



CONTACTS

North Carolina Science Festival Morehead Planetarium and Science Center University of North Carolina at Chapel Hill Campus Box 3480 • Chapel Hill, NC 27599-3480

www.ncsciencefestival.org • ncscifest@unc.edu 919-843-8329

Jonathan Frederick Festival Director jfred@unc.edu Omar Bell Sponsorships omar_bell@unc.edu

Todd Boyette, Ph.D. *Festival Co-founder* todd_boyette@unc.edu

Crystal Harden Director of Programs and Strategic Initiatives charden@unc.edu

Chair - Chancellor Emeritus James Moeser UNC-Chapel Hill

Betsy Bennett, Ph.D. Capital Development Services

John Burris, Ph.D. Burroughs Wellcome Fund

Alfred G. Childers, Ph.D. MagellanScience.org

Joseph M. DeSimone, Ph.D. NC State University UNC-Chapel Hill

Chancellor Philip Dubois UNC Charlotte Adam Phelps Sponsorships arphelps@unc.edu North Carolina Science Festival is a statewide twoweek celebration of STEM — science, technology, engineering and mathematics — with communitybased events hosted by museums, science centers, colleges, universities, businesses, parks, libraries and other sites.

Founded in 2010 by Morehead Planetarium and Science Center at the University of North Carolina at Chapel Hill, the Festival has served 1.8 millon participants of all ages since its inception.

The Festival is made possible through generous support from leading business and government partners and through the participation of hundreds of event hosts across North Carolina.

ADVISORY BOARD

Lew Ebert North Carolina Chamber

Marilyn Foote-Hudson North Carolina GlaxoSmithKline Foundation

Ann B. Goodnight

John Hardin, Ph.D. North Carolina Department of Commerce

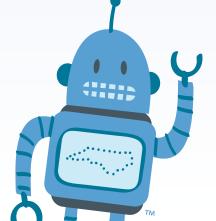
Howard N. Lee Howard N. Lee Institute **Charles A. Sanders, M.D.** *Retired Chairman & CEO, GlaxoSmithKline*

Melissa Seymour Biogen Foundation

Christy L. Shaffer, Ph.D. *Hatteras Venture Partners*

Richard Superfine, Ph.D. UNC-Chapel Hill

Chancellor W. Randolph Woodson NC State University



Cover photo: Copyright © 2017 SAS Institute Inc. All Rights Reserved. Used with permission.



Dear Friends,

As the North Carolina Science Festival (NCSF)

continues to grow, it has never been so true — Morehead Planetarium and Science Center can't produce our annual spring science extravaganza without you, the thousands of sponsors, event partners and volunteers who turn out each year. Thank you! Because of our partnerships, multitudes of North Carolinians experience the fun and fascination of science, technology, engineering and math in lasting ways. Together, we significantly heighten the science literacy of our state. Governor Roy Cooper sees the value in what we accomplish with the Festival. We were honored to have him here at Morehead on April 6 to declare April STEM Education month in North Carolina.

All our hard work is important. Just ask the middle school boy attending a hands-on demonstration on water filtration led by UNC graduate students at the Morehead's STEMville Science Symposium. As soon as the goggles, lab coats and gloves came out, he snapped to attention and said: "Wow, this is getting important." Mission accomplished.

It has been eight years since we first had the notion to bring the fun and "ah-ha" moments of science to the whole state of North Carolina. We used the North Carolina State Fair as inspiration. We wanted the same blend of community, creativity, talent and memorable experiences that are the connecting tissue of the State Fair, but with scientific wonder as the focus. We realized quickly that we were onto something big and wonderful. As corporations and others get into the act, the festival experience has now been dubbed a movement. There's even a word for it: "festivalization".

We've come a long way in those eight years of planning, launching and growing the NCSF. We are immensely grateful for the opportunity to share it with North Carolina, thanks to so many of you. We hope to see you in 2018!

Sincerely,

Tode Boythe

TODD BOYETTE Director, Morehead Planetarium and Science Center Co-founder, North Carolina Science Festival



Morehead Director Todd Boyette stands at the entrance to Morehead Planetarium and Science Center with Apollo 13 commander Captain James Lovell.



