



March 2024 NEWSLETTER

Upcoming Events

TEP

Bite of Science

- Assessment, Permitting, and Management of Environmental Impacts
March 20th; 5:00 – 6:00 PM
[Click here to register!](#)

STEM Lyceums

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For Teachers & Students

STEM Spotlight

Dr. Kelley Harris



Kelley Harris, PhD, M. Phil, AD (USABO '03 and '04) a computational biologist, investigates the recent evolutionary history of various species, including humans, through population genetic theory and high-throughput biological sequence analysis. Her primary focus is on mutagenesis, exploring how genetic mutations arise and evolve over time due to both spontaneous processes and environmental exposures. Harris also examines the impacts of demographic dynamics, inbreeding, and hybridization on natural selection dynamics, especially concerning gene flow between modern humans, Neanderthals, and other extinct hominids. Through the development of statistical models, she aims to refine our understanding of genome and population evolution, shedding light on the intricate mechanisms driving evolutionary change.

Teacher Enrichment Program

Teachers invited to Virtual Bite of Science and College & Career Panels to learn about new cutting-edge research and technology.

STEM Lyceums

Students can join the virtual Lyceum club to build STEM communities and engage in discussions and explorations of STEM concepts and STEM career pathways.

USABO

Students and teachers register their school for the opportunity to be a part of the premier biology competition open to all schools in the United States.

STEM News

The doctor behind the next big thing in cancer treatment

Summary:

Dr. Catherine Wu, an oncologist at Boston's Dana-Farber Cancer Institute, has been awarded the Sjöberg Prize for her groundbreaking contributions to cancer research. Wu's work focuses on developing personalized cancer vaccines tailored to an individual's tumor genetic makeup. These vaccines, based on small mutations in tumor cells, create unique neoantigens recognized by the immune system, potentially revolutionizing cancer treatment.

However, challenges remain, including the need for larger trials, cost-effective manufacturing, and determining optimal combinations with other treatments. Despite uncertainties, early vaccine trial participants report life-changing results, emphasizing the potential impact of this innovative approach to cancer treatment.

Partner Opportunities

Claude Moore Charitable Foundation

The Claude Moore Scholars Program, a flagship initiative of CMCF, was conceived in 2005 to provide education and training for high school graduates, preparing them for the workforce and fostering continuous learning and growth. Currently supporting 48 school districts in Virginia, CMCF aims to create a "Health Sciences Workforce Highway," akin to the state's "Tech Talent Pipeline," emphasizing early STEM engagement, improved high school teaching, and overcoming barriers to higher education. The initiative also acknowledges the evolving education and career paths individuals undertake beyond traditional timelines.

STEM Bellringers

Click the links for the answers

[Are there any parts of the human body that get oxygen directly from the air and not from the blood?](#)

[How does plasma make a campfire flame orange?](#)

[Does wasting household water remove it from the water cycle?](#)

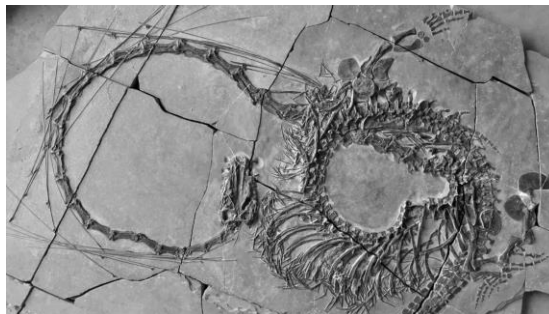
[Did cancer exist before man-made chemicals were around to create it?](#)

STEM Activities

Cool STEM

Scientists unveil 240-million-year-old 'dragon' fossil

Scientists have unveiled the ultimate dragon discovery – a fully revealed 240-million-year-old marine reptile named *Dinocephalosaurus orientalis*. Resembling a mythical Chinese dragon, this five-meter-long creature from China's Triassic period was finally unveiled using newfound fossils. With its sleek figure-eight posture, it exudes an otherworldly vibe. The mystery deepens with a 32-vertebrae-long neck, hinting at its fish-catching prowess in rocky waters. Fossilized fish in its stomach and flippered limbs add to the cool factor, supporting its adaptation to a marine lifestyle. The creature's long neck even draws parallels with the equally puzzling *Tanystropheus hydroides*. In the Triassic's bizarre animal kingdom, *Dinocephalosaurus* stands out, leaving scientists fascinated by its unique aquatic behaviors. Welcome to the extraordinary world of ancient marine reptiles!



STEM Scholarships/Internships

Students

[The Gates Scholarship](#)

[GE-Reagan Foundation Scholarship Program](#)

[Ron Brown Scholarship](#)

[Sierra Nevada Corporation Women in STEM Scholarship](#)

[Amazon Future Engineer Scholarship Program](#)

[Foot Locker Scholar Athletes Program](#)

[McDonald's Hacer National Scholarship](#)

[United States Senate Youth Program](#)

Teachers

[Albert Einstein Distinguished Educator Fellowship \(AEF\) Program](#)

[McCarthy Dressman Teacher Development Grants](#)

[NEA Foundation Learning and Leadership Grants](#)

[NEA Foundation Envision Equity Grants](#)

Classroom Activities

[The coin battery experiment](#)

[Oreo cookie moon phase](#)

[Measure the speed of light with chocolate](#)