

# GLOBAL FOR DUMMIES



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So you wanna be a Global Student? They are always busy. Every month, at least one grade is on a field trip, and that's not even counting the optional ones. These trips aren't for sissies though, so think you can handle it? You will fall. You will get rained on. You will march through mud. You will see parts of a deer that never see sunlight, and will haunt you for weeks after. You will laugh, you will cry, you will be forced to play the name game more times than you ever thought possible. You will learn more than just textbook facts.

Global for Dummies is here to offer you priceless advice about the trials and tribulations of the everyday Global Student. We will provide you with a heads-up of what to expect so you don't march into your first hike wearing flip-flops and a T-shirt, and so you're not bogged down with heaps of makeup work the night before it's due.

**Fact 1:** You will get wet. Global field trips go on regardless of weather, and are usually marked by rainy days. So always bring a raincoat; it will become your best friend. In fact, purchase a raincoat to designate as your Global jacket. If you

are unlucky enough to be in group B, this advice is particularly important, as group B is cursed with perpetually bad weather. Don't be that one kid who forgets his raingear and is miserable for four hours.

**Fact 2:** Global Bus rides are long. Excruciatingly so. Mr. Sparrow drives twenty miles below the posted speed limit. A trip that should take thirty minutes will take a full hour, so bring cards, bring a book, and bring a sense of humor. If you're lucky and a fast runner, you'll get a seat with your friends. This is, in fact, a feat that is rarely ever accomplished to your satisfaction, because the Global Bus is notoriously lacking in proper seating for forty-some people. It takes fleet feet and a blatant disregard for manners and safety to procure a desirable seating arrangement. Those who fail to do so are stuck sitting in the emergency seat, the wheel seats, or the aisle (which is actually kinda fun).

**Fact 3:** Hikes can be your worst nightmare. Without proper boots and weather appropriate clothing, you will be trapped in your own private little nightmare. You will suffer blistered feet that will cause a pattern of walking at which others will point and laugh. In winter, footwear is no laughing matter. Stepping in a puddle without waterproof shoes when the temperature is near freezing could result in frostbite or hypothermia, and the same can be said about not having warm enough clothing. Even when the weather turns warm, you should always wear long pants to protect yourself from thorns, sharp grasses, and pointy sticks. Ladies, this is not a fashion show. Nobody will care what you look like when you've all been hiking for four miles and are covered in mud. Hikes can be rewarding experiences and can grant you some of the greatest memories in Global, if you're properly prepared. And remember, Uggs are not suitable hiking gear.

**Fact 4:** Getting lost sucks. It is very easy to get lost or get left behind. Getting lost will result in widespread panic, teachers yelling at you, and infamy for years to come. You will delay the trip, you will not get back to school on time, and everyone will hate you for making them miss their buses. And if you're really lucky, a search-and-rescue team will be called in to hunt you down like the deer you have just dissected. On your part, you will be petrified. You won't know where to go or what to do, so just in case, always bring your cell phone on these trips. Just be sure to keep it out of Mr. Morrell's sight.

**Fact 5:** You will need your Global Journal. Regardless of the trip or your grade, it is always necessary to bring your journal. For every trip, you will be expected to fill out an extensive journal entry. These journals will make up a large part of your grade. Get each entry done within a couple days of the trip, because you don't want to forget any important details. While the journals may seem like a pain, in the future you will regret not writing more. They are your *Global Time Capsules*.

**Fact 6:** Field trips are a privilege, not a right. If you can't keep up with the course work, if you can't make up the missed work, and if your grades are suffering, you

will be denied from field trips faster than a SMCS kid can solve a Calculus problem. It is important to remember, however, that it *is* within your ability to keep up with the work load; you would not have been accepted if there was any doubt about your work ethic! Be sure to get all the work you will be missing ahead of time. Try to do as many assignments as possible that are due the day of the field trip before the field trip, because the Global Bus *has* been known to break down...and catch on fire.