Festival staff, including Festival Director Jonathan Frederick (second from left) pose with our spokesbot, Kelvin, at an event at UNC Children's Hospital.

Jonathun My, Frederide

JONATHAN FREDERICK Director, North Carolina Science Festival Senior Manager, Morehead Programs and Strategic Partnerships



By the Numbers

This year's Festival reached all 100 North Carolina counties through a combination of public events, K-12 programming and statewide outreach initiatives.





PUBLIC EVENTS

105,506 PARTICIPANTS



355

K-12 EVENTS

47,011 PARTICIPANTS





YEAR-ROUND EVENTS

12,560 participants



5

ON-AIR/ONLINE EVENTS

75,062 VIEWERS





2,500 PING PONG BALLS LAUNCHED INTO THE AIR



Photo credit: Jon Gardiner

2,743 STEM PROFESSIONALS

1:39 ratio of attendees to STEM professionals

5,218

VOLUNTEERS





NASA astronauts Jim Lovell and Tom Jones both held speaking events during the Festival.





Photo credit: Leigh Fairley

EVENT IN BOTSWANA

A Morehead student alum hosted a special Festival event with the help of the US Peace Corps.



Making an Impact

Our sponsors made 2017 a stellar year! Here are a few of the highlights.

IMPACTS: Inspiring Meaningful Programs and Communication Through Science

Thanks to the generous support of the North Carolina GlaxoSmithKline Foundation, the NC Science Festival was able to launch a new initiative focused on training scientists in public communication. The IMPACTS program recruits and trains scientists who reflect the diversity of North Carolina and are eager to communicate their passion for science. In 2017, Elizabeth City State University, UNC Pembroke, Winston-Salem State University and UNC-Chapel Hill served as host sites for trainings as well as public science events where audiences could interact with scientists who look like them, making science careers seem possible among underrepresented and underserved populations.



Photo credit: Willis Glassgow, University Communications & Marketing, UNC Pembroke



Duke Energy Science Nights Core to Festival's Education Offerings

150 Duke Energy Science Nights provided North Carolina elementary school students and their families the opportunity to engage in hands-on science, technology, engineering and math (STEM) activities that were as fun as they were educational. These free events held in almost every county of the state brought science to 37,000 people this year and provided Duke Energy volunteers the chance to engage with their local communities.

Photo credit: Kim Ullom





Photo courtesy of Google

Gravity Games Sets Course for Fun with STEM

The sixth annual NC Gravity Games held in Lenoir, N.C. was an "adrenaline-drenched, STEM-soaked" success. A signature event of the North Carolina Science Festival, the Games are a collaboration between Google, Appalachian State University and Morehead Planetarium and Science Center. 74 teams from around the state raced head to head through downtown Lenoir in homemade vehicles. Fans and racers alike enjoyed the fun as Main Street was converted to Science Street.

First SAS-Sponsored Event Flies High

SAS, the leader in analytics based in Cary, N.C., organized a first-time event for 25 lucky high school students who applied to participate. "Data on the Fly" was held at NCDOT's Department of Aviation hangar at Raleigh-Durham International Airport. The students worked with SAS experts to build real-time airplane monitoring systems and tested their devices by recording data on the tarmac, as they watched flights arrive and depart.



Novozymes SciMatch Pairs Teachers with STEM Professionals

Nearly 5,000 middle school students had the opportunity to learn science first-hand from STEM professionals statewide through the new Novozymes SciMatch program. Scientists shared their background and research with students before leading hands-on activities in the classroom. The program allowed teachers and students to learn about cutting-edge research while scientists had the chance to experience a day in the life of a teacher.

Photo credit: Cherelle Sanders



The Big Picture

850 events at 438 locations in 100 counties.



