Ambitious Science 2.0 Teaching PDU Learning Portfolio

2023-2024
Participant Name_____

Before Session 1

- Read: Science in the City Intro and Chapters 1 & 2
- Complete Reading Questions on slides 4-

Session 2: October 5th , 2023
4:30-6:30 pm
Acoma Room 102

Session 1

Science in the City:
Introduction, Chapters 1 & 2:
The Black Tax and The Cultural Cost of Language Development

Introduction: Playing to Our Strong Suits

Reflect on/Rank your strengths on the following science instructional topics:

Science Instructional Topics	Rank	Justification/Reflection on this ranking
Facilitating collaborative sensemaking in which students examine phenomena and generate questions/ideas in their own everyday language (English, dialectical, or other)		
Designing/using activities that simultaneously generate learning and assess developing understanding to inform next steps in instruction		
Facilitating student creation or use of science models to increase scientific understanding and foster ongoing collaborative sensemaking		
Facilitating productive discourse for sensemaking in science		
Supporting ongoing changes in student thinking		
Supporting students in developing strong scientific arguments and explanations supported by evidence		

Introduction: Playing to Our Strong Suits

From the ranking and partner discussion generate a goal for this coursework using the sentence frame below:

By the end of this course, I will be stronger at _____, as measured by _____. I will celebrate small wins such as _____ and _____.

Chapter 1 Reading Questions

1. Describe the “Black Tax” (pg 13). How does this affect the way in which black students perform and engage linguistically in academia?

2. Why is “Linguistic Neutrality” considered to be a myth? (pg. 14)

Chapter 2 Reading Questions

1. What does the author mean by the phrase “failure to understand, a failure to be understood”.(Pg. 31-40)

2. List three outcomes that occur when language norms are left unaddressed and underdeveloped in the science classroom.

Chapter 2 Reflection Questions

1. What types of linguistic norms named in this chapter are common in your classroom or school?

2. What pedagogical practices might improve student voice and hybrid language practices?

Before Session 2

- Read: Science in the City Chapters 3- 4
- Answer Reading Questions

Session 2: October 19th , 2023
4:30-6:30 pm
Acoma Room 102

Session 2

Science in the City:

Chapter 3: Linguistic Relativity and Intelligent Misunderstandings

Chapter 4:More Than an Apple a Day- A Simple Matter of Learning

Session 2: October 19th , 2023
4:30-6:30 pm
Acoma Room 102

Chapter 3 Questions

1. What were your initial reactions to Ch 3? What ideas from previous chapters were deepened, challenged, or affirmed in Ch 3?

2. On page 48 Dr. Brown challenges us to "imagine the difference it would make in students' lives if the teacher can validate what they know as opposed to telling them they are simply right or wrong, or concentrating on what they don't know." What difference would this make in your space and how might you go about eliciting what students know differently?

Chapter 4: Questions

1. According to the research, what is the benefit of separating content instruction from content vocabulary?

2. Briefly describe the four phases of disaggregate instruction.

Lesson Plan for Disaggregate Instruction

Use the two spaces below to discuss your initial plan for incorporating a disaggregate instruction plan into your next lesson.

Before the Feedback Carousel

After the Feedback Carousel

Student Artifacts for Disaggregate Instruction

Submit your lesson plan/student artifact here

Before Session 3

- Read: Science in the City Chapters 5 and 6
- Answer Chapters 5 and 6 Questions Only (slides 17 and 18)

Session 3: November 16, 2023
4:30-6:30 pm
Acoma Room 113A

Session 3

Science in the City:
Chapter 5: Linguistic Relativity and Intelligent Misunderstandings

Chapter 6:More Than an Apple a Day- A Simple Matter of Learning

Session 3: November 16, 2023
4:30-6:30 pm
Acoma Room 113A

Chapter 5: Questions

1. Have you ever experienced a verbal advantage/disadvantage? Have you ever been labeled based on your language use? How did it feel? What did you do as a result of this experience?

2. What might it look like to address the language-identity dilemma in the classroom? How can the language of science be turned into a verbal advantage? (More on this in Chapter 6!)

Chapter 6 Questions

- What practices do “hero teachers” use? What makes a teacher a “hero teacher?”

- How can disaggregate instruction lead to generative learning?

