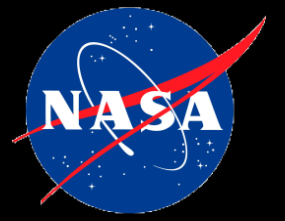
NASA LANGLEY RESEARCH CENTER



OFFICE OF EDUCATION AND INTERNSHIPS OVERVIEW

MONICA H BARNES
INTERNSHIPS LEAD/PROJECT MANAGER

COLLEGE OF WILLIAM & MARY
CENTER FOR GIFTED EDUCATION
"FOCUSING ON THE FUTURE" FORUM
FEBRUARY 7, 2015

Langley Historical Video

LANGLEY OFFICE OF EDUCATION ORGANIZATION CHART

Civil Service positions in **Bold**

Director

- **Janet Sellars, Director**
- Gwen Wheatle, Admin Asst (LAMPS)

OE Lines of Business

Institutional Engagement/NASA Internships, Fellowships & Scholarships (NIFS)

- **Monica Barnes, Agency ESTEEM PM, Internships Lead**
- **Institutional Engagement/ Higher ED (Vacant)**
- Jaedda Hall, NIFS PM (USRA)
- Carley Hardin (USRA)
- Eileen Nelson, NPP PM (LAMPS)

Operations Management

- **Susan Cooper, Ops Manager**
- **Integrator/Evaluator Analyst (Vacant)**
- Karen Ricks (LAMPS)
- Claire Labar (LAMPS)

STEM Engagement/ Educator Professional Development

- **Dan Cherry, Agency EPD & DLN PM**
- **Kim Brush, EPD/STEM Eng**
- **Katrina Young, Outreach/Informal Ed**
- Glen Sweatt ….. (LAMPS)
- Bonnie Murray … (LAMPS)
- Marile Colon Robles ….(Paragon TEC)

OE Lines of Business

Vision: *To be a catalyst for transforming and revolutionizing STEM Education for the Nation.*

Mission: *To maximize NASA's capabilities to inform, influence, and impact the Nation's STEM pipeline through creativity, engagement, and innovation.*

