NGSS in Action - Fifth Grade - Video Transcript

Narrator: Join the San Diego County Office of Education as we go inside Marlys Williamson's classroom at Wolf Canyon Elementary in the Chula Vista Elementary School District and observe her fifth graders engaged in an NGSS lesson about matter and its interactions.

Students explore a science focus question: Where does the solid material go in a solution?
As well as an English Language Arts focus question: How can I communicate my ideas in science using claims, data, evidence, and reasoning?

Teacher: I'm going to go ahead and make a claim for you today and you guys are going to decide how could you investigate if my claim is right or if my claim is incorrect. So my claim today for you is I claim that when salt dissolves in water the salt goes away because we don't see it any more it is no longer there. Let me repeat my claim again, I claim that when salt dissolves in water it goes away because I can't see it any more so therefore it must go away completely and disappear.

Teacher: Ok, so as a table you have two tasks right now. The first task is to talk about what do you think about my claim? And then what could you do to prove whether my claim is correct or incorrect? So go ahead and have a quick table discussion on that. What do you think about my claim?

Student: *students talking at all tables* I think Ms. Williamson is wrong because when we did the, the lake experiment and when we took them to the scales, the weight of the salt was still there.

Student: *students still talking at all tables* Can we see the salt in the water? No. It's like when we go to the ocean can we see the salt in the ocean? No, but it's still there.

Teacher: *talking to small group* What would you do today to prove my claim is either correct or incorrect? What's something that you could do?

Student: We could weigh it.

Teacher: And why would weighing it make a difference?

Teacher: *talking to whole class* You are going to go over a grab a tub and I've given to a set of materials and I want you to decide, how are you going to collect evidence for me today that the salt is still in water or the salt has disappeared and is completely gone. So as a table I heard some tables discussing some ways, that they would come up with the investigation. Now, what's also important is you need to write down your steps. What is it that you're going to do so in your science notebook make sure you write down the steps that you are going to use to figure out whether the salt is there or not. And remember this investigation needs to take place over one day. I want to know by the time we're done in science today I want to have at least one piece of evidence to prove that my claim is either correct or incorrect. Kay, So in one day what type of investigation could you conduct with your science team?

Teacher Narration: *students working on investigation plans* The nice thing about the NGSS materials too is the Disciplinary Core Ideas or actually that content that they need but how do we get there we get there Science and Engineering Practices and then through the Crosscutting Concepts so that makes it a lot better to use than make something else fit in the mold of the NGSS it instead is already there and that makes it a lot better for a teacher and for the students I think they experience the science a lot better.

Student: So that's, since they're exact then that's 53. So now let's compare it to regular water.

Teacher: Michael, can you repeat back what Eric said?

Student: If the salt wasn't there they would weigh the same

Teacher: OKay

Student: But if the salt was there then that one would weigh more.

Teacher: Okay, the one with the salt would weigh more.

Teacher: For evidence was for me, if my claim was true then the balance would look like what?

Student: The same. They would be like equal.

Teacher: So then does your evidence prove that my claim is incorrect?

Student: Yes

Teacher: Okay, so what I want you to do is go ahead and make sure you write that evidence down and write down your procedure.

Teacher Narration: So students now using the NGSS curriculum they're a lot more excited about science. I notice that they're much critical much more of a critical thinker and they really think like scientists, they talk like scientists, they write like scientists and just overall they're able to accomplish any problem that I give them and they don't give up very easily. They kind of can preserve through a lot of other things and they get excited about science they don't ever want to stop they want to keep going and they want to keep finding more information and collecting more data so I see students working a lot better as scientists which gives us you know hope for those future scientists that we are having in our classrooms so that makes me very excited about that.

Teacher: What did you do, Melcher what did your table do?

Student: What we did was just keep on adding, um more grams to it until it would be perfectly balanced and we found out that um it was we had to use um 53 grams on this side.

Teacher: Okay. So how much water did you start with originally in your other cup?

Student: 50

Teacher: 50, so you started with 50 mL and then what was your next step for procedure, what was the next step? What did you do next? Samantha, what did you do next?

Student: Um, we added the water.

Teacher: Okay

Student: I mean the salt.

Teacher: Okay

Student: so that it would um like see how much it would weigh and we put in 50 of the cubes because that's how much water we had and we found out that the we had to add three more um grams because that's how much the salt weighed.

Teacher: Ah, so you, after doing your investigation you figured out that your your water plus the salt weighed three more grams than the water by itself. Is that true? Is that what I hear you saying? Excellent.

Teacher: *talking to whole class* I want you to write a claim based off of this evidence. Where did the material go when the solution was made? So I want your claim, if you need a sentence frame it's back on the back board. I think [blank] because [blank]. Or you could use the words I claim [blank] because [blank]. So you can make a decision. I want you to write a claim and remember the because part is the evidence you collected today. What evidence did you collect today with your teammates that proves your claim.

Music plays with text on screen
Authentic Writing - Science Notebooks
Student Samples

Narrator: *reads student writing* My team and I weighed the saltwater to find out it was still there. First we put 20 grams of water in each of the two cups, then we added salt to one of the cups. After that we weighed the cups once more and discovered that the saltwater weighed greater than the normal water. I believe that the salt didn't disappear forever but dissolved into tiny particles.

Narrator: *reads student writing* This proves that Mrs. Williamson's claim is incorrect. The salt cup weighed more than the cup with water - even if the salt is not visible to the naked eye. I claim that when salt and water mix, the salt does not go away forever. My table's experiment proved it was true. We added the same amount of water to each cup, but one had salt in it. The salt-water cup weighed more. If the salt went away, the salt-water cup wouldn't have weighed more than the water cup.