

BCPS Field Trip Request ID # 8002

Trip Request By	Kenneth Hughes - BEHS
Trip Name	Hughes AP Science Review Retreat
Trip Date	04-20-2018
Approx. Pick-up Time	7:00AM
Return Date	04-22-2018
Approx. Return Time	12:15PM
Class/Group	Hughes AP Environmental Science and AP Biology test takers
Student Count	24
Chaperone Count	4
Number of Vans/Buses	4
Common Carrier	
Cost to Students	15
How will you pay for students who cannot afford the fee?	I'll pay out of pocket.

Place of Departure

Name:	BEHS
Address:	11450 Hwy 44E
City:	Mount Washington
State:	KY

Destination

Name:	Pioneer Campground
Address:	Tunnel Ridge Road
City:	Slade, KY
State:	KY

Lesson Plans

[Link to lesson plans](#)

or

Hughes AP Science Review Retreat 2018

On April 20, 2018, students from Mr. Hughes's™ AP Environmental Science class will depart Bullitt East High School for a two night review retreat. We will travel to the Red River Gorge Geological Area in Slade, KY and

camp for two nights at a primitive campsite with a restroom facility. There are a series of campsites near Tunnel Ridge Road that have parking areas and well-developed pit toilet.

I've attached the lesson plans for each class. Please note: this trip is limited to the students who will be taking the AP test that is administered by the College Board. The AP Environmental test is on May 14 and the AP Biology exam is on May 10.

Lesson plans for both classes are included in this document.

AP Environmental Science Lesson Plans

On April 20 the Bullitt East AP Environmental Science class will depart for a two night review retreat to the Red River Gorge Geological Area near Slade, KY. We will be camping at a partially developed camping spot off of Tunnel Ridge Road. This camping area has a restroom facility and a large, flat camping area with a parking lot. This part of Gorge is relatively flat and is a safe distance from some of the steep drop offs that can be found in the area.

Departure (Friday April 20, 2018)

We will leave school according to chaperone availability and student schedules. School vans will leave at 7:30 AM to travel to the campground and begin the setup process. These campsites are not in a campground and are available on a "first-come, first serve" basis. .

We will use this two day retreat as a way to review many of the main ideas of the course. The following activities will be conducted as part of the field trip.

- I. Water Unit Review - students will spend one-half day in the Red River and/or tributaries conducting analytical tests of the water and sampling using kick nets to acquire macroinvertebrates.
 - A. Water sampling parameters, water quality determination
 - B. Macroinvertebrate sampling
 1. Biodiversity - Shannon-Wiener Diversity index
 2. freshwater resources
 3. Ecological niches
 - C. Water pollution
 1. sources, causes, effects
 2. Surface and groundwater issues
- II. Soil Unit Review - students will spend one half day in one of four locations (upland, riverine/riparian, mature pine/hemlock forest, or an area recently damaged by forest fire. Results will be reported and combined for comparison.
 - A. Macronutrient testing at various locations
 - B. Soil property analysis
 1. Horizon delineation
 2. Texture analysis (soil triangle)
 3. Permeability
 4. Porosity
- III. Biodiversity - Students will spend time near campsite analyzing biodiversity and forestry concepts
 - A. Population biology - demographic parameters
 - B. Forest management
- IV. General environmental concepts

A. Time will be devoted to hiking and sightseeing to reinforce concepts related to geology, public and federal lands, land conservation options, and sustainable use strategies.

1. Earth Science concepts
 - a. geologic time scale
 - b. plate tectonics
 - c. earthquakes
 - d. Rock cycle and soil formation, composition
 - e. erosion, soil conservation
2. Public and Federal lands
 - a. management
 - b. wilderness areas
 - c. national parks
 - d. wildlife refuges
3. Land conservation options
 - a. preservation
 - b. remediation
 - c. mitigation
 - d. restoration

V. Students will also be assigned of the remaining 28 topics that are outlined in the AP Environmental Science Course description. They will have to research the main ideas and prepare a handout to be distributed to their classmates. They will also do a short presentation over the content of their review handout.

Accommodations

Students will be responsible for procuring camping and sleeping gear. They will be divided into a girls section and boys section in the camping area. Male and female chaperones will sleep in tents within each group.

