the methods that cultural anthropologists use in participating in, observing, and describing other cultures. Is it possible to be unbiased and achieve a reliable and valid understanding of another culture? What are the ethical dilemmas of becoming both a "stranger" and a "friend"?

207. THE EXCITEMENT OF CHEMISTRY

Dr. Kenneth Schlecht (SUNY College at Brockport)

View an array of numerous chemical phenomena intended to surprise you and catch your interest. Witness explosions, color changes, and fire, all designed to generate thought and a scientific explanation.

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208. EINSTEIN'S RELATIVITY – 100 YEARS OLD AND STILL VERY COOL!

Dr. Steven Manly (University of Rochester)

We will discuss the origin and consequences of Einstein's special theory of relativity, which was published 100 years ago. We will explore the relative nature of space and time, including bizarre phenomena such as time dilation, length contraction, and the relativistic concepts of simultaneity and causality.

209. ADVENTURES IN CIVIL ENGINEERING

William VanAlst (American Society of Civil Engineers)

The role of the civil engineer in solving problems is developed through discussions. A variety of careers in engineering will be explained.

210. HUBBLE SPACE TELESCOPE DISCOVERIES

James Secosky (Finger Lakes Community College)

Take a look at some of the awesome discoveries made with the Hubble Space Telescope!

211. GEOGRAPHY AND GEOLOGY OF MARS

James Secosky (Finger Lakes Community College)

The speaker is an amateur astronomer who has received many pictures of Mars using NASA's Mars Global Surveyor. We will discuss naming of major features on Mars and describe the major geologic characteristics.

212. WEB PAGE BUILDING

Robert Palmer (Rochester Democrat and Chronicle)

Learn how to build a *better* Web page. Use tables for layout, and animation to add interest. If you understand basic Web design, this is for you. You are encouraged to bring pictures (JPG or GIF) on a floppy disk. If you bring a disk, you can take your creation home.

213. LASER FUSION

Dr. Reuben Epstein (University of Rochester, Laboratory for Laser Energetics)

At the Laboratory for Laser Energetics, the powerful 60-beam OMEGA laser compresses and heats tiny hydrogen targets to conditions found near the center of the sun. We will explain how these experiments produce thermonuclear fusion, similar to the fusion power source of the sun, and how this could develop in the future into a commercial power source. We will also present highlights from our Summer High School Research Program.

214. FORENSIC EVIDENCE SOLVES CRIMES

Sr. Investigator Thomas Gehl (New York State Police)

A synopsis of the duties and functions of the NYSP Forensic Identification Unit (Crime Scene Unit) will reveal the techniques and equipment used to help solve crimes. Fingerprints and DNA evidence will be discussed. Actual crime scene photos (some graphic), including homicide and autopsy photos, will depict some of the procedures used.

215. PHYSICAL THERAPY

Connie Chau (Assistant Professor, Nazareth College)

Come find out what a physical therapist does and who needs physical therapy. Learn about common types of injuries and things you can do to prevent them.

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216. BIOINFORMATICS: REVOLUTIONIZING SCIENCE AND THE SCIENTIFIC METHOD

Dr. Gary R. Skuse (Rochester Institute of Technology)

A revolution has taken place in modern biology over the last 40 years. Powerful technologies have been developed, both in the laboratory and in the computational tools used to analyze data, which collectively enable us to answer questions which were previously unapproachable. Nevertheless there remain countless challenges. For example, obtaining the sequence of the entire human genome is only the first step toward understanding what the sequence means, but we still need to extract information and knowledge from the raw data. An emerging field within biology is Bioinformatics, the exciting marriage of computers and biotechnology that is being used to identify the genes responsible for disease and to develop drugs and vaccines to combat those diseases. The tools used by bioinformaticists enable discoveries and are leading to rapid advances in our understanding of biology and genetics.

217. CRIME SCENE INVESTIGATION

Dan Lyon (Monroe County Sheriff's Office)

Students actively participate in fingerprint development, use of infrared spray, and other techniques used to investigate crimes.