Public Events



Photo credit: MVI faculty

 \bigcirc



Mountain View STEM Career Fair FRANKLIN

 Image: Constrained series

 Image: Constrained series

 Image: Constrained series

Sensational Science

8

Photo credit: Nora Coffey

0

 \bigcirc

0

тм

С

0

 \bigcirc



Lake James State Park Star Party NEBO

 \bigcirc

0

0

8

Oh Ick! 114 Science Experiments Guaranteed to Gross You Out! with author Jessica Garrett CHAPEL HILL

Little Explorers: Science Para

Little Explorers: Science Parade WILMINGTON

Special thanks to Kenny Brooks for map production







Event Hosts

The North Carolina Science Festival would like to thank the following partners for their leadership in sharing STEM with their communities.



10

Bethel Middle Beulaville Elementary Beverly Hills Elementary Big Brothers Big Sisters of the Triangle SigNetwork

Blue Creek Elementary **Blue Jay Point County Park** Blue Ridge Astronomy Group 😭 **Boiling Springs Elementary** Bolton Elementary 🄄 Bowman Middle 🚱 **Brunswick County STEM Council** Buckland Elementary 🚱 Buncombe County Schools 💿 Burlington Recreation & Parks 😭 Burnsville Elementary 🊱 Burton Magnet Elementary 🄄 **Cabarrus County Active Living & Parks Cabarrus County Public Library - Concord** Branch Cabarrus County Public Library -Harrisburg Branch Cape Fear Botanical Garden 😭 **Cape Fear Museum of History & Science** <u>(</u>) () **Carolina Raptor Center** Carolinas Aviation Museum 🚫 (\$) Caroline Calouche & Co. Carr Elementary Carter G. Woodson School 🚱 **Carvers Creek State Park** Castle Hayne Elementary 🊱 Catawba Lands Conservancy 😭 Catawba Science Center 😡 Centennial Campus Magnet 🚱 Center for Inquiry-Based Learning Central Middle 🚷 **Chapel Hill Public Library** Charles C. Bell Elementary 🚱 **Charlotte Mecklenburg Library** Charlotte Mecklenburg Library - Beatties Ford Road Branch 💿 **Charlotte Mecklenburg Library -Cornelius Branch Charlotte Mecklenburg Library -Davidson Branch**

Charlotte Mecklenburg Library - Hickory Grove Branch



Charlotte Mecklenburg Library -ImaginOn: The Joe and Joan Martin Center

Charlotte Mecklenburg Library -Independence Regional Library

Charlotte Mecklenburg Library -Matthews Branch 🕎

Charlotte Mecklenburg Library - Mint Hill Branch

Charlotte Mecklenburg Library - Mountain Island Branch

Charlotte Mecklenburg Library - Myers Park Branch 🕎

Charlotte Mecklenburg Library - North County Regional Library

Charlotte Mecklenburg Library - Plaza Midwood Branch

Charlotte Mecklenburg Library -Scaleybark Branch

Charlotte Mecklenburg Library - South County Regional Branch

Charlotte Mecklenburg Library - Steele Creek Branch

Charlotte Mecklenburg Library - Sugar Creek Branch

Charlotte Mecklenburg Library -University City Regional Branch 🕎

Charlotte Mecklenburg Library - West Boulevard Branch

Chatham Middle 🚷

Cherokee County Schools 21st Century Community Learning

China Grove Middle 🚳

City of Greenville Recreation & Parks Department

City of Raleigh Parks, Recreation & Cultural Resources Department

City of Raleigh Solid Waste Services Department

Clear Creek Elementary

Cloverleaf Elementary 싱

Colerain Elementary 🄄

Coleridge Elementary 🄄

Coltrane-Webb STEM Elementary (\$)

Cooleemee Elementary 🚱

Core Sound Waterfowl Museum & Heritage Center

Cove Creek School 🚳

Cox Mill High School 🊱

Creedmoor Elementary School of the Arts

Creswell Elementary 🚱

Crown Point Elementary 싱

Cullowhee Valley School 🚱

Cumberland County Public Library & Information Center - Bordeaux Branch Library

Cumberland County Public Library & Information Center - Cliffdale Library





Photo credit: Hendy Street Produxions

Cumberland County Public Library & Information Center - East Regional Branch Library

Cumberland County Public Library & Information Center - Headquarters Library

Cumberland County Public Library & Information Center - Hope Mills Library

Cumberland County Public Library & Information Center - North Regional Library (2)

Cumberland County Public Library & Information Center - Spring Lake Library

Cumberland County Public Library & Information Center - West Regional Library

Cumberland County Schools AIG K-2 Discovery

Davidson College - Physics Department

Delta Sigma Theta Sorority, Inc. Durham Alumnae Chapter & Durham NC Chapter, The Links Inc.

