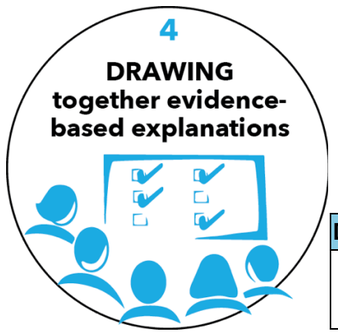

Co-Construct a "Gotta Have Checklist"

Driving Question/Phenomena

Gotta Have it Checklist	
What are the four or five most important ideas we've explored during this unit?	
What ideas should really be a part of our gapless explanation?	
How can this list add rigor to students' explanations and models?	
What discourse moves can I use to moderate the construction of the list?	
How can I make sure the students are listening to the reasoning of their peers and interacting with each other's ideas?	

Levels of Explanations Rubric

Goal: Understanding differences can help students aim to write more coherent and complete causal explanations

What Level-Description	Example of this level for your phenomena?
Our breathing increased when we started exercising by 30% and the BTB changed from blue to yellow over the five-minute period.	
How Level-Cause and Effect	**Example of this level for your phenomena?**
The BTB changed from blue to yellow after the exercise because the body exhaled more carbon dioxide than when it was stationary.	
Why Level-Causal Explanation	**Example of this level for your phenomena?**
When exercising, the body requires more oxygen, which is taken from the lungs to muscle cells. The cells use the oxygen to break down glucose into energy and carbon dioxide. Muscles use the energy to do work. The carbon dioxide is a waste product.	

Model/Hypothesis Revision Checklist

Models: Students draw initials models day 1 or day 2 of the unit. **Hypothesis:** Class creates an initial list of hypotheses or mini-theories.	**Models:** They revise initial models in the middle of the unit by applying sticky notes. **Hypothesis:** Students decide which hypotheses need to be modified (elaborate on or linked to others), rejected, or if new hypotheses should be added.	**Models:** They create final models and explanations near the end of a unit. **Hypothesis:** Treat the hypothesis as science claims that need to be supported with known science and/or data.

Pressing for Gapless Explanations and Models

Goal: “You won’t get what you don’t ask for.”

1.What ideas do you expect to be incorporated?	
2.What drawing conventions should be used?	
3.How should they cite evidence?	
4.How do you define the before, during and after for their model/explanation?	
5.What unobservable events or processes need to be represented?	

Assessing for Understanding

Goal(s): 1. To improve instruction 2. Provide feedback to students on their current understanding 3. Make final evaluations of student learning

1. Assess what was taught
2. Use authentic assessment tasks
3. Make criteria for success clear to students
4. Use combinations of lower- and higher-cognitive- demand items
5. Provide equitable opportunities for students to show what they know

What? (Principle 1 and Principle 3)

How? (Principles 2, 4 and 5)
