

HOW DO I BEGIN?

Glenn Wagner, Teacher: Well, stage one usually involves getting the kids to think about things that they're wondering about. Something that has-, questions that they've asked about at some point in time. As a teacher, it's kind of important, perhaps the kids have not had a chance to ask those questions, or even thought about those questions, so you've got to provide them with a hook of some sort. And that hook usually can involve a field trip to, you know, an event, say for example like Body Worlds at the Ontario Science Centre. Or it could be a guest speaker that might come in who might be an expert on cosmology and black holes. Or it could even be a guest speaker from out in the public, it could be, say for example, it could be an older person, perhaps an elderly person, talking about what it means to grow old. So those are the kind of hooks that give the kids the idea that what they're about to do is really authentic. And so it brings in what they do out in the real world into the classroom. And that's when the kids start getting some buy-in with respect to what's going on with their schooling. The real world coming into the classroom, and questions and things that they have wondered about really does become 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 things that they have been wondering about. So it just takes the education system and just turns it 180 degrees around.

KNOWLEDGE BUILDING - GETTING STARTED

Glenn Wagner, Teacher: I think the first thing to recognize is, that kids are inherently curious. That they really do want to ask interesting questions about things that interest them the most. So if I were to tell a teacher, if you really want to get started in knowledge building, the key fundamental idea is making sure that the kids are going to ask questions that they feel are the most authentic to them. Questions that they would be willing to work with over an extended period of time, because they find it fascinating, not what the teacher thinks is fascinating. Even though the teacher can guide them toward various questions, you do want the kids to be the ones that are the generators of those questions. As far as the actual process of knowledge building, I think teachers do need to work with knowledge building as students. So somewhere along the way, if a teacher can watch an online video, or perhaps come to a workshop where you would demonstrate the process and have the teachers work as students, it gets them thinking about what my students would ultimately do. So are they going to ask good questions? What are some of the pitfalls that might befall somebody trying a knowledge building process for the first time? So that, I think, is the part that's hardest, because you really want to show the teachers how this works. So to do a short demonstration wouldn't cut it really, however, the idea of getting the kids to generate the questions is the critical, most fundamental part in all of it.

WHAT IS IDEA IMPROVEMENT

Glenn Wagner, Teacher: Well, knowledge building is something that is everywhere outside of the classroom. It is something that we all are benefitting from, whether it's the idea of idea improvement using a cell phone, in new cell phones come on line, new cars, every idea that's out there is built upon in idea improvement. In the schools, though, we tend not to focus in on that idea of idea improvement. So if it's good enough for the people outside in the real world, then it should be good enough for us here in the classroom. And so that's what I try to convince people of, that there's nothing unusual, nothing odd about the idea of knowledge building, it's just something that everyone does, we just want to bring it into the actual classroom. So for example, if we think math is important out in the real world, then it's likely we're going to teach it in the schools. If reading and writing is important out in the real world, we're going to teach that in the schools. If the world is working with ideas, and producing new knowledge, then perhaps that's something we should be doing in the school, as well.

QUESTIONS AT THE CENTRE

Glenn Wagner, Teacher: What I enjoy most about knowledge building, it brings out the kid in me. It brings out the curiosity in me that I think was missing through my grade school and high school. And I think we do a disservice to the kids to a degree if we don't allow them to ask some fundamental, beautiful questions about the world that they live in, and to be able to work with likeminded people who also believe in these questions, and what is going on in this universe, as well. So I think that, to me, is where the passion comes from, because I've seen it in action. I see the kids get very curious, and I've seen when the bell goes that only maybe half the kids start going out the classroom, and the other half are still finishing, and reading, and researching. You don't see that very much in classrooms where questions aren't at the centre. But when they're at the centre and you've got their attention, they really go with it. And so that, to me, I think personally is where knowledge building means to me, it just-, like I said, it brings out the curiosity and the kid in me.

FORMULATING PROMISING QUESTIONS

Glenn Wagner, Teacher: Now, when the students formulate promising questions, the one thing you have to do is, make sure that they understand what a promising question is. So kids often don't get a chance to ask questions very much in the classroom, and as a result, when you ask them to ask questions, you can be left sometimes with blank stares. Curious kids will ask questions, but most of them will just-, they've never been asked to ask questions. So for a teacher, your job is to guide them to this area of what we call a promising question. And a promising question simply is one that allows the students to be able to build deep knowledge with. Usually a question that involves a why, or how come? The promising question is a question that is going to lead to deeper learning. It's going to allow the kids to ask why questions, or how come type of questions, and you contrast that with the questions that they're most often likely to ask, and that's the fact based questions. And those questions usually involve lists. They involve single facts that often don't generate more why questions. And so you want to train the kids to say, okay, is that a promising question, or is that a fact based question? And once you've got the promising questions, that's when you can then start at building the knowledge.

