UA in the Classroom: What to Look For

urban advantage middle school science initiative

UA Practice	UA Tool/Strategy	UA Teacher	UA Students
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.

American Museum of Natural History · The New York Botanical Garden · Brooklyn Botanic Garden · Wildlife Conservation Society New York Aquarium · Wildlife Conservation Society Bronx Zoo · nysci New York Hall of Science · Zoo Staten Island Zoo · Queens Botanical Garden · NYC Department of Education

UA in the Classroom: What to Look For

urban advantage
middle school science initiative

American Museum of Natural History
The New York Botanical Garden
Brooklyn Botanic Garden
Wildlife Conservation Society New York Aquarium
Wildlife Conservation Society Bronx Zoo
nysci New York Hall of Science
Staten Island Zoo
Queens Botanical Garden
NYC Department of Education