Helen Quinn “Why Crosscutting Concepts?” Transcript

It's wonderful to be here. So you see my heading, “Why Crosscutting Concepts?”, and the answer is because they help thinking.

The idea of a lens is something you use to look at something, right? You use a lens so you can see better. Well, if you come to a problem where you don't know much, using a crosscutting concept to think about what's going on here is sometimes completely natural - as with Maria in the vignette. She automatically noticed a pattern, and started thinking about why is that so. And by asking those questions, she's going to learn something about the nature of the environment that she's looking at. And maybe figure out something about what plants need and why different plants grow in different places. That question was very powerful as you saw when you began to talk about how you would go on with the lesson starting from Maria's observation.

So she did it naturally, and she didn't know Patterns was a crosscutting concept. What do you do about that as a teacher? Sometimes you just let it happen and let the work go on, and the students are using the crosscutting concept without talking much about the fact they are using it. Sometimes you want to pull back and have them reflect. You know Patterns is a very useful thing to think about here because it helped us ask good questions. So thinking about the Crosscutting Concepts - the metacognition about their use - is something the teacher has to introduce. So that the student recognizes “oh that's a good thing to think about”. Patterns or Cause and Effect, whichever one you think she was using to to ask her questions, notice it, talk about it, reflect on how useful it was. That helps the student be ready to use it again and know that it's a useful thing to try.

So the way you use Crosscutting Concept in teaching is: you bring them in where they're useful, you hope the students begin to see their use, and you have them then bring them in themselves to look at situations where they are starting from not knowing much. And that's exactly the way scientists use them too.

So thinking about it as this is a tool, and it's not something we're going to go out and teach them “you have to know these seven things”. It's something where these are useful tools for helping understand phenomena, and so we tell you about them and we hope you will tell the students about them in order to make the students better at asking good questions, and looking at phenomena, and pulling them apart and being able to explain them.