Please don't misunderstand. The Global Ecology Program is not so Spartan-esque as we make it seem. It really is quite fun, despite our macabre warnings. The Global trips will grow to be the highlights of your high school career. It's really nice to see daylight after spending six hours in rooms without windows. No, really, most of the rooms don't have windows. So, to give a taste of what you're in for, we at *Global for Dummies* offer you a comprehensive guide to one cross-grade year in the Global Ecology Studies Program covering at least one notable field trip per month.

## CHAPTER 1 – SEPTEMBER

Harpers Ferry is the first milestone for Global freshmen, one of the most memorable. It is the pinnacle of freshmen field trips, a two-day, one-night introduction to all that is Global. It was here that we forged the bonds that would last the extent of our high school careers.

The visit to Harpers Ferry is a two-day, one-night where you can choose between sleeping in a cabin or in a tent under the starry October night sky. Before falling asleep perhaps you will listen to a bloodcurdling tale, one that will keep you wide-awake long past lights out. The next day you will visit some of the many museums the town has to offer; you will learn about how the current of the Shenandoah powered the growth of Harpers Ferry and other similar early American cities. And maybe, you will learn the sad truth of what happened to this town.

Harpers Ferry was once a thriving town resting at the convergence of the Potomac and Shenandoah Rivers. During the Civil War, it was a valuable armory. Unfortunately, this value to the war effort was detrimental to the surrounding environment. The forges needed fire, and the fire needed fuel. The fuel came from the trees around the settlement, and by the end of the war, almost none remained. This deforestation led to erosion in the hills and pollution in the two great rivers, and drove out the former inhabitants of the forest. Due to this severe case of overexploitation, Harpers Ferry had to be abandoned. To this day, 150 years later, you can still see the boundary where the re-grown forest meets the parts untouched.

You will recognize the effects of the large-scale erosion on the rivers when you test the soil composition of the banks. We found the texture of the soil to be very sandy, and therefore very loose and susceptible to being washed away. The soil has yet to build up all the finer particles, the clay and the silt, that were lost when there were no trees to keep them in place.

The events at Harpers Ferry are not unique. It is a sobering tale that has been repeated time and again. The effects of the previous generations have already begun to change our world for the worse. It is up to our generation to protect what's left of our planet's natural resources. To ensure that there's anything left to protect. To be informed is why it is so important to be a Global student. It all comes down to you, so we hope you can make the right decision when the time comes, whether it's voting on whether or not to allow logging rights or on the decision to build new roads. You need to be the voice for those who cannot speak.



Whereas Harpers Ferry is the capstone of the freshman year, Canaan Valley is the capstone of the entire Global Ecology Program. A four-day, three-night extravaganza, you will learn more about nature, and blisters, than you ever thought possible.

Canaan Valley is the most intense trip of Global; you will hike eight miles in one day in the freezing cold and possibly rain and snow, and learn that despite their cute little eyes, you should not feed the deer. They will eat you. You will be given a GPS that will try to make you walk nine miles in the pouring rain in the wrong direction. And, just a piece of advice, when the time rolls around when you have to present your cabin's skit, try not to make something up in the bathroom five minutes beforehand. Canaan Valley is where you will learn more about yourself and your classmates than the past three years combined. Like which ones snore. And which ones take *forever* in the bathroom. That eight mile hike takes quite a while, and there's precious little else to do besides talk. And sing the Pokémon theme song.

The day after the hike, you will visit hundred-year-old trees and one year old trees. At Cathedral State Park, bring your journal and bring a calm demeanor. You will spend hours in this old growth forest, among the last remaining stands on the East Coast. The trees in this forest differ from others in the large variety in age groups, and the lack of variety in tree species. Because old growth forests are climax communities, they are more stable and more biodiverse than other ecosystems. However, the trees here are of higher value to industry than other trees, because of the length and strength of the wood fibers. It is because of this blatant disregard for the natural order, a remnant of the environmental policies of the westward movement, that the presence of old growth forests in the United States has dwindled to but a handful.

