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# GETTING STARTED WITH KNOWLEDGE BUILDING

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# GETTING STARTED: ENGAGING REAL IDEAS, AUTHENTIC PROBLEMS



## THE THEORY:

Knowledge Building is grounded in problems of understanding that are truly **meaningful and authentic to the community itself**. A sense of ownership and agency over one's work, as well as being deeply engaged in a matter that one is truly interested in or passionate about, does wonders for people's sense of **well-being, motivation and self-worth**. It is also vital to productivity and success in knowledge work. This is true as much for adults in the workplace as it is for students in the classroom. When students are given the opportunity to pursue issues and problems that really matter to them, students' sense of autonomy and agency skyrockets.

Asking deep and rich questions that can spark and sustain a prolonged KB inquiry is a critical part of creative knowledge work. Students, especially those in younger grades, are often full of questions about the world around them. Sometimes, however, inspiring students to pose meaningful questions may be a challenge. The importance of giving students opportunities to really engage with real-life issues, phenomena and problems when it comes

to Knowledge Building cannot be overstated. Cultivating a classroom environment where questioning and wonderment are valued is equally important. The stronger a culture of questioning, and the more authentic and real the "hook," the more likely students will start out of the gate guided by rich and interesting questions that really matter to them.

“The real world coming into the classroom really gets to be the hook that gets them thinking about what matters, as opposed to necessarily questions that might be generated by the teacher. These are the questions that become generated by the students, and what they have been wondering about”  
— Glenn Wagner, Secondary KB teacher.

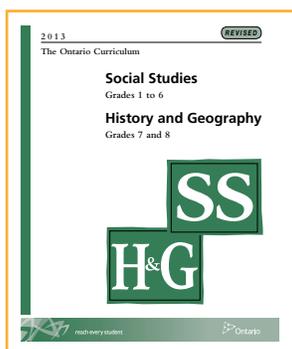
## PROVOCATIONS AND HOOKS TO IGNITE KNOWLEDGE BUILDING

### THE PRACTICE:

Provocations that can spark and harness students' natural curiosity are most successful when the classroom culture supports deep thinking, effective collaboration and creative work with ideas. However, a healthy community culture doesn't necessarily precede effective "hook" opportunities or activities, though it can make kicking off KB work easier. Typically, and especially at the onset of the year, exciting provocation activities and community-building experiences can enrich one another, helping to create a dynamic and supportive KB community.

Experiences that spark students' interest and elicit genuine "I wonders" can set a course for authentic and sustained Knowledge Building. Indeed, it is crucial that Knowledge Building work stems from **real ideas, and authentic problems**. At the same time, it is necessary for students

to be deeply engaged in the curriculum as they work. **However, rather than representing a dilemma, these two criteria are complementary to one another.** When students get hooked on a problem of understanding that is real to them, they can't help but engage with the curriculum in deep and meaningful ways.



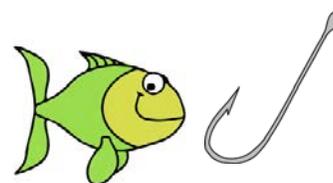
**For many KB teachers, their first step in the beginnings of a KB journey is the curriculum document.** The Big Ideas or major expectations outlined in the curriculum are a great point of departure for a KB study.

## IN YOUR EXPERIENCE, WHAT AREAS OF THE CURRICULUM TEND TO INCITE STUDENT INTEREST AND ENGAGEMENT? WHAT AREAS OF STUDY EXCITE YOU AS A TEACHER?

Once a general theme/subject area is selected, think about creative strategies that can foster students' natural curiosity and motivation. As inspiration, some tactics are suggested below!

### TRIED AND TESTED KB "HOOKS"

On the following pages you'll find examples of effective KB hooks, as well as a list of resources, to inspire and ignite ideas that can work in your own classroom.



- **Watch clips and videos that stimulate students' curiosity, questioning, and ideas.** Explore how Glenn Wagner uses [AsapSCIENCE](#) to engage his students in asking promising questions about astronomy. [Click here](#) to watch a video case study series on Glenn's classroom, or visit <http://thelearningexchange.ca/projects/knowledge-building/?pcat=999&sess=4>
- **Take your students outside to observe phenomena in your local community.** Check out Cindy Halewood's "20-minute field trips." Get your students outside and observing phenomena right in their own community. Give them Nature Notebooks to record observations, questions, and ideas. [Click here](#) or visit [http://www.naturalcuriosity.ca/pdf/Twenty\\_Minute\\_Field\\_Trips.pdf](http://www.naturalcuriosity.ca/pdf/Twenty_Minute_Field_Trips.pdf)
- **Engage in interactive read-alouds.**
- **Explore the curriculum together.** Jason Frenza introduces the curriculum to his students right off the bat, allowing them to choose which aspects they are interested in. Based on the Big Ideas found in the curriculum, the class community then co-creates knowledge goals that help to guide their KB study as it unfolds. (See pg. 138 for a classroom example of co-created knowledge goals, or [click here](#) to watch a video series of Jason's class. <http://thelearningexchange.ca/projects/knowledge-building/?pcat=1102&sess=9>
- **Do experiments!** Conduct an experiment where students can make hypotheses and test their ideas, like this water experiment that had students witness a seeming miracle overnight! (See Exploring Cycles using Knowledge Building and Knowledge Forum in Grade 1 in the KB Case Studies package available via [The Learning Exchange](#) at [Knowledge Building Gallery / Leading Student Achievement: Networks for Learning](http://thelearningexchange.ca/wp-</a></li></ul></div><div data-bbox=)

