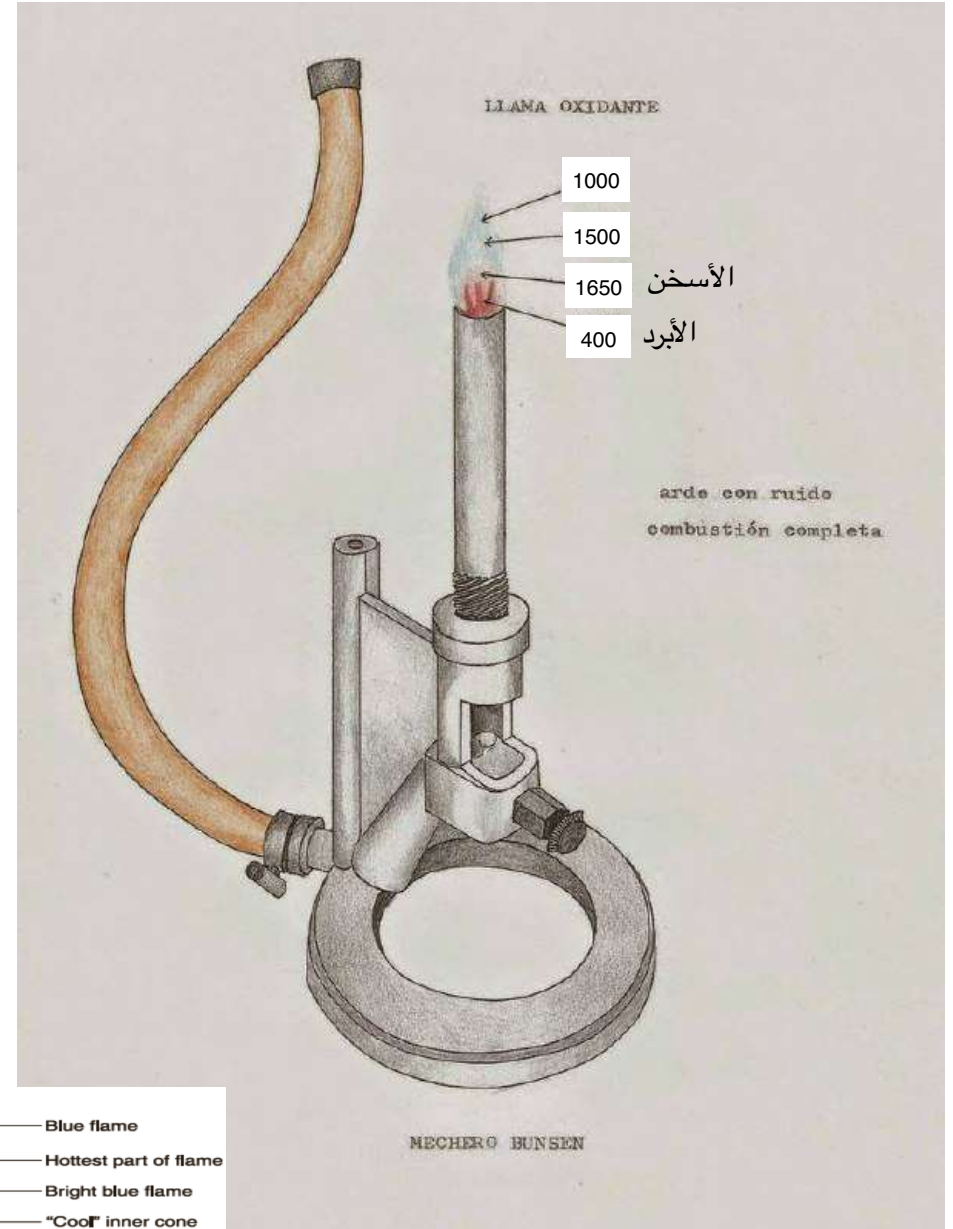
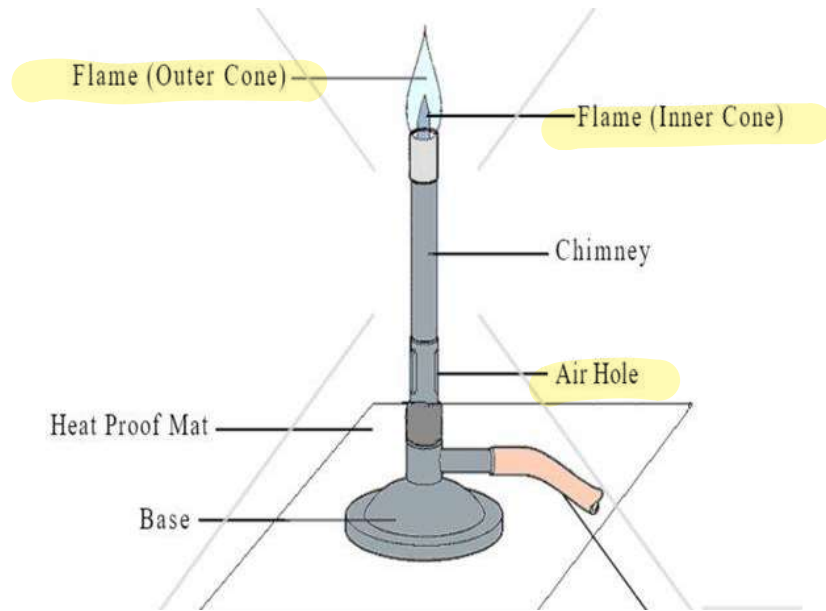


