

• **Preliminary Research / Introduction**

1. What is a force and how do you represent forces in a diagram?

Information from book source

Information from internet source

Reference:

Reference:

2. What units are used to measure force?

Reference:

3. What instrument/s can be used to measure forces? (Include a picture and an explanation of their use ie. How does it work)

Reference:

4. What is friction? Identify some everyday situations where friction acts and state whether the friction is wanted or unwanted.

Reference:

Reference:

For a book: Author, (Year of Publication), Title of book, Location, Publisher.

For an Internet site: Author (date last modified), Title, URL, Date accessed.

- **Aim**

To determine if.....

- **Hypothesis**

That.....

- **Materials**

- **Variables**

Controlled (These are kept the same)
Independent (I change these)
Dependent (I measure these)

- **Risk Assessment**

Risk	Injury	Prevention

- **Method**

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Diagram

- **Validity, Reliability and Accuracy**

My experiment is valid because.....

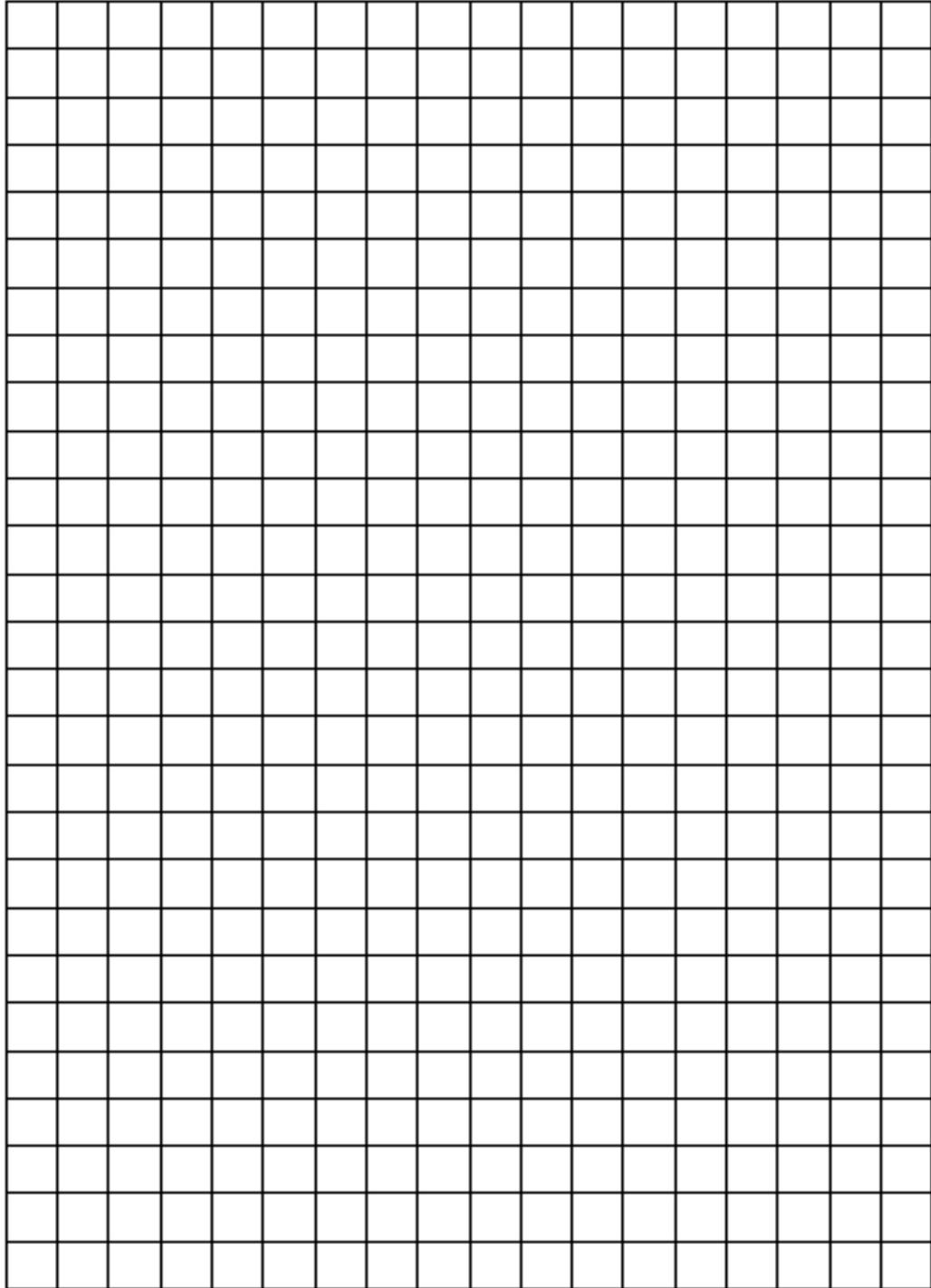
My experiment is reliable because.....

