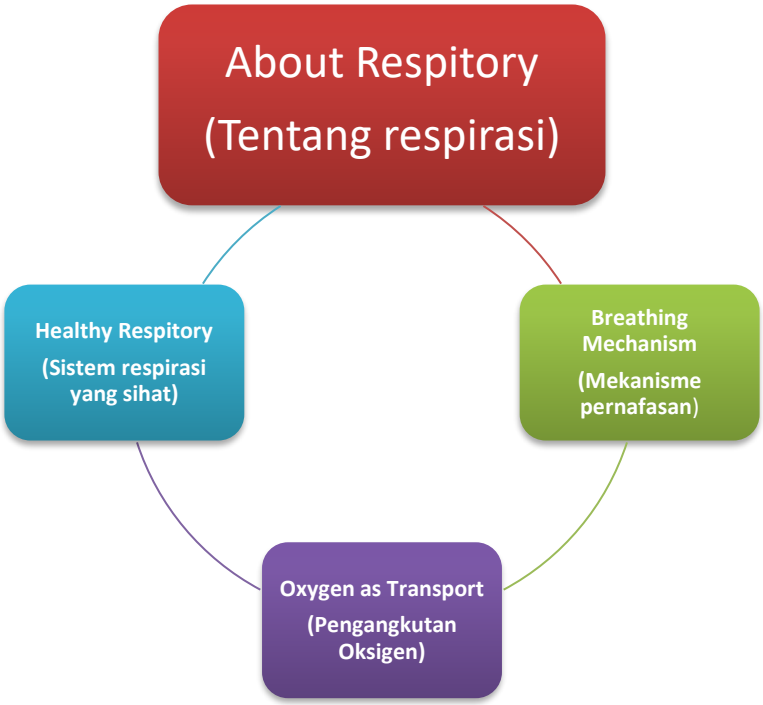
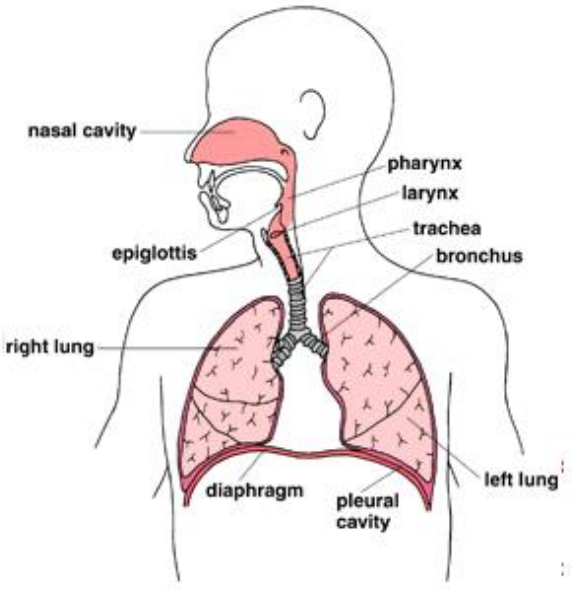
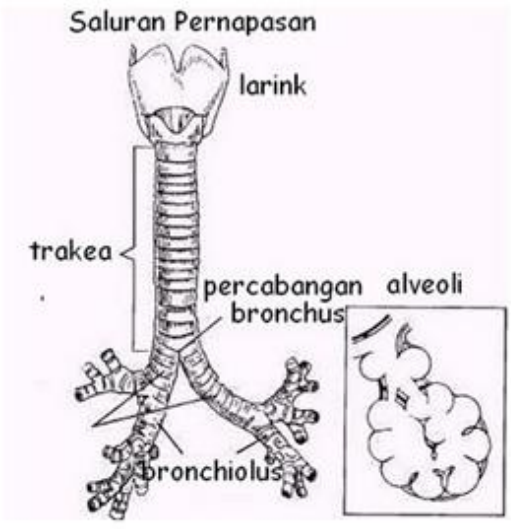
RESPIRATION

