Exploring Animals, Glossopedia Style

Third-grade students learn about animals and develop technology skills using a free, online multimedia science encyclopedia.

By Lois Leveen

Rachel has her neck jutted out, and she's swinging her head from side to side. She peeks at the screen of her laptop periodically, to see if she's imitating the Siebenrock snake-necked turtle correctly. Next to Rachel, Madison is looking at her own laptop.

"Why is that fish swimming with its mouth open?" she asks. I offer a question of my own: "When do you open your mouth?"

"To talk. Or to take a drink or eat something," Madison answers.

"So if that fish is part of the food chain . . ." I prompt.

"Maybe it's eating plankton while it swims!" Madison finishes.

It's the first day of the "Animals" unit for Tami Brester's third-grade class and the first day her students are using Glossopedia, a free online multimedia science encyclopedia. But you wouldn't know that from observing the kids, who are excitedly researching animals on the internet.

This is inquiry-based learning of a special kind, incorporating the best of the internet to support science learning and technology instruction. For this third-grade class, that means learning about living things and how they exist and depend on each other, from food webs to human impact on ecosystems—while also mastering skills to do online research and create multimedia presentations.

About Glossopedia

The students are new to Glossopedia, but their teacher isn't. Ms. Brester uses it each year as part of the animals unit. As she explained to me (an educational consultant observing the class as she field-tested a multimedia lesson I developed), "It's important that my students learn how to use the internet as a resource—it will only become more and more a part of their daily life. But teaching third grade, it can be difficult to guide children to appropriate and useful websites that really contribute to their research." Glossopedia is one such resource.

Glossopedia, created by GLOBIO, a nonprofit science and environmental education organization, is a website designed specifically for kids ages 7–12—and it's free for kids, educators, and families to use in school, at home, or any place with internet access. Each article contains text, photo galleries, video clips, audio files (vocabulary pronunciation guides, recorded animal sounds, etc.), maps, interactive features, and content-related vocabulary lessons. Educators can use the image-rich content to inspire visual learners, while the pronunciation guides, vocabulary lessons, and clickable definitions support both struggling and advanced readers. (Glossopedia works best on computers with a broadband connection and Flash player version 7 or higher and Javascript enabled. Users with dial-up connections have to wait longer for videos and for the Geosearch map to load).

Glossopedia in Action

The lesson these third-graders are field testing uses Glossopedia to extend textbook-based science instruction. Students begin the lesson by reading a chapter entitled "How Do Organisms Live Together?" in the life sciences section of their textbook. The teacher stops the reading periodically to have them define vocabulary words, such as *predator*, *prey*, *food chains*, and *food webs*. Once the reading is complete, she asks students to apply the ideas from the textbook to where they live. "What other living things do you see near your house, besides humans?"

Students at their school draw from both rural forest and new suburban areas, and their answers—from deer, coyotes, and snakes to plants, birds, cats, and dogs—reflect different experiences of the natural world. The teacher has students think about what happens to animals when new neighborhoods get built so they understand how human activity affects animal communities. She tells the class that what they're starting to talk about is called *biodiversity.* She puts the word on the board and has students guess at what it might mean. Crystal says it has to do with animals, and Nathan thinks it has to do with habitats. No one

Tips for Working Online

If your school has a technology instructor or librarian/media specialist, ask that person to join the class the first one or two times the students use a new website so that you can work together to give students any help they need logging in and using any multimedia features. Explore the resource and familiarize yourself with its features before you use it with students.

If you have time, start students off with a treasure hunt or similar exploring activity to introduce them to the features, navigation, etc., before you ask them to focus intensely on the content for research. Devoting a class period to exploring the technology on its own can help students feel confident and focused when using the technology later.

If you are working in the school's computer lab and have only limited time there, do as much of the preparation in your classroom as you can. Let students know in advance what activities they will be doing on the computers, how much time they will have for each activity, and what the goals for each activity are. When they are in the lab, give them regular reminders of time. "You'll have five minutes to look at the video," "You have two minutes to finish taking notes on the video," "One more minute until we start reporting on what we saw in the video," etc. Use the time in your classroom afterward to follow up on connecting the computer work to other readings and discussions.

If your students are sharing computers, use the same approach to working in groups that you use with other activities. If students take turns with different roles during reading circles or other group activities, tell them they will be following the same steps when working on the computers: One student will be the note taker, one will be the reporter who shares with the rest of the class, one will be the person who types on the computer. Make the roles as similar as possible to what they're already used to and have students switch frequently so that everyone gets hands-on experience with the computers.

has exactly the right answer, and some guesses are sillier than others ("Is that when animals get divorced?" Jack jokes), but everyone's curiosity is piqued.

That curiosity is matched by excitement about using laptops in the classroom. A stack of laptops are ready for students to borrow from the school's portable cart. For ideas on working in a computer lab, see "Tips for Working Online."