Food

Students will be given a choice of meal options. Most meals will be prepared at the campsite. However, there are several options in the vicinity for those who prefer a more traditional meal. Students are responsible for planning and paying for meals. The teacher will make sure that students will free/reduced lunch have their meal fees reduced.

Severe Weather plan

The campground area is within range of cellular service. The weather will be monitored and severe weather procedures will be followed. If there is severe weather forecasted, the trip will be canceled.

Students are aware that they are on a school-sponsored trip and are bound to follow all rules as outlined in the disciplinary code.

AP Biology Lesson Plans

At the point in the school year of the field trip (three weeks before AP Biology exam), the AP Biology class will have recently completed units covering Ecology and Evolution. This field trip will provide an ideal opportunity to experience these two concepts in a real-life setting.

Friday - students will depart Bullitt East High School (via district vans) at 7:30. Travel to the Red is approximately 2 hours. Upon arrival, students will set up camp. There will be safety briefing and preparation of lunches before departing on a hike.

Day 1 - Assignment

Students will be led on a hike that departs from the Grayâ€™s Arch parking lot. This hike is a 4.5-mile loop that moves from dry ridge tops to shady, moist bottomlands. During this hike, students will work in small groups to document the following:

- The unique environmental conditions (soil type, moisture level, light exposure, soil depth) and the resulting flora and fauna.
- Identify the unique adaptations of the flora and fauna found along the hiking route.

Justification - There will be an emphasis on ecology during this assignment. The Red is an excellent resource in that it is a mixed-mesophytic forest. In laymanâ€™s terms, there are multiple (12-15) species of trees that create the canopy layer of the Red. This is in stark contrast to many forests that only have two dominant species (ex. Beech-maple, oak-hickory). Additionally, due to the geology of the Red there are several endemic species (Ex. white-haired goldenrod) that can easily be observed. With an elevation change of 250 feet and the transition from a dry, sandy ridge to a moist, humus-rich bottomland there are multiple opportunities to collect data (see AP Biology Year-End Video Project below) in a relatively short amount of time.

Information will be collected by notetaking as well as photography. The information that is collected will be used to create a diversity project that is part of the final unit of the AP Biology course.

Day 2 (Saturday) Assignment

There will be two parts to this dayâ€™s activities.

Part 1 - The morning will be devoted to a hike along the Auxier ridge trail system. This hike affords some of the most scenic views in the Red as well as a variety of habitats. The focus of this hike will be on the evolutionary adaptations of the plants students encounter along the trail. In addition to evolution, there will be an emphasis on cell communication. Given that flowers will be blooming en masse and invertebrates will be active in the Red, students will be able to review and reinforce concepts from previous units that dealt with cell-to-cell communication (how do plants break dormancy, trigger flower creation, attracts pollinators).

Justification - Evolution is a core concept in the study of Biology. This hike will give students to opportunity to identify adaptations and put evolution into a real-world perspective that cannot be accomplished in the classroom. Cell-to-cell communication is an important topic in AP Biology that is challenging for students to understand. AP Biology is usually the first time students are exposed to cell communication and it is a very cruel initiation due to the technical aspects of this topic. Students will be tasked to documenting examples of cell communication in plants and animals during the course of hike. The information collected will also be used to create a documentary style presentation after the field trip.

Part 2 - The afternoon session will be dedicated to review of quantitative analyses techniques used in the AP Biology. There will be a review of statistics (chi-square analysis, standard error of mean, standard deviation), Hardy-Weinberg problem sets, and cell size calculations.

Return to Bullitt East - Both groups will break camp on Sunday morning and return to Bullitt East High School. Arrival is anticipated to be around noon.

AP Biology Year-end Video Project

The year is nearly almost over. Now that we've scaled the monolith of content, it's time to relax, express ourselves creatively and look back over the past year. And what better way to do so than with video editing?

What are you doing? You'll make a ten minute documentary video, which is guided by the narration of a host, which will illustrate, visually, one of the overarching themes of A.P. Biology. Your imagery should be original, not something you ripped from an internet website. It can be footage of living organisms and their surroundings, but where you film it is entirely up to what you wish to accomplish with your project. We will be spending three days in Red River Gorge, which should be sufficient enough time to shoot your primary photography for this project. You've also got enough time to visit the zoo or Bernheim Forest if need be, before the project is due, though this could also be easily accomplished within one's own backyard.

