



Powering Outreach Opportunities with Virtual Field Trips

Tuesday, April 13

 **ANS** Events

Mary Lou Dunzik-Gougar

President American Nuclear Society

13 April 2021

American Nuclear Society



Introducing

NAVIGATINGTM NUCLEAR



Energizing Our World

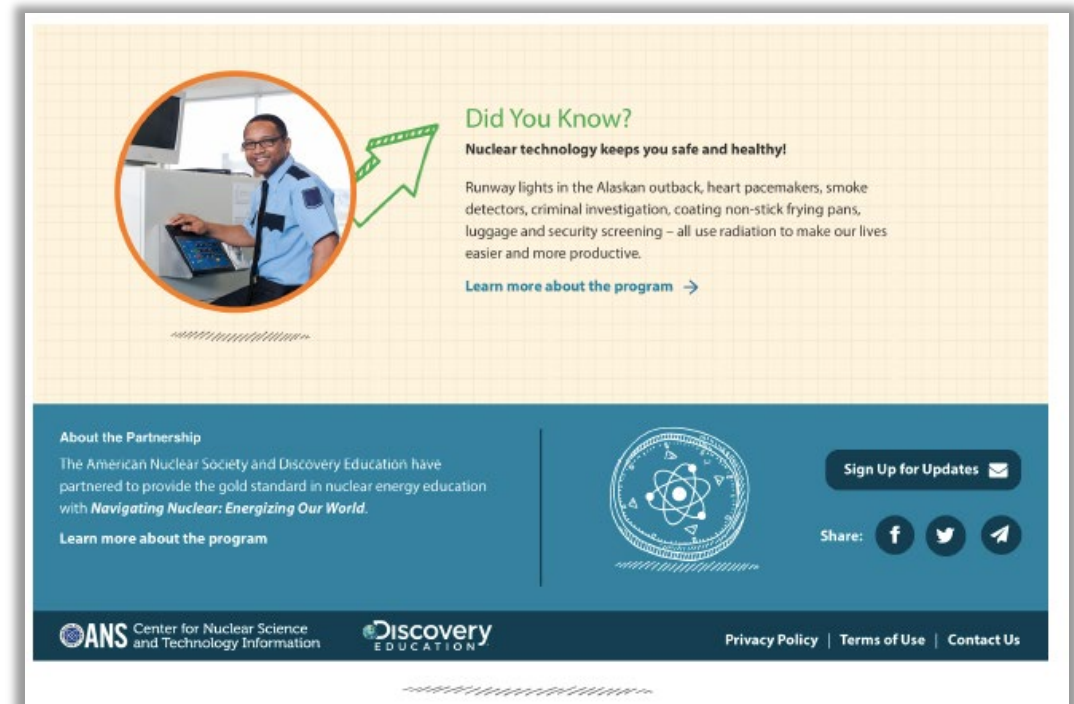


Goals

- **Clarify common misconceptions** surrounding nuclear science and explore its current and future role in technological applications
- **Build understanding** of and create value for nuclear science and technology
- **Inspire future careers** in the nuclear field – and the pursuit of higher education to achieve this goal

Navigating Nuclear Website (navigatingnuclear.com)

- Navigating Nuclear curricular materials for free
 - Virtual field trips
 - Digital lessons
 - STEM project starters
 - Career profiles
 - Next generation science standards
- For students, educators, parents, and the public
- Elementary, middle, and high school resources



Spread the good word!!!

NAVIGATING NUCLEAR

Energizing Our World



KEEPING YOU CONNECTED



INNOVATING THROUGH DIGITAL CURRICULUM SOLUTIONS THAT
ACCELERATE ACADEMIC ACHIEVEMENT



- ▶ Global leader in standards-based digital curriculum
- ▶ First fully digital textbook
- ▶ Largest professional learning community of its kind



| **EXPERIENCE**

| **TECHBOOK.**

| **PROFESSIONAL
DEVELOPMENT**

| **STEM
CONNECT**



140+
COUNTRIES

4.5 MILLION
EDUCATORS

45 MILLION
STUDENTS



Virtual Field Trips

Virtual Field Trips (~25-minute feature classroom documentary productions) are one of Discovery Education's most popular and utilized offerings with historic viewership in distance/remote learning.



