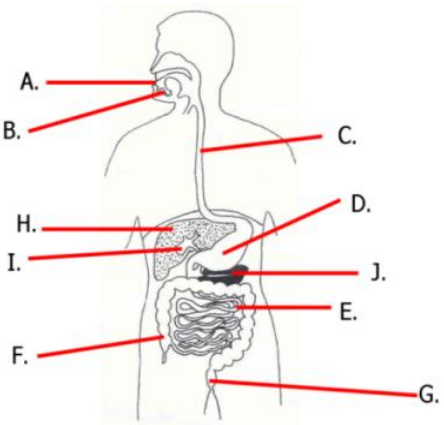
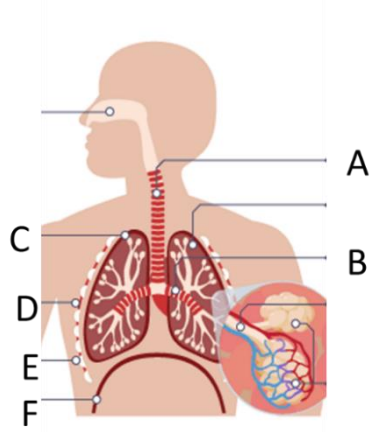
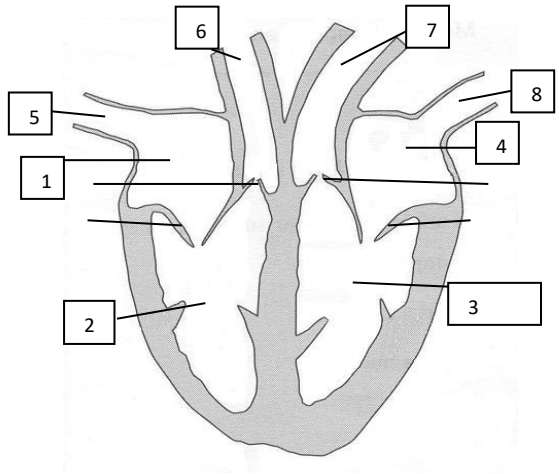
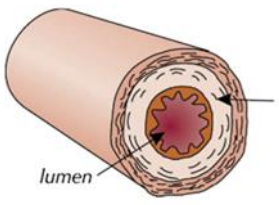
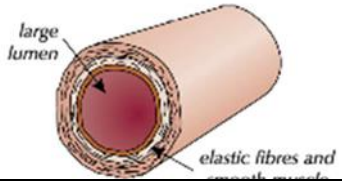
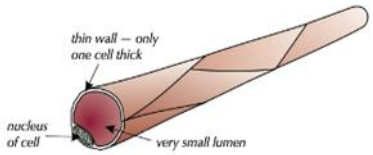
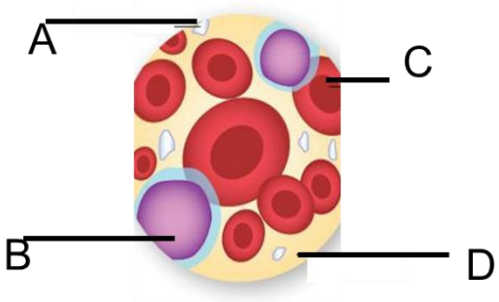
Year 9 B2 Human Organ Systems Fact sheet	
Tissues, organs and organ systems	
1. What do we call a group of similar cells which do the same function?	**Tissue**
2. What do we call a group of tissues working together?	**Organ**
3. Define organ system	A group of organs which work together
4. Put these into size order, starting with the smallest: organism, cell, tissue, organ system, organ	**Cell, tissue, organ, organ system, organism**
Food tests	
5. How do you test for starch?	• **Add iodine solution** • **Black shows starch**
6. How do you test for protein?	• Add biuret solution • Purple shows protein
7. How do you test for sugar?	• **Add Benedict's solution** • **Heat it (80°C for 5 min)** • **Orange shows sugar**
Digestive system	
8. Label the digestive system (10)  	**A. Mouth** **B. Salivary gland** C. Oesophagus **D. Stomach** **E. Small intestine** **F. Large intestine** G. Rectum **H. Liver** I. Gall bladder **J. Pancreas**
9. Describe the function of the salivary glands	Produces amylase and releases saliva
10. Describe the functions of the stomach	• **Churns food** • Produces acid & protease • **Digests protein**
11. Describe the function of the small intestine	• Produces enzymes (protease, lipase & amylase) • Digests food • **Absorbs the soluble food into the bloodstream**

