Hello Fellow Educators,
Thanks for taking the time to read this edition of “Under the Rock”. We hope you find it useful. Our emphasis in this newsletter revolves around water issues. Rock Eagle now offers a class on watersheds using a large model created by a former staff member. The aim is to show students how they affect their watershed and how they can help protect this valuable resource.
Currently the Rock Eagle staff is gearing up for the new Georgia Performance Standards that will be in effect this fall. The environmental education program will be ready to meet all of the standards as they come on line. The new GPS requirements stress inquiry-based learning, which is what the environmental education program has done for years. We are excited about the new standards and find it a great fit for our program. We look forward to working with teachers to make the Rock Eagle experience a vital part of the school year.
Please call (706) 484-2862 if we can provide any assistance in planning your field study. We will see many of you in the next few months and hope to see all of you in the future.
Sincerely,
Donna Stewart
EE. Program Coordinator

Interested in joining a 4-H summer camp at one of our five centers? Just call your local county 4-H extension agent for further information!
# Meet Our Staff

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Education/Experience</th>
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<tbody>
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New Watershed Studies Class at the Rock!

by Tamara Arrington

Rock Eagle will be offering a new water class starting this spring 2005 season. The class stimulates students' minds about their role in protecting the earth's most precious natural resource, by showing them what a watershed is and how people affect it. This is done by using an interactive watershed model to show the causes and effects surrounding watersheds and pollution. During this two hour evening class students will have the opportunity to build a small city on the model, and then use a pollution representative to learn about point source and non-point source pollution. The instructor will then show the students what would happen to their city and the pollution if it were to rain. Other topics covered include water properties, water cycle, and water importance. Water is the earth's most precious natural resource. The human body is comprised of about two-thirds water, and the earth is comprised of over 70% water. Water is part of our daily lives and we use it for numerous reasons. But, not only do people use water, everything living on earth needs water to survive. Life cannot continue without it, yet its importance is often overlooked. We hope to show students this importance and help them understand the properties of water through this interactive class.

Ringgold Middle students see the effects of pollution after a rain storm.
CREATE YOUR OWN WATER CYCLE!

By Lizzie Cox

All you need is a clear plastic bag, a measuring spoon and a rubber band or twist tie and you can watch the water cycle before your very eyes! Follow the three easy steps and then have a go at the water cycle word puzzle.

1. Pour two teaspoons of water into a clear plastic bag.
2. Blow air inside the bag with your mouth and quickly seal the bag with the rubber band or twist tie.
3. Put the bag on a sunny windowsill and watch the water cycle throughout the day.

Now, work out this word puzzle to help you understand the process of your water cycle in a bag. Fill in the spaces with the words below (some words are used twice). Answers are on page 10.

precipitation watercycle evaporate infiltration groundwater condenses surface water molecules

Water is made up of _______ _______ and they are constantly on the move in a process called the _______ _______. The sun heats up the water in lakes, streams or the ocean and causes it to _______ _______ and become water vapor. As the water vapor cools it _______ _______ and tiny droplets of water gather to form clouds in the sky. The water droplets grow bigger and heavier causing them to fall to the ground as _______ _______ (another word for rain, snow, hail and sleet). Some of the _______ _______ joins lakes and streams and is known as _______ _______ _______ and some of it soaks into the ground to become _______. The water is drawn into the ground by a process called _______. The water that has fallen to the ground will one day be heated by the sun again and return to the sky to form clouds and continue the _______ _______.

Fun with Water

By Andrea Davidson

Try and see if you can unscramble these letters to form words pertaining to water. If you need some help, maybe these definitions will give you a clue. C’mon, dive on in! Answers are on page 10.

1. AGS ______________________ 6. OLPUNLOIT _______________________
2. IDLUQI ________________                      7. SDEHTWERA ______________________
3. YGEXON ________________          8. VPOERATANIO ______________________
4. GONEDRYH ________________                   9. NOTINSACNDOE _____________________
5. ODSIL ___________                   10. ATNPOTIPICERI ______________________