Thursday, May 6th at 1:00pm ET

NUCLEAR FRONTIERS: POWERING POSSIBILITY

n a v i g a t i n g n u c l e a r . c o m





Enhancing the Viewing of a Virtual Field Trip



Viewing Parties:

- Watching together as a class
- Invite special hosts that kick off the VFT
- Viewing specific chapters with special guests to do Q&A

Deeper Content Engagement

- Educator Guide provides talking points and pre and post activities for deeper engagement with content covered in the VFT.

Penn State Radiation Science and Engineering Center Education, Outreach and Virtual Programs

Candace Davison

Assistant Director for Education & Outreach

Senior Reactor Operator

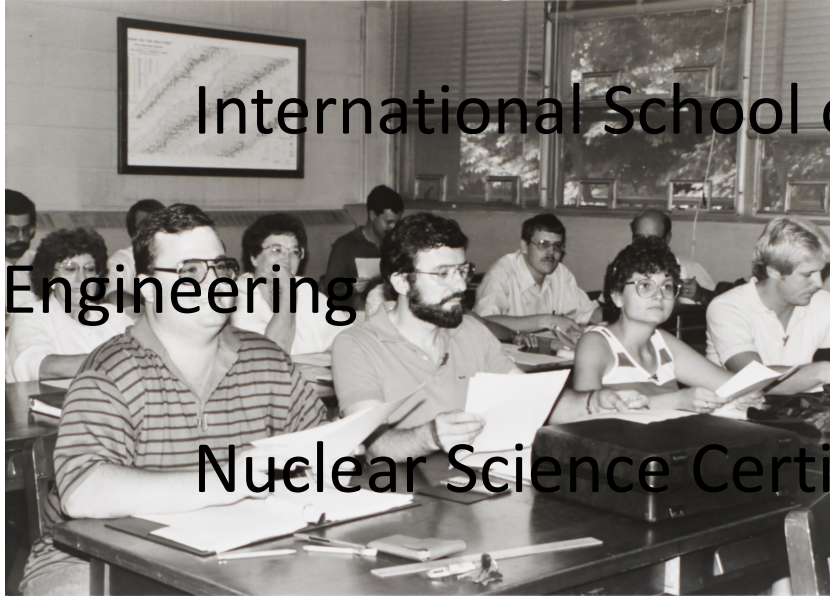
Gamma Irradiation coordinator

Facility Website: <http://www.rsec.psu.edu/>



PennState
College of Engineering

PSU Reactor Outreach History



International School of Nuclear
Science and
Engineering
Nuclear Science Certificate
for pre-college
teachers

