

## Secondary Sciences Cornerstone Assessments Scoring Rubric: Biology

Directions: Use the key provided and the scoring rubric to score each student’s response. Provide a score for each student according to the critical element.

| Critical Element   | Not Attempted (0)                               | Novice (1)  | Practitioner (2)   | Expert (3)  |
|--|---|---|--|---|
| <b>Experimental Design Skills</b>  |   |   |  |   |
| Stating or evaluating a hypothesis with justification<br><b>Part A.1</b>   | Left blank or response is completely inaccurate | Stating: Shows some cause and effect but errors exist<br><br>Evaluating: Shows some evidence of accurately evaluating a hypothesis but errors exist | Stating: Shows a clear cause and effect<br><br>Evaluating: Accurately evaluates the hypothesis | Stating: Shows and supports a clear cause and effect with sufficient reasoning<br><br>Evaluating: Accurately evaluates the hypothesis and provides sufficient reasoning for support |
| Stating IV and DV with justification<br><b>Part A.2 and 3</b><br><b>Part B.2 and 3</b>   | Left blank or response is completely inaccurate | Some error in stating the IV and DV   | Identifies both the IV and DV correctly but support may lack sufficient reasoning              | Identifies the IV and DV correctly and provides sufficient reasoning for support  |
| Identifying appropriate features of the experimental design with justification<br><ul style="list-style-type: none"> <li>• Control</li> <li>• Constants</li> </ul> <b>Part A.4 and 5</b> | Left blank or response is completely inaccurate | Begins to identify appropriate variables but errors exist   | Identifies appropriate variables   | Identifies appropriate variables and provides sufficient reasoning for support  |
| Develop aligned procedures that test a hypothesis<br><ul style="list-style-type: none"> <li>• Steps</li> <li>• Materials</li> </ul> <b>Part A. 6 and 7</b>                               | Left blank or response is completely inaccurate | Develops incorrect or incomplete procedures   | Develops an appropriate but lacks sufficient detail to be replicable                           | Develops a reproducible procedure to test a hypothesis  |

| Critical Element   | Not Attempted (0)  | Novice (1)  | Practitioner (2)   | Expert (3)  |
|--|--|---|--|---|
| <b>Data Interpretation and Analysis</b>  |  |   |  |   |
| Creating a graph, map, or table from given data<br><b>Part B.1</b>   | Left blank or response is completely inaccurate  | Creates a graph, map, or table that contains significant omissions and/or accuracies                      | Presents elements of graph, map, or table accurately with minor omissions                | Presents all elements of graph, map, or table accurately  |
| Interpreting data from a graph, map, or table<br><b>Part B.4 and 10</b>  | Left blank or response is completely inaccurate  | Interprets data but interpretation contains errors  | Interprets most of the data from graph, map, or table accurately                         | Interprets all parts of the data table, map or graph correctly and provides sufficient reasoning for support      |
| Making predictions using scientific data<br><b>Part B.5 and B.6</b>  | Left blank or response is completely inaccurate  | Begins to make predictions but predictions contain errors   | Makes logical predictions based on scientific data                                       | Makes logical predictions based on scientific data and provides sufficient reasoning for support                  |
| Drawing and supporting conclusions based on scientific data<br><b>Part B.7</b>   | Left blank or response is completely inaccurate  | Begins to draw conclusions based on scientific data but conclusions contain errors                        | Draws logical conclusions based on scientific data                                       | Draws logical conclusions based on scientific data and provides sufficient reasoning for support                  |
| <b>Scientific Reasoning</b>  |  |   |  |   |
| Reasoning through a multi-step process with justification<br><b>Part B.8,9, and 11</b>   | Left blank or response is completely inaccurate  | Begins to reason through a multi-step process but errors in reasoning exist                               | Reasons through most of a multi-step process   | Reasons through all steps of a multi-step process and provides sufficient support                                 |
| Selecting and using appropriate mathematics procedures, where appropriate (This part of the rubric may not apply across all content areas.)<br><b>No questions evident</b> | Left blank or response is completely inaccurate<br>Selects inappropriate mathematical procedures | Selects and applies uses appropriate mathematical procedures but response may contain mathematical errors | Selects and uses appropriate mathematical procedures and arrives at an accurate response | Selects and uses appropriate mathematical procedures and arrives at and communicates response using proper syntax |