

# Science (Chapter 1)

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1. Science is a study of natural phenomena and its environment
2. Science is ever expanding, so there are always new things to discover and new things to learn
3. Scientific investigation follows strict order known as Scientific method
4. Hypothesis is a pre judgment before conducting an experiment
5. Conclusion is the final say about the hypothesis whether it can be accepted or not
6. A scientist must have correct scientific attitudes and noble values
7. Scientist must be
  - Humble, patient and hardworking
  - Systematic in his investigation
  - Able to identify a problem; form a hypothesis and plan an investigation
  - Able to think critically and rationally
  - Responsible and mindful of the consequences of his work



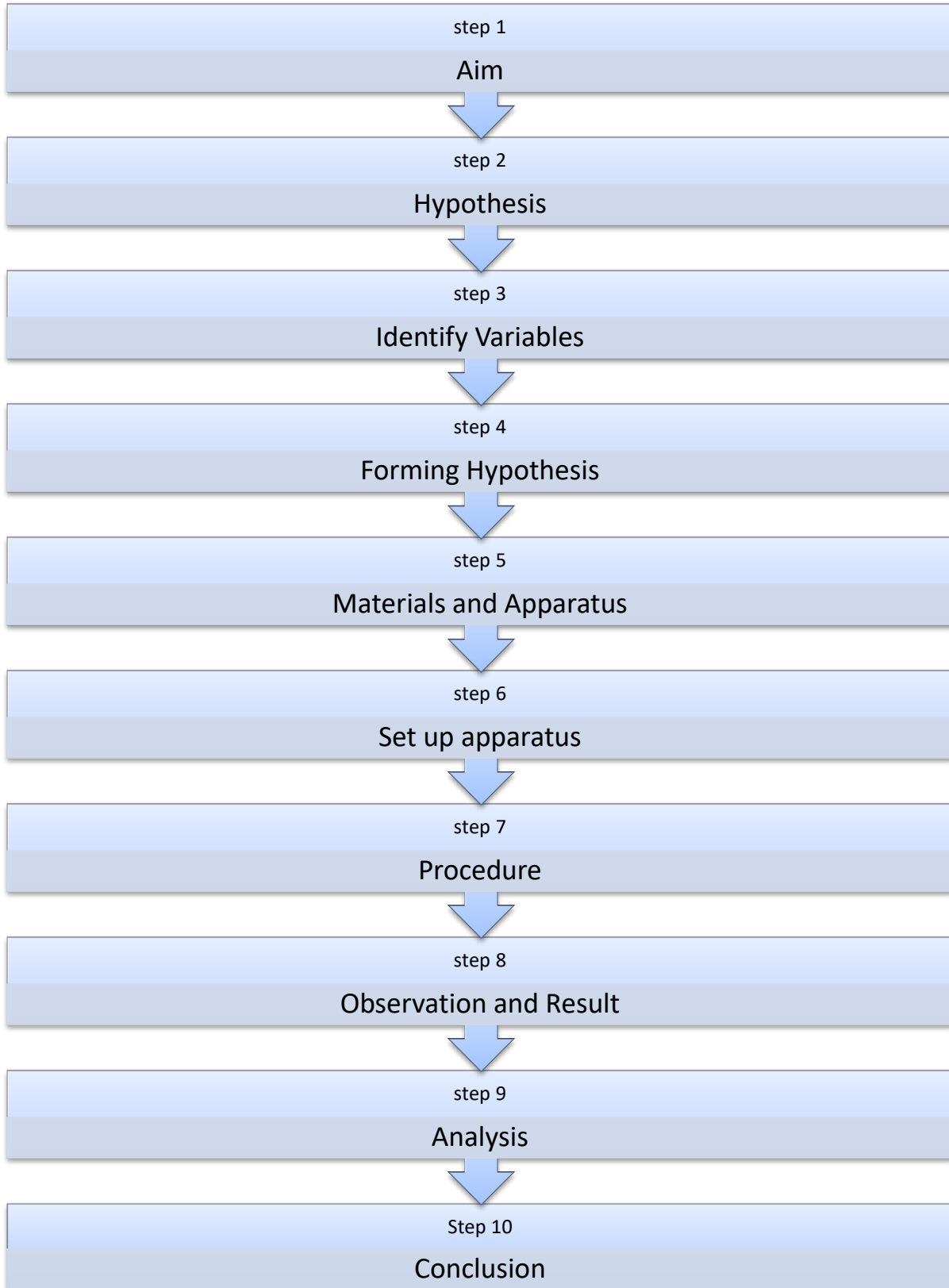
## Scientific Investigation

### STEPS IN SCIENTIFIC INVESTIGATION



## STEPS IN WRITING A REPORT

### Experimental procedure:



# Simple Pendulum Experiment

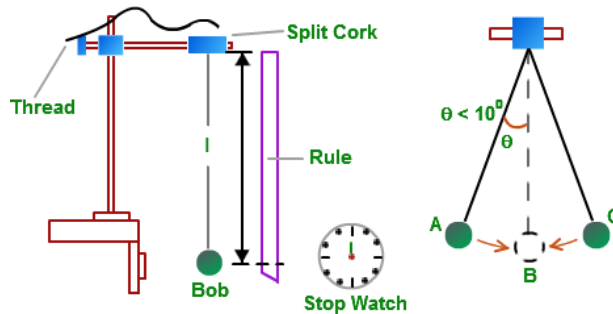
Title: Simple Pendulum Experiment

Inference: The length of the string increases the period of one oscillation

Hypothesis: The longer the length of the string, the longer the period of oscillation

Material / Apparatus : Stop watch, Pendulum, String , Retort Stand, Split Cork, metal bob

- Construct the pendulum apparatus as shown in the figure. A bob was suspended on a thread and it is clamped on a stand.
- Set the length of the thread as 1m and oscillate the bob freely.
- Note down the time taken for 20 oscillations.
- Then find out the period using the formula.
- Repeat the experiment for different length of the thread such as 90 cm, 80 cm, 70 cm etc.



## Calculations:

Length of the Thread l (cm)	Time taken for 20 Oscillations in seconds			Period of Oscillation T in second
	t <sub>1</sub>	t <sub>2</sub>	Average t	
100				
90				
80				
.....				

## Conclusion:

Hypothesis is accepted. The longer the length of pendulum, the longer the period of oscillation

# Important Keynote

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1. Science is a study of environment and natural phenomena