Pre & Post Strategies

Analysis of Student Work Prior to Strategy Implementation

Analysis of Student Work After Strategy Implementation

Reflection: Compare and contrast your results. What do you think impacted these results?

Debrief of Observation

1. Complete the following in relation to your classroom observation
    a. Share goal
    b. Post your artifact (student work, video, observation in the box
    c. Identify small wins
    d. Provide ideas to each other for next steps
    e. Teacher identifies next steps

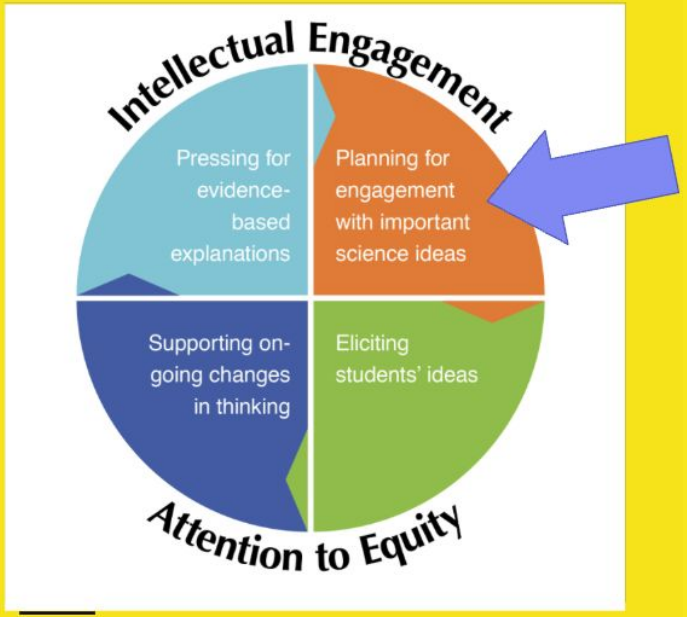
Plan: Upcoming Lesson

Read and review your upcoming lesson. How will you implement your generative formative assessment?

What artifacts will you bring to the next session to share your implementation? (video, student work, lesson plan annotation).

Before Session 5

- Read: Ambitious Science Teaching Chapters 3 and 4
- Input lesson artifacts from session 4 and complete Reflection questions
- Answer Reading Questions



Session 4: January 18, 2024
4:30-6:30 pm
Acoma Room 113A

Lesson Artifacts

Use this slide to input your lesson artifacts from your lesson plan where you implemented your generative formative assessment.

Reflection on Implementation from Session 4

Describe your implementation of your generative formative assessment. What went well? What was challenging? How will you continue to promote talk as a tool for learning in your classroom?

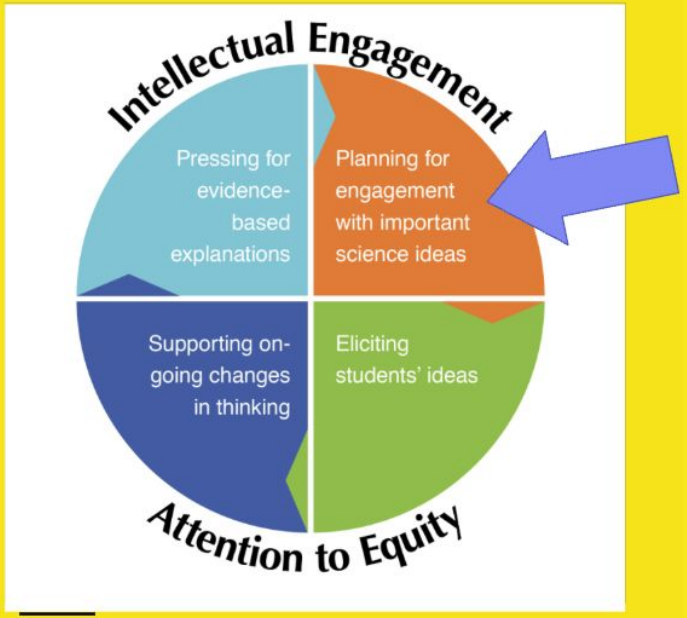
Reading Questions

1. How do the authors define “scaffolding”? And how do they explain how basic scaffolding moves and practices can help learners deepen their learning experiences? (73-82)

2. The authors argue that “scaffolding” does not mean simplifying or lowering expectations. How does this way of talking about scaffolding agree or disagree with other ways that you’ve heard people talk about scaffolding before?

