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| **Scoring Rubric for: New Field Study** (page 1 of 2) | | |
| **Performance Description** | | **Attributes** |
| A **2-point response** demonstrates the student understands the Content Standard INQB: Scientific progress requires the use of various methods appropriate for answering different kinds of research questions, a thoughtful plan for gathering data needed to answer the question, and care in collecting, analyzing, and displaying the data. Item Specification 2: Describe a plan to answer a given question for a field study. | | 6–7 |
| A **1-point response** demonstrates the student has partial understanding of the Content Standard. | | 3–5 |
| A **0-point response** demonstrates the student has little to no understanding of the Content Standard. | | 0–2 |
| **Attributes of a Procedure for a Field Study** | | |
| **Attribute Name** | **Description** | **Attribute** |
| **Method for Collecting Data** (Controlled Variable) | The procedure states or implies a consistent sampling strategy or technique (e.g., *keep the sampling area the same,* *count at the same time every day*). | 1 |
| **Conditions to be Compared** (Independent/ manipulated Variable) | Only one independent variable (independent/manipulated variable) is identified or implied in the procedure or data table (if given). The independent variable must have at least three conditions to be credited. | 1 |
| **Data to be Collected** (Dependent/ responding Variable) | The data collected to answer the field study question (dependent/respondingvariable) is identified or implied in the procedure or data table (if given). | 1 |
| **Record Measurements** | The procedure states or implies measurements are recorded.  Attribute Notes:   1. If artificial data for the responding variable is given, this attribute cannot be credited. 2. The phrase “take measurement or to count” cannot be used to mean recorded systematically. | 1 |
| **Observations are Repeated** | More than one observation for all conditions is planned, or implied in a data table, (e.g. *Go to each location 2 times, sample multiple regions in the same area.*) | 1 |

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| **Scoring Rubric for: New Procedure** (page 2 of 3) | | |
| **Procedure Attributes** | **Description of Attribute** | **Attributes** |
| **Controlled Variables** | At least two controlled variable are identified or implied in the procedure or the materials list (e.g., *give examples*). | 1 |
| **Manipulated Variable** | Only one manipulated variable (state variable from question) is identified or implied in the procedure or data table (if given). The manipulated variable must have at least three conditions to be credited | 1 |
| **Responding Variable** | The responding variable (state variable from question) is identified or implied in the procedure or data table (if given). | 1 |
| **Record Measurements** | The procedure states or implies measurements are recorded periodically or gives a data table.  Attribute Notes:   1. If artificial data for the responding variable is given, this attribute cannot be credited. 2. The phrase *take measurement* cannot be used to mean *record*. | 1 |
| **Trials are**  **Repeated** | More than one trial for all conditions is planned, or implied in a data table, to measure the responding variable. | 1 |
| **Experimental Control Condition** | The procedure includes an additional setup in which the manipulated variable is not changed and the responding variable is measured for each condition in the experimental setup(s) (e.g., *give example*).  Writing Note: This attribute is only credited for complicated investigations in which an experimental control condition is appropriate. | 1 |
| **Extra**  **Validity Measure** | The procedure includes a validity measure **not** included in the scenario experiment (e.g., more controlled variables, better measuring technique, increased range of conditions, control for sample bias). | 1 |
| **Logical Steps** | The steps of the procedure are detailed enough to repeat the procedure effectively (examples of illogical steps: no ending time indicated; states *Set up as diagrammed,* but diagram is inadequate; recording vague data or results). | 1 |
| **Total Possible Attributes** | | **8** |

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| **Scoring Rubric for: Write a Conclusion** (page 2 of 3) | |
| **Attributes of a Conclusion**  Note: The italicized print is the part of the “Example” credited for the attribute. | |
| **Description** | **Attributes** |
| **Conclusive statement** correctly answers the experimental question (or correctly states whether the hypothesis/prediction was correct): *As the manipulated variable increased, the responding variable increased.*  Attribute Notes:   1. A vague conclusive statement (e.g., *the manipulated variable change did affect the responding variable*) cannot be credited for this attribute, but other attributes can be credited. 2. A response with an incorrect conclusive statement or no conclusive statement may not be credited any attributes. 3. A response with both a correct and an incorrect conclusive statement (e.g., *as x increased y decreased … as x got smaller so did y*)cannot be credited for this attribute but other attributes can be credited, if separate from any contradictory statements. | 1 |
| **Supporting data should at least be over the entire range of the conditions investigated. Thus the minimum reported data are the lowest and highest conditions of the manipulated variable for quantitative data (responding variable when the manipulated variable information is descriptive).** | |
| **Supporting data for lowest condition:** *When the manipulated variable was Xlowest, the responding variable was the lowest, Ylowest.* | 1 |
| **Supporting data for highest condition:** *When the manipulated variable was Xhighest, the responding variable was Yhighest.* | 1 |
| **Explanatory language**, separate from the conclusive statement, is used to connect or compare the supporting data to the conclusive statement: *So changing the manipulated variable by X caused the responding variable to increase/decrease by Y.*  Attribute Notes:   1. This attribute can only be credited when at least one numeric value (or the text from a descriptive data table) for the manipulated or responding variable is included in the response. 2. A copy of the conclusive statement cannot be credited for explanatory language. However, a re-phrased credited conclusive statement can be credited. 3. Explanatory language comparing the range of the manipulated and/or responding variables may be credited (e.g., *The* ***lowest*** *condition of the manipulated variable tested was XXX and the responding variable was* ***only*** *YYY.)*. 4. If a response misquotes trend data between the highest and lowest conditions, this attribute cannot be credited. 5. Transitional words (e.g., *however, therefore, because, so, then, clearly, but*) cannot be credited as explanatory language even when added to a conclusive statement. 6. A compound sentence as a conclusive statement may be read as two separate sentences. | 1 |