KNOWLEDGE BUILDING IN ACTION
JUNIOR (4–6)

Grade 6 Knowledge Building Using Knowledge Forum: A Teacher-Librarian Story

Written by Nancy Raynor

Bringing IDEAS to life!

2.4 GRADE 6 KNOWLEDGE BUILDING USING KNOWLEDGE FORUM: A TEACHER-LIBRARIAN STORY

Written by Nancy Raynor, Teacher-Librarian, TDSB

INTRODUCTION

Nancy Raynor is a Teacher-Librarian at George P. Mackie Jr. P.S. in the Toronto District School Board. She began her first Knowledge Building journey while partnering with the Grade 6 teacher for the Science Unit: Electricity and Electrical Devices. After the first two weeks, the classroom teacher was on leave and Nancy worked with an O.T. for the remainder of the unit.

START WITH THE KB PRINCIPLES

Improvable Ideas — Nancy wanted to begin with the students' understanding that all ideas are treated as improvable. She knew that it was very important to build a culture that supported free expression of ideas, theories, and knowledge in a public forum, in order for risk-taking to take place.

Real Ideas, Authentic Problems — Learning is not done in "silos." Students need to understand that all learning is interconnected and related to their lives. Making a personal connection to what they are learning will help to inspire and captivate student learning. Energy and the use of electricity affect us all and will have an impact on students' lives both now and in the future. So, Nancy chose to try out Knowledge Building and Knowledge Forum with her students for the first time with the Electricity and Electrical Devices unit, in the "Understanding Matter and Energy" strand in the Grade 6 science curriculum.

What was your greatest challenge?

Having taught K–6 for 25 years, I had a number of apprehensions about using Knowledge Building and Knowledge Forum. How comfortable would I be giving a much greater release of responsibility to the students? Would the learning be on track or would it spiral too far away from the curriculum expectations that needed to be met? How long would this process take? How would I assess and evaluate student thinking and learning? I learned that sometimes I need to have faith and courage to try something new and to step outside of my own comfort zone.

Knowledge Building Discourse — It's the discourse itself that really helps students to revise, refine, reference, and build community knowledge as they read each other's questions, ideas, theories and information. They then refine their ideas and add to their own databank of information, while bringing new questions they have to the forefront of their thinking and to the community. Brief in-class discussions and the daily use of Knowledge Forum software supported both individual and community knowledge.

Constructive Uses of Authoritative Sources — As a Teacher-Librarian, Nancy knows all too well the importance of using authoritative sources. While initial ideas and theories can be presented based on previous knowledge or experience, as the knowledge is refined and built upon, "true facts," which give credibility to the information presented, need to be annotated for others to see and reference. It's important that lessons be taught to help students learn how to find and critically evaluate sources so that they can be successful in quoting their information and demonstrating digital citizenship. The TDSB has set up a Virtual Library for students to help with this effort. This Library includes online encyclopedias, databases, links for learning that are curriculum and grade specific, as well as safe student search engines.

Rise Above — Working with the senior students of the K–6 school, Nancy wanted to raise their thinking to the highest possible level. Once the students had worked for a while in Knowledge Forum, class discussions ensued where group and class evaluation of ideas were discussed. Students were encouraged to follow the threads of discussion and pinpoint contributions that consolidated ideas and moved theories forward, as well as questions that moved ideas to new directions/planes and knowledge. These ideas were considered "Rise Above" and were moved to a new view where, again, the ideas could be built upon and improved.