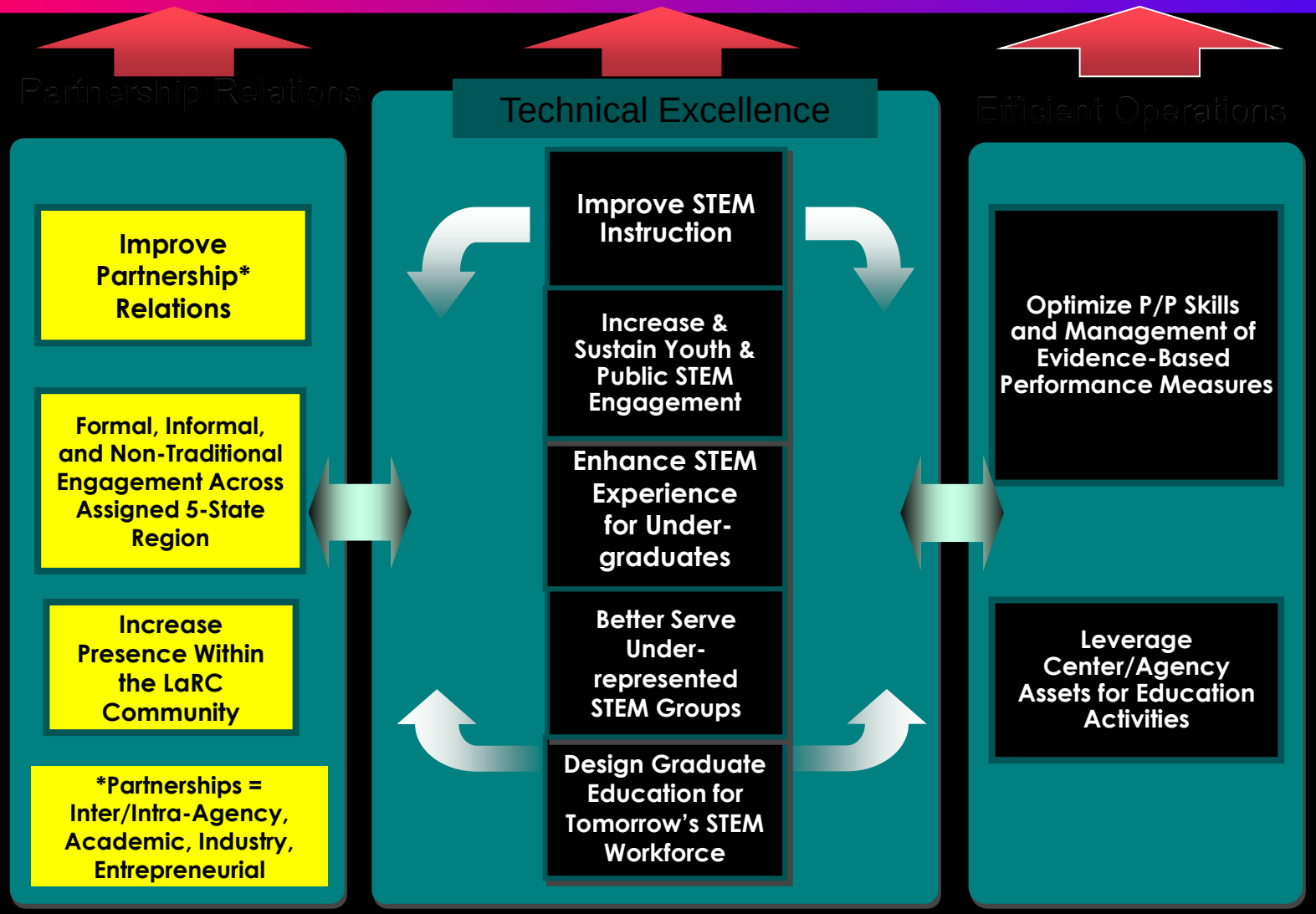
NASA'S EDUCATION PORTFOLIO – LINES OF BUSINESS

NASA's education portfolio will focus on the following four priorities, which will contribute toward the NASA Administration's goals for STEM education.

- **STEM Engagement:** Provide opportunities for participatory and experiential learning activities that connect learners to NASA-unique resources;
- **NASA Internships, Fellowships, and Scholarships:** Utilize NASA facilities and assets to provide work experiences, research opportunities to improve retention in STEM and prepare students for employment in STEM jobs;
- **Educator Professional Development:** Prepare STEM educators and leaders to deliver quality STEM instruction utilizing unique NASA assets; and
- **Institutional Engagement:** Improve the capacity of U.S. institutions to deliver effective STEM education.

LaRC's Office of Education Strategic Framework

Advancing the Nation's STEM Education Today for Tomorrow's Workforce & Technical Opportunities



NASA LANGLEY RESEARCH CENTER

STEM ENGAGEMENT

STEM ENGAGEMENT ACTIVITIES

- ISS Downlinks in Newport News and Williamsburg
- VA STEAM Summer Academy
- Home Educators Association of Virginia Convention
- Homeschool Appreciation Day
- STEM Girls Rock
- Air Force Rockets Camp
- Busch Gardens NASA Days
- VA Living Museum Star Parties Activities
- VA Science Festival Roanoke and Hampton
- Summer of Innovation activities

NASA LANGLEY RESEARCH CENTER

NASA INTERNSHIPS, FELLOWSHIPS, & SCHOLARSHIPS (NIFS) OVERVIEW

One Stop Shopping Initiative (OSSI)
for NASA Internship, Fellowship and Scholarship Opportunities

An Innovative Solution to Support the STEM Workforce of Tomorrow

Earn and Learn with NASA!

Earn

- Paid internships and scholarships for undergraduate students at NASA Centers and installations
- Paid fellowships for graduate students at NASA Centers and installations

Learn

- College/University scholarships for undergraduate students
- Support for graduate studies

Is it for Me?

- Are you a U.S. citizen?
- Are you currently enrolled full-time in or accepted to an accredited U.S. college or university?
- Are you a student with a 3.0 or higher GPA?
- If you answered yes to these questions, you are eligible to apply!

