

Back Pocket Questions

(adapted from *Tools for Ambitious Science Teaching*, <http://ambitiousscienceteaching.org>, Mark Windschitl and Jessica Thompson, 2014)

Rapid Survey of Student Thinking		
Categories	Trends in student understandings, language, experiences (sample sentence starters included below)	Instructional decisions based on the trends of student understanding
"Partial" understandings?	(Many students seem to have had some components of understanding already...)	(In my instruction I can build on.... / I may have to clarify.../I may have to add or change....)
"Alternative" understandings?	(Many students believe this to be true....)	(I'll have to address.../ I may have to change or add this activity....)
Everyday language you can leverage?	(I heard the use of this term _____, that I can refer to in the upcoming lessons)	(I can use their descriptions/language as an entry point to talking about this example of "academic" language...)
Experiences they've had that you can leverage?	(They seem to connect their experiences of _____ with parts of the big idea)	(I can use their everyday experiences with _____ to scaffold this part of the big idea)

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Designing your Specific Questions		
<i>Generic questions for each step</i>	<i>Actual questions you will pose</i>	<i>What to listen for and plan to respond to</i>
<p>1. Orienting Students to 3D learning What can we observe in this phenomenon? What questions can we ask about this activity? What will we be seeing happen/measuring?</p>		<p><i>What you need to listen to, plan to respond to:</i> What would it look like if students cite relevant features vs. extraneous features of the phenomenon?</p>
<p>2. Observations and patterns What are you seeing here?</p>		<p><i>What you need to listen to, plan to respond to:</i> What if students <i>can</i> cite relevant features of the activity? What if students are focused on extraneous details of the activity? What if students mention (causality, patterns, etc.) but do not explain significance?</p>
<p>3. Connection to the big idea What are you figuring out? Can you show/explain what you are doing or what is happening in terms of (the big idea)?</p>		<p><i>What you need to listen to, plan to respond to:</i> What if students need support explaining or seem to rely on vocabulary? <i>What if students can make connections between activity and some aspect of the big idea?</i> <i>What if students need support using the wording of the practice and/or CCC?</i></p>
<p>4. Whole class coordination of students' idea & their questions What did you (addressing the whole class) find in your activity (adjust this question to the specific of the activity, seeing trends, patterns, differences, etc.)?</p>		<p><i>What you need to listen to, plan to respond to:</i> Do students need support explaining talking? Do student describe patterns and insights?</p>