**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.
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| **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.
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| **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. |  |