Session 5

Ambitious Science Teaching
Core Practice 1:Productive Discourse
Chapters 3-4



Session 4: January 18, 2024
4:30-6:30 pm
Acoma Room 113A

Scaffolding

Fill in the table below:

Scaffolding can look like:	How does this form of scaffolding provide support for learners?
Structures within a task	
Guidance that focuses learners	
Tools that are available on tables, walls, charts	
Providing coaching for learners	
Providing feedback and chances to try again	

Plan: Upcoming Lesson

1. Read and review your upcoming lesson. How will you integrate talk moves and scaffolds to promote talk as a tool for learning?

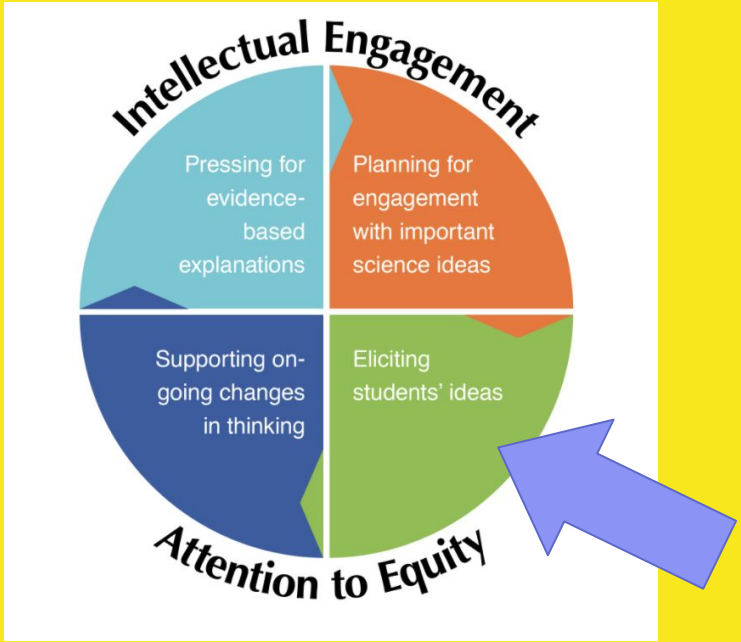
2. What artifacts will you bring to the next session to share your implementation? (video, student work, lesson plan annotation).

Reflection on Implementation from Session 5

Describe the talk moves and scaffolds that you implemented. What went well? What was challenging? How will you continue to promote talk as a tool for learning in your classroom?

Session 6

Ambitious Science Teaching
Core Practice 1:Productive Discourse
Chapters 5: Eliciting Student Ideas



Session 4: February 15, 2024
4:30-6:30 pm
Acoma Room 113A

Chapter 5 Reading Questions

Consider this question: Why bother starting science instruction with kids' ideas, questions, languages, and experiences?

What are several reasons why it is worth it to have science teaching begin with students' contributions?

Chapter 5 Reading Questions

The authors break down the overarching goal of Eliciting Students' Ideas into three pedagogical practices that take place in science teaching. Make notes about each practice by describing what teachers and students would be doing and saying during each of these practices.

Practice 1: Eliciting ideas & activating prior knowledge

Practice 2: Helping students represent their thinking publicly

Practice 3: Adapting further instruction

Chapter 6 Questions

What are models in science and science classrooms? How is this similar/different to the way that you've thought about models before?

What types of models work well for modeling in science classroom settings?