KB PROVOCATION

1. The students had just completed a science unit on Biodiversity, so Nancy wanted to capitalize on their prior knowledge, while teaching them how to use Knowledge Forum software and the tools within it, before launching into the unit on Energy. She showed them a YouTube video of old subway cars being dumped into the ocean. This generated a great deal of discussion within the first view of Knowledge Forum. The students learned that after 5–10 years, those old sunken subway cars had become wondrous coral habitats. All students had much to say on Knowledge Forum about this topic. They were given the time to focus on and practise using the tools to gain a comfort level with making contributions, building on the contributions of others, adding images/videos, and citing sources of information. These were important steps, especially for the shy or weaker students, to provide the necessary scaffolds to lead them further into the main discourse in Knowledge Forum.
2. At this point, the students were ready to move onto the first main view of the Electricity Unit. They had been working with their classroom teacher doing some experiments to learn about electricity and circuits, so they had a brief introduction to electricity and electrical devices. Nancy seeded a question in Knowledge Forum so that when students logged on for the first time, they could see and respond to the initial question: "Where Does Electricity Come From, and Why Should You Care About It?" The first part of the question could be easily researched, however, the latter part was added as a means of having students analyze their information and make the connections between energy use and their own lives, now and in the future.
3. The class was provided with some non-fiction books and a few websites to get them started. They began to research the many ways that electricity can be generated. After a while, they began to wonder which sources were better than others. They did cross-comparisons and started to examine the pros and cons of everything from availability of resources, renewable and non-renewable resources (short- and long-term impact), costs of generating electricity,

1. access to electricity in remote areas of the world, newly developed energy sources for generating electricity and the environmental impact of creating and using electricity. Nancy didn't have to direct them to do this. Their own natural curiosity, research and the class discourse within Knowledge Forum generated their questions, theories, ideas, discussions, affirmations, and new understandings.
2. The students were asked to decide which energy source would be "the best" to use for their own future and generations to come. This culminating task was integrated with Media Literacy. For example, students were asked to represent themselves as scientists who were contracted by the Canadian Government to recommend one or two sources of energy needed to create electrical energy for the future. Canadian taxpayers' money needed to be taken into consideration. The students were asked to create a PowerPoint presentation that included two videos, which they needed to edit in Moviemaker. This became the media text students created to demonstrate their learning.

STRATEGIES FOR SUSTAINING IDEA IMPROVEMENT

The discourse that was happening on Knowledge Forum was a powerful motivator for participation and building knowledge. Each student knew that they had the ability to make contributions to the class community and that their ideas were heard, read and valued. Scaffolds and writing supports built within Knowledge Forum (e.g., "My theory," "New Information + Source," "This Theory Does Not Explain," etc.) provided students with starters to help them formulate their ideas or questions. Being able to add images such as illustrations, photos, diagrams and videos also helped students to further communicate their ideas and better understand those of their classmates.

The students found "Rise Above" ideas in Knowledge Forum interesting. They enjoyed examining the contributions and looking for those questions, insights, and new pieces of information that helped move the community learning to a new plane.

What was your "Aha!" moment?

I learned that KB and KF can inspire all students to learn by tapping into their natural curiosity and interests.

Teacher feedback using the "Remarks" feature in Knowledge Forum, along with teacher-student conferences, provided the students direct feedback to help them reflect upon their strengths and set goals and strategies for improvement of their ideas.

ASSESSMENT AND EVALUATION

Nancy wrestled with how she was going to assess and evaluate student participation, thinking, and learning using Knowledge Building and Knowledge Forum. Much of what was used was created by her or modified from an existing document.

- **KWL Chart** (What I know, What I understand, What I learned) to tap into the students' background knowledge of electricity and circuits before using Knowledge Forum

- **Learning Logs** to track questions, reflections and new knowledge from each student at various points throughout the unit
- **Knowledge Forum** to monitor student questioning, build-on notes (connecting with other students), level and quality of contributions and participation in discourse
- **Knowledge Forum** to follow the development of ideas in contributions; the "Contribution Summary" feature for the teacher administrator was extremely valuable to extrapolate individual students' notes for conferencing to determine growth in questioning/thinking
- **Teacher Constructive Feedback** — 2 Stars and a Wish in the Learning Logs. Additionally the "Remarks" feature in Knowledge Forum (a feature embedded in notes allows private, individual commentary between student and teacher regarding the content of that note)
- **Student-Teacher Conferences**
- **Rubric** to track i) participation; ii) questioning; iii) build-ons; iv) contribution of research; v) use of supporting evidence for research (e.g., photos, diagrams, videos); vi) digital citizenship (e.g., citing sources used from print and electronic sources) (Learning Commons & Virtual Library)