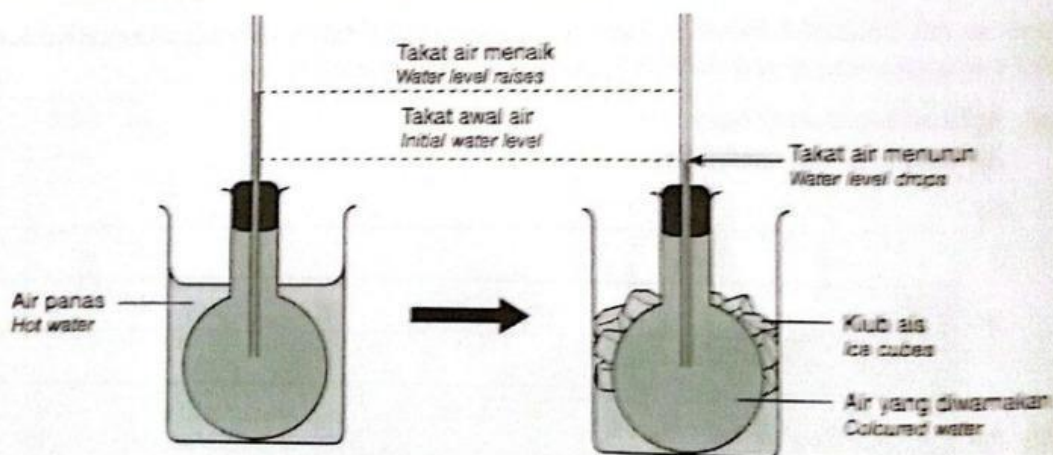


1. Nyatakan sama ada pernyataan di bawah **BETUL** atau **PALSU**. **TP 2**
State whether the statements below are **TRUE** or **FALSE**.

- (a) Apabila dipanaskan, zarah-zarah pepejal bergetar dengan lebih cepat dan semakin menjauh. Hal ini menjadikan isi padu pepejal bertambah.
When heated, the particles of a solid vibrate more vigorously and move further apart. This makes the volume of the solid increases.
- (b) Gas mengembang apabila dipanaskan kerana zarah-zarahnya bergerak dengan semakin pantas dan menjauh.
A gas expands when heated because its particles moves faster and further apart.
- (c) Ruang-ruang kecil di atas landasan keretapi berfungsi untuk mengelakkan landasan dari membengkok dan bertindih semasa hari panas.
The small gaps on the railway track are there to prevent the tracks from bending and overlapping during hot days.
- (d) Kabel telefon dipasang sedikit kendur supaya tidak mudah putus apabila hari terlalu panas.
Telephone cables are hung loosely to prevent snapping during hot days.

2. Rajah 1 menunjukkan sebuah eksperimen untuk mengkaji pengembangan dan pengecutan cecair.
Diagram 1 shows an experiment to investigate on the expansion and contraction of liquid.



Rajah 1 / Diagram 1

- (a) Apabila air panas dimasukkan ke dalam bikar kaca, takat air di dalam kelalang mula menaik. Jelaskan perubahan yang berlaku. **TP 4**
When hot water is poured into the glass beaker, the water level in the flask starts to rise. Explain the changes that takes place.

The water level in the flask rises because when water is , its particles vibrate more vigorously and move further from each other. This causes the water to and its volume .

expand

apart

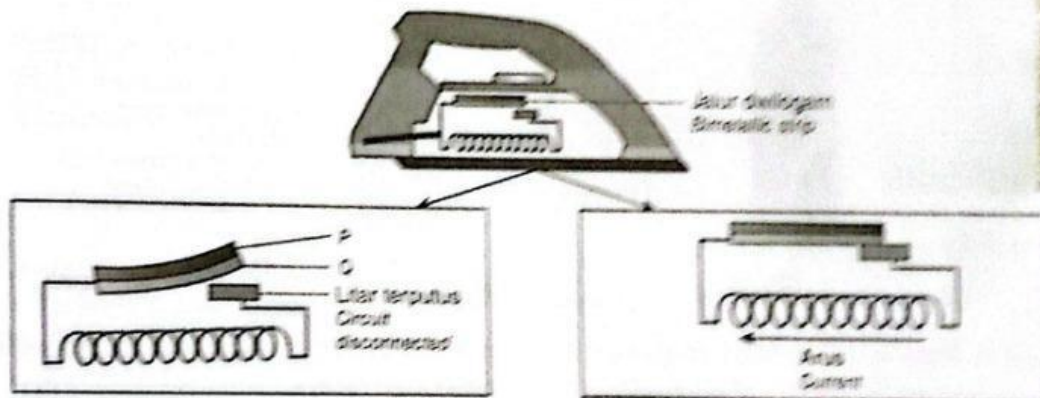
heated

increases

- (b) Apabila ketulan ais dimasukkan ke dalam bikat kaca, selepas beberapa ketika takat air di dalam kelalang menurun ke takat awal. Jelaskan perubahan yang berlaku. **ANS 1**
 When ice cubes are poured into the glass beaker, after a while, the water level in the flask drops to the initial level. Explain the changes that take place. **ANS 1**

The water level in the flask drops to the initial level because, when the water particles vibrate more slowly and move closer to each other. This causes water to contract and volume decreases.

3. Rajah 2 menunjukkan termostat dalam sebuah seterika elektrik.
 Diagram 2 shows a thermostat in an electric iron.



Rajah 2 / Diagram 2

- (a) Huraikan fungsi termostat apabila seterika menjadi terlalu panas. **ANS 1**
 Describe the function of the thermostat when the iron becomes too hot. **ANS 1**

A thermostat helps to regulate temperature. When the iron is too hot, the bimetallic strip will expand and bend away from the contact, and result the circuit breaks.