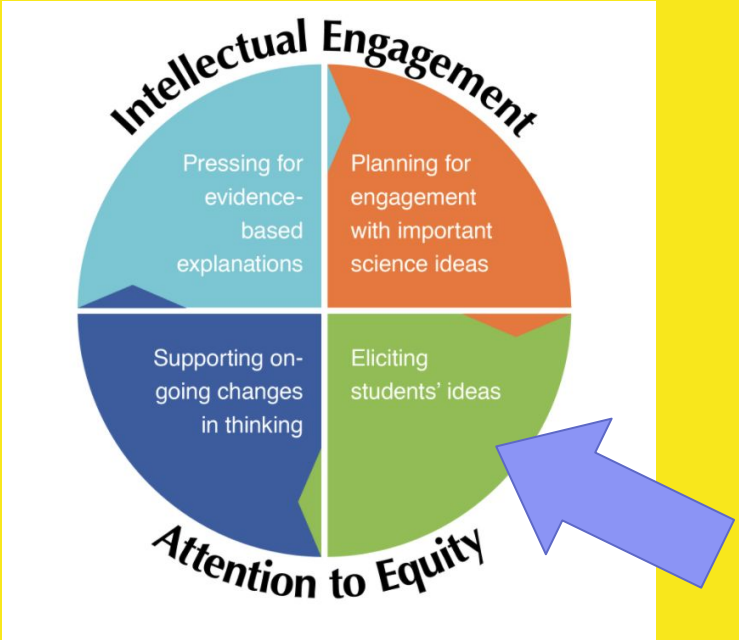
Plan: Upcoming Lesson

1. Read and review your upcoming lesson. Add your Gotta Have It Checklist below.

2. How will you prompt students to compare their models and make revisions based on this comparison? What specific protocols will you use?

Session 7

Ambitious Science Teaching
Core Practice 2:Productive Discourse
Chapter



Session 4: February 15, 2024
4:30-6:30 pm
Acoma Room 113A

Reflection on Implementation

Describe how you are allowing students to show what they know through scientific models or from eliciting their ideas prior to a lesson? What went well? What was challenging? How will you continue to provide opportunities for initial models, revision of models and sharing of final models in your classroom?

Chapter 7 Reading Questions

The authors offer six principles for model-based science. Spend some time considering each principle and connecting that principle to how you have thought about model-based science before.	
What does each principle mean? Why does this principle matter for using modeling as a science practice with students? What instructional best practices do the authors suggest for implementing this principle? How is this similar/different/ connected to the way you thought of models before?	Principle: Models represent an event or process. (pgs. 118 & 140-141) •
	Principle: Good models happen when we focus on context-rich (rather than abstract or general) phenomena. (pgs. 118-119 & 142-146) •
	Principle: Models that are pictorial make thinking visible. (pgs. 119 & 131-136) •

Chapter 7 Reading Questions

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What does each principle mean? Why does this principle matter for using modeling as a science practice with students? What instructional best practices do the authors suggest for implementing this principle? How is this similar/different/ connected to the way you thought of models before?	Principle: Models show both observable and unobservable features of an event or process. (pgs. 119-120 & last paragraph on pg 141) •
	Principle: Good models represent the range of conditions that matter for an event or process (e.g., before, during, after; summer time vs. winter time; dissolving in hot water vs. cold water). (pgs. 120-124 & “Designate Spaces to Write Explanations on pg 141) •
	Principle: Models are powerful if they are revisable. (pgs. 124 & 136-140) •

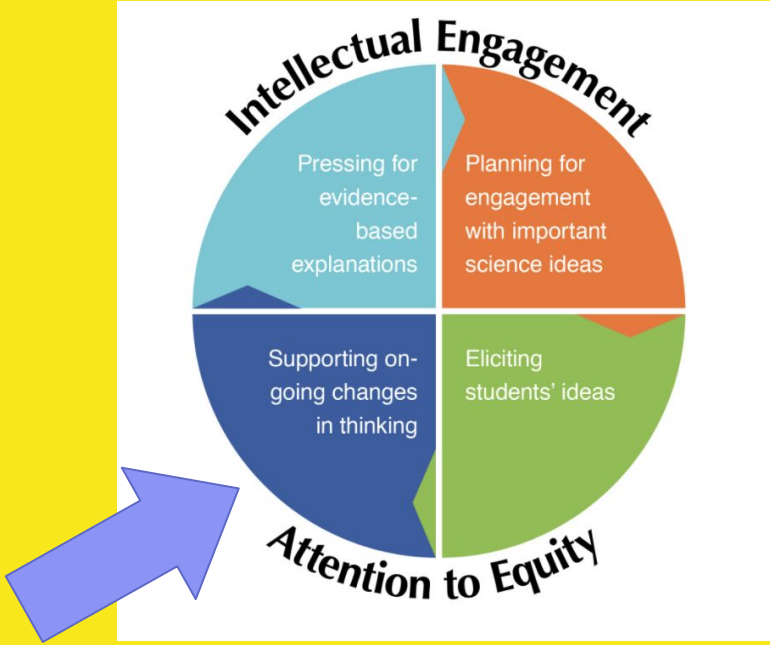
Plan: Upcoming Lesson

1. Read and review upcoming lesson. How will you allow students to show what they know by providing opportunities for initial models, revising models, sharing final models?