Discovery Place Kids - Huntersville

Discovery Place Nature

Discovery Place Science 😭 🌖

Dismal Swamp State Park 😭

Duke Institute for Brain Sciences

Duke Lemur Center

Duke University - Department of Physics

Durant Nature Preserve Durham Parks & Recreation 😭 East Carolina Biodiversity Initiative 😡 East Columbus High School East Lincoln Middle 🚳 Eastern Wayne Elementary 🄄 Eastfield Global Magnet School 🊱 Eblen Intermediate School 🚱 **Education Matters in Catawba Valley Elizabeth City State University** Elizabethtown Primary 🊱 Elk Knob State Park E.M. Rollins Elementary 🚱 Englewood Elementary 🚱 Eno River Academy 🚷 Eno River State Park 😭 Envision Science Academy 🚱 Fairview Heights Elementary 🚱 Falls Lake State Recreation Area 🏠 Fascinate-U Children's Museum 💿 🚫 (5) Flat Rock Elementary 🄄 **Flyleaf Books** Forrest W. Hunt Elementary 🊱 Forsyth Astronomical Society 😭 Fort Macon State Park 😭 Frank Morgan Elementary

Franklin County Schools 😭 G.E. Massey Elementary 🔄 G.R. Whitfield School 🄄 Gardner Park Elementary Gaston College (S Gaston Elementary 🄄 Gatesville Elementary 🄄 Germanton Elementary 🔄 Githens Middle 🚱 **Given Memorial Library & Tufts Archives** Glade Creek School 🄄 **Glenwood Elementary** Google 👧 🛞 Grady A. Brown Elementary 🚱 Granite Falls Middle 🚱 **Granite Quarry Elementary Greene County Schools** Greenfield School 🚱 Greensboro Children's Museum Greensboro Science Center **Greenville Recreation & Parks** Guilford Technical Community College -Cline Observatory 🚫 🏠 G.W. Carver Elementary 🚱 Hammocks Beach State Park 😭 Hands On!-A Child's Gallery Hanging Rock State Park 😭 Harris Lake County Park Harris Middle 🚱 🚱 Havelock Elementary 🄄 Hayesville Elementary 🚱 Henderson Collegiate 🛞 Hertford Grammar School 🊱 Hiddenite Elementary 🄄 **High Point Museum** High Point University (\$ Hillandale Elementary 🚱 Historic Edenton State Historic Site Historic Oakwood Cemetery 😭 Historical Museum & Indian Village of Grifton Hodge Road Elementary 🚱 Hollister Elementary 🄄 Holly Ridge Middle 🚷 **Horizons Unlimited** Hornets Nest Elementary 🄄 **Horseshoe Farm Nature Preserve** Hot Springs Elementary



Howell Woods Environmental Learning Center 😭 IC Imagine Charter School 🚷 Imagination Station Science & History Museum 😭 Imperial Centre for the Arts & Sciences 公 J. Glenn Edwards Elementary 🄄 Jackson County Public Library Jackson Park Elementary Jacksonville Commons Elementary 🄄 James H. Lynn Planetarium Schiele Museum of Natural History 😭 Jamestown Middle 🚷 Jamesville Elementary 🚱 Jefferson Elementary 🚱 John Small School 🊱 Johnston Community College Jones County Schools 🊱 Jonesville Elementary 🄄 Jordan Lake State Recreation Area Junaluska Elementary 🄄 Kaleideum Kathleen Clay Library Kenansville Elementary 🚱 Kidzu Children's Museum 🏹 Kimmel Farm Elementary 🤄 KIPP Gaston College Prep Primary 🚱