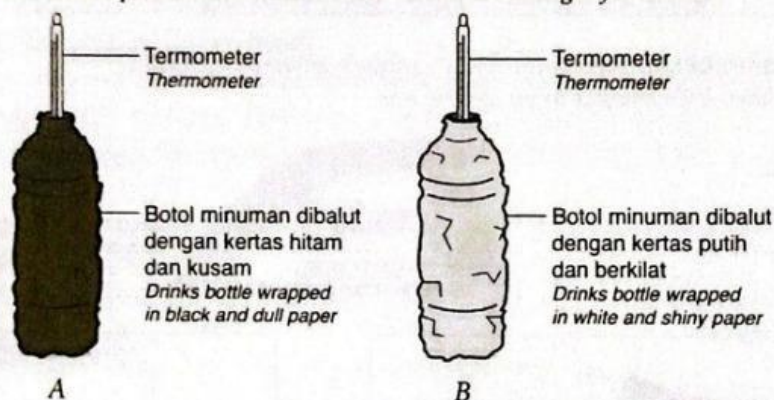
- (b) Antara logam P dan Q, yang manakah akan mengembang dengan lebih banyak apabila suhu meningkat? **ANS 2**
 Between P and Q, which is going to expand more when the temperature increases?

- (c) Cadangkan dua jenis logam yang sesuai untuk P dan Q. Nyatakan alasan anda. **ANS 1**
 Suggest two metals that are suitable for P and Q. State your reason. **ANS 1**

P is iron dan Q is brass
 Because brass expands more than iron.

1. Rajah 1 berikut menunjukkan dua biji botol minuman soda yang diletakkan termometer dan diisi dengan isi padu air yang sama. Botol A dibalut dengan kertas hitam kusam, manakala botol B dibalut dengan kertas putih berkilat. Kedua-dua botol diletakkan bersebelahan di bawah cahaya matahari selama satu jam.

Diagram 1 shows two soda bottles that are equipped with a thermometer each and filled up with the same volume of water. Bottle A is wrapped with a black and dull paper, while bottle B is wrapped in a white and shiny paper. Both bottles are placed next to each other under the sunlight for an hour.



Rajah 1 / Diagram 1

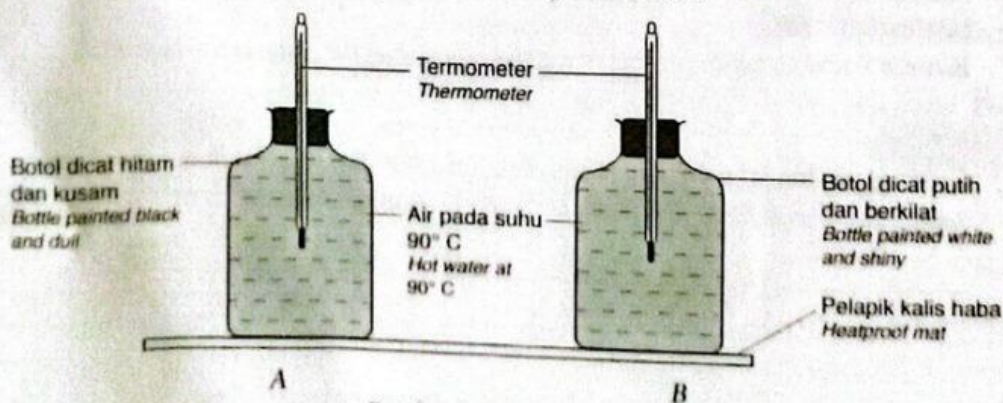
- (a) Selepas satu jam, botol yang manakah mencatat bacaan suhu yang lebih tinggi? **TP 3**
After an hour, which bottle recorded a higher temperature reading?

- (b) Berikan satu sebab bagi jawapan anda di 1(a). **TP 2**
Give a reason for your answer in 1(a).

A dark and dull surface absorbs heat than a bright and shiny surface.

2. Amin menjalankan eksperimen seperti Rajah 2. Suhu air diambil setiap 5 minit untuk mengkaji kadar pembebasan haba oleh kedua-dua botol.

Amin conducted an experiment as shown in Diagram 2. The temperature of water is measured in the intervals of every 5 minutes to investigate the rate of heat released by both bottles.



Rajah 2 / Diagram 2

- (a) Nyatakan tiga pemboleh ubah yang dimalarkan dalam eksperimen ini. **IP 1**

State the three constant variables in this experiment.

Volume of hot water, _____ of hot water and _____ of the bottle
_____ size _____ temperature

- (b) Botol yang manakah akan mengalami penurunan suhu dengan lebih cepat? Apakah inferens yang dapat dibuat daripada pemerhatian ini? **IP 4**

Which bottle will undergo reduction in temperature faster? What is the inference that can be deduced from this observation? **KBAT Menganalisis**

A black and dull object releases heat _____ than a white shiny object.

- (c) Apakah cara pengaliran haba yang menyebabkan suhu air menurun selepas beberapa ketika? **IP 4**

What is the method of heat flowing that causes the temperature of the water to drop after a while? **KBAT Menganalisis**

- (d) Apakah kepentingan pelapik kalis haba dalam eksperimen ini? **IP 2**

What is the importance of the heatproof mat in this experiment?

The heatproof mat is used to _____ heat from the hot water from _____ to the table top and _____ it.

_____ flowing _____ prevent _____ damaging

3. Berikan tiga konsep bangunan hijau. **IP 1**

Give three concepts for green building.

- Have an _____ system for water, ventilation and lighting
- Have _____ energy efficiency by using solar or other renewable energy
- Using _____ products.

_____ high _____ recycled _____ effective