NCGSTEM and PARI are now part of the CryptoClub Network

An online and after school program for cryptography and math

The North Carolina Girls STEM Collaborative (NCGSTEM) and the Pisgah Astronomical Research Institute (PARI) have been chosen as a training hub for CryptoClub, a national after school project and online program that covers cryptography (secret codes and ciphers) and math.

We are searching across the region for CryptoClub Leaders to host CryptoClubs and support students in their communities.

CryptoClub

The CryptoClub Project (www.cryptoclub.org), was developed at the University of Illinois at Chicago. It uses games, treasure hunts, and other informal activities to engage students in learning cryptography and applying middle-school mathematics. The CryptoClub curriculum was developed and tested with support from the National Science Foundation and Eduweb.

PARI

The Pisgah Astronomical Research Institute (www.pari.edu), located southwest of Asheville, North Carolina, is a public not-for-profit organization dedicated to providing hands-on educational and research opportunities for a broad cross-section of users in science, technology, engineering, and math (STEM) disciplines.

What is a CryptoClub Leader?

A CryptoClub leader may be a formal or informal educator and may be associated with a school or other organization that seeks to strengthen or find new ways to apply existing math skills in middle-grade students. A leader should be comfortable with mathematics at the middle-grade level and should believe that working with secret messages can be fun. Topics such as decimals and percents, division with remainder, common factors, negative numbers, and pattern recognition will be covered. Experience with teaching mathematics or prior cryptography knowledge is *not* required.

A Leader will form a local CryptoClub afterschool program in their community which will use games, treasure hunts, and other activities to engage students in cryptography and mathematics. The Club will:
- Attend CryptoClub Leader Training, a three day workshop.
- Support a minimum of 10 middle-grade students for 16-20 sessions.
- Provide a CryptoClub Cipher Handbook for each student ($12 per book).
- Participate in evaluation activities.
- Provide computers with Internet service for at least a quarter of the sessions.

What will PARI do?

PARI will act as the training hub site for training CryptoClub Leaders and will host and conduct CryptoClub Leader training as a three day workshop available either June 12-14 or August 3-5, with additional dates for 2018 to be announced. A leader need only attend one workshop.

Workshops will include instruction time, lodging on the PARI campus, meals and snacks, recreational activities, and observing sessions with PARI's optical telescopes.

Each participant will receive a copy of the CryptoClub Cipher Handbook (the student handbook) and the CryptoClub Leader Manual. High speed internet is available throughout the campus and computers are available for participant use if they are unable to bring their own.

Workshop Schedules

First Session, June 12 – 14	Second Session, August 3 - 5
Day 1 – June 12	Day 1 – August 3
Arrival by early afternoon	Arrival by early afternoon
Lunch	Lunch
Orientation	Orientation
Instruction Time	Instruction Time
Dinner	Dinner
Instruction Time	Instruction Time
Time with telescopes or museum galleries	Time with telescopes or museum galleries
Day 2 – June 13	Day 2 – August 4
Breakfast	Breakfast
Instruction Time	Instruction Time
Lunch	Lunch
Instruction Time	Instruction Time
Hike	Hike
Dinner	Dinner
Instruction Time	Instruction Time
Time with telescopes or museum galleries	Time with telescopes or museum galleries
Day 3 – June 14	Day 3 – August 5
Breakfast	Breakfast
Instruction Time	Instruction Time
Lunch	Lunch
Instruction Time	Instruction Time
Departure	Departure

Cost and Grants

The cost of the workshop is $202 per participant. This includes all scheduled activities, seven meals, snacks, lodging, and one copy each of the Cipher Handbook (normally $12) and Leader Manual (normally $31).

PARI will be offering micro grants, each designed to cover the cost of ten Cipher Handbooks for students. We will also guide Club Leaders through the application process for obtaining curriculum developments grants from NC Science Leadership Association and NC Science Teachers Association to help purchase books and materials for clubs who do not receive a micro grant.

More About PARI

Not only is PARI a working research and education facility boasting radio and optical telescopes, earth science instruments, and the world's second largest archive of astronomical plates, it has a lot more to offer a guest. Sitting on over 200 acres in the Pisgah National Forest the site is networked with hiking trails and 360 degree views of the Blue Ridge Mountains. The museum galleries contain NASA artifacts including many from the space shuttle program and a real communications satellite, a collection minerals, gemstones, and fossils from North Carolina and around the world, over eighty specimens of meteorites including some from the Moon and Mars, and a gallery for traveling exhibits.

PARI Site History
As a former NASA tracking facility and Department of Defense satellite data collections site, PARI is part of a rich history of novel forms of communication. Many pioneering methods of representing and transmitting data were developed here. Learning the processes of cryptography while immersed in such a rich and historical backdrop will inspire and excite the imagination.

Technology & Internet
Multiple fiber connections, including the backbone of the North Carolina Research and Education Network, serve PARI's campus, giving its classrooms world class internet access. Our IT Department maintains several data centers across the site providing secure and redundant data and server hosting services to satellite communications and technology companies, as well as super computing capabilities. A team of IT professionals work at and interact with PARI. This team can give insight into the myriad of careers to which that a background in topics like cryptography can lead a student, even in a rural setting.

Housing, Food, and Amenities
Onsite lodging is available to guests at a lower cost than a hotel and our classroom space is a stone's throw away in a neighboring building. Dining facilities are also present, where PARI's trained chef prepares and serves meals.

How To Apply

We are accepting application through a Google form that can be accessed with the following link:

https://goo.gl/forms/AvshvDhvuic5XvDh1