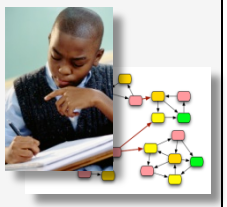
Where is my practice located? A Teacher's Performance Progression for *Model-Based Inquiry*

Increasing order of sophistication of ambitious practices (practices on right-hand side may also include previous ideas)

Ambitious Practices				
1) Selecting big ideas, treating them as models 	**Focus on topic or "things"** • Teacher selects concrete or abstract entities (things) to learn about in varying degrees of detail. • Students asked to describe, name, label, identify, using correct vocabulary.	**Focus on observable processes** • Teacher selects as focus "what is changing" in a system or how conditions affect a naturally occurring event.	**Explanatory model focus (Aim for this!)** • Teacher focuses on *unobservable* processes, events, or entities, or the relationships among science concepts. • Teacher links these to important *observable* natural phenomena in order to develop an explanatory model that students will make sense of over time.	
2) Attending to students' ideas 	**Monitoring and re-teaching ideas** • Teacher starts by presenting information, then monitors language students use to see if students are developing "correct" conceptions (whether students "get it" or not). • Teacher engages in 1-on-1 tutoring or uses IRE in whole class conversations to present more correct conceptions to students (perhaps using a different modality).	**Eliciting students' initial & unfolding understandings** • Teacher elicits students' initial and on-going hypotheses, questions, or conceptual frameworks about a scientific idea.	**Referencing students' ideas & adapts instruction (Aim for this!)** • Teacher elicits students' initial conceptions of a scientific idea by posing a rich open-ended task or puzzling event related to the big idea of the unit. • Teacher listens for partial understandings as well as alternative conceptions (without presuming students need to precisely replicate the teacher's line of thinking). • Teacher uses students' language and partial understandings as building blocks to shape the direction of classroom conversations. Teachers engineer productive classroom conversations or pursue students' lines of thinking by weaving students' lines of reasoning together with scientifically coherent ideas across multiple lessons.	
3) Choosing activity and framing intellectual work 	**Primarily focusing on procedure** • Teacher asks students to describe procedures for activities or experimental set-ups. • Science concepts are played down to allow time to talk about designing experiments. • Talk with students is about how to do an activity or about error, validity, reliability, recording data.	**Discovering or Confirming Science Ideas** • Teacher has students "discover" science concepts for themselves OR has students use an activity as a "proof of concept." • Science is about acquiring accepted facts, principles, or laws. Students collect information to recognize or prove patterns.	**Linking concepts within and across investigations** • Teacher first seeds students' thinking with new science concepts (not explanations) and asks students to use these ideas to makes sense of an investigation. • Science ideas are up for discussion. Students derive explanatory language from activity and use it to solve new problems. Public representations of students' ideas change in response to findings from each day.	**Model-Based Inquiry focus (Aim for this!)** • Teacher highlights tentative or partial explanatory models as the basis for multiple investigations. • Teacher asks students to use evolving model as a reference before, during and after each inquiry. Teacher builds in background knowledge of underlying (unobservable) science ideas and models before, during, and following an inquiry, but without doing the reasoning for the students. • Science is about revising and testing models to synthesize ideas and explain problems.
4) Pressing for explanation 	**No press for a scientific explanation** • Teacher does not ask students to provide any form of explanation; or teacher uses "explain" to mean "justify" as in justify the existence of an entity or accepted fact. • There is no event or process that is subject to explanation.	**"What happened" explanation** • Teacher asks students to describe relationships between variables, differences between experimental groups, trends over time, or qualitative observations. "Explain what you see in the data."	**"How/ partial why" something happened explanation** • Teacher asks students to hypothesize about reasons for relationships among variables or observations, and how these predict the ways some natural system will behave.	**Causal explanation (Aim for this!)** • Teacher has students use unobservable events, processes, and entities to construct a causal story of why something happened. (may mean first supporting students through "what" and "how explanations" with goal of working toward "why explanations") • Teacher unpacks learning about the nature of scientific explanations with students, and about "what counts" as evidence.