Definitions:
1. State of matter different from the solid and liquid states by low density and being able to distribute uniformly throughout any container.
2. State of matter characterized by a readiness to flow, little or no tendency to disperse, and high incompressibility.
3. Gas which almost all living things need to survive.
4. A colorless, highly flammable gaseous element, most abundant in the universe.
5. Of definite shape and volume, being same substance throughout.
6. The contamination of soil, air, or water by discharge of harmful substances.
7. An area of land that drains into a water body.
8. How water becomes water vapor; a step in the water cycle.
9. The process by which water vapor changes to a liquid (water).
10. Any form of water that fall to the earth’s surface.
A watershed is the area of land that drains into a water-body. Watersheds are separated by ridges, or high areas of land. There are usually many small watersheds in one larger watershed. We are always in a watershed, whether it be a watershed for a creek or a pond or a lake, even the area of land surrounding a puddle can be considered the watershed for that puddle. Homes, farms, ranches, forests, small towns, big cities and more can make up watersheds. Some cross county, state, and even international borders. Watersheds come in all shapes and sizes. Some are millions of square miles, others are just a few acres. We need water to survive; no life on earth can survive without it; however, only one percent of all the water on earth is actually freshwater. How we treat that one percent of water is important. As a result of the way we live and the way our homes are set up, we aren't always able to see the results of our actions, this activity can help students understand what a watershed is and help them understand how their actions can affect the environment around us.

Map a watershed
Materials:
Local topographic map
Tracing paper
Colored pencils
Paperclips

Activity:
Place the tracing paper over the map using paperclips to keep the tracing paper from moving off the map. Use a dark blue pencil to trace the local water body you want to study. A reservoir or lake will work well. Using a lighter blue pencil, trace all the rivers and streams that flows into that water body. A light-green pencil can be used to shade in the area of land that contributes to that water-body.

You can do many things with this activity. For example; have the students mark an X where they live, where the local gas station or supermarket is. The path of surface runoff can be marked in another color, and students can make guesses as to what kind of pollution may be entering the water-body under study. This activity can be used to talk about point and non-point source pollution. Students can write a story about the life of a rain drop in their watershed. Taking a look at your school or community’s watershed will personalize their experience at Rock Eagle. They will have the tools they need to relate the activities at Rock Eagle to their lives.

Rock Eagle Welcomes Two New Staff Members!
by Kelly Jo Scott
We are proud to include Sandra Giley and Perdeta Weatherspoon to Rock Eagle’s team! Sandra is our new dining hall manager, taking the responsibilities of providing delicious and nutritious meals for our visitors. Perdeta just joined Rock Eagle this February as our new marketing coordinator. Her responsibilities not only include promoting Rock Eagle’s wonderful programs, but also includes promoting all of 4-H’s five centers. If you would like Perdeta to visit your school and discuss the benefits of visiting our centers call 706/484-2861 or email her at perdeta@uga.edu. We are excited to welcome both to the Rock Eagle family!

Welcome Perdeta and Sandra!
Today we are going to talk one-on-one with a very important resident of Rock Eagle. Many who visit our center don’t even get the opportunity to come in contact with this vital contributor to the local ecosystem. In fact, many simply mistake him as a mere twig floating in the lake, overlooking his importance all together. The individual I am talking about is no other then Belfazaar the water scorpion. The following interview with Mr. Belfazaar on February 2, 2005 details his life here at Rock Eagle. So please join us as we delve deep into the detritus to discover the truth about this quiet, yet ferocious, denizen of Rock Eagle Lake.

RE: So, how long have you been here at Rock Eagle?
WS: As best as I can remember, I have been here for a little over two years. You have currently found me amidst my second overwinter at Rock Eagle.
RE: Did it take you a while to adjust to Rock Eagle?
WS: Nonsense! It took me a mere 3 weeks to emerge from the egg that my mother had laid by simply forcing it into the soft tissue of an entanglement of various aquatic vegetation growing on the lake shore. And after that grand day, I matured from nymph to adult in 5 weeks.
RE: My goodness! You sure are an early bloomer!
WS: If you insist (blush). However, I was actually right on target. Most water scorpions remain in the egg for anywhere from 2 to 4 weeks and then mature to adulthood within 5 weeks.
WS: It’s absolutely fantastic. Plenty of still, fresh water…us water scorpions won’t tolerate lotic systems. Plus, there is more than ample shoreline which provides vegetation and detritus in which to hide from predators, lay eggs, and most importantly stalk prey for dinner.
RE: Stalk prey? I thought you were an herbivore.
WS: Not in the least. Like many other aquatic insects at Rock Eagle, water scorpions such as myself are expert predators. We capture and digest almost anything we can catch ranging from water bugs and insects (larvae, nymph, or adult) to tadpoles, salamanders, and even small fish.
RE: So you use your stinger that you’ve got in the back there to immobilize your prey, right?
WS: My stinger?!? What stinger?
RE: Well, I’m referring to that long appendage you have on the posterior end of your body.
WS: My friend, that is no stinger. Rather my terminal two appendages unite to form a breathing siphon that I thrust through the water’s surface to take in air.
RE: Kind of like a snorkel?
WS: Exactly! This adaptation allows me to still breathe while I’m in the process of hunting or eating below the water’s surface.
RE: So back to your method of predation. If your back end is not a stinger, then how do you manage to catch and immobilize prey such as Giant Water Bugs and tadpoles?
WS: Elementary, my Rock Watson! I use my front two legs (which some say are my raptorial pinchers) to catch the prey and then I dive in with my beak-like mouthparts. I inject special saliva that first tranquilizes my prey and then starts dissolving their inner parts. Once the chemical does its job, I simply suck out the digested juices. Bon apetit!
RE: I’ve heard rumors that you and your water scorpion friends like to sting humans. What do you have to say about these accusations?

