
KNOWLEDGE BUILDING IN ACTION SECONDARY (9–12)



Knowledge Building Implementation: A General Approach of the Classroom

Written by Glenn Wagner

Bringing IDEAS to life!

4.3 KNOWLEDGE BUILDING IMPLEMENTATION: A GENERAL APPROACH OF THE CLASSROOM

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This section presents a five-stage approach for planning and implementing Knowledge Building in the classroom, engaging curriculum topics at both the elementary and high school levels. The timing for KB can last anywhere from several weeks to several months (or longer) depending upon the desired depth of the topic to be investigated. The teacher should ensure the key principles of Knowledge Building are understood and made transparent to students so that important principles, such as Idea Improvement and Community Knowledge, Collective Responsibility, will take place during Knowledge Building work.

STAGE 1: SELECTING A KNOWLEDGE BUILDING TOPIC

Examine your curriculum document for units of study that spark the imagination, create wonderment and hold relevance to students' lives. If possible, give students a choice of topic to explore within the chosen curriculum unit. This will heighten intrinsic motivation and result in a greater investment in time and energy learning about their topic.

STAGE 2: FOSTERING THE DEVELOPMENT OF QUESTIONS AND IDEAS

Step 1. Once the curriculum topic has been selected, design a hook that works to promote interest and develops curiosity-based questions by students. The hook may consist of a news story, a thought-provoking question, guest speaker, field trip or high quality video. Using high quality, engaging video from the Web is likely the easiest and most convenient way to provide a hook.

Step 2. Using high quality video as a hook, students watch and develop responses to the following statements:

- "As I watch this video, I found the following ideas really interested me..."
- "Some questions I still have and/or things that I am still wondering about are..."

Do not ask students to summarize the video or to answer low-level questions about its content. Instead, foster curiosity and question-asking that will promote long-term interest in their topic.

Step 3. How questions are designed will impact students' level of thinking and collaboration. Introduce the difference between open-ended and closed-ended questions. Closed-ended questions are often fact-based questions that usually ask for simple information (e.g., How many stars are in our galaxy?). Open-ended questions lend themselves to explanation-based responses (e.g., Where did all the stars in our galaxy come from?). Although closed-ended questions develop important factual knowledge of concepts, open-ended questions develop knowledge about relationships between concepts that promote deeper, explanation-based thinking and learning.

STAGE 3: FORMING KNOWLEDGE BUILDING COMMUNITIES

Step 1. Once their questions have been developed, form students into a Knowledge Building Community (KBC). Ideally, each community size should range from four to six students to maximize effective collaboration between members. You can assign students into communities randomly, construct pre-assigned communities or have the students self-organize, based on their interests. The latter assignment is ideal and more deeply aligned with KB Principles, as it ensures each member of the community has the same heightened motivation toward the topic under investigation.

Step 2. Pass out chart paper or whiteboards and have each student in the KBC write down two or three questions that hold the most personal interest to them. Prompt students to identify whether their chosen questions are open-ended or closed-ended and encourage them to open any questions that may be closed.

Step 3. Ask students to work together to negotiate their numerous questions down to two or three that they believe are most foundational to begin their work. Foundational questions should promote learning and understanding of the broad ideas and key concepts outlined in curriculum expectations. To aid in the negotiations, share parts of the curriculum document with students. This may guide them to decide which questions will help them engage with the broad ideas and key concepts and to adjust their question accordingly. That being said, asking students to develop subsequent curiosity-based questions should be encouraged even if they divert somewhat from the curriculum expectations. This will encourage students to explore their interest in the topic that is student-directed and curiosity-driven. The remaining questions should be saved for later consideration as their foundational knowledge grows.

STAGE 4: BUILDING KNOWLEDGE TOGETHER

Step 1. Introduce the concept of Knowledge Building by sharing the 12 Principles of Knowledge Building. Focus on several of the principles, such as: **Collective Responsibility, Community Knowledge; Idea Improvement** and **Knowledge Building Discourse**. Demonstrate how pervasive Knowledge Building is in the world where objects (e.g., cell phones, automobiles) and ideas (e.g., art, language, scientific theories) undergo constant idea improvement often through collaborative engagement.

Step 2. A major outcome while working within a Knowledge Building community is the practice of collective responsibility through community discourse toward idea improvement. One simple way to convey the spirit of collective responsibility through community discourse is to have students practise that “to give knowledge is to get knowledge.” Provide students access to authoritative sources where they ‘get’ knowledge from articles and relevant video on the Web, guest speakers, magazines, books and so on. Then provide students a public space where they ‘give’ their knowledge, where they post new knowledge, express their ideas and build upon the knowledge and ideas of others. This public space can be online using graphical based software, such as Knowledge Forum, which visually displays the growth of student discourse over time.

Offline spaces, such as classroom walls, can also provide a visual space for student discourse, especially for young learners (see pages 40–43 in the Knowledge Building Gallery, available via The Learning Exchange (<http://thelearningexchange.ca/pdf/knowledge-building-gallery/>)).

Step 3. To facilitate idea improvement, encourage students to post curiosity-based questions for the community to consider that are relevant and likely to deepen the discussion. Asking students to “work a question, leave a question” provides students the opportunity to be curious but, at the same time, to understand their responsibility to their community to give knowledge and ideas in return. Where possible, share examples of collective responsibility and idea improvement from student work. Doing so provides students examples of what productive discourse and idea improvement looks like and the expectations when working as a Knowledge Building Community.

Step 4. After several days of Knowledge Building, students should meet face-to-face to process how their group is proceeding with their foundational questions. The basis of their discussion might centre around the following four questions: (i) Where were your knowledge advances and idea improvements the greatest and why? (ii) Where were they the least and why? (iii) How are you working together as a community? (iv) As a community, where do you collectively want to head next? The teacher may wish to post several key Knowledge Building Principles and have students refer to them explicitly during their discussions. Finally, the teacher provides a guiding role such as listening in on their discussions and providing feedback, designing subsequent opportunities to complete laboratory activities, conducting demonstrations and supplying just-in-time teaching as a result of community discussions.

STAGE 5: ASSESSING A KNOWLEDGE BUILDING ENVIRONMENT

Step 1. Towards the end of the Knowledge Building inquiry, students meet to assess and decide upon two or three strands within their topic they believe demonstrated significant collective responsibility toward idea improvement and knowledge development. Students are the ‘experts’ in this matter as they have the most familiarity with the content developed by their community.

Step 2. Once those strands are identified, the teacher can provide students with several presentation choices on how to demonstrate their understanding. Group presentations to the class that ensure individual accountability are an ideal method for evaluation. This stresses the importance that when working as a group they will be evaluated as a group. Alternatively, students can create individual portfolio summaries of one or more of the strands, highlighting not only content knowledge but also detailing how idea improvement developed through collaboration. The portfolio should directly reference the work of other members of the group, highlighting the collaborative nature of idea improvement in their work.

To see Glenn Wagner's students in action, and to hear more from him directly, visit The Learning Exchange (www.thelearningexchange.ca) and check out these video resources:

- Glenn Wagner, *A Secondary School Case Study*
<http://thelearningexchange.ca/projects/knowledge-building/?pcat=1102&sess=5>
- Q&A with Glenn Wagner
<http://thelearningexchange.ca/projects/knowledge-building/?pcat=999&sess=3>