

Inside Writing Communities, Grades 3-5

Workshop 16 Writing in Science

**Narration written by
Mary Duncan, Ph.D.**

FINAL DRAFT

RUNDOWN SHEET

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Series Open/ Title 16	Inside Writing Communities, Grades 3-5 Theme	24:08	47:09
Isoke Nia	<p>ISOKE: When I think about writing across the day or writing in the content area, I always get myself in a little trouble because I absolutely am thinking about authentic writing. I'm thinking about the kind of writing that a scientist would do when he's being a scientist. He wouldn't, if he was studying the stars, suddenly stop and make star poems. But he would take good field notes. He would keep a log or a journal. He would, perhaps, have intricate illustrations and photographs of stars and measurements. And he would even, perhaps, keep a journal of his thinking as he studies those stars.</p> <p>And my teaching still would not be around writing. My teaching would be around the science or the history or the experiment that we've done. It would be around that. The writing instruction would have occurred in the writing workshop.</p>	57:16	1:44:27
Jeanne Boiarsky, Zaharis Elementary, Mesa, Arizona	<p>JEANNE: My philosophy in using writing in other content areas is to try and use the language of that academic area. If we're doing science, I want them using terminology that a scientist would use so that it's real to them, not some set up thing that doesn't feel right, and they wouldn't understand. So I want them using the language that a scientist would use or that a mathematician would use.</p> <p>They feel more important when they have that language, and I think they feel closer to the topic when they do. So, to me, it's cool to see them using that language. And a lot of people think, "Well, they're too</p>		

	<p>young; they can't understand what that term means"; but they do. And when you give it to them, and you explain why it is that way, they do understand, and they can handle that.</p>	51:21	2:36:26
<p>Lindsay Dibert, Danville Elementary, Danville, New Hampshire</p>	<p>LINDSAY: It just doesn't make sense to me to not include writing or reading activities during science class. I think writing and reading are something that happens in every subject area, and there are specific ways of reading in science, and there's specific ways of writing in science. And I think the students need to be aware of that and how that is different, from subject area to subject area.</p>	27:17	3:04:15
<p>Lindsay Dibert, Danville Elementary, Danville, New Hampshire</p>	<p>LINDSAY: You are going to need your writer's notebooks. Make sure you are all set to go. Today we are going to be observing some chicken bones. The chicken bones are OK to touch. I just want to let you know in advance. I prefer you not to touch them right at this moment. So if you can hold off for a minute, I am going to put these down. And we are going to talk about observations, observing things. So, what are some ways that scientists can observe? What are their options? What are scientists' options when they are observing things? That is the way that they learn about their subjects. So what are some things a scientist can do?</p> <p>STUDENT: Feel the texture</p> <p>LINDSAY: They could feel the texture of it. Good word, texture. What else could a scientist do, Cory?</p> <p>CORY: They could use microscopes</p> <p>LINDSAY: Use microscopes. Great. Karen?</p>		

	<p>KAREN: They can look at it.</p> <p>LINDSAY: Just look at it. Just look. Just observe it. What else? More specific. Tim?</p> <p>TIM: Determine like the size of the animal that has the bones.</p> <p>LINDSAY: Try to determine the size of it. Great. Steffan?</p> <p>STEFFAN: Probably try to figure out what part of it, like which bone it is. If it's a rib or what</p> <p>LINDSAY: How they can fit it together, what's the puzzle? They can manipulate the bones. Anything else?</p> <p>STUDENT: Try to see if it is a human bone or an animal bone.</p> <p>LINDSAY: You can determine that. But when you are observing something, you can look at it, you can feel it, you can touch it. What else can you do? What else do you think scientist do besides, you can look at it through a microscope. What else could they possibly do to it? I mean you can only look at something for so long, I mean, you can only feel something for so long.</p> <p>GIRL: You could weigh it.</p> <p>LINDSAY: You could weigh it. That would be an option. Weigh it. Emily?</p> <p>EMILY: That's what I was going to say.</p> <p>LINDSAY: That was what you were going to say. Dale?</p> <p>DALE: You could try and take it apart and look inside.</p>		
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	<p>LINDSAY: Peek inside of it. Take it apart. What do they call that? What do scientists call it when you take something apart? What's it called, Josh?</p> <p>JOSH: Dissecting it</p> <p>LINDSAY: Dissecting it. Very good. Do you know something else that scientist do, that you wouldn't think they do, but they do, do it? It the oddest thing, because you wouldn't expect it, they draw it.</p> <p>STUDENT: Why?</p> <p>LINDSAY: Why? Because when you drawing something, you are looking at, you have to really look at this thing. You are not just, you are not just observing it. But when you are drawing it, you are looking along the little bity edge to see how is that, how did that form. You are looking at what the structure is and you can see right here that there are little lines and little dots that you might not have noticed unless you were drawing it. You might notice what color it is until you try to get that color on your paper. That is an important thing that scientists do. What you are going to do is we are going to be observing these bones just by what we have. We have colored pencils, we have a pencil to write with, we have paper, we have our writer's notebooks, and we have our own brains which is what we need in order to get things down on paper today. What I want you to make sure that you understand is if you look at the paper, here is a little bit of background information. The background information includes the different surfaces of bones. If you were to cut this bone in half, what the different layers are. You can read through that on your own. And there are four categories of bones. That is what I want to talk about right now before we get started.</p>	
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Because you might see these in the pans. There is long bones, which work like levers. Can you look in your pan and find yourself a long bone? OK, We found it. How about a short bone? And short bones are short and cube shaped. Did you find yourself a short bone? Short and cubed. Sometimes it's called vertebrae.

