

Q?RIUS — Inspiring the Next Generation of Science Leaders and Innovators

by Amy Bolton and Shari Werb

Imagine the next generation of museum space—a place that is equal parts laboratory, field site, museum collection, and window onto the natural world. Welcome to *Q?RIUS*, or *Q?*, the National Museum of Natural History’s new education center. The name *Q?RIUS* (pronounced ‘curious’) was chosen for its power to inspire visitors and excite interest in natural history and science.

Newly constructed inside the Museum, right in the heart of the nation’s capital, the new 10,000-square-foot center will be a place that inspires learning, sparks curiosity, and ignites the minds of the next generation of responsible citizens, naturalists, and STEM (Science, Technology, Engineering, and Mathematics) professionals. *Q?RIUS* offers an approach to engaging with the museum, extending not only into the exhibit halls, but also into visitors’ homes and classrooms through digital outreach tools that are customized, immersive, and participatory. In spirit and practice, *Q?RIUS* removes real and perceived barriers to



High school students from the Washington Metropolitan Area explore specimens from the bird collection with Marcy Hecker, Research Assistant, Birds Division.

science as visitors see and experience science in new ways: interactive, self-directed, and relevant to their own lives.

The Spaces Within

Upon entering Q?RIUS, visitors will encounter small, discrete learning environments, each with a distinct character. At **Base Camp**, staff and volunteers will greet visitors, orient them to the day's program offerings, and help them plan their visit. The **Field** will be a large, dynamic, and welcoming space with hands-on activities where visitors can experience how scientific methods, tools, and collections enable them to explore important issues presented by the natural world. The **Collection Zone** will house the world's largest hands-on natural history education collection available to the public: 20,000 objects representing the Museum's core research areas, including minerals, insects, plants, mammals, fossils, and cultural artifacts. The digitized collection includes data on species as well as videos, images, and stories from the scientists who study them. Through activities in the Collection Zone and online, visitors will learn the importance of collections to scientific research by following the methods practiced by scientists: asking questions that arise from curiosity, making observations, formulating hypotheses, and using data to develop conclusions.

The **Lab**, an enclosed space, will accommodate approximately 40 people, or one school group at a time. Modeled on the Museum's successful Forensic Anthropology Lab, this new lab invites visitors to delve into scientific challenges using more sophisticated scientific instruments. The 100-seat **Theater** will be a multi-purpose space with retractable seats and a flexible layout. There staff will screen films, present lectures, and webcast programs that will be available to online visitors. The **Loft** and the **Studio** will be located on the Mezzanine overlooking the first floor. The Loft will offer visitors an informal gathering space encouraging small-group conversations and accommodating programs that integrate art and science. In addition, the Loft will serve as a hub for teen programming. The Studio's focus will be distance learning—this time in the intimate format of video conferencing.

Programming

The Q?'s programming schedule will accommodate the shifting flow and varied concentrations of the target audiences: students of all ages, families, and teens. School day mornings will be reserved for school groups; summer,

weekends and holidays for families; and after-school hours and weekends for teen groups. All the spaces within Q?RIUS will have a flexible design so that programming and activity set-ups can be changed seasonally and respond to the needs and interests of a varied audience. Throughout the space, moveable furniture will foster flexible set-ups for greater or smaller numbers of visitors, encourage longer or shorter time interactions, and offer different activity presentation styles. The programming should appeal to a variety of learning styles and will be accessible to people with physical and sensory disabilities. Visitors will have opportunities to take part in hands-on activities, talk to scientists, create art, watch videos, listen to lectures, and read about nature and culture.

Visitors, whether online or in person at the Museum, will learn about the science behind the headlines through conversations with and presentations by Smithsonian scientists, as well as through activities with related collections. The activities are being designed to encourage group interaction, but can also be accomplished alone. Whether the visitor is a novice or an expert, there will be an activity at their individual level and appropriate for their learning style and interests.

NatureBadges offers yet another exciting new program for the Museum. This program encourages both onsite and online visitors to pursue their interests in science by earning badges in anthropology, biology, and geology. Participants earn points and badges – similar to virtual versions of Scout badges — and share their accomplishments through social media or on their resumés. By motivating learning and rewarding engagement, the badge program will encourage participants to go deeper into understanding and responding to important issues in the worlds of nature and culture.

In addition to serving a national audience, Q?RIUS is designed to engage local students, grades 6-12, from the Washington metropolitan area. These students will be able to participate in hands-on programs, aligned with their region's curricula, using the methods and tools Museum scientists employ to explore the natural and cultural world. Young people who participate in the Q?'s Youth Volunteer Corps will be trained in communication methods as well as science content, and through this training will gain scientific knowledge and experience while developing greater confidence in public speaking. As participants in YES! (Youth Engagement through Science), high school

students will have the opportunity to work alongside scientists on research, explore science careers, and investigate the college courses needed to reach their goals. As part of the program they also will serve as ambassadors to their community, sharing their experiences and enthusiasm with peers and community members.

Technology

Technology will play an exciting and innovative role in Q?RIUS. Digital tools, which can replicate many of the physical tools scientists use in their research, will be embedded within the hands-on activities and the distance learning programs. Using these tools, such as creating digital field books, a visitor will be able to take on the role of scientist by measuring, comparing, analyzing, sorting, and annotating digital assets such as specimens, artifacts, photos, and maps. These digital field books, based on those that Museum scientists use to document their thoughts and observations over the course of their research, will allow visitors to save their work for later access and sharing, well beyond their Museum visit. By scanning a unique barcode to access a personalized digital field book at stations throughout Q?RIUS, they can write notes, draw diagrams, observe, measure, compare, plot, visualize, diagram, and record data points in the course of their activities. Visitors can use the field books onsite in the center and later return online to continue their investigations on the Q?RIUS website. They will also be able to share elements of their experiences with their peers through social media such as Facebook, Twitter and Flickr.

Using webcasting technology and Museum curriculum materials, students in wired classrooms will watch and ask questions of Smithsonian researchers who address them live from their labs and field research sites. Scientific demonstrations and lectures will also be digitally recorded and made available via online learning platforms such as iTunes U. Partnerships with other informal education institutions will expand the reach of these programs.

Conclusion

Scheduled to open in the fall of 2013, the new education space will be an evolving *learning laboratory* serving as a hub for education in the Museum and beyond. It will change the way natural history museums engage visitors in learning about the natural and cultural world. Q?RIUS will seamlessly connect distance learners and Museum visitors

to Smithsonian field sites, collections, research labs, and scientists. Through personal interactions, audiences near and far will come away with a better understanding of how relevant science is to them and how relevant *they* are to science.

By Amy Bolton, Education Specialist, and Shari Werb, Director of Education and Outreach, National Museum of Natural History, Smithsonian Institution.

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December issue of the Natural History Museum Newsletter.