Me: Describe something that you enjoyed in your science class last year.
Student2: It was fun.
Me: What made it fun?
Student2: Cause I had Ms. McLanahan and they showed us videos.
Me: Videos?
Student2: Yeah
Me: Ok, is there anything else you really liked?
Student2: Um, that um, that um, we dissected something.
Me: You dissected something? Nice! Describe something you learned last year in science.
Student2: Um, a sexual something, like sexual harassment and sexual something.
Me: Ok, did you learn anything from your dissection?
Student2: Yeah
Me: What did you learn?
Student2: Like uh, like the eggs and uh, and the heart and everything.
Me: What did you learn? Sorry [very noisy]. That the eggs what?
Student2: That like the eggs, like, um, they hatch.
Me: Ok, the eggs hatch, did you dissect an egg?
Student2: Yeah
Me: Oh, cool. What kind of egg, like a chicken egg?
Student2: Yeah
...
Me: Can you tell if you know anything about force?
Student2: That it pushes you.
...
Me: What about motion?
Student2: That it moves.
Me: Something that moves?
Student2: Yeah
Me: Ok, what do you know about density?
Student2: Density?
Me: Have you heard of that word before?
Student2: [no response]
Me: What about buoyancy?
Student2: Buoyancy? No.
Me: Are you sure?
Student2: [no response]
Me: Ok, what do you think makes things float?
Student2: Like water? Like water or something.
Me: Ok, water can makes things float? If I put like a plastic cup on water and it floats, why do you think that is? How come do you think the plastic cup floats?
Student2: Because it’s not heavy.
Me: Ok, what if I put a plastic cup full of water and it sinks. Why do you think that is?
Student2: Cause it’s too heavy.
Me: Ok, Thank you very much [his name].
Interview Transcript: August 9th, 2007

Interview 3

Me: Describe something that you enjoyed about science class last year.
Student3: Well what I enjoyed is um the, um about how our body function works. And um, um what I also liked about science last year is um how we learned about, um, what is healthy for us and what is not healthy for us.

Me: Ok, like what to eat and exercise and things like that?
Student3: Yeah.

Me: Good! Describe something that you learned last year in science.
Student3: What I learned is that um that fast foods are not so healthy than um, than like, um, fruits and vegetables.

Me: Did you do some kind of activity about that?
Student3: Um, yeah.

Me: Yeah? What did you do?
Student3: Um, we had to do a poster of a, of what are, what are some of our favorite foods.

Me: Aha, your favorite foods?
Student3: Yeah.

Me: Ok

Student3: And um, what are some not of our favorite foods.

Me: Ok, good. Can you tell me what you know about force?
Student3: Force? Um, what I know about force is that um, it’s what pushes on something and makes it like, um like, like better or worse. And I also think that I, that it’s like um, some kind of a, um, of a um, something that like, it’s sort of like gravity?

Me: Do you think gravity is a force?
Student3: Yeah

Me: Ok. What do you know about motion?
Student3: Motion is a, what a, what how people move around, like if they’re sitting down in one place and they get up and move that’s like I guess motion.

Me: Ok, do you know anything about density?
Student3: Density? No.

Me: Ok, what about buoyancy?
Student3: No.

Me: What do you think makes objects float?
Student3: Um, what I think makes objects float is um, the, um, um, the, the, it’s either, like for a balloon, it’s like the hot air. And um, for other objects, it’s probably like, um, like, um, um I don’t know the name. But I know that it’s something that has to do with um, that comes from out of the earth and pushes up into the air and makes something float.

Me: Ok, like a gas?
Student3: Yeah, like that.

Me: What do you think makes other objects sink?
Student3: Um, I think what makes other objects sink is that, is the gravity. Yeah.
Analysis

I would like to give a context to these interviews. They were conducted at the beginning of the unit of instruction about forces and motion, therefore they are pre-interviews. The purpose of conducting these interviews is twofold. First of all, I wanted to gauge how capable my students were in expressing themselves using academic English. Secondly, I wanted to see what type of knowledge they possessed about the topics we would be studying so I can compare their level of knowledge with their responses in the post-interviews. Both students are 8th grade English learners although Student 3 is awaiting re-designation into regular English classes, while Student 2 is in a level four ESL class. Interestingly, Student 2 in general has higher CAT-6 scores in English than Student 3. The students will be interviewed twice more, once after completing the forces and motion unit and again after completing the density and buoyancy unit. Currently, the students as well as I are off-track and when we return we will finish the forces and motion unit in about one week and then begin the density and buoyancy unit.