1- Bunsen Burner

استخدامه او الهدف منه

An important piece of equipment used for heating in the lab.

Can be very dangerous if care is not taken.



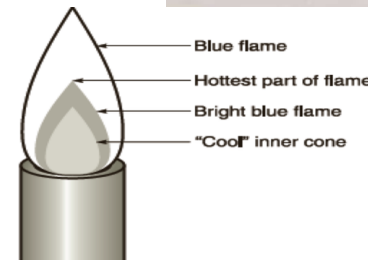
*

Bunsen flame has **3 distinct cones (zones)**: outer cone, inner cone (the hottest part of the flame, about 1600°C) and base cone.

1. 2.

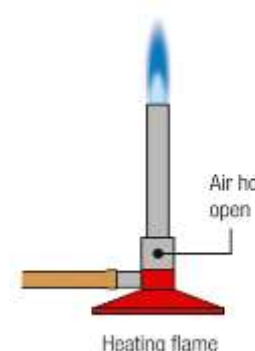
3.

عدد هم 3



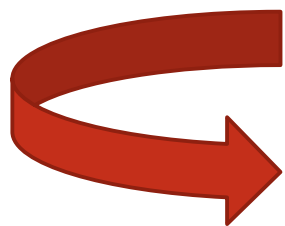


Important

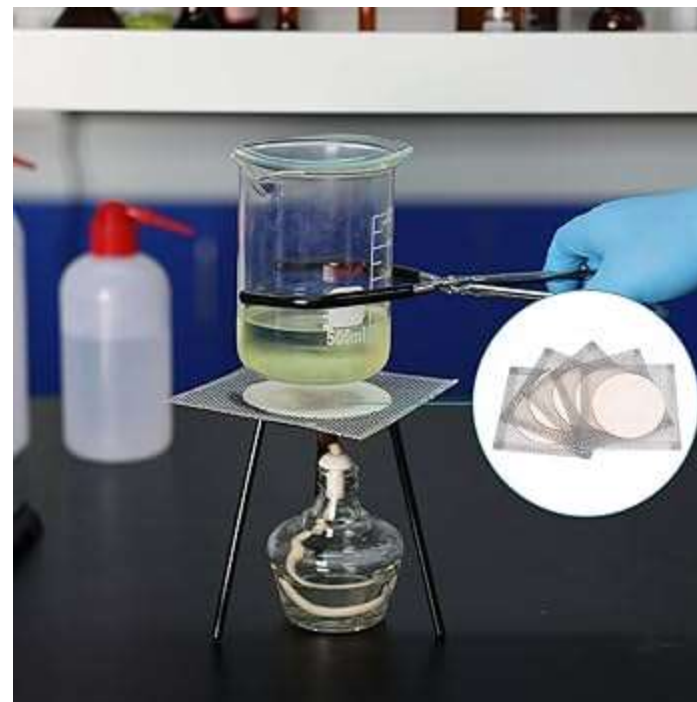


Yellow flame	Blue flame
Air hole <u>closed</u>	Air hole <u>open</u>
Safety Flame شعلة امانة	Heating Flame شعلة للتسخين
Relatively Cool	Relatively Hot
Dirty Flame شعلة غير نظيفة	Clean Flame شعلة نظيفة
Highly Visible مرئية	Difficult to see صعوبة في رؤيتها
Luminous متوهجة	non-luminous غير متوهجة
Incomplete combustion احتراق غير كامل	Complete combustion احتراق كامل
<u>insufficient oxygen supply</u> الأكسجين كافي	<u>sufficient oxygen supply</u> الأكسجين غير كافي
$\text{CH}_4(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + \text{CO}(\text{g, toxic,}) + \text{C}(\text{carbon particles, smoke}) + \text{H}_2\text{O}(\text{g})$	$\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \text{Energy}$
المعادلات مهمة جدا	