2. What artifacts will you bring to the next session to share your implementation? (video, student work, lesson plan annotation).

Session 8

Ambitious Science Teaching
Core Practice 3: Supporting Ongoing Changes in Student Thinking



Session 8: April 25, 2024
4:30-6:30 pm
Acoma Room 113A

Chapters 8-10 Reading Questions

On pages 151-152, the authors talk about the difference between two ways of thinking about "changes" in student thinking in science: 1) "stamp out" wrong ideas and "stamp in" right ideas; 2) continuous process of sensemaking happening gradually over time. Make notes below about these two ways of thinking about changes in student thinking.

Stamping out wrong ideas & stamping in right ideas	Ongoing sensemaking from shared experiences and ideas

Chapters 8-10 Reading Questions

1. Why is it important to be strategic about introducing new science ideas?

2. Take a look at the figure and the table in chapter 8 (164-165). Pick out 2-3 things that you think are really important. Explain your choices.

3. The authors share a few examples of teacher-created tools that teachers have used to orchestrate whole-class conversations throughout an entire unit of study. Take a look at the Summary Table and Summary Chart examples provided in chapter 10. How can you envision teachers creating and using a similar tool to hold on to students' ideas and questions throughout an entire unit?

Plan: Upcoming Lesson

Read and review upcoming lesson.

1. What is the goal or purpose of the lesson in the larger unit?

2. How will you provide opportunities for meaningful sense making?

3. How will you incorporate an activity to engage students in sense making?

4. What strategies for equity will you use to encourage full participation in collective thinking?

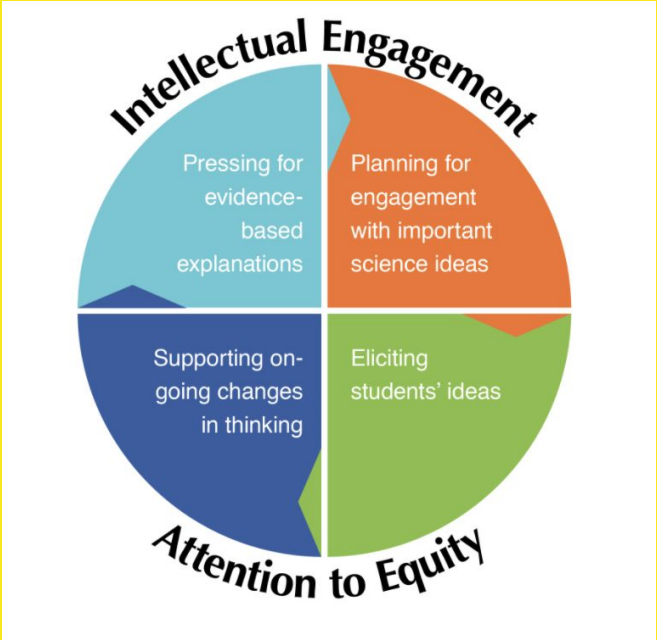
5. What artifacts will you bring to the next session to share your implementation? (video, student work, lesson plan annotation).

Reflection on Implementation

Describe how you are allowing students to show what they know through scientific thinking. What went well? What was challenging? How will you continue to provide opportunities for ongoing student thinking and sensemaking in your classroom collectively? Be sure to add artifacts to this slide.

Session 9

Ambitious Science Teaching: Chapter 14- Can We Be Ambitious Every Day?



Session 9: May 2, 2024
Virtual Link:

Final Reflection Video

Upload your final reflection video from the flipgrid below:

Revisiting Goals from Session 1:

1. How successful were you at completing this goal this year? Rate yourself on a scale from 1-5 with 5 being “I was completely successful in all aspects of the goal” and 1 being” I did not make any progress or was successful in any aspect of my goal”.

2. What actions or strategies helped you to make progress towards your goals, and which ones hindered my progress?

3. How do I feel about the progress I've made towards my goals, and what adjustments might I need to make moving forward?

Can We Ambitious Every Day?

Fill in your plans for each of the space below. Feel free to add more than one routine to each time of year.

Time of Year	Routine(s)	Plans to Implement
Everyday		
In Every Unit		
2-3+ Times/Year		