Several students talking

STUDENT: It smells good.

LINDSAY: All right. How about look for a flat bone? A flat bone touches the ribs. Fabulous. And any other bone is an irregular bone. Something that doesn't fit into the long, short, or flat category is an irregular bone. What your mission is today is to observe these bones. Come up with some fabulous, detailed explanations about the bones you are looking at. And you might want to choose just one bone and you can take them out of the pans. Not at this second, but in a minute. Not at this second but in a minute. Put it back please. Take one bone to observe. Write anything you can about that bone. What does it look like? What does it feel like? What do you notice on the ends? What do you imagine the inside would be if you look into the little crevices, what do you see? Use your words to describe it as best as you can, as descriptive as you can. Choose one bone to do this with. When you have that one done, then I want you to draw a picture if it. And I have paper for that. Draw a picture of that bone and notice the edges. What else can you notice? How can you add to your details, what you have written in your writer's notebook? Are there any questions of what I am asking you to do? No questions. Emily?

EMILY: Do we go into our writer's

	<p>notebook after?</p> <p>LINDSAY: Of course. I will give you the paper. Starting with your words first. So choose your favorite bone in there. Be very gentle with it. Thank you. Open up your writer's notebook.</p>	6:00:11	9:04:26
Lindsay Dibert, Danville Elementary, Danville, New Hampshire	<p>LINDSAY: The students' writer's notebook is used in many other content areas outside of writing. They see that I take my notebook to meetings, and I take it to fieldtrips, and I carry it around with me all the time to keep track of things. And I encourage them to do the same. The writer's notebook isn't just for writing class; it's for science; it's for keeping track of things; it's for writing, and it's for drawing, and it's just for keeping track of life.</p>	28:12	9:33:08
Lindsay Dibert, Danville Elementary, Danville, New Hampshire	<p>LINDSAY: Oh, what was that? A joint where two bones meet?</p> <p>STUDENT: Yea</p> <p>STEFFAN: Yeah that is what the hard things are.</p> <p>STUDENT: Cartilage</p> <p>STEFFAN: The other bones, on the other side. I think the other bones might fit. Like one bone fits here and the other bones fit</p> <p>STUDENT: Yeah</p> <p>GIRL: But what about this one? What is this one? Looks like there might be a joint here.</p> <p>STEFFAN: Could I see that for a second?</p> <p>STUDENT: It feels. It smells like chicken.</p> <p>STUDENT: Yeah</p>		

Students talking

LINDSAY: Boys and girls if you haven't opened up your writer's notebook already, you are more than welcome to discuss in your classes, but I do want you to start writing down your observations.

LINDSAY: So which one are you? What kind of bone is that?

BOY: I'm not sure

LINDSAY: Well where is that piece of paper? What do you think? Long bone, short bone, flat bone or irregular?

BOY: Short bone

LINDSAY: Short bone, do you think? What do you imagine that might be? What do you think it is? It's not the skull, you know that, right? So what are our options? What are our choices?

BOY: Uh

LINDSAY: Do you think it is a like a wrist bone? Like a metacarpal?