Respiration and the understanding of the chapters



Human Respiratory



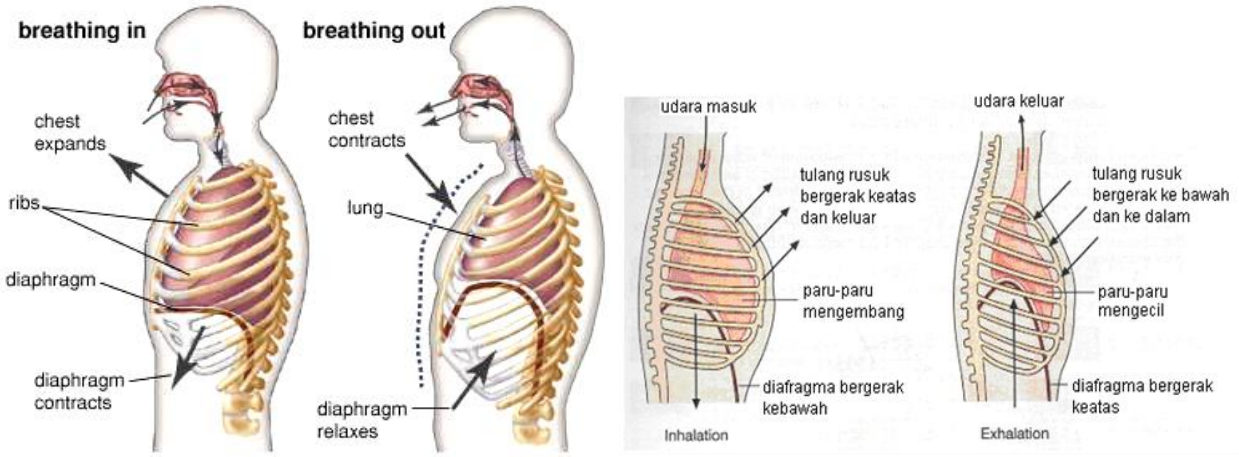


The respiratory system is made up of the organs involved in breathing and consists of the:

- Nose / hidung
- Trachea / trakea
- Bronchi/ Bronkiol
- Lungs/ paru paru

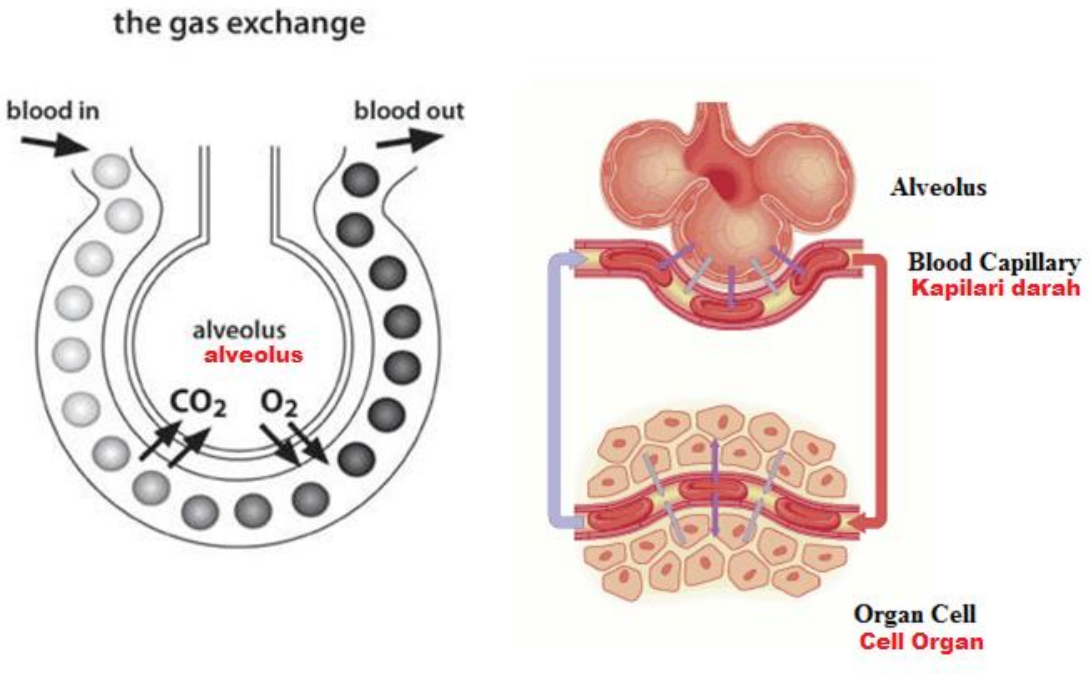
Nasal Cavity	
Trachea/ Trakea	
Bronchus/ Bronkus	
Bronchiole /Bronkiol	
Diaphragm/ Diafragma	
Alveolous/ Alveolus	
Larynx/ Larinks	
Epiglottis	
Pharynx	