Old, wiry trees were not the only resource plundered in Appalachia. At Canaan Valley, you will also visit the skeletal remains of a strip mining operation. Strip mining is different from the more well-known deep shaft mining; it is characterized by completely removing layers upon layers of soil from the area in order to extract the minerals from the bedrock. After visiting the lively old growth forest, the open land broken up by mere saplings reveals the injustice that the miners, in the name of progress, have committed upon this land. Even after many decades, the land has not yet healed its wounds. The topsoil lost by the intensive mining has yet to return; the scar is sparsely decorated with grasses and a few saplings where massive trees should stand. The land is no longer capable of supporting life at the level it has in the past.



September is a month of beginnings. A new school year, new friends, and for you, dear reader, it is the start of your time as a Global Student. It is a time of beauty, the leaves are just beginning to change but the warm summer air still lingers. Maybe it is a combination of all these things that make the field trips of September some of the most memorable.

## CHAPTER 2 – OCTOBER

You will soon learn that many field trips happen right at school, like the Earth Day cleanups and Mr. Morrell's memorable war games. Our October point of discussion, however, is several days of American History enlightenment. This pseudo-field trip and the lessons surrounding it focus Native Americans and their relationship with the environment and with pioneers. At first glance, this seems bland and uninteresting, but you can trust Global to add life to the dusty old facts of the past. One of the first assignments in Global is to make your own lacrosse stick with just a fallen branch and some twine. And no live branches that you cut off a tree, because Mr. Morrell will know. And he frowns at your lack of respect for nature. These sticks function better as tennis rackets than actual lacrosse sticks, and most immediately broke upon impact when we used them. Regardless, the game was epic.

This trip is one of the earliest introductions to environmental policy. The Native Americans had considerable respect for nature, never taking more than necessary. Most famously, they used all parts of the buffalo. This contrasts sharply with the wanton destruction the pioneers left in their wake. Based on a lack of understanding of the effects of their actions and an assumption that resources are limitless, they overexploited the bounty of nature. The pioneers created a precinct for hundreds of years of environmental misuse. Their actions gave birth to the belief that industry takes precedence over any aspect of the natural world.

Prior to the westward movement, buffalo were very populous in the Great Plains, their numbers measuring in the millions. By the late 19<sup>th</sup> century, they had been decimated to a few hundred individuals. The tongue-less, skin-less carcasses of the dead were left to rot on the Plains. Eventually, when the conservation effort in the United States became more prevalent, the reintroduction of buffalo began in selected national parks, such as the Yellowstone and Elk Island National Parks. The population of the species steadily rose with help and protection, and the American Bison has since been removed from the Endangered Species List.



By no means believe that because you don't get to sit in the Global bus for hours, that this is not a real Global trip. You will be rid of that misconception expeditiously once you experience your first in-school trip. Rather, enjoy the opportunity to, er, enjoy yourself without missing and having to make up work. You'll have plenty of that later.

### CHAPTER 3 – NOVEMBER

We at Global for Dummies guarantee you one thing; this is a trip where you *will* get wet. We don't know what meteorological mystery causes this but every year without fail it's pouring down rain on the day of the trip to Roosevelt Island. Upon arrival to this wooded, overgrown rock in the middle of the Potomac River right outside of Washington, D.C., you will be handed a GPS and ordered to start walking. This is an exercise that more often than not ends up sending you in the completely wrong direction. If by chance the planets have aligned to allow you to actually find your destination, you will happen upon your assigned landmark. Unfortunately, and particularly on this island, the quest will take you through thorns, briar, and all other manner of pointy things. Later in the trip, it will be your job to remove, not a pest to humans, but a pest to the trees themselves: English ivy.