Longview Elementary 🄄 Los Puentes Two-Way Immersion Program at Snow Hill Primary School 🊱 Love A Sea Turtle Lumberton Junior High 🄄 Mabel Elementary 🛞 Macon County Public Library Macon County School Board (S) **Makerspace Charlotte** Marbles Kids Museum 💿 🔯 Martin Millenium Academy 🔄 🚳 Mattamuskeet Early College High 🛞 Mattamuskeet Elementary 🔄 McDougle Middle 🚷 Medoc Mountain State Park 😭 Methodist University 😭 Metrolina Scholars Academy 🚷 Middlesex Elementary 🄄 Millbrook Elementary Magnet 🚱 Mills Park Middle 🚷 Mineral Springs Elementary 🊱 Monroe Avenue Elementary 🚱



Mountain Park Elementary Mountain View Intermediate Mt. Jefferson State Natural Area Mt. Pleasant Public Library Museum of Coastal Carolina - Ingram Planetarium

Museum of Life & Science 🚫 🚳

Nantahala School 🄄

NC A&T College of Engineering

NC Children's Hospital 🄄

NC Coastal Federation

NC Coastal Land Trust 🧭

NC Museum of Natural Science at Whiteville

NC Museum of Natural Sciences 😡 🧐

NC Museum of Natural Sciences at Prairie Ridge Ecostation 😭

NC Science Olympiad

NC Space Grant

NCSU - College of Sciences

NCSU - Genetic Engineering and Society Center

NCSU - Leadership in Public Science Cluster 🛞 🏆 💼

NC State University

NC Wesleyan College - Students Helping Students Afterschool Program 📀

Neal Middle 🚳 Neuseway Science Museum & Planetarium

New Bridge Middle 🛞

New Hope Valley Railway

NC Aquarium at Fort Fisher (§)

NC Aquarium at Roanoke Island 😭 (§

NC Estuarium (§)

NC Geological Survey

NC Maritime Museum

NC School of Science and Mathematics

North Elementary 싱

North Graham Elementary 🚱

North Topsail Elementary 🚱

Northside K-8 🏀

Oak Lane Elementary 🄄

Oaks Road Elementary 🄄

Old Town Global Academy 🚱

Onslow County Museum - Onslow County Environmental Education Center 😭



Photo credit: Heidi Carlone

Outer Banks Center for Wildlife Education Page Street Elementary 🚱 Pamlico County Middle 🚱 Pamlico County Primary School 🍊 Pasquotank Elementary 🚱 Patriots STEM Elementary Paul J. Ciener Botanical Garden Pembroke Elementary 🄄 Pembroke Middle 🚱 **Piedmont Environmental Center** Piedmont Wildlife Center Pilot Mountain State Park 😭 **Pisgah Astronomical Research Institute** 公 Port Discover 🚫 🜍 Princeville Elementary 🊱 Queen Anne's Revenge Conservation Lab Randleman Middle 🚷 Randolph Community College Raven Rock State Park (\$ Reidsville Middle 🚳 **Research Triangle Materials Research** Science Engineering Center 🛞 📠 Richfield Elementary 🄄 Ridge Road Middle 🚱

Riverside Middle Riverview Elementary 🄄 **Robbinsville Elementary Rocky Mount Children's Museum & Science Center** Rocky Mount Preparatory School 🊱 Rocky River Elementary 🊱 Rowan-Cabarrus Community College 😡 **Rum Runner Dive Shop** Saluda Elementary 🄄 Sam D. Bundy Elementary 🊱 SAS Schiele Museum of Natural History -James H. Lynn Planetarium 🚳 🥵 Science Communicators of North Carolina 🔯 SciTech Institute 💓 Scotland County Memorial Library Scotts Creek School 🚳 Sherwood Elementary 🚱 Shughart Middle 🚳 Siler City Elementary 🄄 South Creek Middle 🚳 South Mountains State Park South Newton Elementary Southwood Elementary 🚱

