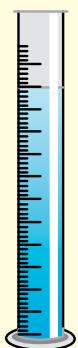


Radas Makmal



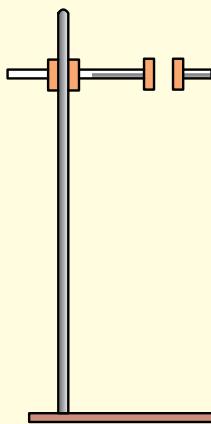
Silinder penyukat



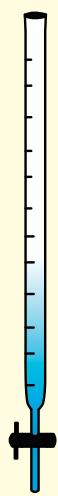
Kelalang kon



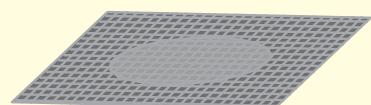
Tabung didih



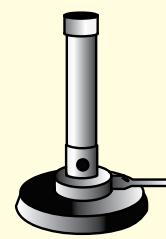
Kaki retort



Buret



Kasa dawai

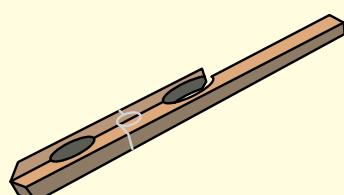


Penunu Bunsen

Simbol-simbol amaran	
	Mudah meletup
	Mudah terbakar
	Mengakis
	Toksik / Racun
	Radioaktif
	Merengsa



Tungku kaki tiga



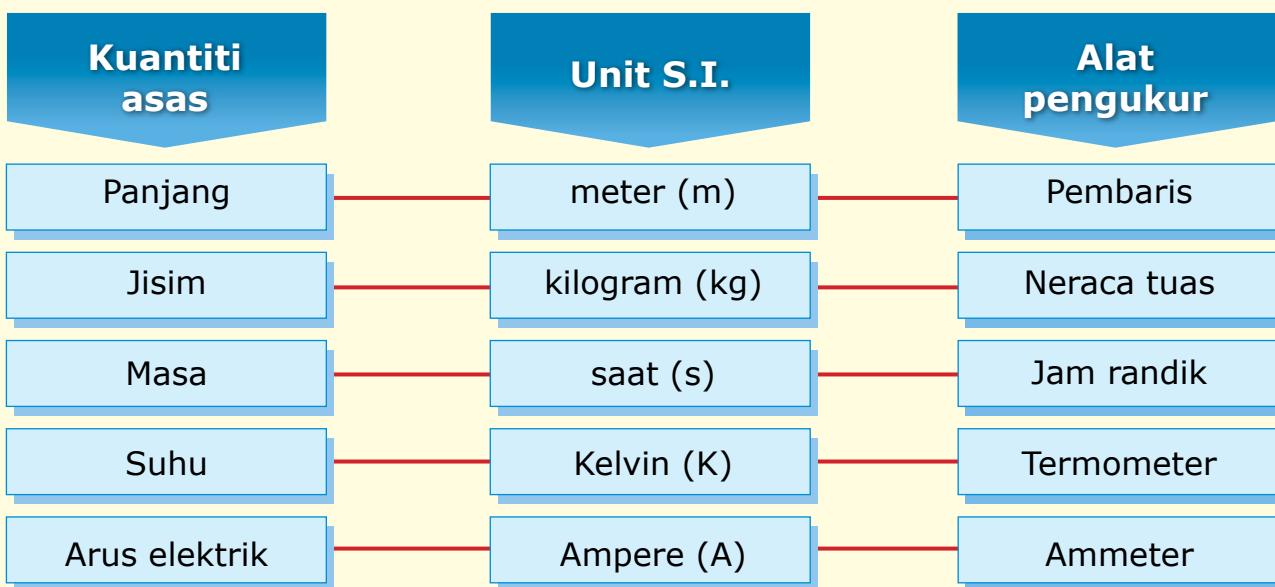
Pemegang tabung uji



Pipet



Kuantiti Asas



Imbuhan awalan

Imbuhan	Simbol	Nilai dalam bentuk piawai
giga	G	1×10^9
mega	M	1×10^6
kilo	k	1×10^3
desi	d	1×10^{-1}