Apply

- Go to https://intern.nasa.gov or scan the QR code on this flyer
- Click on either "Internships," "Fellowships," or "Scholarships"
- Click on "Log in/Register"
- Register and complete your student profile
- Complete your application
- Submit your application for up to 15 specific opportunities

International Students

- Visit the NASA OSSI LaunchPad at https://intern.nasa.gov and click on "NASA Intern and Fellow Opportunities for International Students"

NASA Mission Directorates

Aeronautics
Enable a safer, more secure, efficient, and environmentally friendly air transportation system.

Human Exploration and Operations
Operate the International Space Station and prepare for human exploration beyond low Earth orbit.

Science
Exploring the Earth-Sun system, our own solar system, and the universe beyond.

www.nasa.gov

Internships at NASA Langley are open to high school applicants during the Summer sessions only.

Students must be at least 16 and at the sophomore level at the time of the internship start date.

ELIGIBILITY

- **U.S. Citizen**
- Must be **enrolled full-time** in high school, undergraduate, or graduate program at an accredited college or university.
- Applicants transitioning between high school and college or undergraduate and graduate school are eligible if they have graduated within 6 months **and** can **demonstrate enrollment in next-level of academic pursuit.**
- **Minimum 3.0 GPA** is required (no rounding). GPA is based on the current institution cumulative GPA. If no GPA is available, the cumulative GPA from the previous institution is considered.
- Must be a minimum of **16 years old** and a sophomore when the internship begins.

CRITERIA

- Multiple sessions each year
- Full or Part-time available
- Fall & Spring (16 weeks)
- Summer (10 weeks)
- Year-long

PAST PROJECT EXAMPLES

- Spacecraft & Mission Modeling and Simulation
- IT Tools and Methods Development
- Aerospace Vehicle Design
- Space Launch System Aerodynamics
- Machine Intelligence During Unmanned Flights
- Technology Marketing and Communications
- Autopilot Software Development & Testing
- Graphics Design and Program Administration

HOW TO APPLY

- Visit the **One Stop Shopping Initiative (OSSI)** website at **intern.nasa.gov**
- Click on "Internships"
- Click "Log in/Register"
- Register and complete the student profile
- Complete the application
- Connect and submit the application for up to 15 opportunities at various Centers
- **DEADLINE:** Summer Session (June 1- August 7) applications accepted until **March 1, 2015.**

INTERNSHIP CONTACTS

Questions about internships at Langley Research Center?

Contact Program Coordinators

Jaedda Hall – Jaedda.A.Hall@nasa.gov
Carley Hardin– Carley.A.Hardin@nasa.gov

Or

Internships Lead

Monica Barnes – Monica.H.Barnes@nasa.gov

LANGLEY OVERVIEW VIDEO

https://www.youtube.com/watch?v=MBlrtf9rPmU

NASA LANGLEY RESEARCH CENTER

EDUCATOR PROFESSIONAL DEVELOPMENT

EPD ACTIVITIES

- Norfolk City Schools Gifted Teachers EPD
- VA School Counselors Engineering Workshop Series
- VMI STEM Education Conference
- MODSIM Workshop with Radford University
- MODSIM Workshop with Longwood University
- Pre Service Teacher Institute
- STEMtastic Teacher Workshop
- NASA Digital Learning Network

NASA LANGLEY RESEARCH CENTER

INSTITUTIONAL ENGAGEMENT

Space Act Agreements:

- New Horizon's Governor's School for Science and Technology
- Virginia STEAM Academy
- Longwood University
- Radford University

Industry Partnerships:

- Engineering Career Days (Peninsula Engineering Council, Newport News Shipbuilding, Jefferson Labs, Christopher Newport University
- NASA Awareness in Charlotte at CIAA
- Cobb Cinebistro – Various EPD, Outreach Activities

Additional Partnerships:

- **NASA ESTEEM** (Earth Systems, Technology, and Energy Education for MUREP-Minority University Research and Education Project) featured in Office of Science Technology and Policy (OSTP) White House Fact Sheet as an exemplary project for climate literacy

- NASA Innovations in Climate Education-Tribal (NICE-T) Cooperative Agreement

- Tri-Agency Climate Education Catalog (TrACE) features 200+ resources from NASA, NSF, and NOAA

- "Ask US" (Useful Science) Professional Development Series (free resource) reached over 1400 educators last year

HUNCH (High School Students United with NASA to Create Hardware)

- Engineering Directorate (Tammy Cottee, Tim Woods)
- New Horizons Governors School CTE
- International Space Station Destiny Model (current project)

Career Pathways Program

- Early career opportunities for students and recent graduates to become federally employed

NASA Postdoctoral Program (NPP)

- Supports NASA's goal to expand scientific understanding of the Earth and the universe in which we live.

