**Investigation Planning Sheet**

**1. PLANNING**

**1.1 Aim**

What are you trying to find out? What problem are you trying to solve?

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**1.2 Variables**

You can only change one variable at a time and measure its effect. Select the variable that you would like to investigate. The rest of the variables must be kept the same.

**Change (Independent)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Measure (Dependent)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Keep the Same (Controlled)** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**1.3 Hypothesis**

A statement about what you think will happen. This statement needs to link the independent and dependent variables.

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**2. CONDUCTING AND RECORDING**

**2.1 Equipment**

Write a list of all the equipment you will need to conduct your experiment.

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**2.2 Method**

Design a method by which you can slowly change one variable and measure its effect on the other.

1. Using sticky tape, seal one petri dish without opening it. Label this underneath of the dish with the word “control” and the date.
2. Rub the cotton bud over the first surface to be sampled for 10 seconds.
3. Open the petri dish and gently wipe the cotton bud over the surface of the agar gel in the petri dish in a zig-zag pattern.
4. Close the petri dish and seal with sticky tape.
5. Label the underneath of the petri dish with the location swabbed and the date.
6. Repeat steps 2 to 6 for all locations.
7. Once all samples are taken, place petri dishes upside down in a white tray and leave for a few days.
8. Record your results in a table.

**2.3 Results**

Construct a table so that you can record the changes in the variables.

**3. ANALYSING**

**3.1 Graphing**

Draw a graph of your results. Use the following rules to determine which type of graph to construct. Remember to use a **line of best fit** if you are constructing a line graph.

|  |  |  |
| --- | --- | --- |
| **Independent Data** | **Dependent Data** | **Type of Graph** |
| Data is continuous (eg. time) | Data is continuous (eg. height) | Scatter graph |
| Data is in categories (eg. eye colour) | Data is numerical (eg. number of people) | Column graph |

**3.2 Analysing Your Results**

Do your results support your hypothesis or not?

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Explain **how** you used your results to come to your conclusion above.

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**4. EVALUATION**

**4.1 Errors**

What are the possible sources of error in your investigation?

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How might these sources of error affect your data?

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**4.2 Improving Your Investigation**

What changes would you make to your investigation to improve your results?

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How would these changes improve the reliability of the results?

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**5. REPORT**

You need to write a report of your experiment. Your report should include the following:

**Aim:** What is the aim or purpose of your investigation?

**Hypothesis:** Your prediction in the form of a statement. This needs to link your independent and dependent variables.

**Equipment:** A list of all the equipment you used in your investigation.

**Diagram of Equipment:** A labelled diagram of how you set up your equipment to conduct your investigation.

**Method:** A list of the steps you went through to conduct your investigation.

**Results:** The results of your investigation presented in both a table and a graph.

**Discussion (three short paragraphs):**

Paragraph 1: Comment on whether your results supported your hypothesis

Paragraph 2: What were the possible sources of error in the investigation

Paragraph 3: What you could do to improve your investigation

**Conclusion:** Short statement to sum up your experiment.