Imbuhan	Simbol	Nilai dalam bentuk piawai
senti	c	1×10^{-2}
mini	m	1×10^{-3}
mikro	μ	1×10^{-6}
nano	n	1×10^{-9}

Ralat sistematik dan ralat rawak

Ralat

Ralat sistematik

Ralat sifar

Alat pengukur yang tidak jitu

Ralat rawak

Salah teknik

Ralat paralaks

Kecuaian pemerhati



Langkah-langkah dalam Penyiasatan Saintifik

Lampu-lampu yang tergantung pada wayar berayun dengan kadar yang berlainan apabila ditiup angin.

Panjang wayar mempengaruhi kadar ayunan lampu-lampu itu.

Membuat pemerhatian

Mengenal pasti masalah

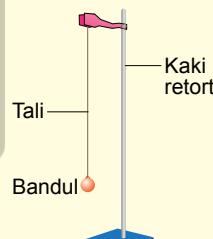
Membuat inferens



Apakah faktor-faktor yang mempengaruhi kadar ayunan?

Merancang eksperimen

- Menyediakan bahan dan radas yang diperlukan
- Menentukan prosedur



Membentuk hipotesis

Mengenal pasti pemboleh ubah:

- Pemboleh ubah dimanipulasikan
- Pemboleh ubah bergerak balas
- Pemboleh ubah dimalarkan

Panjang wayar
Tempoh ayunan
Jisim

Semakin panjang wayar, semakin panjang tempoh ayunan.

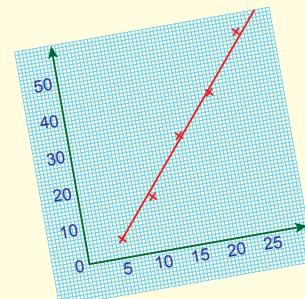
Menjalankan eksperimen

- Mengawal pemboleh ubah
- Mengumpul data



Analisis dan interpretasi data

- Menganalisis data
- Mempersempahkan data dalam bentuk graf, jadual atau lain-lain

