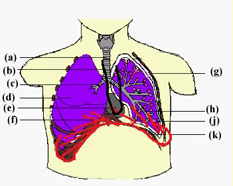
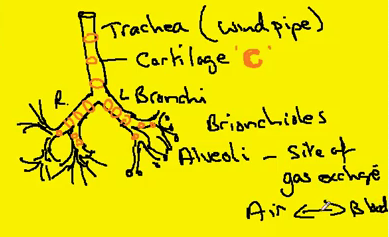
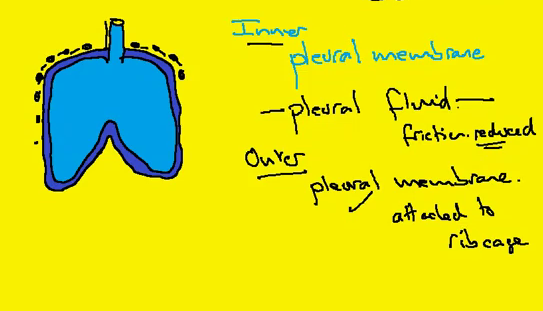
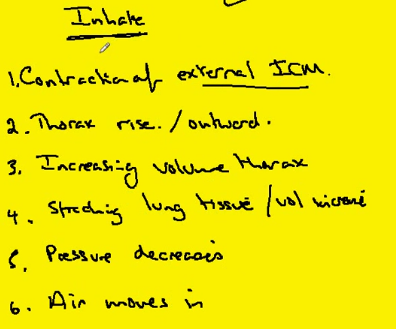
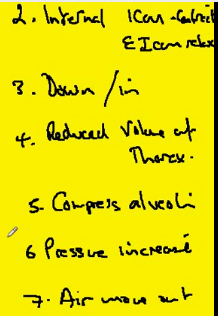
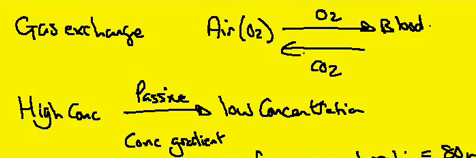
* *Describe the structure of the thorax, including the ribs, intercostal muscles, diaphragm, trachea, bronchi, bronchioles, alveoli and pleural membranes*
* 
* Thorax is the biological term for the chest
* Chest is defined by the cage of bones called the ribs.
* Ribs extend from a bone at the front called the sternum. THe ribs come out from the sternum and to the back bone.
* Between the ribs are sheets of muscles. These are called the intercostal muscle. They are responsible for the movement of the chest cavity in the breathing process. ( SPARE RIBS )
* Air enters the thorax through a tube beginning from the back of the mouth and defending down in to the lung area.
* 
* This tube is called as the Trachea (Windpipe)
* A Trachea is known to have cartilage present to support the trachea tissue and prevents it from collapsing when we breathe out.
* The Trachea having entered the thorax devices in to two.
* Bronchi - which is also supported by cartilage
* The right bronchi takes air down to the right side of the lung
* The light bronchi takes air down to the left side of the lung
* The bronchi very quickly divide, these divisions carry on till the tubes are microscopic. These tubes formed by the devision of the bronchi is called bronchioles.
* The bronchi occupy most of the lung tissue and end in dead end tissues.
* The dead end structures are known as Alveoli - site of gas exchange between air and blood.
* 
* The surface surrounding the tissue is a membrane.
* This membrane is called the plural membrane, the one that sits on the lung tissue is called inner plural membrane.
* The size of the space is very small
* The space is filled with a fluid that is known as plural fluid. Around the outside, the membrane on the outside is the outer plural membrane.
* Outer plural membrane is attached to the rib cage.
* The inter plural membrane is attached to all the lung tissue.
* The one function of plural fluid is to reduce friction as the lungs move during ventilation.

*understand the role of the intercostal muscles and the diaphragm, in ventilation*

* Quiet breathing – largely under control of diaphragm
* Ventilation is the biology word for breathing.
* All around the tissue will have protein molecules
* Protein molecules is called Elastin – stretch.
* If we realize the stretch the elastic molecules recoil until their original shape and length.
* Relaxed diaphragm:
* 
* When we inhale we have a – contraction of diaphragm, shortens, moves down, increase volume of the thorax, increases the volume of the lung, pressure falling in the alveoli, air moves into the lung – inhaling
* When we exhale – relax diaphragm, moves up in to the thorax, elastic recoil of the elastin protein molecules, reduces the volume of the alveoli, increases pressure in alveoli, forces the alveoli gas out of the lung (exhale)
* *understand the role of the intercostal muscles and the diaphragm, in ventilation*
* 
* When we inhale what happens is that we have a contraction of the external intercostal muscles. This causes the thorax to rise and move outwards which in turn has the affect of increasing the volume of the thorax and the consequences are stretching of lung tissue with volume increase, the pressure decreases and air moves in.



Exhale

* + When we exhale the internal intercostal muscles contract.
  + The external intercostal muscles relax.
  + The ribcage moves down and in
  + There is an associated reduced volume of the thorax – squeezes the alveoli tissue
  + Pressure increase forcing the air to move out
* *Explain how alveoli are adapted for gas exchange by diffusion between air in the lungs and blood in capillaries*
* Gas exchange in the lungs is about oxygen in air going in to the blood stream and about carbon dioxide coming in the opposite dioxide.
* Adding oxygen in the blood and removing carbon dioxide = diffusion
* Diffusion is passive – does not require energy
* Alveoli are the dead end structure of the bronchioles.
* Around the alveoli are a lot of blood vessels
* **Adaptations** – the ways to make the exchange of gases more efficient is to add together he total surface area of alveoli in about 80ml2
* Large surface area
* The dense network of the blood vessels to pick up the gases like oxygen and deliver the carbon dioxide
* Thin alveoli walls
* Fast diffusion because the distance to diffuse is very short
* Inside wall of the alveoli is moist – this allows the gases to dissolve more easily