218. GEMSTONE IDENTIFICATION

Paul Dudley (Rochester Lapidary Society)

Learn about the science that is used to identify colored gemstones. Most gemstones can be accurately identified by making careful observations of their properties, and by using a few simple tools and instruments. You will learn how light and gravity interact with gems to reveal their secrets.

219. TRANSFORMING NUCLEAR ENERGY INTO ELECTRICITY

Michael Mann (Constellation Energy/Ginna Nuclear Power Plant)

Find out how nuclear energy is safely transformed into electricity at a nuclear power plant. Learn about the Ginna Station's past, present and future. We'll also take a look at some radioactive materials found in your home or neighborhood.

220. INCREDIBLE INSECTS

Robert J. Iveson Jr. (Ward's Natural Science Establishment, retired)

Learn why insects are so successful and why "bugs" may not be as bad as most people think they are. The amazing adaptations and dynamic diversity of earth's most abundant life forms will be illustrated with actual (and live) specimens.

221. ULTRASOUND: THE CAREER OF THE FUTURE

Prof. Hamad Ghazle and Jodie Crowley (Rochester Institute of Technology, Allied Health Sciences)

Looking for an exciting career in the medical profession where you can use sound waves to take pictures of babies, hearts, livers and much more? Have you ever seen three-dimensional pictures of babies before they are born? Come and see what the field of Ultrasound has to offer you.

222. LIGHTNING EXTRAVAGANZA

Jamie Oliver (Electronic Engineer, Eastman Kodak Company)

Witness a 4-foot, continuous lightning discharge from a 1,800-watt Tesla Coil. Experience plasma forming, and learn about Nikola Tesla, one of the world's true genius inventors.

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223. BE RED CROSS READY

Kathy Cufari (American Red Cross)

Find out how to prepare for possible disasters and other life threatening emergencies. You will learn to prepare a kit, develop a communications and evacuation plan and find out what types of disasters and emergencies are most likely to occur in your area. You will also learn about heart attack, stroke, shock, bleeding, and injuries.

224. MASTODONTS IN THE MUCK

Jutta Siefert Dudley, Ph.D (SUNY College at Brockport)

Many swamps across the Great Lakes region contain the skeletal remains of elephant-like creatures called mastodons that were part of the Ice Age ecosystem. How did these animals live and why did they become extinct? Come find out what we know so far. You'll examine some samples and see how paleontologists digging in the muck uncover the past.

225. ENVIRONMENTAL AND SCIENCE POLICY

Jamie Romeo

We will discuss a number of local issues regarding science and public policy, and the application of what is learned in the classroom to real life situations, legislation and other critical decision making.

226. EXPLORING ENGINEERING

Dr. Margaret Bailey (WE@RIT Executive Director, Kate Gleason Chair, Associate Professor)

This session will introduce students to the world of engineering with some fun, hands-on activities and question and answer session with engineering faculty and students from The Kate Gleason College of Engineering at RIT.

227. POLYMERS

Tim Cawley (Rochester Museum and Science Center)

Explore the amazing world of Polymer Chemistry in this totally hands-on program. Perform experiments to make different kinds of polymers like slime, nylon, and Styrofoam. Extract DNA from a banana!

228. NANOTECHNOLOGY

Tom Schulte (Education Outreach Coordinator, Microelectronic Engineering Department at RIT)

A discussion as to how nanotechnology relates to today's electronic industry.

229. CARDIAC PHYSIOLOGY

Marc Connolly

This talk will cover the physiology of the heart and how the body reacts to cardiac emergencies. We will also discuss what can be done to prevent and treat these emergencies.

230. ENDANGERED WILDLIFE OF NEW YORK

Mr. Mike Wasilco (New York State Department of Environmental Conservation)

Find out why wild animals become endangered and which species are vulnerable to extinction. We will focus on what is being done to help rare wild animals in New York such as Bald Eagles, Bog turtles, and Karner Blue Butterflies