State and Tribal Governmental Working Group

U.S. Department of Energy (DOE)
Office of Legacy Management (LM)

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Agenda

- LM mission
- STEM with LM program
- Tribal STEM
- Q&A

Groundwater model simulation with student (2017)
Office of Legacy Management

Mission: Fulfill the Department of Energy’s post-closure responsibilities and ensure the future protection of human health and the environment.
LM Overview

Long-term stewardship

Partnerships

Field activities

Stakeholder engagement

Historic preservation

Beneficial reuse
LM Interpretive Centers

Weldon Spring Site Interpretive Center
St. Charles, Missouri

Fernald Preserve Visitors Center
Hamilton, Ohio

Atomic Legacy Cabin
Grand Junction, Colorado
STEM with LM
History of STEM

- Science, technology, engineering, and math (STEM) education
- Acronym introduced in 2001 by scientific staff at the U.S. National Science Foundation
- In early 2000s, international studies showed American students alarmingly underperformed in STEM competency
- **White House’s 2018 STEM Education Strategic Plan**
Next Generation Science Standards (NGSS)

- “A goal for developing the NGSS was to create a set of research-based, up-to-date K-12 science standards”
- Three distinct and equally important dimensions to learning science:
  - Practices
  - Core ideas
  - Crosscutting concepts

Next Generation Science Standards

Students participating in a program at the Weldon Spring Site Interpretive Center (2019)
The Process of Building a New Program

- Where do you begin?
- What do you call it?
- How do you define success?
- What are the requirements?
- What’s the need or opportunity?
- How to build support?
- How do we do this during the COVID-19 pandemic?
Start at the Beginning

- **STEM with LM purpose statement:**

  “LM's STEM program brings to life the awe-inspiring and world-changing advancements and events of the nuclear age, remedial actions, beneficial reuse, and ecological transformations for the current and next generation of students, families, and communities through the expertise of educators and technical experts working every day to ensure continued protection of human health and the environment.”

- Total solar eclipse public event at the Weldon Spring Site (2017)
Build a Plan and Adjust

- Goals and objectives
- Define project scope
- Schedule
- Develop graphic products
- Build a webpage
- Set budget and assign staff
Initial Launch of STEM with LM

- Program Update, January-March 2020

LM Director Carmelo Melendez engages with students at the Weldon Spring Site Interpretive Center (2019)
Launched in April 2020, in conjunction with the 50th anniversary of Earth Day

Webpage provides:
- Activities at home and in the classroom
- Ask LM — An easy way to connect students and educators with LM staff and subject matter experts
- Internships — Information regarding internships and employment with LM
- Interpretive centers
- Resources — LM publications and reference materials
- Partners — Connecting with other federal agencies and partners

Visit the STEM with LM webpage

www.energy.gov/1m/programs/stem-lm
STEM with LM Webpage — Public Activities

STEM with LM webpage materials
Staff Training and Support

Ongoing training opportunities

Presenter Skills Training and Development

Shawn Montgomery
Kevin McCarthy (RSI EnTech)
U.S. Department of Energy (DOE)
Office of Legacy Management (LM)
April 27, 2021

Bimonthly team building

STEM with LM Community of Practice

February 2, 2022
Success Story

- Partnership program with **We are R.I.S.E.**
  - Girls, ages 7-12, in south central Los Angeles — primarily from underrepresented communities

- Virtual program hosted by LM Site Manager Darina Castillo

- Follow-up programs throughout summer by each of LM’s interpretive centers

- Read the article: “**STEM with LM Inspires Young Audiences and Brings Learning to Life**” (July 14, 2021)

We are R.I.S.E girls conduct a home-based experiment by blowing up a balloon using baking soda and vinegar to create carbon dioxide (2021)
Tribal STEM Activities, Outreach, and Upcoming Events
STEM Activities

- Participation in the 2022 American Indian Science and Engineering Society (AISES) Conference
  - STEM Day — Radiation 101 booth
  - College and Career Fair booth
  - The past two years LM has participated virtually

- Navajo Nation STEM activities
  - STEM-sation events
    - March 23-24, 2022, Chinle High School (virtual) - 31 students and 2 teachers
    - April 7, 2022, Utah State University (in-person) - 850 students (approx.)
  - STEM Festival
    - April 19 and 21, 2022, Diné College (virtual) - 109 students and 4 teachers.
Navajo Nation

STEM Activities (continued)

- **STEM on the Navajo Nation**
  - LM scientists, hydrologists and engineers are actively engaged in STEM education with Navajo Nation schools (K-12)

- **LM Applied Studies and Technology partners with Diné College through teaching, presenting seminars, and mentoring students in fieldwork activities (funding from National Science Foundation grant)**

- **LM and Navajo Nation Abandoned Mine Lands Reclamation Department cooperative agreement with funding toward Navajo Nation STEM-sation events**

  
  STEM event in Blanding, Utah (2022)

  High School Student reacting at a STEM event in Tohatchi, New Mexico (2020)
Collaborate with Miss Navajo Nation on STEM

- Miss Navajo Nation STEM event
  - Legacy event — proposed Fall 2022
  - To be held at the current Miss Navajo Nation's high school
  - Miss Navajo Nation is host of the event
  - LM will provide administrative support to organize event
  - Invite Navajo Nation organizations to participate

- Potential STEM Club
  - Coordinate with designated teacher
  - Navajo Nation students meet monthly
  - Send “STEM in a box” activities

Recent meeting with Miss Navajo Nation at LM’s Window Rock, Arizona, office
Thank You

Staff-hosted STEM program (2019)

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