- **Pay attention to questions or observations that arise spontaneously** and bring these back to the class for further inquiry and exploration. Watch how one spontaneous question about a classroom mobile ignited a Senior Kindergarten class to explore the idea of gravity! ([Click here](#) to watch this class in action or visit <https://vimeo.com/45603301>).
- **Go on field trips.** Take students out into the community or on a virtual trip using Google Expeditions! <https://www.google.ca/edu/expeditions/>
- **Invite students to bring in artifacts** from their home or local community as objects of inquiry.
- **Bring in an expert or community member.** Angela Hoffman and Mubina Panju brought in parents to talk about their jobs and inspire their students to explore the question: What makes a community? (See the case study KB in Primary: What Makes a Community? in the KB Case Studies package available via [The Learning Exchange](#) at [http://thelearningexchange.ca/wp-content/uploads/2017/04/2\\_2-Exploring-Electricity\\_Accessible.pdf](http://thelearningexchange.ca/wp-content/uploads/2017/04/2_2-Exploring-Electricity_Accessible.pdf)
- **Welcome classroom pets.** Bev Caswell and her Grade 6 students explored concepts ranging from evolution to classical conditioning with their beloved classroom pets — Madagascar hissing cockroaches! Watch this incredible story [here](#) or visit <http://thelearningexchange.ca/projects/knowledge-building/?pcat=999&sess=7>
- **Engage primary sources** as objects of inquiry. In the following section are some ideas and resources for acquiring interesting and diverse primary sources.

# SELECTING RESOURCES TO SUPPORT KB PROVOCATIONS AND STUDENT WONDERING

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## ARTWORKS

- National Gallery of Canada

## MAPS

- Google Earth
- Google Streetview, GPS

## VIRTUAL GUESTS / CONNECT WITH EXPERTS

- Skype
- Human Digital Library
- Partners in Research
- Nepris.com –STEM/STEAMs fields
- Skype in the Classroom Virtual Researchers on Call (VROC)

## VIDEO SERIES

- ASAP Science Ted Talks (0-6,12,18, 18+ mins)
- VIRTUAL MUSEUM EXHIBITS The Virtual Museum of Canada

## DATABASES

- Library and Archives Canada
- StatsCan
- NEWS ARCHIVES
- CBC archives

## HISTORICAL THINKING WEBSITES

- Historical Thinking Matters
- Great Mysteries in Canadian History
- Historica Canada

## NATURE WEBCAMS

- [Explore.org](#) — watch one of several “Bear Cams” set up in Katmai National Park
- [Canadian Peregrine Foundation](#) — 7 webcams are live filming peregrines nests in the GTA. ([www.peregrine-foundation.ca/](http://www.peregrine-foundation.ca/))
- [Earthcam.com](#) — tune in to anything from what’s happening in NYC’s Times Square to a live feed of an osprey’s nest in Massachusetts, where a pair of new parents are raising their offspring.

# INSPIRING PROMISING QUESTIONS AND IDEAS

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Sustained Knowledge Building work relies upon continual questioning and idea development. If students are not pursuing deep and meaningful questions or problems, they are likely to struggle during the process. Helping students become great questioners is one of the key roles of a KB teacher. Sometimes, rich questions can emerge quite easily — students who are used to working in a culture where questioning is welcomed may be more expressive and willing to pose wonderings and queries. Likewise, stimulating and authentic provocation opportunities and experiences can inspire rich questioning. Tools and activities like the **Hot Seat, Fishbowl**, and others (see pgs. 31-33 and 39) can help give students practice posing questions to a group, and

provide them with a helpful framework for thinking about using questions as a tool for inquiry. In Knowledge Building, exploring questions is more than just seeking out “the answer.” In the process of creative idea development, one question leads to another question leads to another question, ad infinitum. Sometimes, great questions come immediately and spark an investigation, while at other times students might need to do a bit of work to land on a question or problem statement that really appeals to them, and that has the potential to sustain a deep and prolonged inquiry. For example, students may need time to open up smaller, more specific questions to encompass a wider scope and problem space. On the other hand, they may need to figure out how to narrow their wonderings down to more focused questions that are feasible for them to explore. **This process of question refinement, or reframing a problem, is just as much a part of creative knowledge work as anything else.**

Studies show even primary and junior level students can make meaningful ‘promisingness judgments’! (Chen, 2016)

A very important concept from a Knowledge Building perspective is the notion of *promisingness*. **A promising idea or question can be understood as “something that is considered worth spending time on.”** At some point or another, all creative experts have to assess what direction they ought to travel based on how promising they believe a certain path to be. While outcomes are never guaranteed, knowledge workers develop a habit of making these “promisingness judgments” and evaluating which ideas have the potential to be successful in order to make the most of available resources, energy, and time.

When it comes to the classroom, at the beginning of a KB study, there could be a plethora of ideas and questions that students could pursue. **What road will they choose to travel down? How far can their question or problem take them? Helping students think about whether their questions, problems, and ideas are “promising” is a very useful exercise to drive deep KB work.** There are a few practical examples of how to engage students in “promisingness judgments” (see pg. 57). On the following page we suggest tips for identifying and developing promising questions.

- Reflect on questions and ideas: *“Which of our questions and ideas seem to have the most evidence and support? Which do we think are worth spending the time to pursue?”*
- Review and reframe! A slight tweak of a question can change it from fact-based to promising — e.g., *“How old is the universe?”* becomes *“How do scientists know how old the universe is?”*; *“What are some reasons for the Cold War?”* becomes *“Why or did this particular event help spark the Cold War?”*