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| Explain why it is dangerous to move a person with a suspected fracture* Might cause further damage e.g. to nerves
 | Explain how cartilage turns into bone* Ossification
* Add calcium and phosphorus
 |
| Describe the structure of the long bone* Head with cartilage
* Shaft with bone marrow
 | Describe how the arm bends and straightens* Bend: bicep contracts, tricep relaxes (antagonistic)

* Straighten: bicep relaxes, tricep contracts
 |
| Explain advantages of an internal skeleton* Flexible
* Attach Muscles
* Growth with the body
* Framework
 | Describe the structure of a synovial joint, explain the function of each part* Synovial membrane (holds in fluid), Synovial fluid (lubricates joint), Ligament (attaches bones together), Cartilage (cushions)
 |
| Describe range of movement in joints* Ball and socket (360 degrees)
* Hinge (lever movement)
 | Elderly people are more prone to fractures* Osteoporosis (soft bones)
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| Define a single circulatory systemBlood does one circuit through heart, only 2 chambers | Define a double circulatory systemhttp://t0.gstatic.com/images?q=tbn:ANd9GcS45Ka6czzN45vTOT2KtWayZN7SvXncXfetZL4Ol98Hub21dl0Y:www.cix.co.uk/~argus/Image3.gifBlood goes through heart twice in one circuit, heart has 4 chambers |
| Describe the contribution of Galen* Heart has chambers
* Heart sucked in blood
 | Describe the contribution of Harvey* Valves in veins
* Capillaries
 |
| Explain the advantages of double circulatory system * Blood can be pumped at higher pressure
 | Describe the function of an artificial pacemaker* Control heart beat
 |
| Explain sequence of contraction and valves in the heart* Atria contract, AV valves open, Ventricles contract, AV valves close and semi lunar valves open

 | Describe how the pacemaker coordinates heart muscle contraction* http://t0.gstatic.com/images?q=tbn:ANd9GcSVSiODrgRB5JtFFbJtXNdJZl2kHVfKFGbMZ6EH9t9dKLNO6ljV:www.zsf.jcu.cz/jab/5_3/fig1sedmera.jpgImpulse from SAN causes atria to contract, stimulates AVN, impulse from AVN causes ventricles to contract
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| Explain the consequence of a hole in the heart* Blood moves directly between sides of the heart
* Less oxygen in the blood
* Fixed by surgery
 | Explain the consequences of a damaged or weak heart valve* Less effective blood circulation
* Fixed by artificial valves
 |
| Understand why all unborn babies have a hole in the heart* Don’t need a double circulatory system in the womb as they get oxygen from the mum
 | Explain advantages and disadvantages of an artificial pacemaker over a heart transplant* No risk of reject or need to take immune-suppressants
* Body might react with material
 |
| Explain the consequences of a blocked coronary artery* Reduces blood flow to the heart
* Treated by bypass surgery
 | Describe the processes of* blood donation: Blood taken by needle in vein
* blood transfusion: Blood given through IV
 |
| Describe the processes of blood clotting* Platelets meets damaged blood vessels, series of chemical reactions, fibrin forms a mesh of fibres
 | Define agglutination* Blood clumping caused by unsuccessful blood donations
 |
| Complete the table

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| Blood Type | Antigens | Antibodies |
| A | A | B |
| B | B | A |
| AB | A & B | None |
| O | None | A & B |

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| Explain how fish gills work* Forcing water across filaments
 | Explain how permeable skin of amphibians work* Gas exchange by diffusion through the skin
 |
| Explain adaptations of gas exchange surfaces (alveoli)* Permeable, moist, large surface area, good blood supply, thin lining
 | Describe how the respiratory system protects itself against disease* Mucus and ciliated cells
 |
| http://t1.gstatic.com/images?q=tbn:ANd9GcQ6L1DVJavy3_GCFpBAtIy_oPoYLfHFc6H5AesHu3eL-lgEkuqz:oxfordmedicine.com/doc/10.1093/med/9780199584048.001.0001/med_9780199584048_graphic043003-full.jpgDefine tidal air* Amount taken in and out of the lungs in a normal breath
 | Define vital capacity air* Total amount of air you can breathe out of your lungs
 |
| Define residual air* Amount of air left in the lungs when you fully breathe out
 | Describe asbestosis and state cause* Industrial cause
* Inflammation and scarring limits gas exchange
 |
| Describe cystic fibrosis and state cause* Genetic cause
* Too much mucus in the bronchioles
 | Describe lung cancer and state cause* Lifestyle cause
* Cells grow rapidly, reducing surface area
 |
| Describe symptoms and treatment of asthma* Treatment: Inhaler
* Symptoms: Lining becomes inflamed, fluid builds up in airways, muscles contract, constricting the airways
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| Explain the importance of physical digestion* So food pass more easily through
* Provides a larger surface area
 | Explain where bile is made and how it improves fat digestion* Made in the gall bladder
* Increases the surface area of fats
 |
| Explain why stomach pH is acidic where as mouth and small intestine is alkaline* Optimum for enzymes
* Stomach acid kills bacteria
 | Describe the breakdown of starch as a two step process* Amylase: Starch 🡪 Maltose
* Maltase: Maltose 🡪Glucose
 |
| Enzymes: complete the table