WS: As for me and my direct type, water scorpions of the genus Ranatra (those of us that are long and slender and look more like sticks than insects), we rarely sting. Actually, I misspeak. We never sting because we lack a stinger. On rare occasions, though, if we are mishandled or people poke at our mouthparts with their fingers, then we may give a little bite that is a bit less than pleasing. As for some of my close relatives, water scorpions of the genus Nepa, there’s a different story.

RE: Oh please, do tell.

WS: Alright. Here it goes. All of us water scorpions are aquatic insects that fall under the order Hemiptera (more commonly known as true bugs). Now those of us of the genus Ranatra (particularly species Ranatra fuscus) are very common and relatively harmless throughout the eastern U.S. Those of us of the genus Nepa, however, are not so common in this region, but rather flourish in Britain and South America. It is my South American cousins, who can grow to a size of 4 to 5 inches long, that get the infamous nickname, “toe-biters,” due to the fact of people coming in contact with these large predators searching for food in the South American waterways. Really it comes down to certain laws of physics and nature. If my cousin is 5 inches long, my cousin needs to eat more and/or larger prey. Therefore, to capture and tranquilize larger prey (if you’ll excuse the cliché), my cousin needs to pack a bigger bite. Catch my drift?

RE: Yes, indeed. And thank you for clearing up that misunderstanding. We are about out of time Mr. Belfazaar, but if you don’t mind may we ask one last question regarding your extraordinary life?

WS: Sure thing.

RE: What do you like to do for fun? It seems all day long you simply lay around either waiting to find dinner or just blending in with the surroundings?

WS: I’m so glad you asked. Here’s a little secret not too many of you folks know about us water scorpions. Because we are insects, we have wings that are fully developed by the time we are adults. Now although we may seem to be just “sticks” on the water during the day, occasionally when nightfall rolls around, many of us like to spread our wings and fly across the water amidst the dark shadow of night.

RE: Thank you Mr. Belfazaar for your time. I am pleased to say that thanks to your efforts, we at Rock Eagle now have a much better informed public. Cheers.

References:
**Ringgold Middle School Students Experience Rock Eagle**

By Cherie Geller

We arrived on Wednesday morning, Jan. 28, to bright, blue skies and the sun shimmering on the lake. For a few, it was a return trip; for most, it was a first visit to Rock Eagle and for one, it was the first time to be away from home for three days. We were placed in the capable hands of Tamara who immediately made us feel welcomed and answered all of our questions. After getting settled into our cabins, we were ready to try the great food in the cafeteria and we were not disappointed. We filled our time with Native American studies where we made our own cordage and threw spears with the help of an atalatal, and Lake Ecology which yielded a variety of specimens including a dead raccoon; at least we think it was a raccoon. Night is the perfect time for watershed studies. Using a bucket and measuring cup to demonstrate the very small amount of water on our planet that is drinkable leaves no doubt to the importance of conserving and protecting the water supply.

Definitely one of the highlights of our trip was the watershed table. We were so impressed and want one for our school. I can think of no better way to demonstrate the effect of different sources of pollution on streams, lakes, and ultimately, the ground water.

Canoeing was first on our schedule after breakfast on the second day. Yes, I had my doubts about canoeing so early, the air was crisp but the sun warmed us. It actually was a perfect time - the lake was calm, the geese were on the water and on the island, a heron was spotted at the shallow end, and we all had a wonderful time. We received excellent instruction from Chris and we actually stayed on the water for an hour without anyone falling in.