Breathing Mechanism



Inhalation	Exhalation
a. Intercostals muscles contract b. Rib cage moves upwards and outwards c. Pressure in thoracic decreases d. Air is force into the lungs e. Lung volume increases	a. Intercostals muscles relax b. Rib cage move downwards and inwards c. Pressure in thoracic increases d. Air is forced out of the lungs e. Lung volume decreases
Inhilasi	**Exhilasi**
a. Otot interkosta mengecut b. Sangkar tulang rusuk bergerak ke atas dan keluar c. Tekanan udara di rongga berkurangan d. Udara masuk ke dalam peparu e. Isipadu udara di dalam peparu bertambah	a. Otot interkosa mengembang b. Sangkar tulang rusk bergerak ke bawah dan ke dalam c. Tekanan udara di dalam rongga bertambah d. Udara masuk ke dalam peparu e. Isipadu udar di dalam peparu berkurangan

Oxygen as Transport



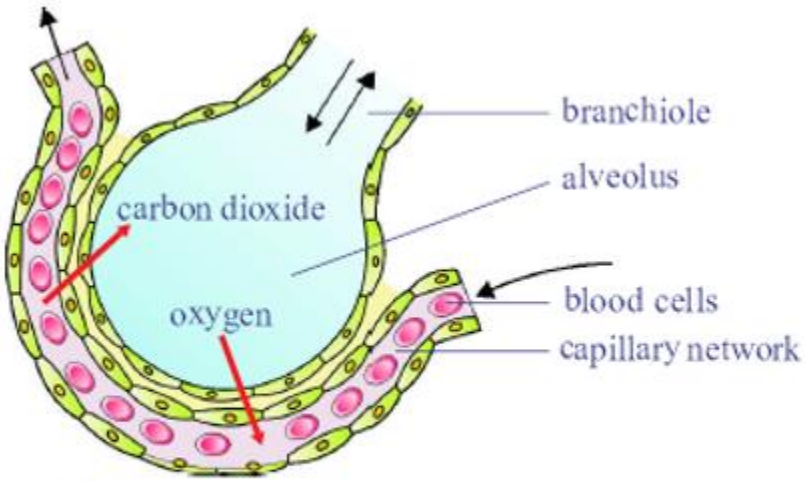
Understanding the Exchange of gas

- The exchange of gas through diffusion/ Pertukaran gas menggunkan proses resapan
- Adaption of alveolus / Ciri cirri alveolus
    i. Thin Wall / dinding yang nipis
    ii. Large surface area / permukaan besar
    iii. Always moist / Sentiasa lembap
    iv. Surrounded by blood capillaries /dilitupi dengan kapilar darah yang banyak

When air enters it dissolve into the moist alveolus wall. The oxygen diffuses into the blood capillaries due to concentration difference. Red blood cell is combined with Oxygen to form **oxyhaemoglobin**. The oxyhaemoglobin will be transported to the body cells and dissociate. At the same time the Carbon dioxide diffuses into the blood capillaries due to concentration difference. It is carried back into the lungs to exhale.

Apabila udara masuk kedalam pundi alveolus, oksigen akan meresap kedalam kapilary darah. Proses resapan berlaku akibat terdapat perbezaan kepekatan oksigen di alveolus dan kapilari darah. Proses resapan mendorong pergerakan molekul oksigen dari kawasan berkepekatan tinggi ke kawasan berkepekatan rendah. Oksigen akan bergabung dengan sel darah merah untuk membentuk **oksihemoglobin**. Darah oksihaemoglobin akan dibawa ke seluruh. Proses yang sama juga akan berlaku dengan karbon dioksida dimana proses resapan akan menyingkirkan gas karbon dioksida dari kapilar darah ke alveolus

Aveolus



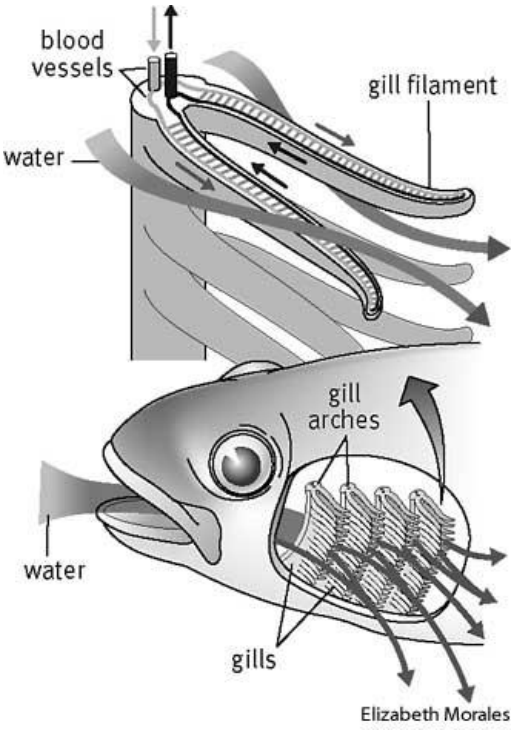
Diffussion path way for gaseous exchange between lung and blood capillaries