English ivy, an invasive species, chokes the life out of the forest, literally. The vines constrict so tightly around trees that as the tree grows, the bark literally grows around the ivy. Trees in this condition are highly stressed and have trouble transporting valuable nutrients through the bark. Even after removal, the bark is left with deep gouges from the unrelenting vine. English ivy is not the only invasive species causing problems in the United States today. To name a few, zebra mussels, snakehead fish, Japanese honey-suckle, multiflora rose, emerald ash borers, some fruit flies, and Africanized honeybees, not to mention the numerous others. All of these species found their way to the United States by human hands, both intentionally and unintentionally, and have since wreaked havoc on native populations. Their insertion into indigenous ecosystems uproots

the natural order and disrupts the original interactions between organisms. They outcompete local species because they have no natural predators in these ecosystems, so once they find niches they can exploit them without interference. Invasives spread foreign diseases that the native organisms have no resistance to, such as the Dutch Elm disease.

Clearly invasive species cannot be allowed to overrun the indigenous species. So as a Global Student of course you're going to play a part in their removal. So arm yourself with gloves, hedge clippers, and trash bags, as we are about to wage war on these tree-killing vines. You clip a vine then pull, over and over and over again, till at last, this tree is clear, for now. Getting rid of English ivy at Roosevelt Island is a full time job, 'cause the darn stuff just keeps coming back.

At Roosevelt Island, you will also find a memorial to President Theodore Roosevelt, the namesake of the Teddy Bear. The island is a state park, a tribute in and of itself to Roosevelt's environmental policy, Utilitarianism, which created the first nature reserves in the United States. He believed that the environment, or, more specifically, the resources it provides, should be used as needed. He did not believe in the conservation of resources, even for use by future generations. Regardless, Roosevelt did establish many nature reserves, if only because he did not believe the areas to have any economic value. His beliefs still heavily influence the park service, and even today the foremost purpose of national parks is resource conservation. The critics of Utilitarianism believe in biocentric preservation. They hold that everything has a right to exist, simply because it exists. And so, they preserve to ensure that life is not lost, not for the sake of future use.



November is a month full to the brim with fieldtrips, many of them optional overnights. Every year, Global offers one cross-grade trip the week before Thanksgiving, which usually involves swimming in mud and inhaling brackish water at the Chesapeake Bay. This trip may bring you to the Wallop's Island Marine Science Consortium, just off Chincoteague Island. Here, you will learn all about the ecology of the bay and the surrounding marshes and beaches. You will study in depth the interactions of the microorganisms, the invertebrates, the fishes, and the birds. You will learn the movement of the tides and local currents, and the delicate and endangered growth of the dunes. And, you will learn that Chincoteague Island is slowly but surely headed toward North Carolina. On the marsh-mucking excursion, you will come to understand the sponge-like qualities of the wetlands, and how this characteristic allows it to absorb all manner of pollutants that would otherwise further degrade the Chesapeake Bay. And finally, you will learn to respect the oyster beds in the shallow waters, because the oyster farmers have permission to shoot you if you get too close.

Although the Wallop's Island trip is typically a spring occurrence, it relates closely to Port Isobel, which *does* happen in November. Like Wallop's, Port Isobel is an

island in the Chesapeake Bay. The bus ride to Port Isobel takes a good (brutal) five hours, and then another hour on a boat to get to the actual island. Because it is late November it may even be snowing...while you're being battered by the icy, pounding waves. At the island you will go on many a night walk, one of which even includes leaping over a gap, where if you fall in you would land in five feet of freezing cold water. At night the beach seems to take on a magical quality. A quick dig in the sand produces a greenish, lingering glow. This eerie glow comes from the dinoflagellates – a group of marine plankton known to form beneficial relationships with coral and to cause debilitating red tides – that have washed on shore. Later perhaps you will wander around the island during the daytime. Maybe even do a little marsh-mucking. For such a small place there are a large amount of organisms. The organisms there are varied each occupying their own niche. This is called specialization. For example, there are many different birds here, some which feed on plants, some on insects, and some on the creatures of the bay. Soon you will again ride on a boat, and go crabbing. You will learn that the crabbing industry is under fire and the surrounding islands economy is suffering because of it. The crab population is deteriorating; environmentalists do not yet know if this is due to over crabbing or due to the poor condition of the bay. When the time comes to go back to the mainland you will have a lot to think about on the bus ride back, not the least of which is how you will ever get all that mud off your sneakers.



