**Manjimup Senior High School**

**Australian Curriculum**

**Science in Practice Year 11 2024 – Task 2**

**Identifying unknown substances as acidic, basic or neutral**

**Marking Rubric for:**

|  |  |  |
| --- | --- | --- |
| **Part A – Research and Research Questions (Individual)** | | |
| **Research** | | **Student Mark** |
| Selects a range of reliable sources that are relevant and useful to the chosen topic | 4–5 |  |
| Selects a few sources that provide some information and evidence on the chosen topic | 2–3 |
| Selects sources that provide limited information about the chosen topic | 1 |
| Makes notes that are relevant to the research questions, using an appropriate retrieval and/or note-making framework | 3 |  |
| Makes notes that contain some links to the research questions, using an appropriate retrieval and/or note-making framework | 2 |
| Makes notes that are presented in some order | 1 |
| Formulates a specific and relevant testable question and/or hypothesis, using the correct format | 2 |  |
| Formulate a question and/or hypothesis that may not be testable, specific, relevant or written in the correct format | 1 |
| **Total** | | **/10** |

|  |  |  |
| --- | --- | --- |
| **Part B – Logbook – Planning and conducting the investigation (Group)** | | |
| **Planning the investigation** | | **Group Mark** |
| Presents a clear and logical plan to collect valid and reliable data | 3 |  |
| Presents a clear plan, which lacks some detail, to collect valid and reliable data | 2 |
| Presents a plan to collect appropriate data | 1 |
| Completes a detailed risk assessment using an appropriate framework | 3 |  |
| Completes a detailed risk assessment using an appropriate framework, which lacks some detail | 2 |
| Completes a risk assessment, which lacks some detail | 1 |
| **Conducting the investigation** | | **Group Mark** |
| Records observations, including raw data, clearly and logically in an appropriate format | 3 |  |
| Records observations, including raw data | 2 |
| Records limited or inadequate observations and/or raw data | 1 |
| **Materials** |  | **Group Mark** |
| Provides a complete list of all materials required for the investigation, with quantities | 1 |  |
| **Method** | | **Group Mark** |
| Selects and/or modifies procedures to collect valid and reliable data. | 3 |  |
| Selects and/or modifies procedures that can be followed to collect appropriate data. | 2 |
| With support modifies a procedure to collect appropriate data. | 1 |
| **Data collection** | | **Group Mark** |
| Outlines a format for the recording observations, including raw data. | 1 |  |
| **Total** | | **/14** |

|  |  |  |
| --- | --- | --- |
| **Part C - Data processing and analysis, drawing conclusions and evaluating the investigation (Individual)** | | |
| **Processing and analysing data** | | **Student Mark** |
| Provides evidence of processing data to show patterns and relationships, and analysing data to describe the patterns and relationships | 2 |  |
| Provides evidence of processing data to show patterns and relationship | 1 |
| **Drawing conclusions** | | **Student Mark** |
| Provides evidence of using data to make and justify conclusions that relate to the question/hypothesis being tested | 2 |  |
| Provides evidence of making simple conclusions not support by evidence and/or related to the question/hypothesis being tested | 1 |
| **Evaluating the evidence** | | **Student Mark** |
| Provides evidence of evaluating the accuracy, reliability and validity of procedures and data | 2 |  |
| Provides evidence of identifying and describing difficulties experienced in conducting the investigation | 1 |
| Suggests improvements to the design of the investigation | 2 |  |
| Suggests general improvements | 1 |
| **Total** | | **/8** |

|  |  |  |
| --- | --- | --- |
| **Workplace Health and Safety (Teacher Judgement)** | | |
| **Working safely and effectively** | | **Student Mark** |
| Acts safely and works effectively both individually and in groups when conducting the investigation | 4 |  |
| Acts safely and works with a degree of effectiveness in both individually and in groups | 3 |
| Acts safely and works with a degree of effectiveness in both individually and in groups, most of the time | 2 |
| Acts safely most of the time and works with limited effectiveness individually and in groups | 1 |
| **Risk assessment** | | **Student Mark** |
| Assesses and manages risks, in detail, to ensure the safe use of equipment and techniques | 3 |  |
| Assesses and manages risks to ensure the safe use of equipment and techniques | 2 |
| Manages risks to ensure the safe use of equipment and techniques | 1 |
| **Standard operating procedures** | | **Student Mark** |
| Uses standard operating procedures with precision, accuracy and consistency to ensure the safe collection of valid and reliable data | 3 |  |
| Uses standard operating procedures with some precision, accuracy and consistency to collect data | 2 |
| Follows directions for the safe use of equipment and techniques to collect data with some precision, accuracy and consistency | 1 |
| **Total** | | **/10** |

|  |  |  |
| --- | --- | --- |
| **Group Contribution (Teacher Judgement)** | | |
| **Logbook Use** | | **Student Mark** |
| Logbook used appropriately and kept up to date, including table of contents, page numbers and dates | 3 |  |
| Logbook used appropriately and mostly kept up to date | 2 |
| Logbook used appropriately | 1 |
| **Commitment** | | **Student Mark** |
| Completes all required tasks to a satisfactory level. | 3 |  |
| Completes most required tasks to a satisfactory level, with some tasks incomplete or poorly completed | 2 |
| Completes some required tasks to a satisfactory level, with most tasks incomplete or poorly completed | 1 |
| **Understanding** | | **Student Mark** |
| Demonstrates an appropriate understanding of the investigation and investigation process | 2 |  |
| Demonstrates a minimal understanding of the investigation and investigation process | 1 |
| **Total** | | **/8** |

