<table>
<thead>
<tr>
<th>UA Practice</th>
<th>UA Tool/Strategy</th>
<th>UA Teacher</th>
<th>UA Students</th>
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| 1. Asking questions to develop investigations  
Asking questions with the goal of explaining phenomena; framing investigations around questions. | • UA format for testable questions (What is the effect of independent variable on dependent variable?) | • Gathering, tracking students’ questions visually (chart, white board, etc).  
• Leading a discussion on how to develop a testable question.  
• Facilitating discussion about how a question might connect to an investigation. | • Observing phenomena and generating questions with partner or in groups;  
• Sharing questions with class or teacher (oral or written).  
• Revising initial questions to turn “wonder” questions into “testable” questions. |
| 2. Planning and carrying out investigations  
Developing a strong understanding of variables in testable questions, design investigations, and construct hypotheses. Gathering evidence through procedure to answer question. | • Investigation Design Diagram (IDD) - a graphic organizer for investigation design; varies depending on type of investigation  
• UA hypothesis format based on background readings (If… then… because…)  
• Procedure (see UA rubric for guidelines) | • Demonstrating for students how to develop an investigation from a testable question or how to complete the IDD.  
• Guiding the development and use of a tentative/initial model as a hypothesis.  
• Providing feedback on students’ hypotheses. | • Filling out the IDD in pairs/groups.  
• Sharing out to class.  
• Developing hypotheses in pairs/groups.  
• Following procedure steps to carry out investigation and collecting data. |
| 3. Analyzing and interpreting data  
Analyzing and interpreting data helps identify the patterns and trends in data to determine what claims can be made to address the question. | • Results (see UA rubric for guidelines)  
• Making sense of and summarizing data  
Calculating M.A.D.  
I2 (Identify & Interpret, BSCS) | • Modeling data analysis strategy  
• Coaching group of students through asking questions about their data | • Creating visual displays of data.  
• Making observations about the data first, and then consider inferences. |
| 4. Constructing scientific explanations about phenomena using data along with readings about scientific concepts  
Using empirical data and observations to support a claim; using science concepts from readings to help explain phenomena and link evidence to the claim. | • Designing Science Explanation Tool (DSET) - a graphic organizer for explanation of phenomena using the format claim, evidence (data from investigations) and reasoning (applying science concepts from background readings) | • Demonstrating a literacy strategy (such as FACT boxes or paraphrasing)  
• Guiding students through sections of DSET as whole class  
• Leading discussion about what counts as evidence in science. | • Completing the sections of a DSET.  
• Discussing text and science concepts in order to make sense of the data and to answer investigation question. |
UA in the Classroom: What to Look For