



BLACK ROCK
FOREST
CONSORTIUM

Summer STEM Program 2017

Enrichment Programs

A) Students to be served:

This three-week summer program will serve up to 90 students in the Newburgh Enlarged City School District.

- The student body will be from grades 3 -8. They will be grouped in two bands, grades 3-5 and grades 6-8, for curriculum specific purposes.
- This program will start on July 10 and culminate on July 27. Students will participate in this hands-on, activity based program at Black Rock Forest from 9:30am – Noon.

B) Description of the Science program:

Science goals will include but not be limited to:

- Promoting Science skills that target those skills needed for success on the 4th and 8th grade NYS Science Assessment
- Skills will include but limited to: Life Sciences (ecosystems, food webs, food chains, wildlife, observation, measurement, weather, soil measurements, and stream measurements)
- Other skills include: Graphing and analyzing data, constructing and interpolating charts
- Writing observations of field trip activities
- Writing laboratory experiments
- Collecting scientific data for observation, interpretation, and analysis
- Development of higher level critical thinking skills
- Development of cooperative learning and independent learning
- Involvement in team problem solving activities
- Gain experience with use of scientific apparatus
- Promoting enjoyable science research and problem solving
- Creating an atmosphere where metrics and accurate measurement are both absorbed and put into practice



1. Students will participate in one or more of the following programs at Black Rock Forest

A. Forest Ecosystems. *This is an interdisciplinary unit with separate write-ups for plant life, wildlife, geology and soils, human impacts, and environmental measurements, which can be pursued together or separately.* A hike leading from the Center for Science and Education to the White Oak Tree includes ten stops, each representing a different habitat found in the Forest. At each stop, Forest staff have collected information about wildlife, plant life, geology and soils, environmental measurements, and human impacts. The theme or themes of the hike should be chosen by instructors based on the class level and interest. That theme can then be continued through the hike. Generally, the wildlife and plant life classes are suggested for younger grades and the others are for more advanced classes. The time needed to complete each class is about 3-4 hours.

E. Turtles. Black Rock Forest is home to turtles that live on land and in the water. Years of study of aquatic painted turtles have produced much information pertaining to behavior, population size, sex ratio, and age structure. Turtles, most already electronically tagged, can be captured alive in turtle-safe hoop traps. Students can scan for tags, learn life histories, and perform measurements to assist in the ongoing turtle research.

F. Aquatic Invertebrates. A stream's condition and health can be evaluated by studying the amount and types of aquatic invertebrates living in it. In this class, students sample the stream to collect a selection of the invertebrates using proper placement of leaf packs. They then identify the organisms and assess the condition of the stream.

2. Students will be actively engaged in a series of fun, reliable and data producing experiments which teach independent and dependent variables such as: hypothesis, constants, control and repeated trials.
3. Lab and forest safety will be stressed.
4. Data graphing skills will be taught and reinforced using graphing paper.
5. Students will learn or enhance their scientific skill in the areas of: Data collection, data analysis, measurement, observation and laboratory procedures.

C) Description of the Mathematics skills:

Goals and objectives:

- Promote mathematics skills and concepts that target those skills necessary for success on the NYS grade 6 and grade 7 math assessments
- Provide a variety of real-world situations for collaborative problem solving activities
- Provide opportunities to use mathematics in real-life environments and applications

- Provide opportunities to reinforce basic math skills while exploring real-life phenomena outside a typical mathematics classroom
- Provide opportunities to collect, record, display, analyze, interpret and make predictions using scientific data from real-world situations and applications
- Promote development of higher order thinking skills
- Provide opportunities for collaborative and independent learning in non-traditional setting
- Experience using mathematics content and skills in a scientific, research environment
- Gain experience in using appropriate tools for measuring as well as accuracy in measuring in real-world applications and situations



**PLEASE COMPLETE AND RETURN THIS FORM TO YOUR CHILD'S SCHOOL BY JUNE 16, 2017
Summer STEM Program**

Student Name: _____ **ID:** _____ **School:** _____ **Grade:** _____

_____ Yes, my son/daughter **WILL ATTEND** the Summer STEM Program at Temple Hill Academy/Black Rock.

_____ My son/daughter will need school bus transportation:

My current address: _____

_____ My son or daughter will need transportation but should be picked up/dropped off at a stop near the alternate address below:

Pick-up address: # and Street _____ City _____ Telephone _____

Drop-off address: # and Street _____ City _____ Telephone _____

_____ No, my child **WILL NOT ATTEND** the Summer Enrichment Program.

Parent's Signature: _____