Participant # \_\_\_\_\_\_\_\_\_\_\_\_\_ Form A Coding Sheet

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| **Excerpt** | **Correct Identifier**  **(indicates corresponding matrix practice – do not code as wrong if missing)** | **Teacher Identified** | **Totals**  **CT: correct/partial/wrong/missed**  **DP: correct/partial/wrong/missed**  **Key at bottom** |
| In your science class, Paula is going to conduct an investigation to identify an unknown material using the property of density. In the investigation, Paula is given 100 mL of an unknown liquid in a beaker, a graduated cylinder, an electronic balance, and a list of 20 different material names with known densities. Paula knows the following two things when she begins the investigation: a) materials have unique densities - no matter the amount of the material, the density of the same material is the same, and…” | None |  |  |
| “…to calculate density, she must find volume and mass.” | Decomposition (CT)  Creating Data (DP) |  |  |
| “Instead of only finding the mass of 100 mL of liquid given to her, Paula is going to measure a number of different amounts of the liquid..” | Decomposition – CT  Creating Data – DP |  |  |
| ‘…plot the resulting data points on a volume (vertical axis) versus mass (horizontal axis) graph.” | Visualizing - DP  Decomposition – CT |  |  |
| “Paula will then calculate the slope of the graph to find the density.” | Analyzing - DP  Pattern Recognition- CT |  |  |

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| “Paula masses the empty graduated cylinder and records it. She then pours 10 mL of the unknown liquid into the graduated cylinder and masses the liquid and the cylinder. She records this mass…” | Collecting Data – DP  Abstraction - CT: Paula is performing indirect steps to determining mass of fluid |  |  |
| “…subtracts the mass of the empty cylinder to find the mass of the liquid only…” | Manipulating – DP  Abstraction - CT |  |  |
| “…records the remaining mass.” | Collecting Data – DP |  |  |
| “Paula then plots the point (10 mL, mass measure) on the graph…” | Visualizing – DP |  |  |
| “…using Exel software.” | Automation – CT |  |  |
| “She repeats this process for 20 mL, 35 mL, 42 mL, 55 mL, 78 mL, and finally 100 mL.” | Algorithm – CT  Collecting Data - DP |  |  |
| “She looks at the graph and notices that the points from the 55 mL and 78 mL measurements are not in the same alignment as the rest of the points.” | Analyzing – DP  Pattern Recognition - CT |  |  |

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| “…notices that she forgot to subtract the mass of the graduated cylinder from the mass of the liquid in the graduated cylinder for these points. She does so…” | Manipulating Data - DP  Abstraction – CT |  |  |
| “…and the points look like they are more in line with the other data points.” | Visualizing - DP  Pattern Recognition – CT: graph is now linear, matching her initial expectations |  |  |
| “Paula then calculates the best fit line from her data points using Excel and records the slope of the best fit line.” | Visualizing Data - DP  Automation – CT |  |  |
| “She compares her calculation for the density for the unknown liquid with the list she was given.” | Analyzing - DP |  |  |
| “Her value for density is closer to isopropyl alcohol than the other material, so she concludes that her unknown liquid was isopropyl alcohol.” | Analyzing - DP  Abstraction – CT - the evidence matches the phenomena of interest/helps answer the question |  |  |
| Totals | CT: Total = 13  Decomposition = 3  Pattern Recognition = 3  Abstraction = 4  Algorithm = 1  Automation = 2  DP: Total = 15  Creating = 2  Collecting = 3  Manipulating = 2  Visualizing = 4  Analyzing = 4 |  | CT:  DP: |

Correct: Participant highlighted a sentence and identified the correct corresponding computational thinking or data practice.

Partial: Participant highlighted a sentence and identified several computational thinking or data practices within the sentence one of which may have been correct, however the others were incorrect OR participant highlighted a paragraph and identified one correct computational thinking or data practice within the paragraph but missed several others.

Wrong: Participant identified the wrong computational thinking or data practice within the sentence that was highlighted.

Missed: Participant did not identify a computational thinking or data practice that was present in a particular sentence.