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| **Scientific Inquiry**  You show that you can plan and carry out an experiment by:   * Stating the problem as a question that can be tested with an experiment. * Stating a reasonable hypothesis and a reason for making it. * Planning how to control variables (those things that you have to keep the same or measure in the experiment) * Writing the method (steps to follow) in such a way that anyone could do the experiment. * Choosing the correct materials to use. * Deciding if your method has given good results or if you need to do the experiment again or change the method and then do it again.  |  |  | | --- | --- | | **Level of**  **Achievement** | Descriptor | | 1-2 | * You have not done any of the things listed below. | | 3-4 | With guidance you:   * **State the problem**, but not in question form. * Write a **simple hypothesis**. No reasoning with it. * **Identify some** of the variables (those things that you have to keep the same or measure in the experiment). * **Plan** a test, but it may not be set up in order to test fairly. * Do not **evaluate** your procedure. | | 5-6 | With guidance you:   * **State the problem** **as a question**, but it may not be testable. * Write a **hypothesis with a reason** for making it. * **Identify** the main **variables** (those things that you have to keep the same or measure in the experiment). * **Plan** **a fair test** with a good method and the right materials. * **Attempt** to **evaluate** your procedure. | | 7-8 | With guidance you:   * **Identify** a problem you wish to investigate and **state it as a question** that can be **tested**. * Write a **good hypothesis** and **give scientific reasons** for making it. * **Identify and plan** to control **several variables** (those things that you have to keep the same or measure in the experiment). **Independent / Dependent** variables are labelled. * **Plan a fair test** with a clear method and the right materials.   **Evaluate your procedure by:**   * Deciding if the results of an experiment are **reasonable** (do they make sense?) and can **explain** any results or measurements that do not seem to fit with the others. * **Suggesting** ways to **improve** the procedures. * **Suggesting** **other experiments** which would allow you to learn more about the experiment you just finished. | |

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| **Data Processing**   * You can organize qualitative data (descriptions in words, such as “the solution turns blue”) in many ways * You can organize quantitative data (numbers, such as “the temperature was 27ºC”) in many ways. * You can make tables, graphs, diagrams, keys, etc…. * You can turn a table into a graph and a graph into a table. * You can read tables, graphs, diagrams, keys, etc…, and use them to make conclusions.  |  |  | | --- | --- | | **Level of**  **Achievement** | Descriptor | | 1-2 | * You have not done any of the things listed below. | | 3-4 | With guidance:   * You can **organize** and present data in **simple tables and graphs**. * You attempt to change data but are not successful or make no attempt. * You can **make an obvious conclusion**. | | 5-6 | With guidance:   * You can **organize** and present data in a correctly constructed table, graph, diagram, key, etc…. * You can **change data correctly** as needed.(calculating averages, turning tables into graphs, building keys, etc…) * You can **make conclusions supported by the data**. * You make some **attempt to explain** your conclusion using science facts and ideas. | | 7-8 | With guidance:   * You can **organize** and present your **data** **logically and clearly** in a correctly constructed table, graph, diagram, key, etc…. * You can **change data in** **many ways** (calculating averages, turning tables into graphs, building keys, using equations, etc…). * You can **explain patterns, trends, or relationships** in your data. * You can **interpret** your data **to make clear conclusions** and **explain** it using **science facts and ideas**. | |