

Chemical Digestion

1	Enzyme or chemical	Where is it made?	Action
2	Amylase	Mouth pancreas, small int.	Starch to glucose
3	Protease	Stomach, pancreas, small int.	Protein to amino acids
4	Lipase	Pancreas, small int.	Fats/Lipids to fatty acid and glycerol
5	HCl/acid	Stomach	Optimum for Protease
6	Bile	Liver, stored in gall bladder	Neutralizes stomach acid so optimum for enzymes

Required Practicals

Quantitative Testing of food groups.

- **Benedict's** + sugars = **green** to **brick red**;
- **Iodine solution** = starch = **blue/black**;
- **Biuret Reagent** + protein = **lilac**;
- Lipids = **opaque** (RP 3 Tril, 4 Trip)

Effect of pH on Amylase (RP 4 Tril, 5 Trip)

- IV = pH
- DV = time taken
- CV = volumes of solutions, temp

Cells **build into** tissues **which make** organs **which work in** organ systems **which make up an** organism

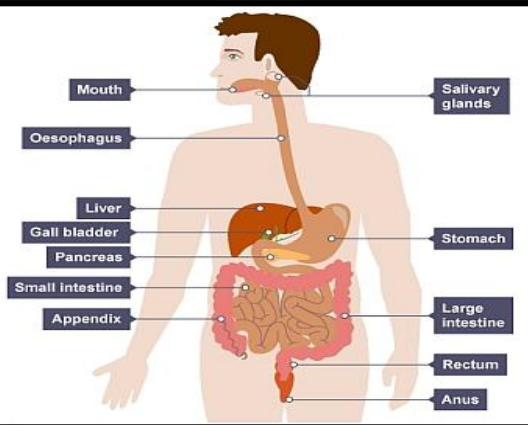
Mechanical Digestion

chewing, churning due to **muscular contraction** in the stomach

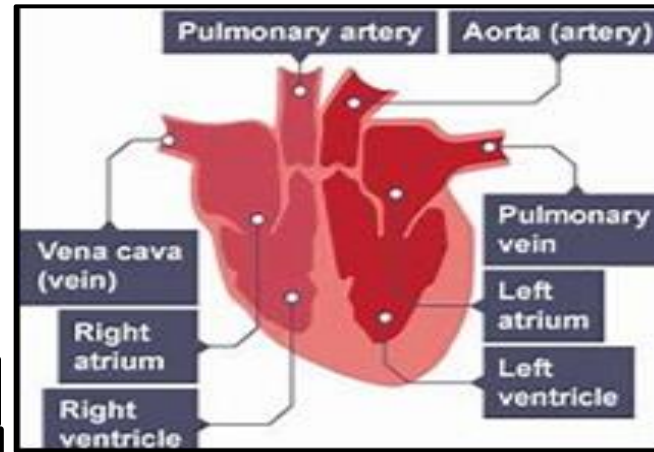
Digestion definition

break down of large insoluble molecules into soluble ones that can be absorbed **into the blood**

Digestive System



The Heart



Systems Working Together

- 1 **The Respiratory System** – lungs add O_2 to blood and remove CO_2 from blood
- 2 **The Heart** pumps blood carrying O_2 to the cells for **respiration**.
- 3 **Glucose** absorbed into blood from the digestive system is pumped by heart to cells for **respiration**

Key Vocabulary

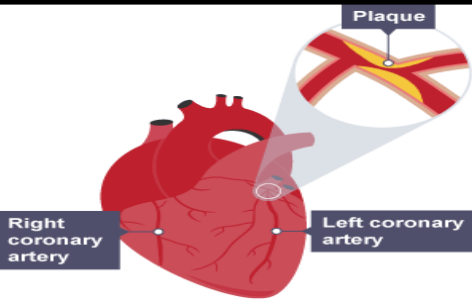
Enzyme	A protein molecule that is a biological catalyst
Active site	A region on an enzyme that will only bind to one substrate
Lock and key	The model of how enzymes digest substrates
Emulsify	Breaking large lipid globules into smaller droplets
Contraction	The only description to use to describe muscle movement
Recoil	When an artery snaps back into shape after expansion
Meristem	Where new cells are made in plants only at shoot and root tips
Xylem	Plant organ transporting water and minerals upwards only
Phloem	Plant organ transporting dissolved sugars everywhere in plants.
Transpiration	Evaporation out of the leaf
Translocation	Movement of dissolved sugar through the plant in the phloem