November is a transition month and with our Maryland weather the temperature can vary from 85° to below freezing. However once it's over it's pretty safe to say that you should bundle up, because a cold front's coming in, and it's gonna be a nasty one.

## CHAPTER 4 – DECEMBER

December is a cheery, joyous month. A month associated with toasty fires, hot chocolate, and pretty lights. So where could the next field trip be? A museum, perhaps? Somewhere warm and indoors? You betcha! Enjoy the wondrous indoor warmth while you can, because once you get into junior and senior year, you no longer have that luxury. First up is a visit to the Botanical Gardens. There you will see flowers big enough to swallow you whole and walk around in an indoor rainforest. You will walk through room to room, and at the same time from continent to continent. This is rather reminiscent of the next stop in the month of March, the National Zoo, where you will visit animals from every corner of the earth.

The plants of the Botanical Gardens are organized by biome: rainforest, desert, deciduous forest, coniferous forest, plains. The animals of the National Zoo are separated by either ecosystem or by type of organism. In nature, the plants and



animals from both of these places would interact with each other in many different ways. They may have mutualistic, parasitic, or commensal relationships in which two organisms interact in a way other than typical predator-prey relationships. In a mutualistic relationship, both organisms benefit. The most widely known example of this is bees and flowers: bees pollinate the flowers while collecting nectar as a food source. In a parasitic relationship, one organism benefits while harming the host. Mistletoe, for example, is a parasite that thrives on the lifeblood of its host tree. Finally, in a commensal relationship, one organism benefits while the other is unaffected. One example is the remora, a type of fish that suctions itself to the belly of rays and sharks to catch meal scraps. Of course, there are billions of other examples of inter-species relationships.

The organisms within each ecosystem are incredibly interdependent; each link in the chain is critical to the smooth function of the ecosystem, and if even one is removed, the effects are detrimental. For this reason, the protection of endangered species is incredibly important. The loss of one species has a snowball effect on all the others within its environment, completely changing the composition of the ecological unit. These trips to the National Zoo and the Botanical Gardens give you some idea of the real number of organisms and interactions that exist right outside your window. The world around you is incredibly biodiverse and complex, and only thanks to assemblies like the National Zoo and the Botanical Gardens can you see that.

## CHAPTER 5 – JANUARY

By January, the Global Program has finally accepted that sometimes it's just too cold to be outside for a prolonged length of time. Of course, they have to compensate for the lack of freezing temperature with another miserable learning environment, accomplished through disgusting odor. In January, you will explore two competing methods of waste disposal. In January, you will visit the recycling center and the resource recovery center.

The recycling center is a relatively new addition, and carries out the main tenet of Global Ecology Programism: Reduce, Reuse, Recycle. Behind the warm, modern, and exceedingly informative lobby is the monolithic waste chamber, packed with conveyor belts and sieves, in which all manner of recyclables are sorted by material, size, and color. Materials are not processed here, however. The products are conditioned at the recycling center. Lids and labels are removed, containers are emptied of their contents, and non-recyclables are separated from the bunch. The newly conditioned and sorted products are then shipped out to where they can be reprocessed with less energy and less pollution than necessary to process raw materials. Of course, recycling is not a cure-all

solution to the environmental problems we face today. Not all materials can be recycled, and nothing can be reprocessed indefinitely.

The resource recovery center, formerly known as the incinerator, is considerably older, significantly louder, and possibly even smellier than the recycling center. The smell of smoke and burning rubber permeates the building, earplugs are necessary to block out the roar of the furnaces, and the fire itself is hellish in its heat and enormity. Unlike the recycling center, the incinerator does not discriminate in the waste it turns to ash. The purpose of the resource recovery center is more environmentally friendly than you might think. The heat generated from burning the trash is converted steam, and then into electrical energy, and the whole process takes the strain off overflowing, environment-contaminating landfills and dumps. However, the process releases clouds of thick black smoke that, no matter how they try to filter it, will never be completely harmless. And, even though it's now reduced to burning cinders, the trash is still here; it has not disappeared, it has only become more manageable, and easier to hide underground.