|  |  |  |
| --- | --- | --- |
| **Part D – Written report (Individual)** | | |
| **Abstract** | | **Student Mark** |
| Succinctly writes a summary of the investigation that includes the purpose of the investigation, a brief outline of the method and conclusions. | 3 |  |
| Writes a summary of the investigation that includes the purpose of the investigation, a brief outline of the method and conclusions. | 2 |
| Writes a general summary of the investigation | 1 |
| **Introduction** | | **Student Mark** |
| Succinctly writes an introduction that summarises the background information related to the investigation using correct scientific language, conventions and representations | 3 |  |
| Writes a general introduction that summarises the background information related to the investigation using some correct scientific language, conventions and representations | 2 |
| Writes a general introduction that summarises the background information related to the investigation using correct everyday language | 1 |
| Writes a testable question and/or hypothesis | 2 |  |
| Attempts to write a testable question and/or hypothesis | 1 |
| **Materials and method** | | **Student Mark** |
| Provides a complete list of all materials required for the investigation, with quantities | 3 |  |
| Provides an incomplete list of all materials required for the investigation, with quantities | 2 |
| Provides a list of all materials required for the investigation, which may be incomplete, without quantities | 1 |
| Selects and/or modifies procedures to provide a clear and logical plan to collect valid and reliable data | 4 |  |
| Selects and/or modifies procedures to provide plan to collect valid and reliable data, which may lack some detail | 3 |
| Selects and/or modifies procedures that can be followed to collect appropriate data. | 2 |
| With support modifies a procedure to collect appropriate data. | 1 |
| **Results** | | **Student Mark** |
| Organises data logically in appropriate formats to show patterns and relationships, including recording raw data in an appropriate format; and if applicable, carries out simple processing of raw data and plots data in an appropriate graph | 4-5 |  |
| Presents data to show patterns and relationships, including recording raw data; and if applicable, carries out simple processing of raw data and plots data in an appropriate graph | 2-3 |
| Presents data to show patterns and relationships and if applicable, plots data in a graph | 1 |
| **Discussion** | | **Student Mark** |
| Describes the patterns and relationships using data collected | 2 |  |
| Describes the patterns and relationships | 1 |
| Evaluates the investigation discussing the relevance, accuracy, validity and reliability of the data | 3 |  |
| Evaluates the investigation by describing difficulties experienced when conducting the investigation | 2 |
| Evaluates the investigation by identifying difficulties experienced when conducting the investigation | 1 |
| Suggests ways to improve the design of the investigation | 3-4 |  |
| Suggests general improvements to the investigation | 1-2 |
| **Conclusion** | | **Student Mark** |
| Makes a conclusion and relates conclusion to the question and/or hypothesis being tested | 2 |  |
| Makes a conclusion and doesn’t relate conclusion to the question and/or hypothesis being tested | 1 |
| **Bibliography** | | **Student Mark** |
| Provides a bibliography that is consistent with school protocols | 2 |  |
| Provides a bibliography that includes inaccuracies or is inconsistent with school protocols | 1 |
| **Communication** | | **Student Mark** |
| Communicates understandings and investigation findings using concise use of scientific language and representations | 1 |  |
| Communicates understandings and investigation findings using appropriate genre conventions | 1 |  |
| **Total** | | **/35** |

|  |  |  |
| --- | --- | --- |
| **Part E – Poster Presentation (Group)** | | |
| **Presentation** | | **Group Mark** |
| Clearly, concisely and accurately explains scientific ideas, the investigation and investigation process, using correct scientific language, conventions and representations, and demonstrating a thorough understanding of the investigation | 4 |  |
| Provides a general explanation of scientific ideas, the investigation and investigation process, using some correct scientific language, conventions, and representations, and demonstrating some understanding of the investigation | 3 |
| Provides a general explanation of scientific ideas, the investigation and investigation process, using some scientific language, and demonstrating some understanding of the investigation | 2 |
| Provides an explanation of scientific ideas, the investigation and investigation process, using everyday language, and demonstrating some understanding of the investigation | 1 |
| Responds appropriately to audience questions | 2 |  |
| Responds to audience questions | 1 |
| **Poster** | | **Group Mark** |
| Succinctly provides a summary of the investigation that includes the purpose of the investigation, a brief outline of the method and conclusions | 4 |  |
| Provides a summary of the investigation that includes the purpose of the investigation, a brief outline of the method and conclusions | 3 |
| Provides a general summary of the investigation that includes the purpose of the investigation, a brief outline of the method and conclusions | 2 |
| Provides a general summary of the investigation | 1 |
| Clearly and concisely presents written information using correct scientific language, conventions and representations | 3 |  |
| Presents written information using some correct scientific language, conventions and representations | 2 |
| Presents written information using correct everyday language and representations | 1 |
| Displays written information that is legible and visible from the required distance | 2 |  |
| Displays written information that is not all legible and/or visible from the required distance | 1 |
| **Total** | | **/15** |