When analyzing the interviews, I can see that there a wide gap between how comfortable student 2 and 3 are in their use of English. Student 2 usually gives one word or short phrase responses. This does not tend to stem from familiarity of a topic since the responses for the first set of questions are just as short as for the second set. Student 2 has to be pressed further to elaborate on answers. For example:

Me: Describe something that you enjoyed in your science class last year.
Student2: It was fun.
Me: What made it fun?
Student2: Cause I had Ms. Mclanahan and they showed us videos.

Even though I asked the student to describe something, the student simply replied that the class was fun. Only when pressed further does the student elaborate what the activity was and even then, the response is awkward in construction and simple. The student refers to Ms. Mclanahan as “they” and only speaks of general videos, not specifying a topic. When asked what student 2 learned from a
dissection they performed last year, the response was “Like uh, like the eggs and uh, and the heart and
everything.” The sentence is very unclear and doesn’t really answer the question. The student seems to
be unsure as to what they really learned.

On the other hand, student 3 is much more forthcoming when answering the same question. The students replies with “Well what I enjoyed is um the, um about how our body function works. And
um, um what I also liked about science last year is um how we learned about, um, what is healthy for us
and what is not healthy for us.” Despite stopping many times with “um”, the student successfully
answers the question in a cohesive way. She makes some grammatical mistakes but seems to be more
comfortable in her use of English. In fact she answers all the questions by partly restating the question
at the beginning of the sentence. I believe this reflects a greater mastery of language.

Overall, the interviews show that student 3 has a greater mastery of the English language than
student 2. Student 2 has many short and one word answers, at times forgoing speaking completely. I will
be very interested to see if Student 2 improves on this when interviewed again after using a science
notebook and becoming accustomed to expressing his thoughts and ideas on scientific topics. Student 3
is much more comfortable elaborating on answers chooses to restate the question in her responses
showing a greater expertise in the English language.

Looking at the student responses to the questions regarding forces, motion, density and
buoyancy, I had some typical responses. Both students had no knowledge of the word density and
buoyancy. Both students use the word “push” when speaking about forces and their answers reveal that
they both have a very active idea of what force is, suggesting that they do not think about force as
applying to objects at rest. Student 3 could identify gravity as a force, however thought of force as
making objects “better or worse”. Now that I reflect on these answers, I realize that I should have asked
what she meant by that. If student 3 possesses a greater understanding of force, it is very slight in
comparison to student 2.
When asked about motion, student 2 was very brief and did not show a great understanding with his response “Something that moves?” However, student 3 seemed to understand, perhaps not explicitly, that motion involves a change in position by describing a person who moves from one location to another. I am not sure that student 2 would have come to that same conclusion had I pressed him further.

The last two questions were the most interesting. Student 2 gave typical responses, attributing sinking and floating to weight. This is a common misconception among students. Student 3 however thought of sinking and floating happening in air and attributed the floating of a balloon to “hot air” or something pushing up from within Earth. She attributed sinking to gravity. Some of her ideas are not completely wrong, gravity does pull objects towards the center of Earth, and hot air does make hot air balloons float and this is particularly exciting for me. I can use the ideas that student 3 already has and build upon them. Both students have misconceptions about what makes objects float and sink. I will be interested to see how their responses change (or don’t) when I interview them the third time after the Density and Buoyancy unit.

What I learned about my students is that their ability to express themselves and their ideas in English vary highly. Some students are comfortable using words like gravity, and others are not. I also learned that they have some misconceptions about the topics that we are going to learn about as well as some well formed ideas. I know now that I need to emphasize writing about their thoughts and ideas in their science notebooks as well as writing about new ideas and questions that they have. I believe that my students can improve their ability to verbalize in academic language while also learning science.