Would you want either of these in your backyard? Everybody understands that structures like these are necessary, whether to recycle or purely to relieve the strain on landfills, but no one wants to see it. No one wants to hear or smell or have anything to do with waste disposal, because it's messy. Would you be willing to sacrifice your peace of mind for the sake of the environment?

## CHAPTER 6 – FEBRUARY

By February, the Global Program has forgotten its previous promise to keep you out of the cold. In fact, it has completely reversed its opinion, and is now sending you into icy cold streams. Furnace Branch is one of the first stream studies of your Global career. It is certainly the most in-depth. You will immerse yourself in the water for the sake of chemical and macroinvertebrate testing, and will stand in the rain and wind to observe the more obvious signs of stress in the area. After this trip, you will be lucky to sit in one of the wheel seats on the Global Bus, because those are the warmest.

In the creek, you will test for water temperature, pH, dissolved oxygen, and nitrogen and phosphorus levels. These data give the quantitative signs of stress; they tell you the ability of the water itself to support life. For most of these factors, a middle value is the best; the middle values will enable the largest variety of organisms to exist, those that can survive in extreme conditions, and those that cannot. The first test you will be performing is for water temperature, and you would have to be an idiot not to know how to use a thermometer. After testing your brain capacity with the thermometer, you will be using small paper slips to determine pH. Hold the strip in the water for a few seconds, take it out, and the

color change will tell you, to a certain degree of error, the pH, or concentration of H<sup>+</sup> ions, of the stream. For the other three tests, dissolved oxygen, nitrogen and phosphorus, you will be given three small boxes, one for each test. Each box will have set of instructions printed on the inside of the lid. While the instruments may vary, the essential steps are crushing some type of powder or adding some chemical to a vial of stream water, and waiting for the color to change. These tests are very important because not only is dissolved oxygen essential for aquatic life but nitrogen and phosphorus levels also affect the quality of the entire ecosystem.

The more obvious signs, such as erosion, sediment deposits, algal blooms, and the presence or lack of garbage are qualitative signs, and are just as useful for determining the health of a stream. For example, water that is very cloudy, too slow moving, too exposed to sunlight, or is covered in algae growth is not healthy. Because of these characteristics, dirt may clog fish's gills and the water may be oxygen deficient, too warm, or too dark to allow plant growth. Certain characteristics can tell you the cause of the problem in the stream. For example, an algal bloom can mean that a farm nearby is using too much fertilizer, or large sediment deposits indicate a lot of erosion, which could be caused by too few trees or nearby development. Stream health is frequently indicative of other environmental problems. Try to remember these things as you're standing knee deep in freezing water and your jacket is slowly being soaked through.



Luckily by the end of February, the cold isn't quite so biting, unfortunately, by the end of February, pouring rain has become the norm.

## CHAPTER 7 – MARCH

Welcome to March, the awkward transition between winter and spring when the weather can't decide whether to be cold or rainy, so it's both! Of course, the weather is really nasty, so you can be inside, right? I mean, last month was just a fluke, right? Wrong! This is Global! You'll be outside in the freezing cold doing, what else, but dissecting a deer. And don't worry about the Croyden Creek Nature Center not having one. If we need to, we'll just pick one up off the side of the road and toss it under the bus to take it with us. Finding one will be no problem at all, as you've probably noticed Maryland has a bit of an overpopulation problem when it comes to deer. You can't go half a mile without passing another carcass. The excitement of seeing deer frolicking in the fields gets old quickly once you've hit one with your car. The reason there are too many deer is because humans have killed off all their natural predators, like the gray wolf and the mountain lion, through hunting and by developing over their habitats. Without any predators the deer population exploded. Now, however,

more and more deer are dying of starvation. The land is overgrazed because it cannot support such a large population. Some people believe that to lower the population size a massive hunt should be organized. Others believe a more humane way to solve the problem is sterilization.