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| Enzyme | Substrate | Product |
| Carbohydrase/ Amylase | Sugars/Starch | Glucose |
| Protease | Proteins | Amino acids |
| Lipase | Fats | Fatty acids and glycerol |

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| Explain why large molecules are broken down to small molecules in digestion* To be absorbed in the blood stream
 | Explain how the small intestine is adapted to efficient absorption of food* Villi to increase surface area
* Good blood supply
* Permeable
* Thin lining
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| Explain the importance of maintaining constant water concentration in blood plasma* So doesn’t affect water concentration in cells
 | * diagram-of-kidney question sheetdiagram-of-kidney question sheetdiagram-of-kidney question sheetCortex
* Medulla
* Renal Pelvis
* Ureter
* Renal Artery
* diagram-of-kidney question sheetRenal Vein
 |
| Explain how the function of the kidney tubule forms urine* Glomerulus & capsule
	+ Filter blood
* Selective reabsorption
* Loop controls water and salt levelshttp://home.comcast.net/~llpellegrini/Test%20clip%20art-%20nephron-Unlabeled.JPG
 | Explain the principle of a dialysis machine* Dialysis removes waste by diffusion
* Dialysis fluid has the same concentrations of sodium and glucose as the blood so these aren’t removed
 |
| Explain factors that affect urine concentration* Water intake, heat, exercise
 |
| State where urea is made* Liver
 | State what urea is made from* Excess amino acids
 |
| Explain how concentration of urine is controlled by Anti-diuretic hormone (ADH)* Increases the permeability of kidney tubules so more water is reabsorbed into the blood
* Controlled by negative feedback
 | Explain how the body responds to increased concentration levels of carbon dioxide* Detected by the brain, increases breathing

Explain why high levels of carbon dioxide is toxic* Makes blood acidic
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| Describe the role of oestrogen* Thickens lining of the uterus
 | Describe the role of progesterone* Maintains lining of the uterus
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| Describe the role of FSH* Stimulates development of the egg
 | Describe the role of LH* Causes ovulation (egg release)
 |
| Negative feedback controls the menstrual cycle* Progesterone inhibits FSH
 | Explain how the contraceptive pill works* Progesterone to stop eggs from developing
 |
| Describe artificial insemination to treat infertility* Sperm placed in woman’s uterus
 | Describe use of FSH to treat infertility |
| Describe in vitro fertilisation (IVF) to treat infertility* Fertilisation outside of the body
 | Describe egg donation to treat infertility* Uses donors eggs for IVF
 |
| Describe surrogacy to treat infertility* Use another woman’s uterus
 | Describe ovary transplants to treat infertility* Ovary from another woman transplanted
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| Describe how foetal development can be checked, test for Down’s Syndrome* Amniocentesis (look at sample of amniotic fluid) & Chromosomal Analysis (look at sample of placenta)
* Risk of miscarriage
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| Explain causes of extremes in heights* Genes
* Hormones
 | State where human growth hormone is made and where is effects* Pituitary Gland, effects the long bones
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| Describe how baby’s growth is monitored and why* Check developing correctly
* Measure length, mass and head size
 | Explain causes of increased life expectancy in modern times* Less industrial disease, healthier diet, modern treatments, better housing
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| State 3 problems in the supply of donor organs* Shortage of donors
* Tissue match
* Size and age
 | State 4 problems of using mechanical replacements of organs* Size
* Power supply
* Materials used
* Body reactions
 |
| Describe the 2 problems with transplants* Rejection
* Immuno-suppressive drug treatment
 | Explain why donors can be living* You only need one kidney
* Part of the liver can be taken
 |
| Describe the advantages of a register of donors* People can volunteer to donate their organs
 | Describe the disadvantages of a register of donors * Are people too lazy to sign up?
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