wire gauze

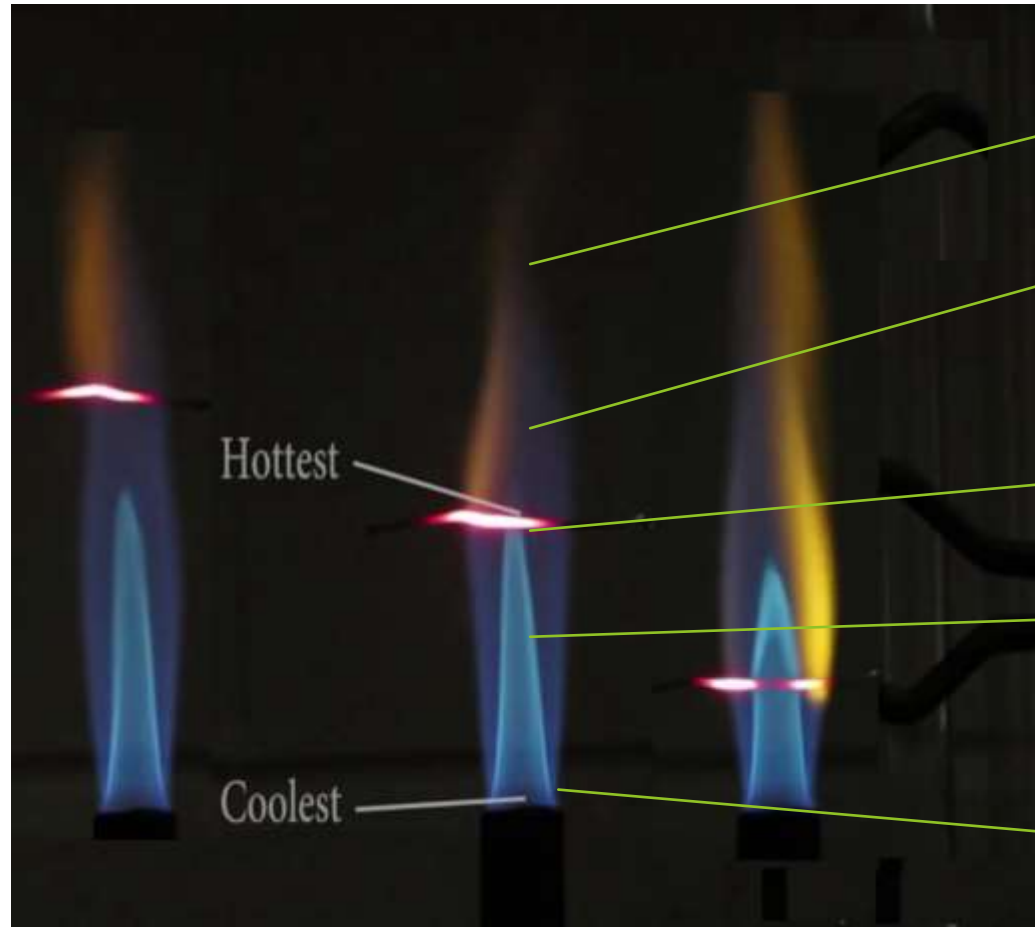


To distribute the heat



Parts of a flame

مهم تميزوا مين أسخن شعلة وموقعها وأبرد منطقة وموقعها



Top of the flame ($\sim 1000\text{ }^{\circ}\text{C}$)

Between top of the flame and inner core ($\sim 1500\text{ }^{\circ}\text{C}$)

Top of inner core ($\sim 1650\text{ }^{\circ}\text{C}$)

Region of intense combustion

Within the inner core ($\sim 400\text{ }^{\circ}\text{C}$)
(Unburnt gas and air)

2- Lab Balances



Triple-beam: manual

sensitivity: ± 0.01 g



Top-loading balances

sensitivity: ± 0.01 or ± 0.001 g

تم استخدامه في التجارب التالية جميعها



Analytical balances

**sensitivity: ± 0.0001 or
 ± 0.00001 g**

more delicate and accurate
الأدق

3- Density is a specific property of matter that is related to the mass divided by the volume