Once the bus arrives at the nature center you will make your way around the back of the building. As you near the table the smell will hit you. It's a stench that you'll never forget; it will haunt you in your dreams. After everyone puts on gloves the dissection will begin. This is where they separate the men from the boys, or to put it more aptly the future biologists from the rest of us. The person doing the dissection will remove organs and hand them to the crowd, entirely freaking out the squeamish group of girls who have inched as far away from her as possible. The organs removed from the deer serve the same function as they do in humans. Perhaps you'll be a little awed by how similar they are to your own. These homologous structures, the similar organ systems between humans and deer are truly amazing. Soon enough the dissection is over, and now it's time for lunch! After washing your hands a good thirty times you will most likely have no desire to eat what's in front of you. You may even be vowing to never eat meat again. There are a few people who after this fieldtrip became vegetarians and never looked back.

After lunch is a nature hike. After walking through the forest for a while you will be told to pull out your journals. You are told to listen to what's going on around you and write down what you hear and how far away it is. Besides a few bird calls all you'll be able to hear is the passing of cars. The small park you are in now is surrounded by human development. Humans interfere with ecosystems, by building roads, polluting the water and the air, and destroying what was once wilderness. The number of organisms killed or misplaced in the name of industry is phenomenal. The little land set aside for nature is not large enough for many creatures to survive.



As you sit, snug indoors when you get home, remember the plight of the deer, and all the other animals affected by human interaction. And remember that as Global students, you will have the ability to help them.

## CHAPTER 8 – APRIL

April is a time to get back to nature, to see it in full bloom (not that you have been neglecting nature, I'm sure you are well acquainted with it). This is the best time of year to get outside, and so, naturally, you'll be doing just that. In April, you will visit Black Hills State Park. This trip is predominantly a nature hike, meaning you walk around for a few hours, are given twenty minutes for lunch and journaling, and then you walk around some more. The only factor that differentiates this hike

from the next is the unexpected topic of discussion: beavers. Yes, beavers. Black Hills Park is home to a large lake that was once home to a family of beavers. As humans began encroaching on their habitat, the beavers were forced to abandon dam after dam. Their story is not unique; billions of other organisms share this same loss of habitat. As human developments continue to expand, valuable core habitat is lost and edge habitat remains. Core habitats are those with a high ratio of area to perimeter, while edge habitats have more perimeter than area. Some organisms thrive in core habitats, where there is less interference from humans, and the ecosystems are for the most part intact. Other species, however, prefer edge habitats. Deer, for example, thrive on the edge. They can find food sources aplenty in either a human development or in a more natural setting, but this causes problems for both species. As previously discussed, the explosion in population means that many individuals are starving or malnourished, and the overpopulation means that there are more roadway accidents involving deer.

You should be grateful that by spring, the teachers' cruel hearts have melted with the snow, because the hike at Black Hills does not take up an entire day. Instead of forcing you back to school like they do for those miserable half-day trips, they will take you to a local Poolesville pond to clean up some duckweed. Local ponds are usually plagued by thick carpets of duckweed and algae due to excess fertilizer on homeowners' lawns running off when it rains. The surplus of nitrates and phosphorus in ponds over stimulates algal growth, in what are called algal blooms. Although at first this might not seem like a bad thing, algal blooms are the reason for the terrible state of the Chesapeake Bay. When algae cover the surface of the water, sunlight cannot reach the submerged aquatic vegetation at the bottom, so no other plants can grow. When there are no plants in the pond, the base of the food chain for this ecosystem is lost, and the amount of life the pond can support diminishes dramatically. Furthermore, when the algae begin to die, the decomposition reactions deprive the water of oxygen, preventing fish from surviving. This process is called eutrophication, and completely annihilates life from a pond or lake.