The documentary should also have a distinct host (though if your group wishes to collaborate in such a means that you have cohosts, that is acceptable). The host should be informative – the fount of knowledge behind all the species and/or phenomena displayed. The host should focus on a minimum of five, specific species, and those species should be connected by one of the six, provided themes below. The host is encouraged to be interactive to ensure the documentary is engaging. To better understand what is meant by “interactive,” watch clips of David Attenborough's nature documentaries – the host gets as close as possible to organisms as he is talking to the viewers about that species.

The six themes are overarching ideas from the entire year of AP Biology, interwoven into every unit of study we've looked at in class. The six topics to choose from will be:

Evolution
Form and Function
Interdependence in Nature
Continuity and Change
Regulation
Energy Transfer

As for the five (or more) native, Kentucky species you choose to support your theme, or how you represent that theme within your documentary, is entirely up to you and your group. You've got a lot of freedom on this project. You'll be graded on:

- **Theme/content** (does your use of image and audio effectively convey your theme to your audience?)
- **Photography** (does the film have an overall aesthetic appeal? Is there a variety of camera angles, creative use of the camera or appropriate lighting?)
- **Editing** (is there a smooth flow throughout with effective pacing? Are the audio and visual well-coordinated?)
- **Information** (Is the information presented accurate and thorough? Is the host of your documentary engaging, enthusiastic and, above all else, informative?)

That's it. No need to worry about complications like storyboards, scripts, rehearsals, etc. Instead, it's a simple enough project that it could be completed on Windows Movie Maker if one were so inclined. Additionally, you'll have some “working days” in class to plan out your project and arrange it accordingly. These will accompany the dates provided during the Red River Gorge expedition, wherein filming footage for the documentary is one of the main caveats of the trip. Thus, there is no reason to wait until the last minute for tackling this project. The rubric by which you will be assessed is on the back of this page.

Rubric for Video Project

Category	Distinguished (100)	Proficient (80)	Apprentice (60)	Novice (40)
Theme/content	The film has a theme that can be understood without explanation. Every shot selected is logically arranged and clearly was chosen to enhance the film's ability to convey the central theme.	The film has a theme, though it might require minor questions on the part of the viewer to understand it. Most shots selected are logically arranged and clearly was chosen to enhance the film's ability to convey the central theme.	The film has a theme, though it is very difficult to discern and may require explanation on the part of the filmmakers to understand. Some shots are logically arranged to enhance the film's theme, whereas others seem to have been simply thrown in.	The film lacks a central theme, clear point of view, and logical sequence of information. Much of the footage is irrelevant to the overall message
Editing	Film is edited. Video runs smoothly from shot to shot and is effectively paced. A variety of transitions are used to assist in communicating the main idea. Images and music are perfectly paired throughout.	Film is edited. Video runs smoothly from shot to shot. A variety of transitions are used to assist in communicating the main idea. Visual and audio pair well at times, whereas at others, the pairing seems incidental	Film is edited, though it may appear rushed, unfinished or unrefined, lacking a smooth flow or it simply is a series of images thrown together and music laid underneath.	Film is of poor quality and is unedited. There are no transitions added or transitions are used so frequently that they detract from the video.
Photography	All imagery is aesthetically appealing, there are a variety of camera angles with excellent composition and lighting. Many creative, but appropriate uses of the camera are incorporated.	All imagery is aesthetically appealing, there are a variety of camera angles with adequate composition and lighting.	Most imagery is aesthetically appealing, though there are also many without proper lighting or are simply difficult to discern what the subject of the shot is.	Most images are so crude, due to poor lighting or rushed filming that the project lacks any sense of visual appeal.
Information	The information is accurate. Each adaptation is fully discussed in depth by the host " host comes across as a master of the material being presented and is thoroughly engaging.	Information is accurate. Each adaptation is moderately discussed by the host " host clearly presents all material.	The majority of the information is accurate, though minor mistakes may exist or adaptations are minimally discussed by host " host presents material, though he/she appears to struggle with the material.	The information is minimal or incomplete and the host fails to properly convey information to the audience

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