Blood Vessels

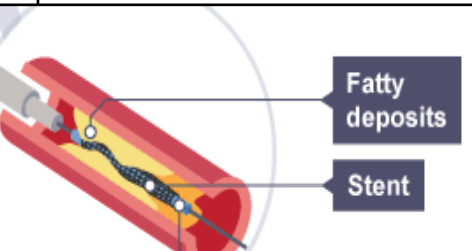
1	Arteries	Muscular, elastic blood vessels, take blood away from heart
2	Veins	Less muscular and elastic with valves, take blood back to the heart
3	capillaries	One cell thick walls, delivery to individual cells

Coronary Heart Disease (CHD)

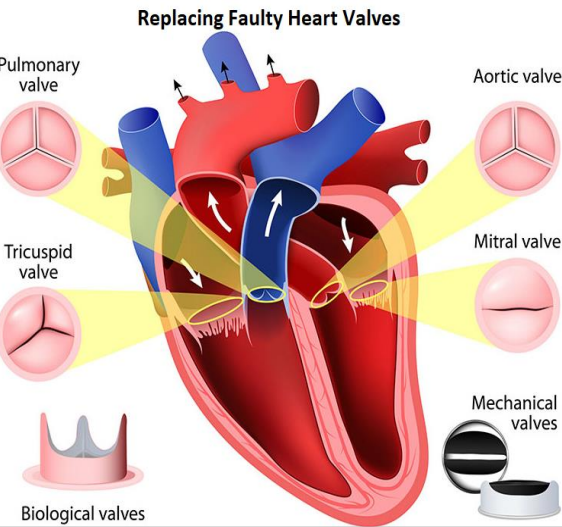
- 1 Fatty material or plaque builds up in **coronary arteries**.



- 2 Blood flow to heart muscle reduced.
- 3 Muscle gets **less O₂**, so **less respiration** occurs so **less energy** released so heart cells **respire less** and die.
- 4 This is a heart attack and if the heart stops it is a cardiac arrest.
- 5 Blood **cholesterol** increases **plaque** build up.
- 6 **Statins** – drugs that reduce blood cholesterol
- 7 **Stents** – inserted into coronary arteries by operation to hold open the arteries so the heart cells **get O₂ for respiration**.



Faulty Heart Valves



Key Valve Facts

- 1 Faulty valves mean that blood carrying O₂ is not pumped to respiring cells as effectively.
- 2 This can cause heart attacks.
- 3 Valves can be replaced by operation.
- 4 **Other treatments:**
Artificial Hearts
Transplants

Lifestyle choices increasing Risk factors

- | | | |
|---|-----------------------------------|---|
| 1 | High fat diet, lack of exercise | CHD |
| 2 | Obesity | Type 2 Diabetes |
| 3 | Alcohol | Brain and Liver Function, harming unborn babies |
| 4 | Smoking | Lung disease and cancer, harming unborn babies |
| 5 | Carcinogens | ionising radiation (UVA and UVB, X rays) – cancer |
| 6 | Stress, difficult life situations | Other illnesses, mental health issues |

Other Risk Factors

- | | | |
|---|------------------------|--|
| 7 | Immune system problems | Person could be more prone to infectious diseases, asthma or allergies |
| 8 | Viruses | Viral cell infections can cause cancer |
| 9 | Illness in general | Can cause mental health problems e.g. depression |

Key Vocabulary

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|---------------------------|---|
| Health | This the complete state of physical and mental well being |
| Non communicable diseases | Diseases that are NOT transferred between people and other organisms. |
| Risk factor | Something that you do that could increase the chance of you developing a disease |
| Lifestyle choice | A choice a person makes about how to live and behave, according to their attitudes, tastes, and values. |
| Carcinogen | A substance capable of causing cancer in living tissue |
| Socio - economic | How the impact of a factor on peoples lives also causes financial effects. |
| Correlation | When 2 or more factors can be linked together, they show a relationship with each other. |
| Causal link | When the change in one factor is caused by another. |

Cancer

Socio – Economic Effects of Disease

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|---|--|
| 1 | Family financial loss due to non communicable disease. |
| 2 | Care for sufferers on a local, national and global scale will be expensive |
| 3 | Improving lifestyles will reduce risk factors -save £'s on healthcare. |

- | | | |
|---|------------------|---|
| 1 | Malignant Tumour | Made of cancer cells that spread in the body via the blood or lymphatic system and grow into more malignant tumours |
| 2 | Benign Tumour | Made by abnormal cell growth but the cells stay in the benign tumour, new tumours do not form , it is NOT CANCER |