Courses and workshops for

Educators

Educational exhibits

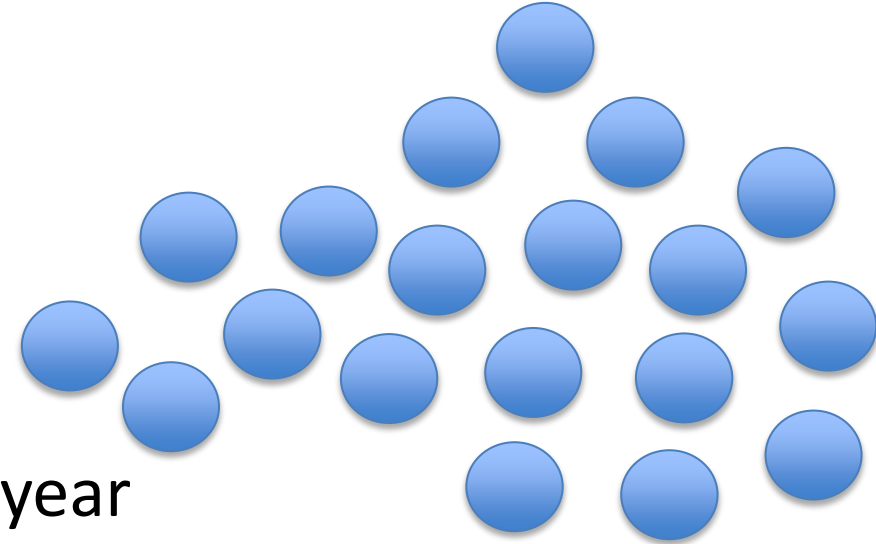
PSU Reactor Teacher workshops

- TRACE – Teaching Radiation Application and Cycles in our Environment
- Atoms to Energy a Discovery Journey
- Totally RAD – Exploring radiation and nuclear science
- Harnessing energy from the Atom – real world applications



Program outreach

- We learn from each other
- Share expertise
- Nuclear knowledge
- Teaching
 - Educator to Educator
 - 1 Teacher – multiple students per year
- Student
 - to other student
 - to parents



Don't underestimate
the impact on one
person!

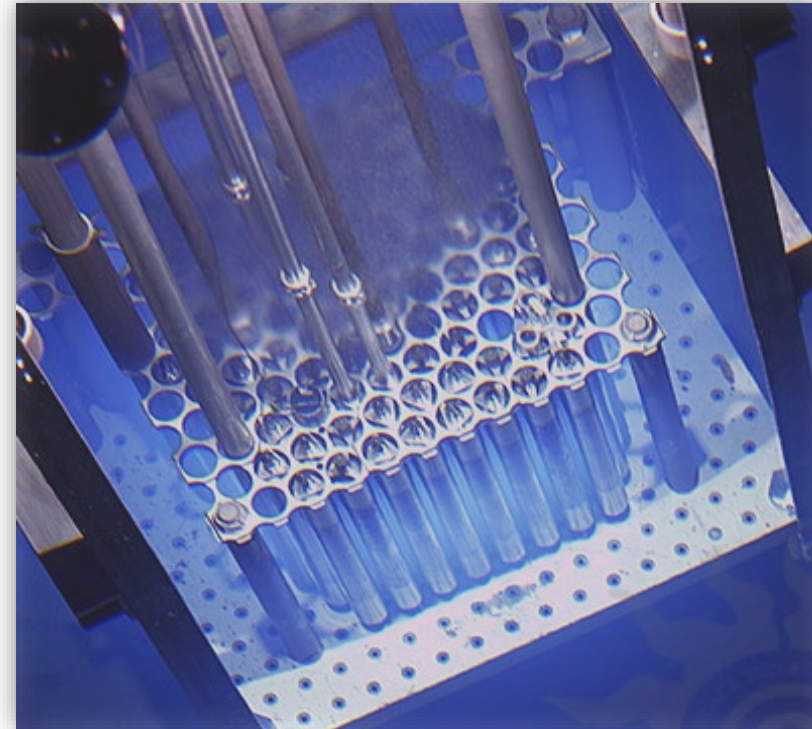
Research Reactor Visit



- Hands-on activities and experiments
- Use equipment not available to most schools
- Control room
- See the reactor operating
- College student involvement