Spandex City Comics Sparta Elementary 🄄 Spindale Elementary 🄄 St. Patrick Catholic School Stallings Elementary Stocks Elementary Stone Mountain State Park Sugarloaf Elementary 🚱 Swain County Schools 🚱 Sycamore Lane Elementary 🔄 Sylvan Heights Bird Park 🥵 T.C. Henderson Elementary The Children's Museum of Wilmington The Children's Playhouse 💿 🚫 (S) The Duke Initiative for Science & Society: **Periodic Tables** The Joint School of Nanoscience and Nanoengineering 🔘 🚫 🕅 The North Carolina Arboretum 😡 The North Carolina Leadership Academy The Science House at CMAST 🔞 Town of Garner 😭 Township Three Elementary Trent Park Elementary 🄄 **Triad Math and Science Academy** Elementary 🤄 Tryon Elementary 🄄 T.S. Cooper Elementary 🚱 Tyrrell Elementary 🄄 UNC Asheville - Lookout Observatory

UNC Asheville - Society of Physics Students UNC-Chapel Hill - Morehead Planetarium and Science Center 🔝 💿 🚫 🚳 😭 UNC Charlotte 😡 💼 UNC Charlotte - Department of Physics and Optical Science 😭 UNC Greensboro 😡 💼 **UNC Pembroke** UNC-TV 💿 🕅 **UNC Wilmington - Center for Assistive** Technology 🛞 💼 Union Chapel Elementary 🄄 **Union County Extension Master Gardener** Volunteer Association Union Cross Elementary 🄄 Union Elementary, Clinton 🚱 Union Elementary, Rowland 🊱 Union Elementary, Shelby **United States Environmental Protection** Agency Valle Crucis School 🄄 🚱 Vass-Lakeview Elementary 🔄 Vinson-Bynum Elementary 🚱 Virginia Cross Elementary 🄄 Voyager Academy 🄄 W. Kerr Scott Dam and Reservoir 😭 W.A. Young Elementary 🄄 Wagram Elementary 🄄 Wake County Parks, Recreation & Open Space 😭

Wake County Solid Waste Management Division Wake Forest University - Pro Humanitate Institute Wake Technical Community College Walkertown Elementary

Walnut Creek Wetland Center 💿 Warrenwood Elementary Wayne Avenue Elementary 🄄 Wayne County Public Library Welcome Elementary 🚱 Weldon Middle 🔄 West Hoke Elementary 🔄 West Lenoir Elementary 🄄 West Marion Elementary West Pine Middle 🚷 Western Alamance Middle 🚫 Western Carolina University 😭 🚫 Weymouth Woods Sandhills Nature Preserve White Oak Elementary 🄄 Wilkerson Nature Preserve 😭 Wilkesboro Elementary 🊱 William B. Umstead State Park 😭 Williamston Primary School 🄄 Willis Hare Elementary 🄄 Wilson's Mills Elementary 🚱 Woodhill Elementary 🚱 Woodrow Wilson Elementary 🚱 York Chester Middle 🛞

On April 6, N.C. Governor Roy Cooper visited Morehead Planetarium and Science Center to sign a proclamation declaring April STEM Education Month. This proclamation coincides with the Festival's big news for next year: the 2018 Festival will span the entire month of April!



Photo credit: Jon Gardiner







April 7–April 23, 2017

The North Carolina Science Festival is made possible by the generous support of its sponsors.

PRESENTING SPONSOR



DIAMOND CHAMPION

BURROUGHS WELLCOME







GOLD SPONSORS



UTC Aerospace Systems

RONZE SPONSOI

FedEx • NC Electric Cooperatives • Novozymes • PSNC Energy • Syngenta • UNC Health Care

SUPPORTER

BioNetwork

Proudly produced by



UNC MOREHEAD PLANETARIUM AND SCIENCE CENTER

 $\ensuremath{\textcircled{\odot}}$ 2017 The University of North Carolina at Chapel Hill. All rights reserved.