Composition and Partial Pressures of Alveolar Air (Table 3)

Gas	Percent of total composition	Partial pressure (mm Hg)
Nitrogen (N_2)	74.9	569
Oxygen (O_2)	13.7	104
Water (H_2O)	6.2	40
Carbon dioxide (CO_2)	5.2	47
Total composition/total alveolar pressure	100%	760.0

What is internal respiration?

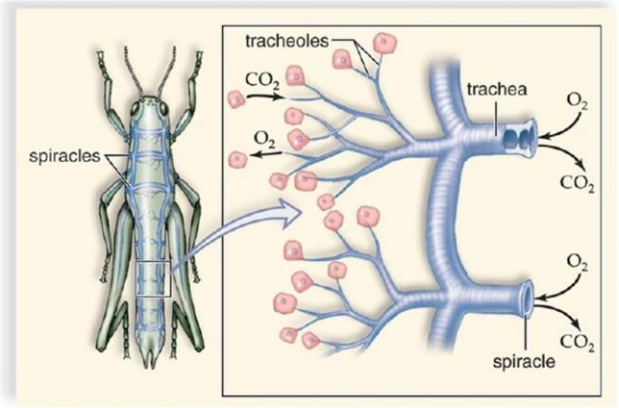
Respiration for Animals



Fish

Fish breath through gills. The organ that enables most aquatic animals to take dissolved oxygen from the water. It consists of a series of membranes that have many small blood vessels. Oxygen passes into the bloodstream and carbon dioxide passes out of it as water flows across the membranes.

Ikan bernafas melalui insang. Organ ini membantu hidupan aquatic bernafas. Insang mempunyai membrane yang diselaputi oleh himpunan kapilari darah. Oksigen meresap masuk kedalam kapilari darah dan Karbon dioksida pula meresap keluar dari kapilar darah ke dalam air.



Insects

Insects breath through spiracles. Their respitory system is trachea.

Serangga bernafas melalui spiracles. Sistem respirasi seranagga ialah Trakea

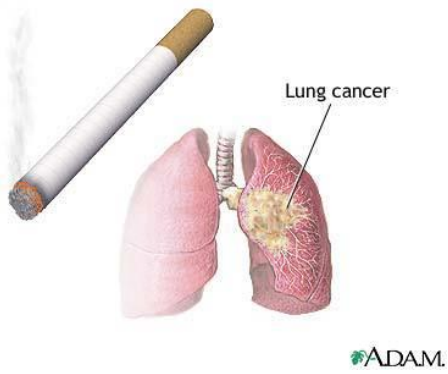
Respiration Part II /RESPIRASI II

Harmful substances in cigarettes / Racun dalam rokok

a) Tar / Tar
b) Nicotine / Nikotin
c) Carbon Monoxide / Karbon Monoksida
d) Carcinogens and Toxics / Toksik racun dan karsinogen

Smoking will lead to severe health problems / Kesan merokok

a) Tar : Kills cell in respiratory tract and cause lungs cancer/ Tar: merosakkan sistem pernafasan dan menyebabkan kanser peparu
b) Carbon Monoxide: Binds with Oxygen which cause lack of oxygen to vital organs/ Karbon Monoksida: Mengurangkan kandungan oksigen dalam darah
c) Nicotine: Addiction, increase heart rate, high blood pressure / Nikotin: ketagihan, menigkatkan dengupan jantung
d) Arsenic and Hydrogen Cyanide: Causes Cancer/Arsenik: Menyebabkan Kanser