Next came a tour through the museum, chock full of information about Georgia’s natural history, a place where you can spend hours and not see it all. The challenge course was, well, challenging but RMS students worked together and achieved their goals. We were fascinated as we watched our students use teamwork to develop the strategies needed to stand balanced on those planks. We hiked to the Rock Eagle mound, paying tribute to the Native Americans who worked hard to carry the rocks and build the effigy. A clear, starry night provided the perfect backdrop for our campfire and surprise birthday party for one of our teachers. We ended the night with the girls ambushing the boys and the boys ambushing the girls with more than a little silly string.

Our last day came all too quickly. We packed up early, went to breakfast, and ended our stay meeting the reptile and amphibian stars of the Herpetology class. The weather had been more than cooperative and we left with a greater sense of the world around us, not our too busy world of TV, email, X-Boxes, and words on pages in our science books. Our science books were, for these three days, exchanged for real experiences. The hands-on, interactive, student-based inquiry kind of experiences that probe the brain and are remembered long after the words on the pages are forgotten and for that I am grateful to the wonderful Rock Eagle staff for providing us with their questions, answers, patience, and opportunities to experience the natural world around us. See you next year!
A Big Thank You!!

By Lisa Flournoy

The Environmental Education staff, realize there's more at Rock Eagle than what we do. We are just a small part of the workforce that makes Rock Eagle 4-H Center what it really is. Realizing this, we'd like to take a moment and thank everyone for what they do everyday. Their efforts do not go unnoticed!

To everyone in Administration, thank you for constantly keeping the ball rolling in preparing every group for their field trips to Rock Eagle. Your smiles are among the first our visitors see when they arrive!

Housekeeping, we are forever aware of the wonderful job you do at keeping Rock Eagle clean and beautiful for every group that arrives, not to mention the tight deadlines you often have to meet in between departing and arriving groups. Thank you for your tireless efforts of keeping everything clean and in proper order!

Our Maintenance crew keeps the gears greased and running around The Rock. Thank you for all the times you’ve come to our rescue, from changing a light bulb at staff housing to mending a broken waterline on center. Thanks also for trusting our staff and allowing us to use your equipment when it’s needed.

From keeping all 1500 acres of grass mowed to planting flowerbeds to cutting down trees, Landscaping makes Rock Eagle gorgeous! Your hardwork is among the first our guests notice as they arrive. Thanks for keeping the sidewalks clear and for constantly working to keep our resident fire ant populations low.

To our Dining Hall staff, we’d all be lost without the work you do! Not only do you provide food for our students, but you feed all the Rock Eagle staff day after day. We are aware of the early morning hours you put in in order to keep everyone on schedule. Thank you for your constant efforts to keep the hungry masses well fed!

Our friends at the Guardhouse are always on patrol 24/7, keeping record of all who enters Rock Eagle. You help keep everyone safe by monitoring all the comings and goings of our visitors and staff. You also serve as our resident welcoming committee! Thank you for all the countless hours you spend guarding everyone at The Rock.

The Environmental Education staff understands that without everyone from every department working together, Rock Eagle could not exist.

With sincerest thanks,
The Rock Eagle Environmental Education Staff
Visit a 4-H Center Near You!

Burton 4-H Center on Tybee Island
For reservations and programming contact: Angela Bliss at 912/786-5531 or acbliss@uga.edu.

Jekyll Island 4-H Center
For reservations and programming contact: Melanie Biersmith at 912/635-4117 or melmel@uga.edu.

Wahsega 4-H Center
For reservations and programming contact: Cathy Bodinof at 706/864-2050 or wahsega@uga.edu.

and coming Fall 2005...

Forston 4-H Center
Our new 4-H center in Hampton (near the Atlanta Race Track). The new EE program will be available (limited) this coming fall!! Contact Lindsey Brown at 770/946-3276 or linbrown@uga.edu for further information.

Happy 50th Rock Eagle!

Answers to page 4 activities
Create Own Water Cycle Paragraph: molecules, water cycle, evaporate, condenses, precipitation, surface water, ground water, infiltration, water cycle
Fun with Water: 1. gas, 2. liquid, 3. oxygen, 4. hydrogen, 5. solid, 6. pollution, 7. watershed, 8. evaporation, 9. condensation, 10. precipitation

Rock Eagle 4-H Center

Visit us on the Web!
www.rockeagle4h.org

PUTTING KNOWLEDGE TO WORK

COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES, COLLEGE OF FAMILY AND CONSUMER SCIENCES
WARNELL SCHOOL OF FOREST RESOURCES, COLLEGE OF VETERINARY SCIENCES

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