

Innovations in Thinking and Learning

Allison Kemper – How to Create a Knowledge Building Inquiry

ALLISON: When I do knowledge building in my classroom, there's almost an explosion of information. Students are so excited about what they're learning. They're coming up to me and they're saying, "Miss! Miss! Look what I found! Look what I learned! Did you know this?" Or, "Johnny just told me this thing, and it connects to my topic, and I didn't know this. Am I on the right track, or can you explain to me what this means?" And they're so excited about what they're learning because it's something that they're interested in.

ALLISON: When I have the knowledge-building wall up in my room, how I know that they're learning is I'm going up to the wall, I'm conferencing with them, I'm asking where they're at, where their learning still needs to go, what their wonderings are. And I'm pushing them to move from those close-ended questions into those open-ended questions.

ALLISON: When we're doing knowledge building, we're moving from the knowledge -- or data gathering and knowledge-building type questions -- those close-ended questions -- into the other section of the Q Chart. So moving into more of the open-ended questions. So I was working with Maddie yesterday -- and I'm going to put you on the spot, Maddie -- and we were going over Maddie's inquiry. And she did a fantastic job. Her question: What is solar radiation? She didn't know anything about solar radiation. So to start of her inquiry, it was a lot of close-ended questions. What is solar radiation? What is infrared radiation? How fast does heat travel? So then after Maddie had asked those close-ended questions -- and she found the answer to them. Excellent. Thank you. She then moved on to the open-ended questions. Right? We want to create or we want to imagine how might it affect the earth.

ALLISON: At the same time, at the end of this knowledge-building unit, I'd given assessment questions. So I -- For this example, for heat, I say, "Can you explain to me how heat is transferred through conduction, convection, and radiation?" And, "Can you use a specific example from your inquiry?" Or, "Can you explain your example using new learning from other students or from our experiments or the visitor that we had in the classroom? Or the field trip that we went on? Can you build onto your answer from all of those experiences that we've had?" And then the last piece is the application. So taking what they've learned about heat, and applying that. So for this heat unit, the application piece was redesigning Pizza Italia. So we went to Pizza Italia, Sam at the pizza shop said, "It gets too hot in here in the summer time. Can you redesign my pizza shop to make it more comfortable for my customers in the summer?" So all the

information students had learned about pizza -- not about pizza, about heat -- they now had to apply that. And solve his problem using their new learning.

ALLISON: Do you know what we didn't chat about? Is what is this powered by? What is the --? What does Sam use to heat the pizza oven right now?

STUDENT: Right now?

STUDENT: Right now?

ALLISON: Yeah.

STUDENT: In the actual Pizza Italia in real life --

ALLISON: Yes.

STUDENT: He uses natural gas.

ALLISON: And is natural gas a --?

STUDENT: Fossil fuel.

ALLISON: Which means --? What?

STUDENT: It's not renewable.

ALLISON: Which means --

STUDENT: It will die off in about --

ALLISON: If you get hungry and eat a lot of pizza --

STUDENT: Yeah.

ALLISON: What's going to happen?

STUDENT: In a few years, Sam won't be able to make any pizza.

ALLISON: No. And we won't be able to have --

STUDENT: He'll be out of business.

ALLISON: Yeah. So is there any way we could heat the pizza with a renewable resource?

STUDENT: Yes. Solar energy.

ALLISON: Okay.

STUDENT: You can have, like, a certain spot with the panels that, like, opens. Like, it'd be like the panel over there. Like, on top will send -- it'd be solar around.

ALLISON: Yup.

STUDENT: And there would be one spot where the heat gets in. And it goes on to the -- into, like, a generator. And it powers that.

ALLISON: Okay. Remember the lens we --? The Fresno lens?

STUDENT: Yes.

STUDENT: That was . . .

ALLISON: Remember it was that big --? Yeah.

STUDENT: That we could do it. Like --

ALLISON: Have you ever watched the videos on YouTube about how they use solar radiation or Fresno lenses to cook food?

STUDENT: No.

ALLISON: That might be worth a look.

STUDENT: Yeah.

ALLISON: Yeah, especially if you're thinking about this idea about having -- collecting all that solar --

STUDENT: Yeah.

ALLISON: Yeah, all that radiation energy. Okay.

They're really excited about what they are learning about. The -- I find, like, the knowledge-building scaffolds that were from Knowledge Forum that I took and I put onto little pieces of paper, really support their learning and digging deep. And when they use these scaffolds to -- When they use these scaffolds, it challenges them to go even deeper. And I know from doing inquiry before, they really started moving from those close-ended questions. For example, one of the students was wondering, What is solar radiation? So, in previous inquiry they would just learn about solar radiation, and then it would be done. But now using knowledge-building, they are moving from those types of questions and moving on. "Well, how does solar radiation affect the earth?" "How does solar radiation affect me?" "What are the effects that I can see in my community, of solar radiation?" And because they are digging deeper and becoming experts on this, they have now a responsibility to their classmates to share that information.

You're going to pair with someone you haven't shared yet. And you are going to share your knowledge building. So ask your partner what their wondering was, ask them what their theory was, what kind of evidence they found, what did they discover, what new information did they find. Then we're going to switch roles. Your partner's going to ask you. And then I want you to make a connection between it. So grab a piece of blue string, grab a connection card, and see what the connection is between your two topics. And record it on here.

It's exciting because it's always changing. And it's not, "Oh, we're doing heat now. Let's open my heat binder up and let's go through all the lessons that I've created the year before." So that students have the opportunity to lead where it's going to go.