

Edexcel Biology IGCSE

2.e - Nutrition

Flashcards

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What is photosynthesis?



What is photosynthesis?

Photosynthesis is the process where some organisms are able to turn light energy into chemical energy.



What type of organisms use photosynthesis to make their own food?



What type of organisms use photosynthesis to make their own food?

Producers



What type of reaction is photosynthesis?



What type of reaction is photosynthesis?

Photosynthesis is an endothermic reaction.



Where does photosynthesis take place?



Where does photosynthesis take place?

Photosynthesis takes place in the chloroplasts.



What is the word equation for photosynthesis?



What is the word equation for photosynthesis?

Carbon dioxide + Water → Glucose + Oxygen



What is the symbol equation for photosynthesis?



What is the symbol equation for photosynthesis?



Explain the effect of temperature on the rate of photosynthesis



Explain the effect of temperature on the rate of photosynthesis

- As temperature increases, so does the rate of photosynthesis
- Once the temperature exceeds the optimum, the rate of photosynthesis decreases as enzymes begin to denature



Explain the effect of light intensity on the rate of photosynthesis



Explain the effect of light intensity on the rate of photosynthesis

As the light intensity increases, so does the rate of photosynthesis.



What is the inverse square law?



What is the inverse square law?

As the distance from the light source doubles, the light intensity quarters.

Light intensity $\propto 1 / \text{distance}^2$



Explain the effect of carbon dioxide concentration on the rate of photosynthesis



Explain the effect of carbon dioxide concentration on the rate of photosynthesis

As the concentration of carbon dioxide increases, so does the rate of photosynthesis.



What is a limiting factor?



What is a limiting factor?

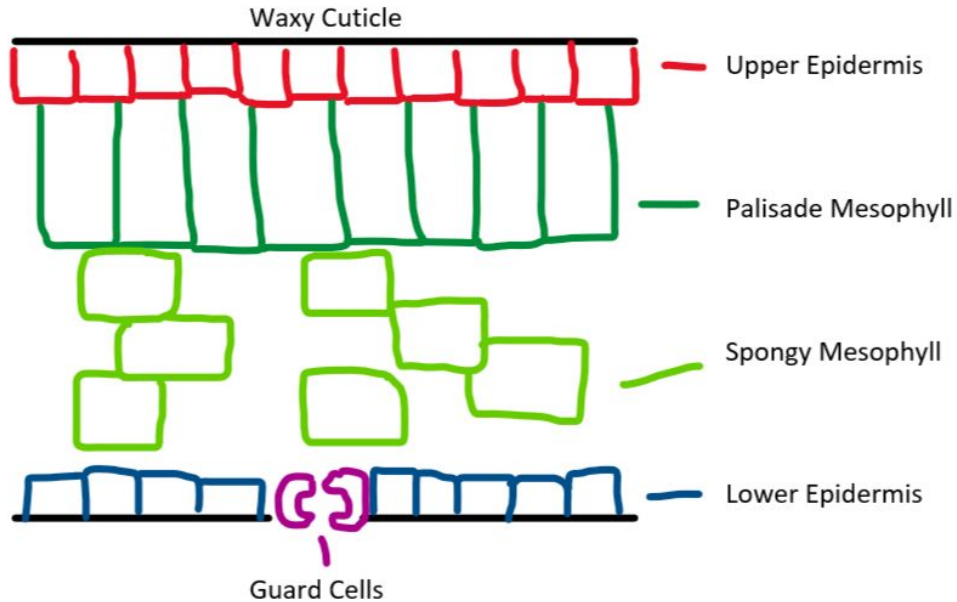
A factor that limits the rate of a reaction when there is not enough of it.



Describe the structure of leaf tissue



Describe the structure of leaf tissue



Give 3 ways leaves are adapted for photosynthesis



Give 3 ways leaves are adapted for photosynthesis

- They are thin which provides a short diffusion distance
- The spongy mesophyll layer has lots of air spaces for efficient gas exchange
- Palisade mesophyll cells have lots of chloroplasts for photosynthesis



What are mineral ions used for in a plant?



What are mineral ions used for in a plant?

Mineral ions are used for growth in plants.



Give 2 common ions in plants



Give 2 common ions in plants

Magnesium ion (Mg^{2+})

Nitrate ion (NO_3^-)



What are magnesium ions used for in plants?



What are magnesium ions used for in plants?

They are used in chlorophyll



What are nitrate ions used for in organisms?



What are nitrate ions used for in organisms?

Nitrate ions are used in amino acids.



Why is a balanced diet important?



Why is a balanced diet important?

The body needs different substances in different proportions to function properly, too much or too little of different things can be harmful.



What 7 groups are needed for a balanced diet?



What 7 groups are needed for a balanced diet?

Carbohydrates, proteins, lipids (fats), vitamins, minerals, water and dietary fibre.