This is actually Tar / Tar

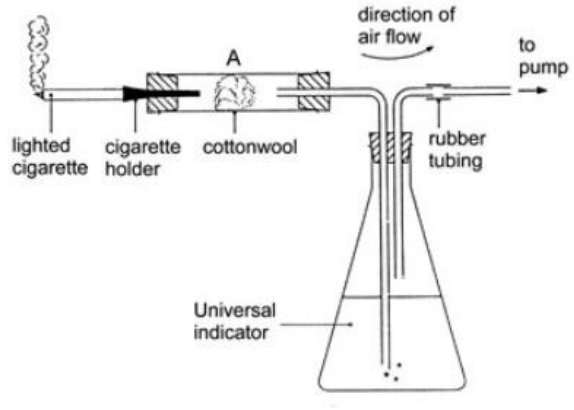
Nicotine/Nikotin

Diseases of Respiratory System

Some of the respiratory diseases

a) Lung Cancer / kanser peparu
b) Heart and vascular disease / Sakit Jantung dan penyakit jantung
c) Emphysema and other diseases / Emphysema – kesukaran bernafas akibat terdapat ruang udara yang terperangkap dalam peparu

Effects of Smoking (Lets take a look)



What does the cotton wool in the U-tube represent?
Lung

What is the function of litmus solution?
To show that cigarette smoke is acidic

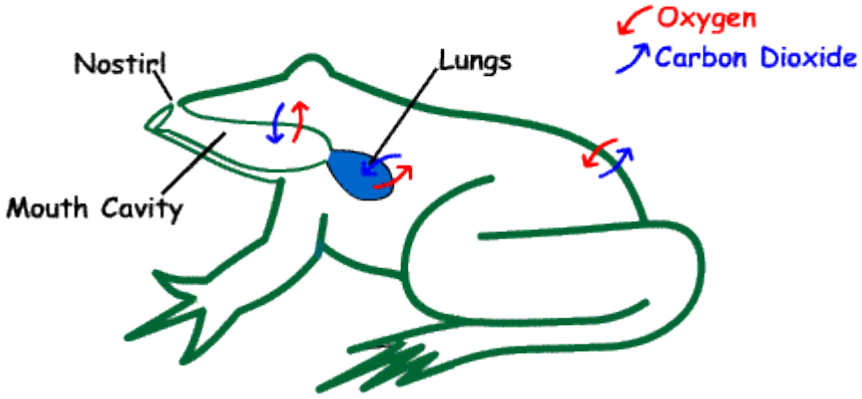
What are the substances in cigarette smoke that cause the cotton wool and litmus solution change colour?
Tar and carbon monoxide

What can you conclude about the effects of cigarette smoking?
Cigarette smoke contain heat that increases the temperature of the lungs, tar that blackens the lung , and acidic gases that corrode lung cells.

What will happen to the bicarbonate indicator
It changes from Green to Yellow

Animals

Respiration of frog



Frog rely on lungs and skin to respirate

Respiration of Fish

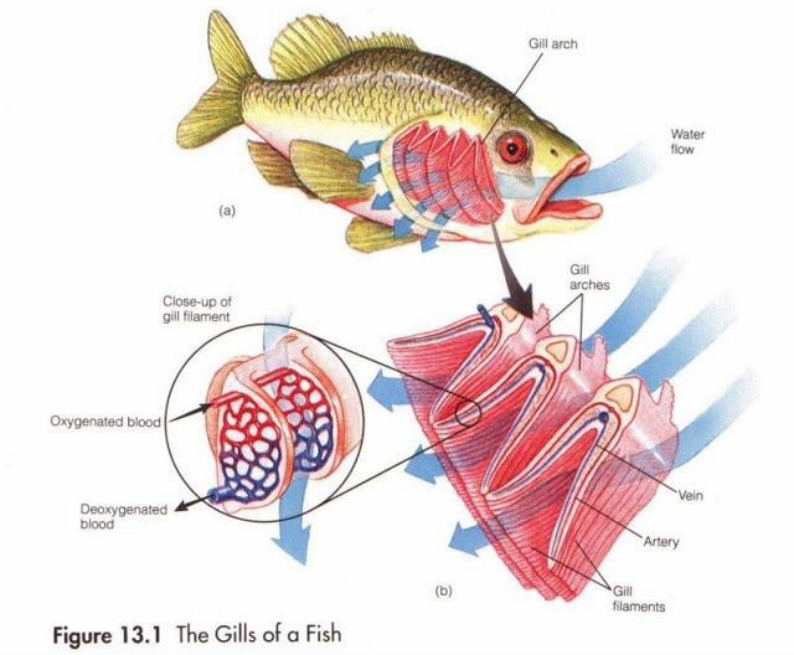


Figure 13.1 The Gills of a Fish

Fish use gills to respirate. When air passes through the membrane at the gills, oxygen dissolve in the blood capillary.