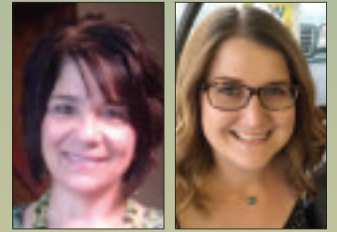


In Principle and Practice

Developing a Guided Inquiry Design Unit for District-wide Implementation



“At these institutes, classroom teachers, gifted teachers, instructional coaches, and teacher librarians collaborated to create quality units of learning for the students at their sites.”

KELSEY BARKER AND BUFFY EDWARDS

What does “Battle Sphere” mean to you? For fifth grade students in Norman, Oklahoma, it means a student-centered science learning experience built around the Guided Inquiry design process.

The idea of using Guided Inquiry design (GID) for a district science unit grew out of professional development with Dr. Leslie Maniotes, who has visited Norman five times to provide 3-day institutes for teachers on GID. At these institutes, classroom teachers, gifted teachers, instructional coaches, and teacher librarians collaborated to create quality units of learning for the students at their sites. As these units took off and generated amazing learning experiences for students across the district, it quickly became obvious that a districtwide GID unit was not only possible but was also an exciting opportunity to impact student learning on a grander scale.

Jeff Patterson, science coordinator, recognized the natural alignment between science standards and the GID process and the impact of collaboration and coteaching between teacher librarians and classroom teachers. He invited a team to develop a unit around the fifth grade Oklahoma science standards to be taught in classrooms across the district. Led by Patterson, the team included Kathryn Lewis, Norman Public Schools (NPS) director of media services and instructional technology; Dr. Lee Nelson, NPS technology integration specialist; Dr. Buffy Edwards, library information specialist; and four NPS elementary school teacher librarians, Kelsey Barker, Toni Gay, Teresa Lansford, and Glen Stanley. In addition to having attended a GID institute, all team members brought unique skillsets that contributed to the final product.

CREATING A GID SCIENCE UNIT

Together, the team unpacked the fifth grade Oklahoma science standards, which examine how the biosphere, atmosphere, hydrosphere, and geosphere interact. The instructional design goal was to include concrete directions, completed instructional tools, and appropriate extension activities in the unit, so that it would be easy to implement but still adaptable for teachers across the district. After two planning team meetings, a unit outline emerged, which the team was excited to pursue.

However, it soon became clear that teacher librarians on the team had different visions for their role in the instruction of the unit. Some anticipated coteaching with the fifth grade teachers every step of the way, while others saw themselves being involved in a few of the phases while letting teachers handle the rest. If there were so many different ideas on the planning team, then how would the unit be received by the rest of the district? How could the team develop the unit in a way that was adaptable to every one of the vastly different elementary schools?

With varying populations, resources, and experience, the same unit could look different at each site. The team began to problem-solve how to encourage collaboration between teachers and librarians while giving teachers what they would need to implement the unit in their classrooms. As many teacher librarians have experienced, this is the great thing about GID: It encourages collaboration between teachers and librarians, between content area teachers, between students, and between teachers and students. Flexibility is required, but everyone reaps the benefits of collaboration. So the question emerged: How do librarians convey this idea to those for whom collaboration may be a less familiar concept?

The solution was simple: according to Kuhltau, Maniotes, and Caspari (2012), “Guided Inquiry is a way of thinking, learning, and teaching that changes the culture of the school into a collaborative inquiry community” (xiii). It is a fluid, flexible model that helps teachers guide students through the process of learning from a variety of sources of information to prepare them for successful learning and living in the information age (see Figure 1).

Just as giving students ownership of their learning is a critical part of GID, teachers have to be given the freedom to create a collaborative inquiry community in their classroom that reflects