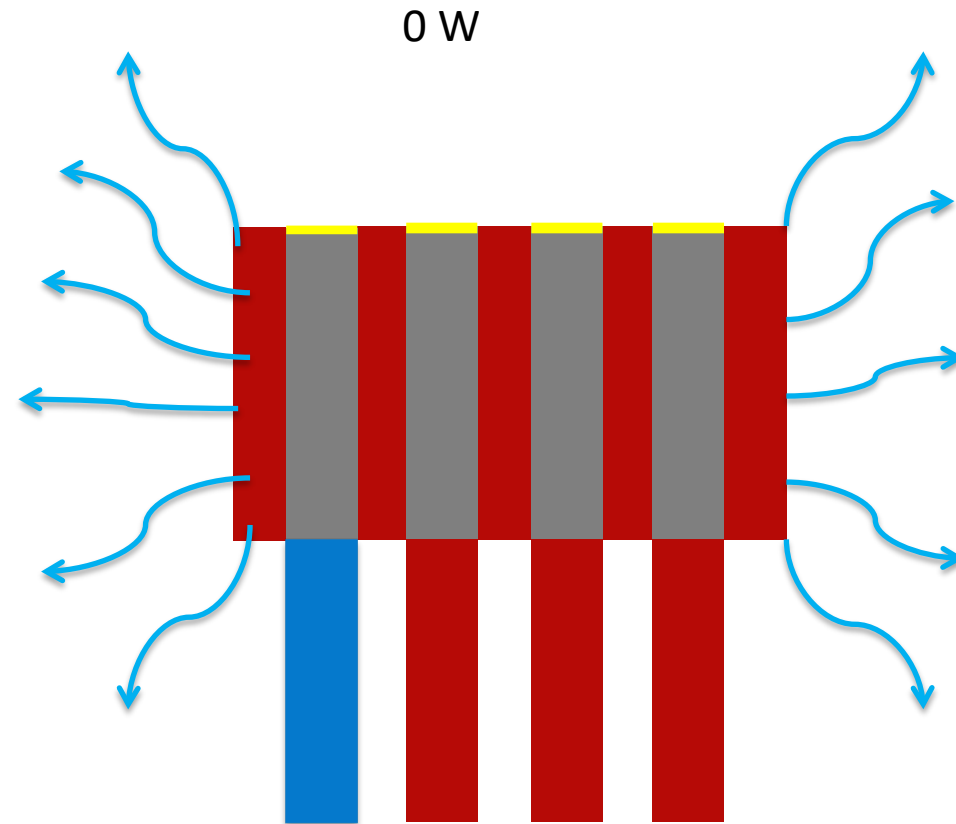
Virtual Experience Shift....

- Synchronous virtual programs and visits with pre-college and college students/teachers for over 10 years
- Increase in demand due to pandemic
- Developing more asynchronous experiences
 - Reactor videos
 - Experiments with “real” data
 - Radiography Design contest
- ANS resources



Reactor Startup

- Moving control rods out of the core allows more neutrons to interact with the fuel
- This increases the fission events
- The more fissions the higher the reactor power (thermal energy)
- The "blue glow" is brighter
- Questions?





Jeff Chapman
Oak Ridge National Laboratory
@ DOE Headquarters



Experience-based Ideas for Reaching Out to Teachers, Engaging Them, and Insights on How Best to Address Their Classroom Instructional Needs

Reaching Out (To Teachers) and Getting Noticed

- Think of the Inverse Square Law
 - The greatest influence and probability of interaction with your local schools are the ones located nearby.
 - Introduce “Navigating Nuclear” in local school’s teacher’s newsletters.
 - Hold a local Zoom meeting with teachers in your area to explain “Navigating Nuclear” and the materials that are available to them.

Engage Teachers

- Teacher's Need Assistance from You!
- Promote an engaging lesson plan
 - Elementary School Resources <https://www.navigatingnuclear.com/classroom-resources/elementary-school/>
 - Middle School Resources
<https://www.navigatingnuclear.com/classroom-resources/middle-school/>
 - High School Resources
<https://www.navigatingnuclear.com/classroom-resources/high-school/>

HANDS-ON

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HANDS-ON

- Virtual Field Trips (These are great!)
 - “You” can ZOOM in to assist, answer questions!
- GM-Counters
 - Fiesta ware, Vaseline Glass
 - Measurement of Half-Life
 - Demonstration of Inverse Square Law, Shielding
- Cloud Chambers
 - Direct Observation of Alpha, Beta particle interactions

Contact Janice Lindegard: jlindegard@ans.org