- Selected by a competitive peer-review process, NPP Fellows complete one- to three-year Fellowship appointments that advance NASA's missions in earth science, heliophysics, planetary science, astrophysics, space bioscience, aeronautics and engineering, human exploration and space operations, and astrobiology.

- Subsequently, NPP Fellows contribute to national priorities for scientific exploration, confirm NASA's leadership in fundamental research, and complement the efforts of NASA's partners in the national science community.

NASA

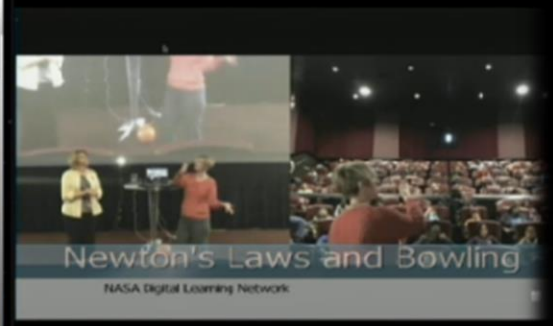
NASA
POSTDOCTORAL PROGRAM

dln.nasa.gov

NASA's Digital Learning Network™ (DLN) provides science, technology, engineering, and mathematics (STEM) content featuring NASA missions and research. Register for free, interactive events listed in our catalog, or watch our DLiNfo Webcast Channel.

- ISS downlinks celebrating our first decade
- Connections with Subject Matter Experts

- Virtual Field Trips
- Educator Professional Development and Student Programs with NASA Content



Exemplary Yearly Activity

-completed over 3500 events

-served nearly 12,000 educators and more than 100,000 students across the US

all through video and web Conferencing technologies

Virtual Educator Professional Development

Expanding opportunities to educate and inspire teachers

The Office of Education offers interactive and engaging virtual 2-way connection workshops and webinars providing hands-on standards-based NASA-inspired activities **customized to the needs of classroom teachers**.

- Tailored to **SOLs** in a wide variety of topics
- Flexibility with teachers' schedules
- Direct interaction with NASA Education Specialist
- NO COST!!

Virtual Educator Professional Development Pending Opportunities

R2R is a curriculum of engaging, hands-on NASA activities that enable students and teachers to understand the **STEM of aerospace research** and its similarities to the **science of racing**.

Day of Education

2010-2014 NASA visited
> 15,000 Students
> 25 Schools

NASA LANGLEY DAY OF EDUCATION

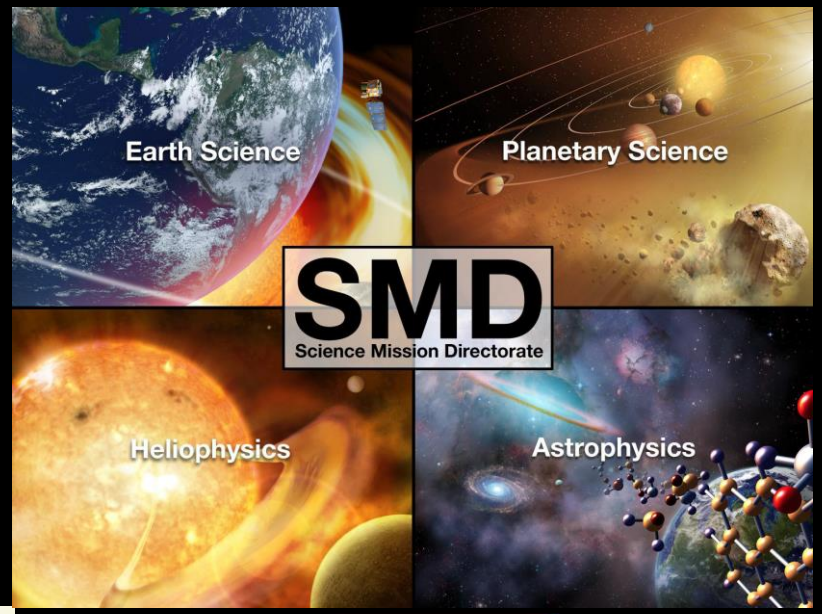
We are planting STEM seeds.

