

ANSWERSHEET Questions CHAPTER 1

WB 1.1 Heart

1. Muscle / chambers / atria / ventricles / valves / right atrium / right ventricle / lungs / oxygen / left atrium / left ventricle / all organs
2. *Worksheet heart*
3. Only have to squeeze the blood into the ventricles
4. Blood pressure caused by ventricles contracting / to prevent the blood from flowing back
5. Left ventricle needs to pump harder: higher pressure needed for body circulation and lung circulation needs lower pressure (*the slower the flow the more oxygen can be taken up and high pressure would lead to flow of fluid into the lungs*)
6. Only have to squeeze the blood into the ventricles
7. a. The heart / is made of / cardiac / muscle tissue / which can / contract / to pump / the blood / through / your body
b. The valves / are made of / connective tissue / and prevent / blood from / flowing back
c. The natural pacemaker / is located / in the wall / of the right atrium / of the heart / it is the place / where / the contraction of / the heart / starts

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WB 1.2 Circulation

1. Oxygen / glucose / coronary / oxygenated / aorta / capillaries / exchange / nutrients / waste / CO₂ / veins / inferior and superior vena cava
2. To allow exchange
3. To take up oxygen: it is hard to store oxygen
4. a. Coronary: to supply the heart / Pulmonary: to take up oxygen and get rid of carbon dioxide / Systemic: to supply the organs
b. Coronary can be considered to be part of Systemic
5. *Worksheet circulation*
6. *See table below*

artery	capillary	vein
carries blood from the heart	blood flows from the heart to the organs	carries blood to the heart
very thick and muscular walls with elastic connective tissue	very thin walls (only one cell thick)	thinner and not so very muscular with elastic connective tissue
blood flows very fast	blood flows slowly	blood flows a bit faster
pulse	no pulse	no pulse
no valves	no valves	valves to stop blood from flowing backwards

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WB 1.3 Blood pressure and heart disease

1. a. pressure / arteries / pulse / wrist / neck
b. measure / cuff / upper / stethoscope / brachial
c. systole / pumping / heart (ventricle) / diastole / bounces / semi-lunar valves
2. It changes due to different needs (more exercise) or circumstances (falling in love, being nervous or angry): pumping harder means a higher pressure
3. Safer
4. Hypertension: (too) high blood pressure / atherosclerosis: cholesterol accumulates at the inside of arteries narrowing these / plaque: deposited fat becomes hard and stiff
5. Brain suffers from lack of oxygen because of blockage or rupture of a blood vessel
6. a. Balloon catheter inserted into an artery (arm or groin) and advanced into the narrowed (coronary) artery > inflated to widen it (stent to strengthen possible)
b. medicines to solve clots or lower cholesterol, bypass operation, change in diet, extra exercise

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WB 1.4 Blood

1. a. red / oxygen / nucleus / haemoglobin / white / phagocytes / engulfing / lymphocytes / specific / platelets / clotting / plasma
b. heavier than water
c. red blood cells
2. a. to leave capillaries and hug bacteria (deadly)
b. dead white blood cells (with bacteria in them)
3. See table below

substance	entering organ	leaving organ
oxygen	lungs	all active tissues
carbondioxide	all active tissues	lungs
glucose	intestines / liver	all active tissues / liver
minerals / vitamins / etc	intestines	all active tissues
water	intestines (exp. large)	all active tissues
hormones	hormonal glands	all reacting tissues
waste	all active tissues	kidneys (sweating glands)
heat	all active tissues / liver	all tissues / skin

4. a. Producing the recipe for specific antibodies takes time.
b. Antibodies are specific
c. The recipe is DNA (specially designed by a cut-and-paste operation)
d. The number of memory cells gradually decreases
5. When platelets / break open / in a wound / fibrinogen is changed / into fibrin. Sticky fibres / form a spider-like web / which traps blood cells / which stops the bleeding. Drying out / this clot forms a scab / which will fall off / as soon as enough / skin cells have been made / to heal the skin.