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| **CT Knowledge Rubric (Pre and Post)** | | | | |
| **CT Term** | **Proficient Reference**  Fully explained with a correct definition (may or may not have the word) | **Developing Reference**  Partially correct definition with or w/out the term | **Beginning**  **Reference**  Only the term or definition/ term incorrectly described/ named -  mismatched | **No**  **Basis**  No reference to any term and no definition provided |
| **Decomposition**   * Explain a complex problem deliberately being broken down into less complex sub-problems * Reduce the main problem into manageable steps or sub-problems. | A4 | A3 | A2 | A1 |
| **Pattern Recognition**   * Cluster and modularize steps or parts * Identify repeated sequences or patterns | B4 | B3 | B2 | B1 |
| **Abstraction**   * Clarify the problem * Generate “high-level” or generalized representation of the structure of a problem/solution. * Remove as much unnecessary or distracting information from the problem. | C4 | C3 | C2 | C1 |
| **Algorithmic Thinking**   * Create a series of precisely defined steps or rules used to solve a problem. * Creates a structured formula that provides a predictable outcome given a specified input. | D4 | D3 | D2 | D1 |
| **Automation**   * Outsource work so that it reduces or removes the requirement for direct human action in order to achieve a desired outcome. * Use technology and/or coding to execute the process | E4 | E3 | E2 | E1 |

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| **CT Application Rubric for Question 1 (Pre and Post)**  **\*Used “Strategies and Tactics for Data Practices” sheet to evaluate relevance of strategies.** | | | | |
| **CT Term** | **Proficient Reference**  Term and appropriate strategy (from list) that encompasses complete definition | **Developing Reference**  Term and vague strategy that encompasses part of the term definition | **Beginning**  **Reference**  Term and mismatched/ incorrect strategy or just the term w/ no strategy | **No**  **Basis**  No reference to any term and, if strategy provided, not linked to CT Term |
| **Decomposition**   * Explain a complex problem deliberately being broken down into less complex sub-problems * Reduce the main problem into manageable steps or sub-problems. | A4 | A3 | A2 | A1 |
| **Pattern Recognition**   * Cluster and modularize steps or parts * Identify repeated sequences or patterns | B4 | B3 | B2 | B1 |
| **Abstraction**   * Clarify the problem * Generate “high-level” or generalized representation of the structure of a problem/solution. * Remove as much unnecessary or distracting information from the problem. | C4 | C3 | C2 | C1 |
| **Algorithmic Thinking**   * Create a series of precisely defined steps or rules used to solve a problem. * Creates a structured formula that provides a predictable outcome given a specified input. | D4 | D3 | D2 | D1 |
| **Automation**   * Outsource work so that it reduces or removes the requirement for direct human action in order to achieve a desired outcome. * Use technology and/or coding to execute a process. | E4 | E3 | E2 | E1 |

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| **CT with Data Practices Application Rubric for Question 2 (Pre and Post)** | | | | |
| **Data Practice** | **Proficient Reference**  Term and appropriate strategy | **Developing Reference**  Term and vague strategy OR appropriate strategy but term not referenced | **Beginning**  **Reference**  Term and mismatched/ incorrect strategy or just the term w/ no strategy | **No**  **Basis**  No reference to any term and no strategy provided |
| **Creating Data**   * Generating Data * Using observation and/or tool to answer research question(s) | F4 | F3 | F2 | F1 |
| **Collecting Data**   * Gathering Data * Recording data * Indicating appropriate variables and units to use later to explain the phenomenon | G4 | G3 | G2 | G1 |
| **Manipulating Data**   * Sorting, filtering, cleaning, normalizing, and/or combining data sets * Transforming to get from raw to processed data | H4 | H3 | H2 | H1 |
| **Visualizing**   * Choosing a representation that is most appropriate for the data * Using data representation to communicate results | I4 | I3 | I2 | I1 |
| **Analyzing**   * Extracting meaning from a data set or a visualization * Using extracted meaning to draw conclusions | J4 | J3 | J2 | J1 |