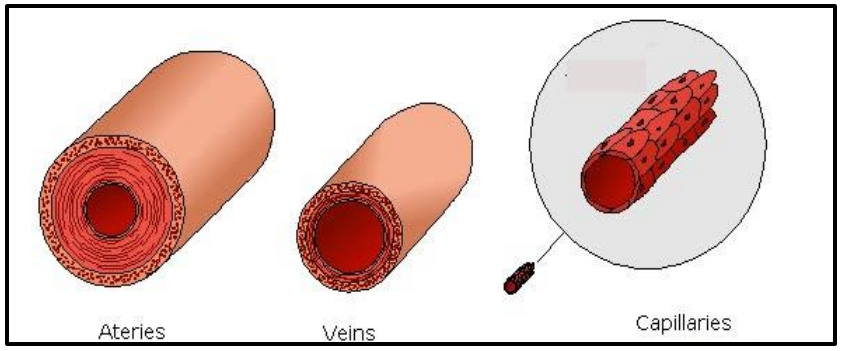
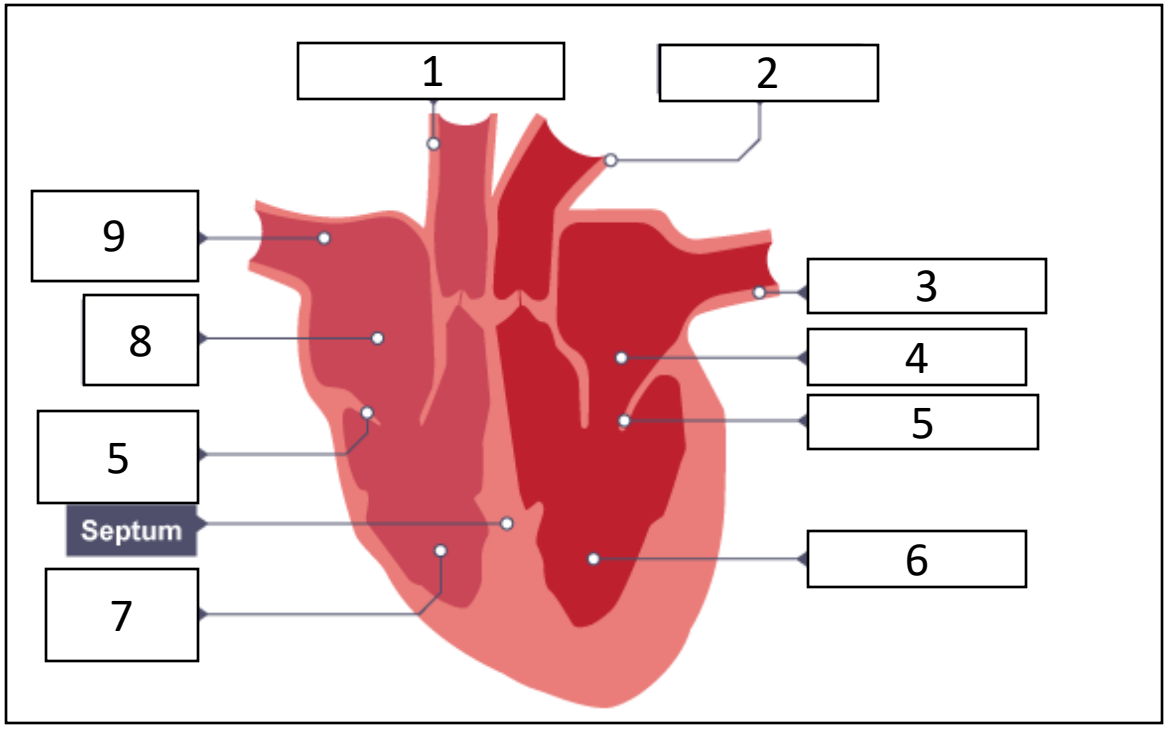
Biology Topic B4: Organising animals and plants part 1

1. Blood	
Components	Function
Red blood cell	Carries oxygen
White blood cell	Fights infection
Platelets	Blood clotting
Plasma	Liquid that contain the other components and dissolved substances like urea

2. Blood vessels			
Name	Lumen (hole) size	Walls	Muscles
Arteries	Small	Thick	Yes
Veins	Large	Thin	No
Capillaries	Very small	1 cell thin	No



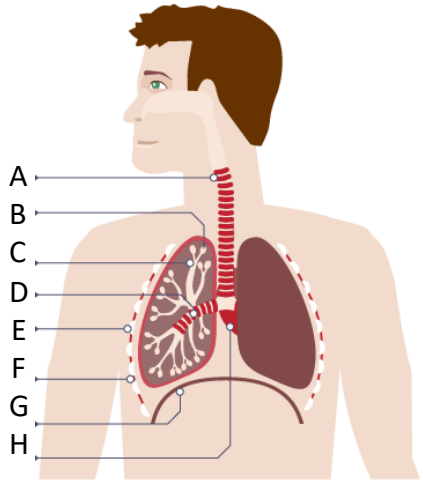
3. The heart		
1	**Pulmonary artery**	Carries deoxygenated blood to the lungs
2	**Aorta**	Carries oxygenated blood to the body
3	**Pulmonary vein**	Brings oxygenated blood from the lungs
4	**Left atrium**	Pushes blood to left ventricle
5	**Heart valve**	Prevents backflow of blood
6	**Left ventricle**	Pumps blood to body
7	**Right ventricle**	Pumps blood to lungs
8	**Right atrium**	Pushes blood into right ventricle
9	**Vena cava**	Brings deoxygenated blood from body