12.State the function of the liver	Makes bile
13.State the function of the gall bladder	Stores bile
14.Describe the function of the pancreas	**Makes enzymes** **Protease, lipase & amylase**
Enzymes	
15.What are enzymes made of?	**Protein**
16.Why are enzymes needed in digestion?	• **To break food down** • Into soluble molecules • **So it can be absorbed into the blood**
17.Name the enzyme that digests carbohydrates/ starch	**Carbohydrase/ amylase**
18.Name the enzyme that digests protein	**Protease**
19.Name the enzyme that digests fat/ lipid	**Lipase**
20.What are carbohydrates digested into?	**Sugar/ glucose**
21.What are proteins digested into?	**Amino acids**
22.What are fats digested into	Fatty acids AND glycerol
23.What is it called when an enzyme changes shape so it doesn't work?	**Denatured**
24.List 3 conditions which denature most enzymes	• **Too hot** (too cold does NOT denature them, just slows them down) • **Acid** • **Alkali**
Breathing system	
25.State 2 reasons why we breathe	• **Get oxygen** • **Remove carbon dioxide**
26.Label a diagram of the breathing system  	**A: trachea** **B: bronchus** **C: alveoli** D: intercostal muscle E: rib **F: diaphragm**

27.State the function of the trachea	Take air into and out of lungs
28.State the function of the bronchi	Take air into and out of bronchioles
29.Describe the function of the alveoli	• **Where gas exchange takes place** • **Oxygen goes into the blood and carbon dioxide comes out of the blood**
Heart structure	
30.What makes up the circulatory system? (3)	• Heart • Blood vessels • Blood
31.What does the circulatory system do?	Transport molecules/ ions around body Defend against bacteria/ viruses
32.What does the heart do?	**Pump blood**
33.What is the heart wall mostly made of up?	Muscle tissue
34. Label the heart 	1: right atrium 2: right ventricle 3: left ventricle 4: left atrium 5: vena cava 6: pulmonary artery 7: aorta 8: pulmonary vein
35.Which blood vessel supplies blood to the heart muscle?	**Coronary artery**
Blood vessels	
36.Name this blood vessel 	**Artery**
37.Name this blood vessel 	**Vein**

38.Name this blood vessel  	**Capillary**
39.What do arteries do?	**Carry blood away from the heart**
40.What do veins do?	**Carry blood back to the heart**
41.What do capillaries do?	**Allow exchange of substances between the blood and cells.**
Blood	
42.Label the diagram  	**A. Platelet** **B. White blood cell** **C. Red blood cell** **D. Plasma**
43.Name the liquid part of blood	Plasma
44.What do red blood cells do?	**Transport oxygen**
45.What do white blood cells do?	**Help to defend the body against pathogens**
46.What do platelets do?	**Clot blood/ make scabs**
47.What does the plasma do? (2)	• **Transports substances** • **e.g. carbon dioxide/ soluble food**
Heart diesease	
48.Where does fatty material build up?	Inside walls of coronary arteries
49.What does the fatty material do to the coronary arteries?	Narrows the lumen
50.What can be used to keep the coronary arteries open?	**Stents**
51.Name a drug which is used to reduce blood cholesterol levels	**Statins**
52.When might a heart transplant be done?	**If the heart fails**
Respiration	
53.Why is respiration important?	**Releases energy**
54.Write the word equation for aerobic respiration.	**Glucose + Oxygen → Carbon dioxide + Water**

HIGHER TIER SECTION	
55. Name the place on an enzyme where a substrate molecule can bind	Active site
56. Explain why 1 enzyme will only speed up 1 reaction	• The active site is a specific shape • Only 1 molecule will fit into the active site
57. Explain how enzymes work according to the lock and key hypothesis	• Substrate is the key and enzyme's active site is the lock • Substrate fits into the active site • Because it is a complementary shape (perfect fit) • Only 1 substrate can fit into the active site
58. Explain how the lungs are adapted for efficient gas exchange (4)	• Lots of alveoli give a large surface area • Blood is close to alveoli walls for a short diffusion distance • Breathing keeps a large difference in concentration • Moist
59. Which blood vessel takes blood to the lungs?	Pulmonary artery
60. Which blood vessel takes blood to the rest of the body?	Aorta
61. Which blood vessel brings blood from the lungs to the heart?	Pulmonary vein
62. Which blood vessel brings blood from the rest of the body to the heart?	Vena cava
63. How are arteries adapted to carry blood under high pressure? (3)	• Thick walls • containing muscle • and elastic fibres
64. How are veins adapted to carry blood under low pressure? (2)	• Thin walls • Wide lumen • valves
65. How are capillaries adapted to allow exchange of substances?	• Narrow • <u>Very</u> thin walls • Permeable walls (very small holes in the walls)
66. Explain why fatty material in the coronary arteries can cause a heart attack (2)	• Reduced blood flow through the capillaries • So less oxygen gets to the heart muscle
67. List 3 reasons organisms need energy (3)	• Make larger molecules • Animals - Muscle contractions • Birds and mammals – keep warm