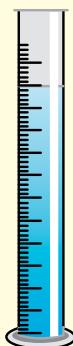


Membuat kesimpulan

Menulis laporan



Laboratory Apparatus



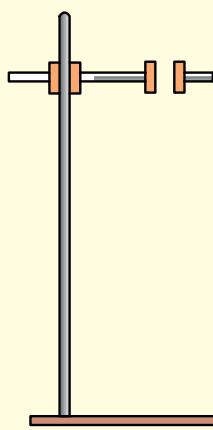
Measuring cylinder



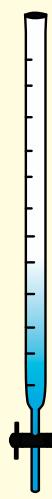
Conical flask



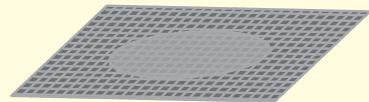
Boiling tube



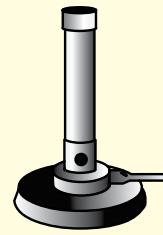
Retort stand



Burette



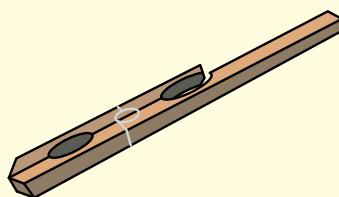
Wire gauze



Bunsen burner



Tripod stand



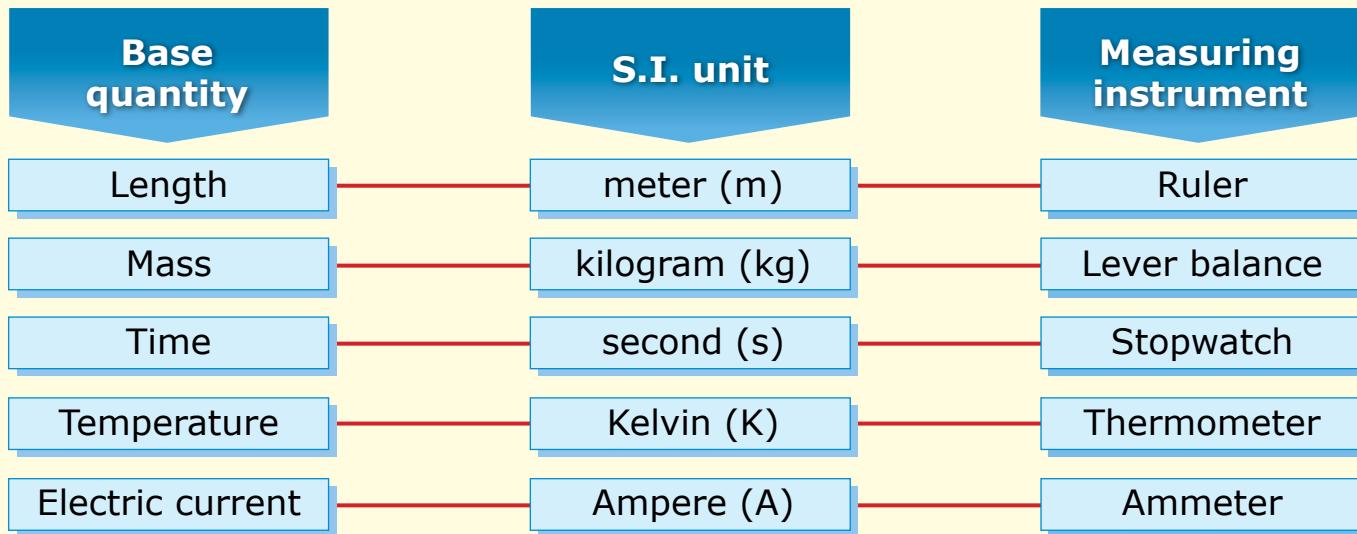
Test tube holder



Pipette

Hazard symbols	
A bomb exploding.	Explosive
A flame.	Flammable
A hand being washed by water.	Corrosive
A skull and crossbones.	Toxic / Poison
Three black triangles pointing outwards from a central circle.	Radioactive
A large black 'X' on a yellow background.	Irritant

Base Quantities



Prefixes

Prefix	Symbol	Standard form	Prefix	Symbol	Standard form
giga	G	1×10^9	centi	c	1×10^{-2}
mega	M	1×10^6	milli	m	1×10^{-3}
kilo	k	1×10^3	micro	μ	1×10^{-6}
deci	d	1×10^{-1}	nano	n	1×10^{-9}

Systematic errors and random errors

Errors

Systematic errors

Zero error

Inaccurate measuring instrument

Random errors

Wrong technique

Parallax error

Carelessness of observer



Steps in Scientific Investigation

Light bulbs suspended from wires swing at different rates when they are blown by wind.

Making an observation

Identify a problem

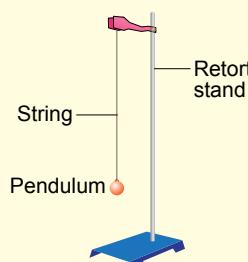
Making an inference



The length of the wires affect the rate of swinging of the light bulbs.

Planning an experiment

- Prepare materials and apparatus
- Determine procedure



Making a hypothesis

Identify the variables

- Manipulated variable
- Responding variable
- Constant variable

Length of wire

Period of swinging

Mass of light bulb

Semakin panjang wayar, semakin panjang tempoh ayunan.

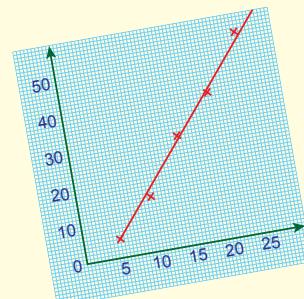
Conducting an experiment

- Control variables
- Collect data



Analyse and interpret data

- Analyse data
- Present data in the form of graphs, tables or others



Making a conclusion

Writing a report