My experiment is accurate because.....

- **Results**

Table

Graph (remember the rules for drawing a graph)



- **Discussion**

Include the following information:

- A brief description of what you did
- State the findings, as shown in the results (describe your results in words and explain what they mean – use the information you have researched to explain the results)
- An explanation of any unusual results
- State whether or not your results supported your hypothesis
- Identify any issues or problems you faced conducting your experiment
- Explain if and how these issues may have affected your results
- Suggest ways to avoid the issue in the future

Suggested sentence starters/ joiners/ word bank:

In this experiment a wooden block was.....It was found that.....The results of the experiment show that.....Therefore.....This may be due to.....This can be explained by.....may be because.....however.....this suggests that.....as shown..... as a result of.....

- **Conclusion**

Address your aim and state if your results supported your hypothesis

- **Bibliography**

Outcomes:

PW1 Change to an object's motion is caused by unbalanced forces acting on the object.

- a. Identify changes that take place when particular forces are acting
- b. Predict the effect of unbalanced forces acting in everyday situations.
- d. Analyse some everyday common situations where friction operates to oppose motion and produce heat.
- e. Investigate some factors that influence the size and effect of frictional forces.

WS4 Students question and predict by:

- b. Making predictions based on scientific knowledge and their own observations.

WS5.2 Students plan first-hand investigations by:

- b. outlining a logical procedure for undertaking a range of investigations to collect valid first-hand data, including fair tests.
- c. identifying in fair tests, variables to be controlled (held constant), measured and changed.

WS6 Students conduct investigations by:

- d. following the planned procedure, including in fair tests, measuring and controlling variables
- e. recording observations and measurements accurately, using appropriate units for physical quantities

WS7.1 Students process data and information by:

- b. Using a range of representations to organise data, including graphs, keys, models, diagrams, tables and spreadsheets.
- d. Accessing information from a range of sources, including digital technologies.
- e. Applying simple numerical procedures, eg calculating means when processing data and information, as appropriate.

WS7.2 Students analyse data and information by:

- d. Using scientific understanding to identify relationships and draw conclusions based on student's data or secondary sources.
- f. Reflecting on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected.

WS8 Students solve problems by:

- d. using cause and effect relationships to explain ideas and findings

WS9 Students communicate by:

- a. presenting ideas, findings and solutions to problems using scientific language and representations using digital technologies as appropriate.
- b. Using appropriate text types in presentations, including a discussion, explanation, exposition, procedure and recount.
- c. Using a recognised method to acknowledge sources of data and information.
- d. Constructing and using a range of representations to honestly, clearly and/ or succinctly present data and information, including diagrams, keys, models, tables, drawings, images, flowcharts, spreadsheets and databases
- e. Constructing and using the appropriate type of graph (histogram, column, sector or line graph) to express relationships clearly and succinctly, employing digital technologies as appropriate.