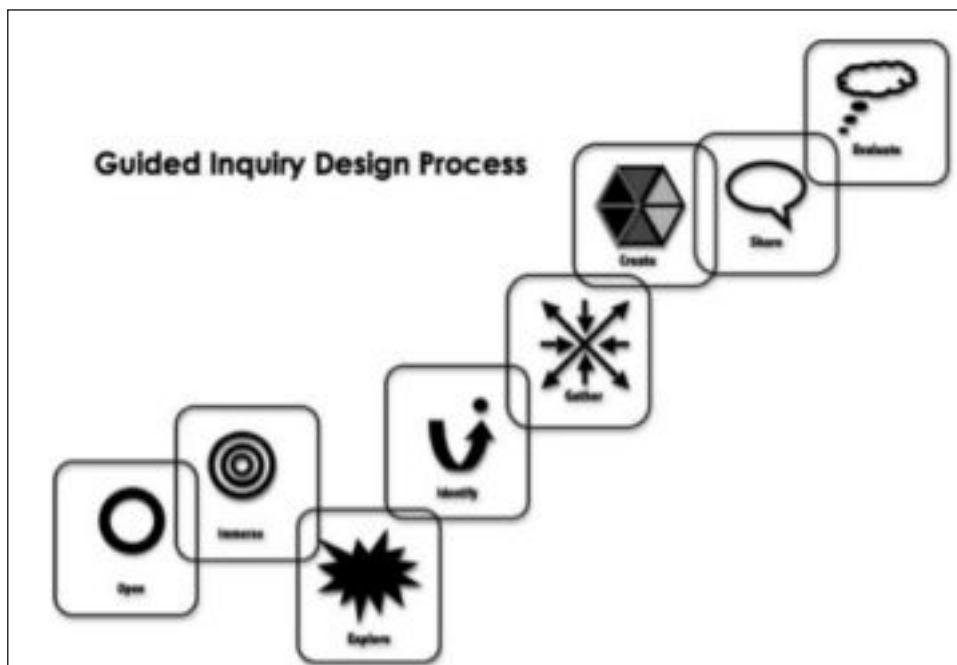


Figure 4. The Guided Inquiry Design Process

the culture, abilities, and resources of their students. The result is an adaptable unit that will work for each of the vastly different elementary schools in Norman.

BATTLE SPHERES GUIDED-INQUIRY DESIGN PHASES

Below is an overview of the Battle Spheres unit developed by the district team. In order to make the unit adaptable to each school site, the team outlined the concepts and objectives for each GID phase (see Figure 1) while leaving room for each school to modify the details to its specific needs.

Open

To hook students into the Battle Spheres topic, the planning team created a YouTube playlist of videos depicting interactions among the hydrosphere, geosphere, atmosphere, and biosphere such as landslides, weather events, and erosion. As a class, students discuss commonalities of the events, interactions that may not have been represented in the videos, and ways that nature has made changes in their own lives. The goal of showing students these dramatic interactions is to foster an interest in the topic and begin to help them formulate questions about interactions among the spheres.

Immerse

After they are hooked, students are immersed in the content by watching two Crash Course Kids videos about the four spheres that will help make the topic and associated vocabulary more accessible and interesting. After viewing the videos, students build a glossary of new terms encountered in the videos. Depending on the stu-

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READY FOR RESEARCH

Allan, Tony, Charles Phillips and Clifford Bishop. **Exploring the Life, Myth, and Art of South America** (Civilizations of the World). Rosen, 2017. 146p. LB \$45.10. ISBN: 9781499446396. Grades 7-12. Photographs from museums around the world display the artwork of ancient South America. One section covers “The Noble Art of Ear-Piercing,” a trend that continues today. Back matter has additional information, websites, and detailed index.

Hirsch, Rebecca E. **Climate Migrant: On the Move in a Warming World**. Lerner, 2017. 88p. LB \$35.99. ISBN: 9781467793414. Grades 7-12. Populations around the world are being displaced by climate issues, not weather events. One fact box “What’s Up with the Weather?” defines climate change as quite slow. The title ends by looking forward with a glossary, detailed source notes, and bibliography.

Lawton, Cassie M. and Raymond Bial. **The People and Culture of the Cherokee** (First Peoples of North America). Cavendish Square, 2017. 128p. LB \$45.64. ISBN: 971502618863. Grades 6-12. After learning the origin of the Cherokee Nation, readers learn the history of the culture, religion, and customs. The hardships of the Trail of Tears is described. The concluding timeline serves as a summary, followed by glossary, bibliography, further reading, and an index.

Steinman, Karen. **Poverty** (Critical World Issues). Mason Crest, 2017. 112p. LB \$34.60. ISBN: 9781422236581. Grades 7-12. The series covers world issues that are ripe for research projects such as racism, euthanasia, and abortion. Chapters define the meaning of poverty with methods to end this worldwide problem. The appendix includes U.S. Census data, world organizations, further information sources, and an index.

Assigning an inquiry log or journal in this phase is crucial to the success and engagement of younger students.

dents, teachers, and resources at each individual site, this phase could look very different for each location. Students may do this activity as a class, in small groups, with the teacher, or with both the teacher and librarian. This is an example of the adaptability necessary for implementation across the district. When possible, teachers are encouraged to integrate technology using shared space in Google Drive, but no matter how it is done, students should be able to access the glossary throughout the rest of the unit.