BOY: It could be.

LINDSAY: It could be. You think

BOY: Maybe

LINDSAY: Now do chickens have wrist?

BOY: Oh no

LINDSAY: It's a chicken.

BOY: Oh

LINDSAY: So what do you think it might be?

BOY: Maybe part of the bone in the chest.
Maybe

LINDSAY: What kinds of bones are in our chest?

BOY: Ribs

LINDSAY: Ribs. That might be a rib

BOY: I don't think that part is a bone.

LINDSAY: Let's look

JOSH: What's that in between?

SHANNON: What's what?

JOSH: It

SHANNON: Could I use this for a second?
It looks like

JOSH: Between bones

SHANNON: Yeah between bones

LINDSAY: What do you think happened here? Look at that. Did you write about this?

EMILY: It looks like

LINDSAY: Feel it, what does it feel like?

EMILY: Rough

LINDSAY: Do you have rough? It's, It's almost fragile isn't it?

EMILY: Yeah.

LINDSAY: What kind of bone is it?

	<p>EMILY: Probably a rib bone.</p> <p>LINDSAY: Do you think it is a rib bone? I don't know. Is it a long, short, flat or irregular at least?</p> <p>EMILY: Probably flat.</p> <p>LINDSAY: Flat. It looks pretty flat to me. It almost looks like sponge. Doesn't it?</p> <p>EMILY: Yeah. It's spongy.</p> <p>LINDSAY: Spongy, yeah.</p> <p>LINDSAY: I want to interrupt for a minute, because I'm noticing, even can you write down the questions that you have about your bone? Can you just stop for a minute? You seem to have a lot of questions about the bone that you are writing about. Let's chronicle this. Let's use this to our advantage. And obviously the most important question is what kind of bone is it? Where did it come from? What part of the chicken is it? Or what other questions do you have? I see some of you are trying to put them together like puzzle pieces. We can use this information later to learn from.</p> <p>LINDSAY: It does smell like chicken doesn't it? And we had chicken for lunch today.</p> <p>LINDSAY: So what questions do you have?</p>	<p>4:33:16</p>	<p>14:06:24</p>
<p>Lindsay Dibert, Danville Elementary, Danville, New Hampshire</p>	<p>LINDSAY: Writing takes quite a bit of time, and it takes a lot of time to plan. It takes a lot of time to get your class ready for; but the payoff is well worth it, there are so many areas within the curriculum that you can cross over into the area of writing.</p>	<p>18:14</p>	<p>14:25:08</p>
<p>Lindsay Dibert,</p>	<p>LINDSAY: It does look like it fits in there</p>		

<p>Danville Elementary, Danville, New Hampshire</p>	<p>pretty well. I don't know how it came off.</p>		
	<p>STUDENT: I was thinking this might be the arm bone.</p>		
	<p>LINDSAY: Who had this bone? Did anybody observe this bone? Did you notice this? It looks like a shell.</p>		
	<p>BOY: Yeah it does.</p>		
	<p>LINDSAY: How did you describe this?</p>		
	<p>BOY: It's a wing, looks like it. Slimey, where joint, where thumb sticking out, looks like it. Smells like cafeteria chicken. (inaudible). And a question, is this really a wing or something else?</p>		
	<p>LINDSAY: How else could you describe, hold on a second. How would you describe that edge?</p>		
	<p>BOY: The edge?</p>		
	<p>LINDSAY: Yeah.</p>		
	<p>LINDSAY: What do you think the inside of a bone is like? What do you expect if you opened up the bone, what do you expect the inside of the bone to look like? If you were to like cut it. What would it be? Steffan?</p>		
	<p>STEFFAN: I am going to guess, if you took the very first layer of skin off, it's probably going to be like all kinds of like strands of muscle like kind of going every where.</p>		
	<p>LINDSAY: Over the bone or inside the bone?</p>		
	<p>STEFFAN: Like inside the bone. Like strands of muscle going around like string,</p>		