4. Helping the heart

Coronary heart disease (CHD)	When fatty material builds up and stops the flow of blood to the heart muscle
Coronary arteries	The arteries that supply the heart muscle
Stent	A mesh tube used to keep the coronary arteries open
Statins	Drugs used to reduce blood cholesterol preventing (CHD)
Faulty valve	When the blood flows in the opposite direction through the heart. Will need replacing with biological or mechanical valve
Heart transplant	When a donor heart is used to replace a faulty heart
Artificial heart	Short term mechanical heart used while waiting for a transplant

5. Respiratory system



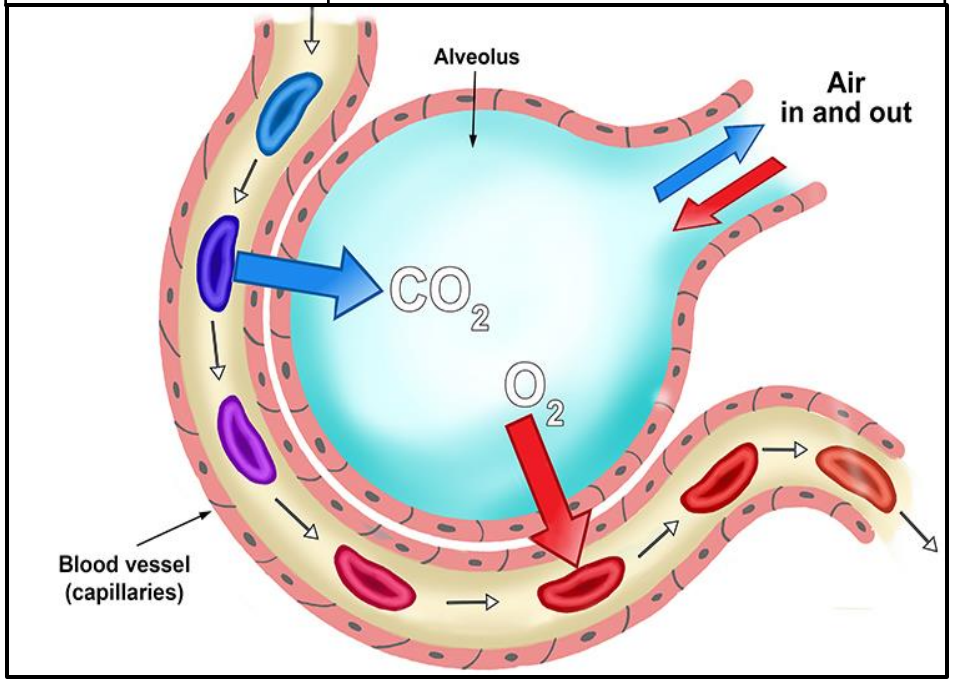
A	**Trachea**
B	**Alveoli**
C	**Bronchiole**
D	**Right bronchus**
E	**Ribs**
F	**Intercostal muscles**
G	**Diaphragm**
H	**Heart**

6. The composition of inhaled and exhaled air (~ means approximately)

Atmospheric gas	% of air breathed in	% of air breathed out
nitrogen	~80	~80
oxygen	~20	~16
carbon dioxide	0.04	~4

7. Adaptation to gas exchange: Alveoli

Thin walls	Capillary wall one cell thick
Moist layers	From mucus in alveoli
Large surface area	Many **alveoli**
High concentration gradient	Blood enters with low O_2 and high CO_2



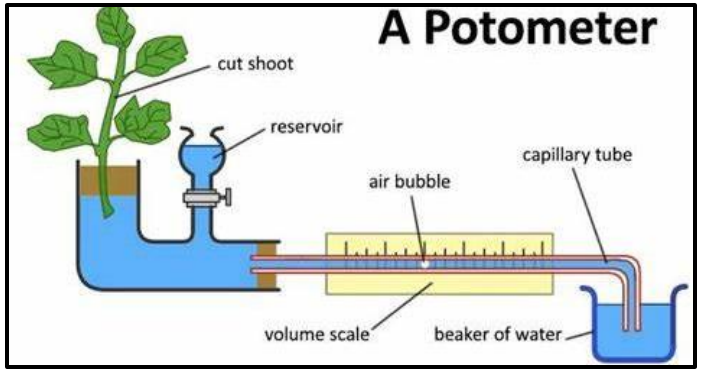
Biology Topic B4: Organising animals and plants part 2

1. Plant veins

Name	Carries	Direction	Name of process
Xylem	Water and mineral ions	From roots to leaves	Transpiration
Phloem	Sugar ('food')	From leaves to roots	Translocation

3. Factors affecting transpiration

Factor	Affect of increasing the factor	Reason
Temperature	Increases transpiration	Water evaporates and diffuses faster
Humidity (amount of water in air)	Decreases transpiration	Less space in air around leaf for water to diffuse into
Air movement	Increases transpiration	Water evaporates and diffuses faster
Sunlight	Increases transpiration	Stomata are open to let in CO_2 so more water escapes



2. Leaf structure and functions

	Name	Function
1	**Epidermis**	Protective layer
2	**Waxy cuticle**	Prevents water loss
3	**Palisade mesophyll**	Contains a lot of chloroplasts. Site of photosynthesis
4	**Spongy mesophyll**	Full of air spaces to allow oxygen and carbon dioxide to diffuse
5	**Vein**	Contains xylem and phloem
6	**Air space**	Allows gases to pass through
7	**Stomata**	Hole for gases to move in and out of the leaf
8	**Guard cells**	Control the opening of stomata