**05 – SCIENCE INQUIRY SKILLS *Learning Intentions***

| **I understand that…** | **I can…** | **Mastery Check** |
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| **5.1 – Methods** | |  |
| **5.1.1** Scientific methods enable systematic investigation to obtain measurable evidence. | 🗹 Deconstruct a problem to determine the most appropriate method for investigation.  🗹 Design investigations, including:   * a hypothesis or inquiry question * types of variables * dependent * independent * factors held constant (how and why they are controlled) * factors that may not be able to be controlled (and why not) * materials required * the procedure to be followed * justification of the most appropriate method * the type and amount of data to be collected * identification of ethical and safety considerations. |  |
| **5.1.2** Obtaining meaningful data depends on conducting investigations using appropriate procedures and safe, ethical working practices. | 🗹 Conduct investigations, including:   * selection and safe use of appropriate materials, apparatus, and equipment * collection of appropriate primary and/or secondary data (numerical, visual, descriptive) * individual and collaborative work. |  |
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| **5.2 – Results** | |  |
| **5.2.1** Results of investigations are represented in a well-organised way to allow them to be interpreted. | 🗹 Represent results of investigations in appropriate ways, including:   * use of appropriate SI units, symbols * construction of appropriately labelled tables * graphs: linear, non-linear, lines of best fit * use of significant figures. |  |
| **5.3 – Scientific Information** | |  |
| **5.3.1** Scientific information can be presented using different types of symbols and representations. | 🗹 Select, use, and interpret appropriate representations, including:   * mathematical relationships, such as ratios * diagrams * equations   to explain concepts, solve problems, and make predictions. |  |
| **5.4 – Analysis of Results** | |  |
| **5.4.1** Analysis of the results of investigations allows them to be interpreted in a meaningful way. | 🗹 Analyse data, including:   * identification and discussion of trends, patterns, and relationships * interpolation/extrapolation where appropriate. |  |
| **5.5 – Critical Evaluation of Procedures** | |  |
| **5.5.1** Critical evaluation of procedures and data can determine the meaningfulness of the results. | 🗹 Identify sources of uncertainty, including:   * random and systematic errors * factors that cannot be controlled.   🗹 Evaluate reliability, accuracy, and validity of results, by discussing factors including:   * sample size * precision (of data/equipment) * random error * systematic error   uncontrolled factors. |  |
| **5.6 – Formulation of Conclusions** | |  |
| **5.6.1** Conclusions can be formulated that relate to the hypothesis or inquiry question. | 🗹 Select and use evidence and scientific understanding to make and justify conclusions.  🗹 Recognise the limitations of conclusions.  🗹 Recognise that the results of some investigations may not lead to definitive conclusions. |  |
| **5.7 – Effective Communication** | |  |
| **5.7.1** Effective scientific communication is clear and concise. | 🗹 Communicate to specific audiences and for specific purposes using:   * appropriate language * terminology   conventions. |  |