	<p>only hard.</p> <p>LINDSAY: Sometimes we have stringy things. Do you think there is muscle inside the bones? You know they have to be attached to the outside, right? Because muscles pull on our bones. Do you think they are in there too?</p> <p>STEFFAN: I don't think they are in there. I think that bone that stretches kind of. Like there is little spaces like in between.</p> <p>LINDSAY: Little spaces in between. What do you think, Josh?</p> <p>JOSH: It might not be muscle, but it is stringy sort of like sore thing.</p> <p>LINDSAY: Why are you saying stringy? Does the outside of your bone look kind of stringy?</p> <p>JOSH: No. Some bones are probably going to be like hollow.</p> <p>LINDSAY: Hollow. All right, Emily?</p> <p>EMILY: I know mine looks like sponge with little holes.</p> <p>LINDSAY: Spongy. If you look at that page, where it says background information, it talks about the different layers of the bone. When you get all the way to the inside of the bone, in most bones, not every bone, there is bone marrow. Bone marrow is a thick, jelly-like substance. There is many kinds of blood cells that are formed in there. And what I'm going to show you is what the inside of a bone looks like. You can't touch it, but you can carefully look at it. And when you look at it, I want you to do the same thing that you did before with your bone. I want you to write down description. What color</p>		
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is it? What does it look like? You are not opening up the container so you can't smell it, all right, and you can't touch it. I told you it is jelly-like so you can kind of get an idea of what it probably feels like. Yeah?

EMILY: Is it a cow bone?

LINDSAY: It is a cow bone.

STUDENT: What part of a cow bone?

LINDSAY: It's like a femur.

GIRL: It's kind of whitish.

BOY: It's kind of pinkish,

GIRL: I can smell it now.

LINDSAY: OK, start writing. OK you ready

Several students are talking about the cow bones.

STUDENT: Is that like a femur.

LINDSAY: That's it. All right here, do you want me to do this?

STUDENTS: Yea sure.

LINDSAY: OK, you see where the meat is attached to the bone.

BOY: I can't smell anything

LINDSAY: See how hard it is

BOY: Oh yeah now I smell it.

STUDENT: It's like a hard shell.

GIRL: It smells like the meat in a store.

	<p>LINDSAY: Yeah it does, doesn't it?</p> <p>BOY: It's like a frozen</p> <p>LINDSAY: So now start your description of it.</p> <p>GIRL: Mary, does this look good? Looks like an electrical cord.</p> <p>MARY: Hard with meat on it.</p> <p>LINDSAY: Hard with meat on it. Is there more of a description? Compare it to something perhaps?</p> <p>GIRL: I haven't seen anything like it.</p> <p>LINDSAY: No? It looks like what?</p> <p>GIRL: Cow meat?</p> <p>LINDSAY: What do you call that?</p> <p>GIRL: Meat</p> <p>LINDSAY: But what kind of meat?</p> <p>BOY: Ham</p> <p>LINDSAY: Steak, beef. Ham would be a pig.</p> <p>BOY: Oh yeah.</p> <p>LINDSAY: It looks like what?</p> <p>SHANNON: It looks like that creamed corn in a can before you cook it.</p> <p>LINDSAY: It looks like what?</p> <p>SHANNON: Like creamed corn in a can before you cook it.</p> <p>LINDSAY: Really, did you write that</p>		
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	<p>down?</p> <p>SHANNON: Yeah</p> <p>LINDSAY: It's a good description. Make sure you put that down. Remember you have to share this</p> <p>JOSH: I know.</p> <p>LINDSAY: Some of the questions in your mind. I think you got it. Excellent.</p> <p>EMILY: OK</p> <p>LINDSAY: I look forward to you sharing some of that with us. Another segment</p> <p>LINDSAY: So you ready to share. All right what are some of the things that you noticed about the chicken bones? What are some descriptive words that you can share with us? Tommy?</p> <p>TOMMY: Pointed</p> <p>LINDSAY: It was what?</p> <p>TOMMY: Pointed.</p> <p>LINDSAY: Pointing, like sharp edges?</p> <p>TOMMY: It edges were pointed.</p> <p>LINDSAY: Yours was a really sharp bone wasn't it? Emily?</p> <p>EMILY: On the cow bone, It kind of looks like an electrical cord cut in half.</p> <p>LINDSAY: Did you hear that? Like an electrical cord cut in half.</p> <p>EMILY: Like a fake telephone pole with the wires cut in half, it kind of looks like</p>		
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that.

LINDSAY: Josh?

JOSH: From the cow, I wrote like that it's hard and soft. Because with a spoon, you could go through it but not very well. So it's hard and soft.

