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| **iLearn BI 101**  **Report** | **Scientific Inquiry Assessment:**  **Sex and the Single Guppy** | Name: |

Record your answers to the corresponding questions in the Scientific Inquiry Assessment Procedures. To fill in your answers to each question, click on the grey text box and begin typing. When completed, submit this document through the assignment submission page on the Canvas course website.

1. Your **observations**:

1. Develop a **hypothesis**:

1. Formulate a **prediction statement**:

1. Identify your **dependent variable**:

1. Identify your **independent variable**:

1. Explain your **control** group:

1. For each group you plan to include in your experiment, including your control, enter the settings needed for that group in the left side of each of the tables below. Since the number of experimental groups will depend on the details of your experiment, you may or may not use all the tables below.

**Control Data Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Control  Record your settings below | |  | Starting Population | End Population |
| Brightest Males | % | % |
| Guppy Color |  | Bright Males | % | % |
| Predator Species |  | Drab Males | % | % |
| Number of Generations |  | Drabbest Males | % | % |

**Experimental Data Tables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experimental Group 1  Record your settings below | |  | Starting Population | End Population |
| Brightest Males | % | % |
| Guppy Color |  | Bright Males | % | % |
| Predator Species |  | Drab Males | % | % |
| Number of Generations |  | Drabbest Males | % | % |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experimental Group 2  Record your settings below | |  | Starting Population | End Population |
| Brightest Males | % | % |
| Guppy Color |  | Bright Males | % | % |
| Predator Species |  | Drab Males | % | % |
| Number of Generations |  | Drabbest Males | % | % |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experimental Group 4  Record your settings below | |  | Starting Population | End Population |
| Brightest Males | % | % |
| Guppy Color |  | Bright Males | % | % |
| Predator Species |  | Drab Males | % | % |
| Number of Generations |  | Drabbest Males | % | % |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Experimental Group 3  Record your settings below | |  | Starting Population | End Population |
| Brightest Males | % | % |
| Guppy Color |  | Bright Males | % | % |
| Predator Species |  | Drab Males | % | % |
| Number of Generations |  | Drabbest Males | % | % |

1. Do you feel you verified or disproved your hypothesis? Explain your reasoning, drawing on your data to explain your thought process.

1. Although you were only required to create one control group, positive and negative controls can increase the robustness of your conclusions. Does your hypothesis allow a positive and negative control group to include in the experiment? Explain why or why not.

1. Repetition is an important step in the scientific process. Discuss how increasing the number of times you run each simulation might influence the results of your experiment. What influence would repetition have on your data and validity of your conclusions?

1. Discuss some inherent flaws/limitations that this simulation has. What improvements could you suggest to more accurately answer the question of causes to guppy color?

1. What did you learn about prey-predator interactions and sexual selection in this activity? Explain how these types of interactions can have such dramatic control over guppy populations.