This trip is one of the most laid back of the Global Program, simply because the weather is beautiful (if you're lucky), and spring break is just around the corner. So have fun on this break-before-break; have fun walking, talking, and, of course, swimming in pond goo.

## CHAPTER 9 – MAY

Ah, May. May is a month of warm days and cool nights. After AP exams, the days quickly fly by, as the student-body as a whole, and maybe some of the staff, counts down the final days till summer vacation. The May fieldtrips are some of the best; they are relaxing and fun. This month you're going to the Greenway, a

traffic-free trail that runs from Florida to Maine. Of course, you'll only hike a small section, a few kilometers. This trip, Wild Montgomery, is for seniors only, and is the final trip in global before you head off into the big wide world.

While you hike, you will be taking data along the trail, about plant life, animal species, and marsh ecosystems. This also a semi-stewardship event – you get to pick up other people's discarded refuse! AKA trash. While you walk and talk and data collect, your teachers will educate you on the ecology of the areas you pass.

First, you will be identifying different plants that grow along the trail. Some of these plants are, you could say, early bloomers. No, really. They're not supposed to be blooming yet. Since temperatures began to increase around the world due to the greenhouse effect, the maturation cycles of many plant species have been thrown off-kilter: they have begun to bloom earlier in the season. This change is hardly as innocent as it sounds, though. When the blooming time of the plants is thrown off, the migratory species, such as Monarch butterflies, that rely on the plants for food during their thousand-mile journey cannot replenish their energy. The migratory species cannot make their journey, and also cannot pollinate the flowers to help perpetuate the plant species.

At the end of the trail, you will find yourself passing through a wetland. As you have hopefully already learned, wetlands are like sponges; they soak up water and all the pollutants that it may carry. One of the main reasons the Chesapeake Bay is in such poor conditions is because a huge percentage of the wetlands surrounding the bay have been replaced by pavement, which has zero permeability. All the runoff and pollutants are washed directly into the bay, the home of the Maryland Blue Crab. Fertilizers, oil, soil, pesticides, and innumerable other particulates find their way into the gills of aquatic organisms, killing them, killing their offspring, killing their food supply, and killing their only chance for the future. If you recall, many of these pollutants cause eutrophication in the bay. Beyond their value to aquatic ecosystems, wetlands are also important stop-overs for migratory species.

Throughout your hike, from forest to wetland, you will be picking up whatever little pieces of fugitive debris you find. This trash can take an unbelievably long time to biodegrade. Organic objects, like an apple or a piece of paper, take 2-4 weeks. A waxed milk carton takes 5 years. A disposable diaper takes 10-20 years. Do you know how many diapers are thrown away in the U.S. daily? 49 million. And the worst of all is Styrofoam, which never degrades. Kinda makes you rethink not using that reusable water bottle doesn't it?



This field trip is both fun and sobering. With the effects of our actions so plainly laid out before you, it is truly a powerful motivator. Now that you know about these things, the next time you go to throw something away you will think twice.

## CHAPTER 10 – JUNE

By the end of the year, with final exams looming in front of you, the last thing you want is to be taken out of class to go look at flowers or walk in the woods. Luckily, the teachers *understand*. They won't take you away from review week; well, not for long, anyway. In fact, they give you a present in freshman year. And by present I mean something that if you aren't careful, it will die. You also have to grow it yourself. Towards the end of February, you will be given your own plant to love and care for, be it a green pepper plant or a tomato plant. Now while some people are blessed with the ability to cultivate plant life most of you will kill your plant pretty much immediately. So, to make up for this lack of green thumbs, every year you will have the assignment to collect seeds. This is a competition to see who can gather the most seeds. We still have no idea what the prize is.



By now we hope you have learned that the Global Ecology Program is a balance between entertainment and solemnity. As future Global students, you will come to understand the importance of protecting and enjoying the few natural wonders that remain in our world. But more importantly, as future global citizens you will be able to make the right decisions that may one day save the world.