LINDSAY: Uh huh. Kind of reminded me of butter. Hard butter. Steffan?

STEFFAN: Well about the cow bone, when you opened it, it kind of smelled like dead or really moldy food.

LINDSAY: It's probably been cut like that for a few days. But yea, like tuna, which is odd because it's

STUDENT: Cow

LINDSAY: Yea. It 's a cow. Gage?

GAGE: It's like approximately, approximately like one to two pounds.

LINDSAY: Very good word, approximately. Karen?

KAREN: For the chicken bone, well mine was, it felt like it went in to Steffan's bone pretty good.

LINDSAY: What do you mean?

KAREN: Well his was the lower part of the leg and mine was like the femur that went like up there.

LINDSAY: Hum

KAREN: And it fit in to his bone pretty good.

LINDSAY: So you were trying to match

them like a puzzle.

KAREN: Yeah

LINDSAY: Did you have that written down like in your description, I guess?

KAREN: Yea

LINDSAY: Like it was similar to a puzzle. Alex?

ALEX: On my chicken bone sort of looked like a wishbone sort of.

LINDSAY: It did, didn't it? Devan?

DEVAN: After awhile when I was observing the chicken bones, my hands would get dry and sticky.

LINDSAY: Yeah, something must have been going on with that? Did anyone else have that experience after handling the bones? Did your hands get kind of dry? There were times it like sucked the moisture out of your hands or something. Yeah, I know Devan had that written down, did anybody else have that written down? Maybe that is a good detail to add. Gabriel?

GABRIEL: I wrote, there was white skin covering the bone.

LINDSAY: What do you mean white skin?

GABRIEL: Like it looked sort of like skin covering it.

LINDSAY: A thin layer?

GABRIEL: Yeah, a thin layer of something.

LINDSAY: Something, hum I wonder what

	<p>that is? Josh?</p> <p>JOSH: In my chicken bone, I noticed that there were slits in it. Like on the side of the bone that would tell me that it's old or it has been beaten up or that the chicken got hurt.</p> <p>LINDSAY: Or it could have been worn or something?</p> <p>JOSH: Yeah</p> <p>LINDSAY: Sure. Britany?</p> <p>BRITANY: My cow bone looks really dark red.</p> <p>LINDSAY: Really dark red. Great. Anybody else have anything they would like to share? Kyle?</p> <p>KYLE: The cartilage felt like it was covered in mist.</p> <p>LINDSAY: Very moist, wasn't it? Did anybody write anything about the cartilage? How else did you describe it Kyle?</p> <p>KYLE: It was gummy, slimy and gooey. It had like a little bit of a curve to it.</p> <p>LINDSAY: Shannon? Last comment.</p> <p>SHANNON: On the chicken bone it was almost like they had taken pieces of fishing line and put it on because of all the scratches on it.</p> <p>LINDSAY: And that could have been from all of us handling it or as the chicken cooked. But it did look like, Gabriel mentioned that, like a thin layer of something over the bone, which we are going to have to investigate some more.</p>		
		10:59	25:24:11

	But we are going to go ahead and end there.		
Lindsay Dibert, Danville Elementary, Danville, New Hampshire re	LINDSAY: Writing is not just a writing class in my room. It's—it includes social studies, and it includes science, and it includes reading. It's just the writing workshop that allows me to cover my curriculum in a way that is manageable and effective.	18:29	25:43:10
Karen Smith	<p>KAREN: I remember prompts in science class like, "What did the stem say to the leaf?" And they were making up these things to try to infuse writing into the curriculum. And I think that became very popular. And I just thought it made more sense to step back and say, "How does literacy serve the scientist?" and to really talk to those folks and those people and say, "Help me understand this. You know, at what point in your day do you sit down and write—and why?"</p> <p>That's what we want kids to use writing for—that's functional, it's purposeful, it's meaningful—and that literacy serves us in our world. It's—we need it.</p> <p>So I would never say, "Let's write across the curriculum to write across the curriculum." I think we always say to the students, as a mathematician, as an engineer, as a scientist—whatever we're doing: Will writing help you in this endeavor to become this person? And, if it does, then we have to fit writing into it. So I think it would be just awful not to give children the literacy tool they might need to explore that discipline, that function in the world.</p>	1:01:29	26:45:17
Credits	Inside Writing Communities, Grade 3-5 Close		
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1-800 Tag			28:25