Explore

Using an inquiry log, students explore through a carefully curated resource menu. They track which resources they viewed and any corresponding questions that emerge in the process. The planning team knows through personal experiences with guided inquiry that it is difficult for elementary students to foresee the scope of their research from the beginning phases. If asked to explore open endedly, they can easily get off track; they often do not understand the benefits of the explore phase as older students might. Assigning an inquiry log or journal in this phase is crucial to the success and engagement of younger students.

Identify

In order to narrow and focus their interests and to ultimately develop inquiry questions, students are given writing prompts in their inquiry jour-

nals to elaborate on what they log in the explore phase. For example: *What interactions were most interesting?* It is important for students to choose their own learning paths—self-selection of topic supports the idea of Third Space, where the student’s world and the curriculum overlap (Kuhlthau, Maniotes, & Caspari, 2012). This connection helps them write deeper-level research questions about those interactions. The questions are open ended and specific to the interests of the student. Based on the questions students choose to pursue, they are divided into one of six inquiry circles, one for each of the possible combinations of spheres. This is another area where teachers may adapt the unit to their needs, but the planning team members encourage teachers to divide all fifth grade students at their site into these six inquiry circles to maximize collaboration among students.

Gather

In the inquiry circles (determined in the identify phase), students work together to gather information about the interactions between the two spheres represented in the inquiry questions of the group members. For each inquiry circle, students complete a hands-on scientific investigation, as outlined in the standard for this unit. Inquiry circles also provide opportunities for students to conduct further research to add to their understanding and answer their questions. While most students

rely on the resources provided during the explore phase, students who use outside resources fill out a website evaluation form before including the source; part of the gather phase is re-viewing how to evaluate resources.

Create

Students then create a product that draws conclusions about their inquiry questions and demonstrates interactions between the two spheres. Working in pairs, students create an infographic using Piktochart. (The team selected Piktochart as the format for the project because of the versatility of what media can be included, giving students the freedom to express their creativity.) A screencast of how to use Piktochart, as well as a template for the final infographic, help scaffold student learning. A rubric used to assess the final product assists students in understanding expectations and objectives. Students are offered the deeper challenge to expand their infographic by creating one that demonstrates how three systems interact. Final products can be shared electronically and/or downloaded as a PDF.

Share

Students and schools share what they have created, learn from one another, and celebrate their success. Using a shared folder in Google Drive, students upload a PDF of their infographics to the designated folder for the combination of spheres they have researched. Students are shown a screencast demonstrating how to upload their product, and they can do peer-to-peer training to help each other along the way. Teaching someone else, as we know, is the best way to internalize new information.

Evaluate

After viewing infographics from their class and around the district, students use a reflection log to evaluate their own work and learning, reflecting on what they did well and what they could improve upon. Teachers use a rubric to assess content and product. This allows both teachers and students to see a student's progress throughout the unit.

CONCLUSION

The process the district team used in developing an instructional unit for districtwide implementation was very different than developing a unit for one site. The team was continually reminded that the learning communities at each school presented unique challenges and opportunities for teaching this unit. Despite some obstacles, Patterson's vision became a reality with the development of the science unit: At the heart of the design is collaboration and coteaching, adaptability for implementation, and authentic inquiry. Learning about GID with Dr. Maniotes provided the ideal platform to develop this unique "Battle Spheres" unit. The best part is the benefit to student learning—which, after all, is what it's all about.

REFERENCES

Kuhlthau, C. C., Maniotes, L. K., & Caspari, A. K. (2012). *Guided Inquiry design: A framework for inquiry in your school*. Santa Barbara, CA: Libraries Unlimited.

ADDITIONAL RESOURCES

Four Spheres Part 1 (Geo and Bio): Crash Course Kids #6.1. (n.d.) Re-

trieved from <https://youtu.be/VMxjz-WHbyFM>

Four Spheres Part 2 (Hydor and Atmo): Crash Course Kids #6.2. (n.d.) Retrieved from https://youtu.be/UXh_7wbnS3A

Kelsey Barker is the teacher librarian at Longfellow Middle School in Norman, Oklahoma. She earned her MLIS from the University of Oklahoma, and she is involved in several site and district leadership activities. Barker fell in love with the guided-inquiry process in 2014 and has led implementation at two sites. She is an active member of the Oklahoma Library Association and frequently presents inquiry- and technology-centered professional development at state and local conferences.

Buffy Edwards, MLIS, PhD, has worked in school libraries for 28 years and believes in guided inquiry. She recently retired as library information specialist for the Norman Public Schools and teacher librarian for Dimensions Academy Alternative School in Norman, Oklahoma. Edwards currently contributes to the profession as an online adjunct university professor teaching online graduate classes in school librarianship and teacher education preparation and through professional writing.