Benefits of Day of Education:

- Students & teachers interact with NASA employees engaged in STEM careers
- STEM careers made real for the students
- Inspiration from NASA missions can affect future choices (college, careers)
- Greater community awareness of STEM (AIAA, Shipyard, Jefferson Lab, CNU)

Science Directorate

Inspiring & Engaging Students in Science through Citizen Science Observations



Dr. Lin Chambers is the Education champion in the Science Directorate at Langley. Various projects involving scientific research strive to unlock the secrets of Earth's atmosphere for the greater good, a safer planet, and a better tomorrow .

S'COOL

- The S'COOL Project involves participants from around the world in real science through making and reporting cloud observations matched to satellite overpasses
- Serves as a source of validation of CERES cloud retrievals

- Atmosphere, Hydrology, Soil, Phenology, & Land Cover Observations
- LaRC Scientists Principal Investigators for Contrail & Surface Ozone Protocols

FIRST Lego League:

For Inspiration and Recognition of Science and Technology

- Teams of 9-14 year olds build/program Lego robots to complete challenges associated with year's theme
- Value: Realize science & technology in everyday life, develop life skills (critical thinking, problem-solving, personal responsibility), hands-on interactive learning, strong correlation to national science and technology standards
- Goal – Get children excited about science and technology while learning

FLL Components:

- Robot Performance: Autonomous 2.5 minute rounds to earn as many points as possible
- Design Judging: Demonstrate mechanics, innovation and programming to judge panel
- Core Values Judging: Complete teamwork challenge and discuss gracious professionalism
- Research Project Judging: Present research, problem and solution in creative/fun way

American Institute of Aeronautics and Astronautics
Hampton Roads Section

Wide variety of hands on engineering and STEM opportunities for local schools:

- Science Fair Judging
- Career Days (with Peninsula Engineers Council)
- NASA Langley Day of Education (with NASA)
- Middle School Essay Contest
- High School Scholarship
- Hands-on Engineering activities for K-12 classes
- AIAA Educator Associates (free for teachers – lesson plan resources, grants available)

Langley Educator Coordinators Committee (LECC) Members

Janet Sellars
Director, Office of Education
Janet.e.sellars@nasa.gov
757-864-6321

Monica Barnes
NASA ESTEEM Project Manager (Agency Lead)
NIFS (Internships Lead), MUREP
Monica.H.Barnes@nasa.gov
757-864-3983

Dr. Gamaliel (Dan) Cherry
EPD (Agency Lead) /Center DLN Project Manager
Gamaliel.R.Cherry@nasa.gov
757-864-6113

Dr. Kimberly Brush
STEM Engagement Manager/EPD
Kimberly.M.Brush@nasa.gov
757-864-6454

www.nasa.gov/education

Additional Office of Education Contacts

Susan Cooper
Operations Manager, Office of Education

Caryn Long
Digital Learning Network

Katrina Young
EPD/STEM Engagement

Bonnie Murray
NASA ESTEEM Digital Expansion Lead

Marilé Colón Robles
NASA Educator Professional Development Specialist

Jaedda Hall
NASA Internships, Fellowships, and Scholarships Coordinator

Carley Hardin
NASA Internships, Fellowships, and Scholarships Coordinator

Gwen Wheatle
Administrative Assistant, Office of Education

Additional Partners:

Karen Berger
VA/DC FLL Regional Tournament Coordinator
Hampton Roads Section AIAA K-12 STEM Outreach Co-Chair

Dr. Elizabeth B Ward, Day of Education
Education & Outreach
Aeronautics Research Directorate

Eileen Nelson, NASA Postdoctoral Program

Dr. Lin Chambers
Senior Scientist, Science Directorate

Chris Giersch (Education & Outreach, Space Technology and Engineering Directorate

Mary Sandy, Director & Chris Carter , Deputy
Virginia Space Grant Consortium

Shelley Spears, Education and Outreach
National Institute of Aerospace