**Inquiry Question 1: How does observation instigate scientific investigation?**

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| Define independent, dependent, and controlled variables. |
| Define accuracy, reliability, and validity. |
| Define observations and inferences, giving an example of each. |
| Outline qualitative and quantitative data and provide an example of each. |
| From the following examples: Archimedes, Fleming or Galileo, describe and explain what they did and how that lead to future named discoveries/technologies. |
| Describe firestick farming and the benefits provided for First Nations peoples. |
| Describe TWO examples of medicinal uses of plants by First Nations people and explain the benefits gained from their usage. Compare how you think their usage was discovered to scientific methodology. |

**Inquiry Question 2: What are the benefits and drawbacks of quantitative and qualitative observations?**

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| Create a method for an experiment with the hypothesis: “If gummy bears are placed in sugar water, salt water and tap water, then the gummy bears will change in size and texture”. |
| Create a Risk Assessment (RIP table) for an experiment with the hypothesis: “If glow sticks are placed in lower temperature water, then they will not glow as bright as glow sticks placed in higher temperature water”. |

**Inquiry Question 3: How does primary data provide evidence for further investigation?**

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| State the variables (IV, DV, CVs) for the exercise vs. heart rate experiment performed in class. Evaluate the accuracy, reliability and validity of your methodology. |
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**Inquiry Question 4: How does the collection and presentation of primary data affect the outcome of a scientific investigation?**

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| State four of the common types of graphs produced in science reporting. |
| State the variables used in each of the above examples for both the x- and y-axes. |
| Explain the main benefit from creating a graph from tabulated data. |

**Inquiry Question 5: How do conclusions drawn from the interpretation of primary data promote further scientific investigation?**

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| For the following experiments we have completed, outline TWO experiments you could perform to expand upon the scientific knowledge gained:   1. Exercise types / heart rate 2. Gummy bear / liquid solutions 3. Alka-Seltzer / surface area 4. Glow sticks / temperature |
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