

Shari Ellis: What factors should teachers think about when they're choosing science topics to explore and investigate in-depth in the classroom?

Karen Worth: Well, I think there are a number of them, and I sort of have a little, kind of -- almost a checklist, but it's not -- a way of thinking about what they're -- what kind of things to think about. And when we think about what content is -- is -- should be, or what the focus of the investigation should be, one of them is that it's got to be something that is intrinsically interesting and fun for children.

And I would almost add that it should be fun for the adult too, because that way the adult brings the same kind of enthusiasm and interest to it. So that's of course, one. I think it has to be developmentally appropriate. And there are many definitions of developmentally appropriate, I won't try go there. But I think part of that is that the phenomena has to be accessible, directly through experience. Not all of it, necessarily, but there's the directness, the immediateness of it.

And I also think that it has to have -- you have to be able to go far enough in exploration, like in water or building or plants or whatever, to -- so that the child can go far enough to actually come up with a conclusion. If you play around with magnets, for example, once you know they stick or don't stick, or repel or don't repel, you're done. You can't go much further. Whereas if you explore something like water, you can really move further.

You can go -- go into it in some depth. So that's -- that's a sort of developmental issues, as well as others. And of course that means I want something you can go deeply into, and some phenomena you can and some you can't in the classroom, specifically. I also think you want to, -- we want to think about, are these important science ideas? I mean, there are many possibilities of what you can explore scientifically in a classroom. And there are also some very foundational science ideas. Life cycle is a foundational science idea. The idea of balance and equilibrium.

So, that -- that influences me, as well. I -- that would tell me how I think about looking at living things. That would tell me about how I think about using the block area. Water -- that water flows in interesting ways and water has pressure when it moves. Those are interesting foundational ideas about the nature of liquids. So I think about that, as well. It doesn't tell me what to teach, but it tells me what materials and experiences may be most appropriate for -- for young children.

Shari Ellis: Those are very interesting. Do you have any others that you would add?

Karen Worth: Well, one thing I would like to add and -- is that I think that if we look at classrooms -- many classrooms -- early childhood classrooms, there are a number of things that -- that are there that are -- seem -- that are called science and that are used in science. And, if I think about some of them, they include such things as rain forests, and dinosaurs, and magnets, as I mentioned before.

And I think that we have to -- to me, it's tremendously important that what we do with children in science goes deep, and goes over time, and draws from what's immediately accessible to them. And there's nothing wrong with those other topics except they don't engage students in the real scientific -- the process of investigation... And the rain forest is a habitat. Their backyard is a habitat. Penguins, no. Why not mealy bugs from outside, or insects?

So I think that we -- we want to be very careful that the piece of science, at least, that is investigative, or inquiry-based science is focused on the things that children really have around them, can go deeply into, and not the things that are more topical, if you will, rather than based in some of the big ideas.

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