2. Scientific knowledge is all about discovering new things
3. Scientific method needs patience, through investigation, correct, interpretation of results and formation of rational conclusion.

Characteristics of Scientist must be

- a) Humble patient and hardworking
- b) Systematic in his investigation
- c) Able to identify a problem to form hypothesis and plan investigation
- d) Able to think critically and rationally
- e) Responsible and mindful of the consequences

Question:

1. What is Science?
2. What are variables in investigation?
3. What is Responding Variable?
4. What are the characteristics of scientist?
5. Why must scientist have patience in investigation?
6. Give 3 examples of discovery result from observation?
7. What is Hypothesis?
8. How do scientist form conclusion base on the experiment ?

# Scientific Investigation

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Study Outcome: To be able to tabulate a sample report/experiment

How moisture does affect the distribution of woodlice?

**Problem:** More woodlice appear on moist air compared to dry air

**Hypothesis:** Woodlice prefers moist condition compared to dry condition

**Aim:** To investigate the relationship between condition of the soil and the distribution of woodlice

**Variables:**

Constant variable: Woodlice

Manipulated Variable: Type of soil

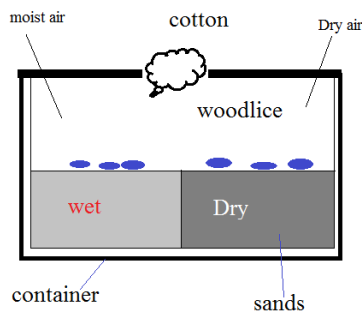
Responding Variable: Woodlice

Apparatus: Plastic container

Materials: Moist soil, dry soil, woodlice, cotton



**Procedure:**



1. Apparatus is set up base on the diagram above
2. Woodlice are place in the plastic container evenly.
3. The reading of woodlice is taken after one hour.

**Observation:**

All the woodlice concentrate on the wet/ moist sands

**Analysis:**

1. Woodlice prefers moist area because it prevents dehydration
2. Moist sands creates moist surrounding air while dry sands creates dry surrounding air

**Conclusion:**

Woodlice prefers to live in moist environment

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