 Working scientifically skills: self-evaluation

Complete the tables below by putting an ‘X’ in cell that is most relevant.

Planning Investigations

| Whilst planning investigations, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Justify the selection of equipment, resources chosen and design of an investigation |  |  |  |
| Ensure all risks are assessed |  |  |  |
| Source appropriate materials and technologies |  |  |  |
| Consider ethical concerns |  |  |  |
| Identify the independent, dependent and controlled variables |  |  |  |
| Ensure a valid procedure is developed that will allow for the reliable collection of data. |  |  |  |
| Develop strategies to ensure controlled variables are kept constant |  |  |  |
| Use an experimental control when appropriate |  |  |  |

Conducting Investigations

| Whilst Conducting Investigations, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Select appropriate equipment |  |  |  |
| Employ safe work practices |  |  |  |
| Ensure that risk assessments are conducted and followed |  |  |  |
| Use appropriate technologies |  |  |  |
| Apply correct waste disposal procedures |  |  |  |
| Methodically collect valid and reliable data |  |  |  |
| Correctly reference any secondary-sourced information |  |  |  |

Processing Data and information

| Whilst Processing Data and information, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Use the most appropriate and meaningful methods and media to organise and analyse data and information sources |  |  |  |
| Use digital technologies and a variety of visual representations as appropriate |  |  |  |
| Process data from primary and secondary sources, including both qualitative and quantitative data and information |  |  |  |

Analysing Data and Information

| Whilst Analysing Data and Information, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Identify trends, patterns and relationships |  |  |  |
| Recognise error, uncertainty and limitations in data |  |  |  |
| Interpret scientific and media texts |  |  |  |
| Evaluate the relevance, accuracy, validity and reliability of primary or secondary-sourced data in relation to investigations |  |  |  |
| Evaluate processes, claims and conclusions by considering the quality of available evidence |  |  |  |
| Use reasoning to construct scientific arguments |  |  |  |
| Use mathematical models to demonstrate trends and relationships that occur in data where appropriate. |  |  |  |

Problem Solving

| Whilst problem solving, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Use critical thinking skills and creativity to demonstrate an understanding of scientific principles underlying the solutions to inquiry questions and problems posed in investigations |  |  |  |
| Use models to qualitatively and quantitatively explain and predict cause-and-effect relationships |  |  |  |
| Synthesise and use evidence to construct and justify conclusions |  |  |  |
| Interpret scientific and media texts |  |  |  |
| Evaluate processes, claims and conclusions |  |  |  |
| Consider the quality of available evidence |  |  |  |

Communicating

| Whilst communicating, students: | Not evident | Developing | Evident |
| --- | --- | --- | --- |
| Focus on clarity and accuracy |  |  |  |
| Use qualitative and quantitative information gained from investigations using primary and secondary sources |  |  |  |
| Use digital, visual, written and/or verbal forms of communication as appropriate |  |  |  |
| Apply appropriate scientific notations and nomenclature |  |  |  |
| Apply and use scientific language that is suitable for specific audiences and contexts |  |  |  |