

Case Analysis Protocol

The protocol and cases were written collaboratively by members of the Science 20/20 team.

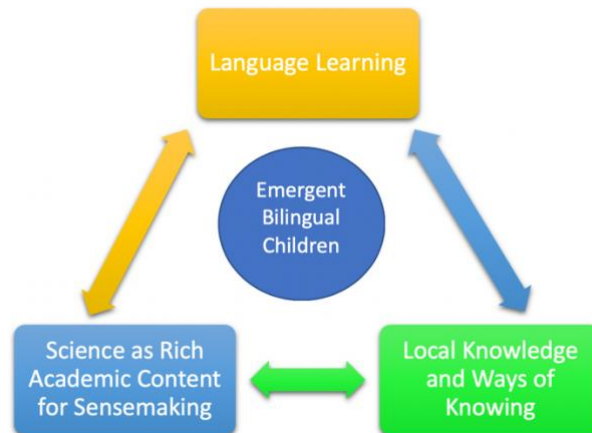
Description: Each case represents the lived experiences of those connected to the project as researchers, teachers, students, and student teachers. They are real, but names and minor details have been changed so as not to completely identify those involved. We do not intend for these cases to be black and white, right or wrong. Instead, each case illuminates areas of strength and potential and allow for self-reflection. They may ask us to articulate and question our own biases, assumptions, and taken-for-granted practices. Cases such as these are intended to surface tensions. Having group norms and protocols in place before engaging in case analysis is important for the success of the protocol. In discussing the case, we encourage you to think through the complexity of each case, seek to understand, imagine what else might be true, and exercise asset orientations.

Protocol: Part 1. Familiarize yourself with the Science 20/20 Framework before reading the case.

Science 20/20 Framework

Guiding Principles

1. View **students as capable partners** in knowledge building.
2. Invite **productive participation** in science practices and sensemaking.
3. Utilize caring **formative assessment** and seek to understand what students know.



Part 2. Read the case thoroughly. Once everyone has had enough time to read the case thoroughly, summarize the main events in the case and identify the problem(s) posed by the case.

Part 3. Use the Science 20/20 Framework and Guiding Principles to facilitate an open discussion related to the case. Same questions and prompts might include:

1. *What scientific practices and literacy practices are present in the case?*
2. *How has the teacher(s) and how might the teacher(s) invite students to draw on their funds of knowledge and local knowledge?*
3. *Where do you see evidence of students positioned as knowers, productive participation, and/or formative assessment?*
 1. *What are the opportunities to position students as knowers, invite productive participation, and incorporate formative assessment?*
4. *What else might be true?*

Part 4. Connect back to your context. Reflect. How might this case and the discussion of the case inform your work?

The Case of the Content Storyline

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Kindergarten student teacher Ms. Thompson just finishes her worm unit's content storyline, a plan for a science unit to make sure each of the unit lessons flow and connect logically. Each lesson in Ms. Thompson's content storyline includes investigation questions, the number of days the lesson would take, a summary of the lesson, how students would make sense of the phenomenon at that point in the unit, and how they would represent their thinking.

[Click to Access:
Content Storyline
Blank Template](#)

She is so excited that she accomplished a task that felt so daunting at the beginning of the semester. She tried her best to make sure lessons flowed, were interesting, student driven, and addressed the overarching question and the Next Generation Science Standard (NGSS) for the unit. Ms. Thompson also wanted to make sure there were a range of ways for her students to represent their thinking (discussions, notice/wonder charts, pictures, writing, etc.) due to the varied needs and abilities of her students, including emergent bilinguals.

Seeking feedback on her first draft, she emails and shares her content storyline with her mentor teacher, her supervisor, and her student teaching colleague who created a similar content storyline for her own worm unit plan. That same night, she sees comments from her supervisor regarding 1) her pre-assessment (having students draw what they know about worms without any exposure to them), 2) the phenomena, 3) the central focus of the unit to capture students' attention, and 4) equity, especially in relation to home language instruction and students' prior experiences with worms. One comment reads:

"The focus is heavy on prior knowledge v. funds of knowledge. I prefer to start with phenomena. For example, looking at the tunnels in the soil and thinking about where they came from and what could have made them. Kids can still draw and talk about their initial thinking. It also gives context for looking in the soil."

As Ms. Thompson reads the comments on her document, her wall goes up and she starts getting defensive. She goes between verbalizing frustration and processing the feedback:

What do they mean I need to "level the playing field" for the pre-assessment? Of course, I would make sure it's equitable--I'm asking students to draw what they know about worms, which makes the assessment less written-language heavy--but a pre-assessment is supposed to find out what they know before the unit. What does it matter if some of the students haven't seen worms before? If they weren't able to draw anything about worms, then I would know they don't have any background on them. Why would you give them information beforehand? Isn't that not authentic?

Why would they tell me to show the worm tunnels before the actual worms? When I was trying out the investigations and worm farms at home, it was so cool watching the worms make the tunnels and "have no idea" what they were doing. I really want the students to see this. She's crazy if I'm going to show the tunnels at the beginning of the unit.

Also, I always think of my emergent bilinguals. I just didn't include language supports or first language instruction yet because this is a summary and not a detailed lesson.

Ms. Thompson plans how to respond, especially because she is adamant that there was no reason to consider the majority of the comments made on her storyline. She meets with Laura the next night to



talk through the comments. Ms. Thompson's defense is still up. She is defending the comments the same way she verbalized them the previous night. Her supervisor is listening to her and attempting to justify some of the comments, but Ms. Thompson is more focused on defending her position than listening; this content storyline is her baby, and she isn't just going to give in to comments when she doesn't want to.

The conversation ends without much movement on either side. Laura wants her to take some time to think about the feedback and conversation. She ends the conversation by saying, "I can see your points and that you want to keep the storyline how you wrote it. These comments were just suggestions. You don't have to take them, but I want you to think about them a little more."

Ms. Thompson returns home and takes a deep breath. She thinks to herself *I really didn't listen to anything Laura had to say. I was not open to any suggestions. I am far from knowing everything about teaching, and these people I am collaborating with have experiences and expertise that I don't have. I want to do what's best for my students, and I have never taught a complete science unit. It doesn't mean I have to accept all the suggestions, but I should at least consider them.*

Ms. Thompson opens her computer and reads over the comments again with an open mind. She enters the conversation the next day ready to discuss the comments rather than act like nothing needs to be improved. Laura begins the conversation very hesitant, stumbling over her words a little and searching for the appropriate words as if to not offend Ms. Thompson. Ms. Thompson begins the conversation, wanting her supervisor to know that she still wants her complete and honest feedback without hesitation, "I didn't mean to get so defensive over my storyline. I want to hear your honest feedback so that I can improve my teaching and unit for the students. It just takes me time to completely process the feedback because for some reason I am in denial at first. I really want to understand the suggestions you made."

[First draft Content Storyline](#)

[Final draft Content Storyline](#)