WHAT IS THE PROMISE

Glenn Wagner, Teacher: The promise is that one question will lead to another question, and another question will lead to, perhaps, another idea. So when the kids are on Knowledge Forum, they're going to work the questions, and they're also going to leave questions behind, but questions not necessarily of a fact based nature, not that there's anything wrong with those, it's just that they're not going to necessarily lead to deeper understanding and deeper learning if they're not asked. Yes, they are absolutely fundamental, the promising questions. So for example, if a question came up, you know, what are the three particles inside the atom? All of a sudden you write down, electron, proton, and neutron, and that's it, and so it doesn't get you anywhere. However, as a teacher, you can guide them into a more promising question and ask them, well, where did the protons come from? Where did the electrons, or where the-, where did all the matter in the universe come from that make up protons, electrons, and neutrons? Now, that's a really deep question, and it really does get at the heart of why we have matter in our universe. So as a teacher, you can guide them by taking a fact based question and turning it into a promising question. As another example, the universe is known to be about 13.7 billion years old, so if a student says, well, the age of the universe is 13.7 billion years old, well, that's a fact based question. But as a teacher, you can turn around and say, okay, how do you know it's 13.7 billion years old? Does the universe throw a surprise party every year? Or do they-, do you slice the universe in half and count its rings every year? It doesn't work that way. And that type of question of how we know it's 13.7 billion years brings up a whole host of really interesting science that the kids can actually work with and understand how we know the age of the universe.

HOW DO WE USE KNOWLEDGE FORUM?

Glenn Wagner, Teacher: Well, Knowledge Forum is a piece of software, it's an online database where students can actually post their questions, and their research, and their ideas that make it public for everyone in their group, and for everyone else in the classroom, for that matter. And that's really important, because often we don't give the kids the opportunity to publicly express what it is that they understand. Now, once you do that, the beautiful part is, that the kids can then build on those ideas, that would not necessarily have been built upon if it stays private, if it stays within the person. So what Knowledge Forum does is, it allows the kid not only to post their ideas, but also then to build upon the ideas in such a way that they use scaffolds. Now, scaffolds simply is a way of getting the kids to think in terms of, for example, I need to understand, and they pop that scaffold in, and then they would write down what it is they're thinking about. Another one would be, here's some experimental evidence, and the kids would then give experimental evidence either through an experiment they did, or one that they found. Or at the very end, maybe a decision based on a long line of knowledge building, the kids are now able to make a decision based on an idea, and so they would click on the scaffold decision, and then they would then write their decision. So the process of building knowledge then becomes very scripted in that way, and that's actually a good thing, because it keeps the kids on task with respect to the questions that they're actually asking. It's one of those things that you actually have to play with. You have to work with it to get comfortable with the software. It's not hard software, little children actually use this software, but it's a matter of getting the kids to use the tool in the right way to deepen the knowledge of the group, and that's what it's for.

POSTING ON KNOWLEDGE FORUM

Glenn Wagner, Teacher: Student expectations for posting, I've boiled it down to four fundamental ideas that the kids need to do when they are actually posting in Knowledge Forum and building knowledge. The first is, making sure that they read all of the notes that are in their particular view. In other words, they're not going to be able to comment on any of the knowledge if they don't read about it. So that's the first thing that the students must do. They also must know that they are there to help improve the knowledge, not only of themselves, but also of the community. So they do need to post on a regular basis in such a way that they're building on other people's work, not just posting isolated facts and ideas. The third one is one where I tell the kids every day when they're working with knowledge, that they must always work a question and leave a question. And so that at the end when they've built some knowledge, they leave something behind, something that they've wondered about. They don't necessarily need to answer it, but somebody else might, and maybe somebody won't answer it. But the fact is, that you're thinking about, okay, how much deeper can I go with this idea, and let me leave this question behind. And then finally, number four, you want to make sure that the kids use the scaffolds in Knowledge Forum, which builds the structure behind the conversation, as opposed to say on Facebook for example, where they just post random stuff, which you don't know what they're really talking about until you read it, but with a scaffold, it tells the reader that, okay, here comes a new idea. Oh, here comes a conclusion, or here comes something, oh, I need to understand, and then below that you know what the text is going to say.

KNOWLEDGE BUILDING AND ASSESSMENT

Glenn Wagner, Teacher: The cutting edge of knowledge building now is trying to get kids to assess their own trajectory of understanding. You know, quite often, as teachers, students will submit work to us, and then we are the ones that do the assessment process. What's really fascinating about knowledge building is, that the kids are working with a question or an idea, and they build knowledge around it with a likeminded group, then they ultimately become responsible for, basically, testing what it is that they've learned along the way. What were the important things that they've learned? What was the area where they went the deepest in? And that's something I don't think we do in the schools very much. So one of the big things about knowledge building today is, to try and get kids to engage themselves and each other around the areas where they felt they went the deepest, and then somehow produce an artifact. Something that comes from all of their work and knowledge building so that what's left over is that group's deepest work. And to me, that's something that's really new in the knowledge building area. The other part to this is, how many different ways one can get at this idea of leaving an artifact behind. So for example, one area that I work with is, you get the kids to create a literature review at the end of their deepest area. So the kids will then use each other's knowledge in the community to build a synthesis of what it is they have understood a common problem to be. And at the end of it all, you hope that they come to a decision based on what it is that each person in the group brought together. So the bottom line is, that everyone's knowledge is as valuable as one person's knowledge, and the students then have to assess whether that knowledge is useful enough to go to those deeper understandings.