What is the function of carbohydrates in the diet?



What is the function of carbohydrates in the diet?

Carbohydrates are the body's main source of energy.



What are the functions of proteins in the body?



What are the functions of proteins in the body?

Proteins can have structural or metabolic roles in the body and are used as hormones, enzymes, antibodies, etc



What are the functions of lipids in the body?



What are the functions of lipids in the body?

- Energy storage
- Cell membranes
- Buoyancy
- Insulation



What is vitamin A used for?



What is vitamin A used for?

- Keeping the skin healthy
- Improved vision in the dark
- Strengthening the immune system



What is vitamin C used for?



What is vitamin C used for?

Growth and repair



What is vitamin D used for?



What is vitamin D used for?

Vitamin D is used in the absorption of calcium.



What is calcium used for in the body?



What is calcium used for in the body?

Calcium strengthens bones and teeth.



What is iron used for in the body?



What is iron used for in the body?

Iron is used in haemoglobin to transport oxygen in the blood.



What is water used for in the body?



What is water used for in the body?

- A reaction medium
- Temperature control
- Transport



What is dietary fibre used for?



What is dietary fibre used for?

It helps keep everything flowing through the digestive system.



Compare the energy requirements of
more and less active people



Compare the energy requirements of more and less active people

The more active a person is, the greater their energy requirement.



Describe how energy requirements
change as we age



Describe how energy requirements change as we age

Adults generally require more energy than children.



What is the alimentary canal?



What is the alimentary canal?

The alimentary canal is the complete tube that food passes through as it passes through the body.



What is the difference between the alimentary canal and the digestive system?



What is the difference between the alimentary canal and the digestive system?

The alimentary canal involves the tubes that the food passes through whereas the digestive system also includes digestive glands.



Describe the passage of food through
the alimentary canal



Describe the passage of food through the alimentary canal

Mouth → oesophagus → stomach →
small intestine → large intestine →
rectum



What is the function of the mouth?



What is the function of the mouth?

- To chew and break down food
- To secrete digestive enzymes



What is the oesophagus?



What is the oesophagus?

The tube that carries food from the mouth to the stomach.



What does the stomach do?



What does the stomach do?

The stomach is a muscular sac containing acid that pummels the food and breaks it down further.



What role does the pancreas play in digestion?



What role does the pancreas play in digestion?

The pancreas secretes digestive enzymes into the small intestine.



What are the two parts of the small intestine called?



What are the two parts of the small intestine called?

Duodenum and ileum



What is the function of the duodenum?



What is the function of the duodenum?

The duodenum receives food directly from the stomach and uses enzymes and chemical digestion to break the food down.



What is the function of the ileum?



What is the function of the ileum?

Most nutrients are absorbed from the food in the ileum into the blood.

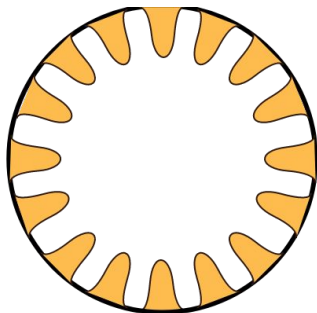


How is the ileum adapted for absorption?



How is the ileum adapted to absorption?

The ileum is lined with villi which provide a large surface area for reabsorption



How are villi adapted for absorption?



How are villi adapted for absorption?

- Thin walls
- Large surface area
- Good blood supply close to the surface



What is the function of the large intestine
(colon)?



What is the function of the large intestine (colon)?

Water is reabsorbed into the blood in the large intestine.



What is the function of the rectum?



What is the function of the rectum?

The rectum stores faeces before egestion

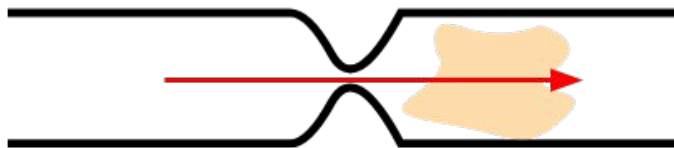


How does peristalsis work to push food through the gut?



How does peristalsis work to push food through the gut?

Muscles contract in a wave like fashion which pushes food along.



What enzymes break starch down to glucose?



What enzymes break starch down to glucose?

Maltase and amylase



What group of enzymes break proteins down into amino acids?



What group of enzymes break proteins down into amino acids?

Proteases



What group of enzymes break lipids down into glycerol and fatty acids?



What group of enzymes break lipids down into glycerol and fatty acids?

Lipases



What does bile do?



What does bile do?

- Bile neutralises the stomach acid and provides alkaline conditions for the digestive enzymes in the small intestine
- Bile also emulsifies fats



Where is bile produced?



Where is bile produced?

Bile is produced in the liver



Where is bile stored?



Where is bile stored?

Bile is stored in the gallbladder

