

Practice Identifying Strategies 4 and 5 in Student Work

Students mix a vial of vinegar with baking soda in a sealed plastic bag and observe what happens. Then they're asked to think about the characteristics of the substances before they were mixed and whether the molecules stayed the same or changed in some way afterward.

Decide whether each of the following student statements is making an observation, collecting data, analyzing/ interpreting observations or data, or constructing an explanation or argument. (**Note:** More than one science practice may apply.) Use the STeLLA strategies booklet and the Quick Reference Tools for Strategies 4 and 5 to formulate a rationale for your decisions.

Student Statements	Observations/ Data	Analysis/ Interpretation (Patterns)	Constructing an Explanation	Constructing an Argument
1. "The bag is full of air."	X			
2. "There's still liquid in the bag."	X			
3. "Fizzy stuff is coming off the liquid, like it's making a gas."	X	X		
4. "I think the big molecules mixed up and made a gas, but they're still the same molecules."	X		X	
5. "I disagree. I don't think they can be the same molecules because there's air and water and white stuff in the bag now that weren't there before."	X			X
6. "I agree, but maybe some things are the same and some are different. The white stuff could still be leftover baking soda, and maybe only some of it changed to gas."				X
7. "I think the molecules changed to something new because the baking soda dissolved, and the white stuff is something different."	X		X	
8. "The way the molecules are put together changed and made something new."			X	
9. "The bags are different sizes now, so maybe some new molecules were added from somewhere."	X	X		