The third graders all know how to login to the computers, and while some are more adept than others at scrolling, clicking, and typing website addresses, ev-

eryone is eager to help each other. The teacher has the address for the Glossopedia home page (Figure 1) written on the board, and she tells students they are to use the site to investigate three characteristics of a wetland. Once the students are all on the website, she uses the instructor's computer—which projects onto a screen at the front of the room—to show them where to type "Wetlands" into the text search feature to find the article they need. Pretty soon, the clicking quiets down and the kids are all reading the online "Wetlands" article.

Before long, Ted has discovered the rollover feature on the schematic diagram in the wetlands article, and Brock has played the Bald Eagle video. Observing them, I remember that Glossopedia's multiple links and multimedia features encourage kids to explore connections and pursue their own interests—which doesn't mean they're wasting time or getting sidetracked. It means they're enjoying learning, developing online research skills, and applying what they're discovering to their own experience.

It also means the teacher needs to be ready to respond to all of their questions and comments by helping them tie the information they're exploring into the bigger concept: understanding how the parts of an ecosystem interact. Mrs. Brester continually encourages students to make connections between the material and their own town, and she's understanding when some kids jump ahead of the lesson plan—even as she guides the class as a whole to answer the questions they set out to investigate.

"Mrs. Brester, there's a wetland in my neighborhood," Madeline reports as she reads the wetlands entry. "It's near the big water tower."

"My house is near it, too. I go there all the time," Jack says.

While Madeline and Jack are connecting the reading to their own explorations of nature, Crystal notices that the article highlights the word *biodiversity*, which the class was discussing earlier. She clicks on the word and a definition and pronunciation guide pop up. "Mrs. Brester, I was right! It does have to do with animals."

She nods and asks the class to report back on what they've learned about the characteristics of wetlands. They talk about the geographic location of wetlands, the size range of different wetlands, and the process through which wetlands are formed. But the kids are most excited about the species that live in wetlands. They list off species by name, checking their notes to jog their memories. Some of the students notice the

Figure 1.

Glossopedia homepage.

categories of species listed in the article: "aquatic species," "terrestrial species," "migratory species," and "endangered species," and Mrs. Brester helps them understand these concepts.

She asks, "What does aquatic mean?" and hands shoot up—lots of kids know it has to do with water. But *terrestrial* is a less familiar term, and it takes more prompting. "Where else besides water can animals and plants live?" she asks.

"Plants live in the ground," Nathan answers.

"That's right—in the ground, or we might say, 'on land.' What other species are *terrestrial,* meaning they live on land?" More hands get raised, as students think of species from the wetlands article and from their own observations.

When the class moves on to migratory species, the teacher uses prior knowledge to help the students. "*Migratory*—does that look like another word we talked about, at the beginning of the school year? Do you remember our butterfly unit?"

"We talked about butterfly migration," Elly remembers.

"What did we say that meant?" Mrs. Brester asks.

"It means they travel from one place to another."

"Right. So migratory species are species like the butterfly that travel from one place to another."

The students are already familiar with the fourth category from the article, endangered species. Life Science study in this class emphasizes understanding how species are interdependent and how one species' actions can affect the habitat for other species. The teacher asks students which species in the wetlands are endangered and has them guess at what might cause wetlands species to become endangered. Then she guides them to make connections to *biodiversity,* the concept that was new at the beginning of the lesson. It's an idea the class will return to throughout the Animals Unit, as they build understanding about shared habitats. For now, it's the perfect segue to watching the videos for the wetlands entry, which allow students to observe the movements of fish, birds, and animals that all live in wetlands habitats.

PowerPoint Projects

Over the next few weeks, students continue to use Glossopedia along with their textbook and nonfiction books from the school library to learn more about other habitats (deserts, coral reefs, oceans, and the Arctic) and to research their animal projects. Each student has to create a written report, a PowerPoint slide show, and an oral presentation on their chosen animal, its habitat, its predators and food sources, the impact of humans on its habitat, and any other facts they learn about the animals that intrigue them. The teacher designs

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Connecting to the Standards

This article relates to the following *National Science Education Standards* (NRC 1996):

Content Standards
Grades K–4
Standard C: Life Science
• The characteristics of organisms
• Organisms and environments

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the assignment to integrate language arts with science and technology, and she scaffolds the learning by providing students with helpful worksheets that explain the expectations for the project and guide students through the writing and incorporation of multimedia elements (see NSTA Connection).

The worksheets, written reports, oral reports, and PowerPoint presentations will all be part of the assessment. The teacher evaluates how well each student follows the worksheet directions; how creative they are in using pictures, video, and sound files in their presentations; and how well they share their new knowledge when their fellow students ask them questions at the end of the presentation. But the classroom conversations and teacher observations as students use the website provide important formative feedback on student learning throughout the unit. And while Rachel and her classmates won't be graded on how well they imitate the motility of the Siebenrock snake-necked turtle, anyone who's watching can see how well they're using technology to learn more about animals and nature. ■

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Resource

National Research Council (NRC). 1996. *National science education standards.* Washington, DC: National Academy Press.

Internet

Glossopedia
www.globio.org/glossopedia

NSTA Connection

Download project worksheets and a sample lesson plan to accompany this article at *http://www.nsta.org/SC0709.*