$$D = \frac{m}{V}$$

*Intensive
property*

($\frac{g}{ml}$ for liquids or $\frac{g}{cm^3}$ for solids)

Intensive property (خاصية غير كمية)

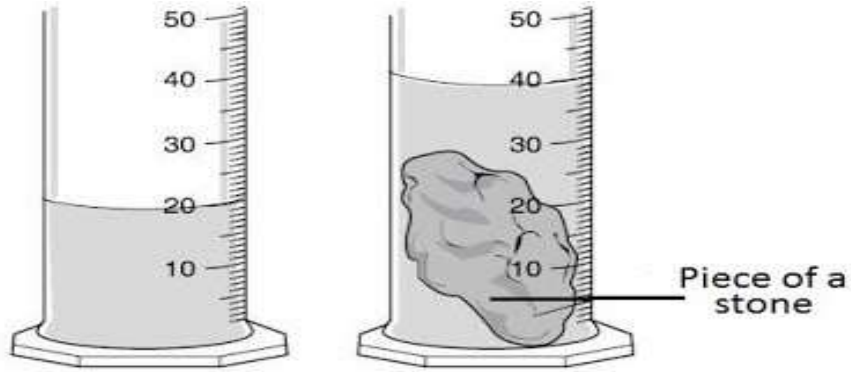
extensive properties (خاصية كمية)

property independent of sample size

property dependent of sample size and amount

Density, color, temperature, pressure,

Mass, volume, energy, length, weight,



How to calculate the volume of an irregular shaped solid object (a stone)

كيف أخذنا الكثافة لشكل غير منتظم

باستخدام ال Graduated cylinder

أخذنا حجم معين من السائل (الماء) وتم تسجيله

ثم وضعنا القطعة الصلبة داخل ال Graduated cylinder وتم أخذ القياس الجديد

ثم حصل طرحهم وهكذا حصلنا على الحجم volume

how to read the meniscus.

كيف نقرأ سطح التقعر؟

