Edexcel Biology IGCSE

2.g - Gas exchange

Flashcards

Define diffusion (Higher)

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The net movement of molecules from an area of high concentration to an area of low concentration down their concentration gradient.

What gas do plants need to take in for aerobic respiration? (Higher)

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Oxygen (O_2)

What gas do plants need to remove from respiration? (Higher)

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Carbon dioxide (CO_2)

What gas do plants need to take in for photosynthesis? (Higher)

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Carbon dioxide (CO_2)

What gas do plants need to remove from photosynthesis? (Higher)

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Oxygen (O_2)

Give 3 adaptations of leaf tissue for gas exchange (Higher)

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- Stomata (pores) allow diffusion of gases in and out of the plant
- Thin to shorten the diffusion distance
- Air spaces in the spongy mesophyll layer allow gases to diffuse

Why don’t plants keep the stomata open permanently? (Higher)

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Plants need to close the stomata to reduce water loss.

Draw a graph to show how photosynthesis and respiration are affected by light intensity (Higher)

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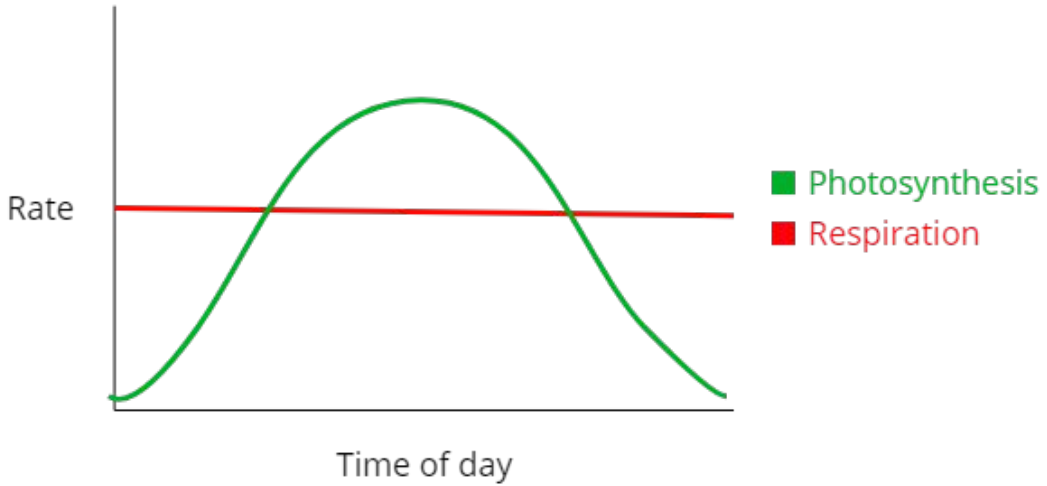

Why do plants release more CO_2 compared to O_2 at night? (Higher)

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- Respiration continues during the night whereas photosynthesis does not
- Respiration releases CO_2 and photosynthesis releases O_2

Describe the general structure of the lungs

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- Trachea branches into two bronchi
- Bronchi branch into bronchioles
- Bronchioles terminate in alveoli

Describe the structure of an alveolus

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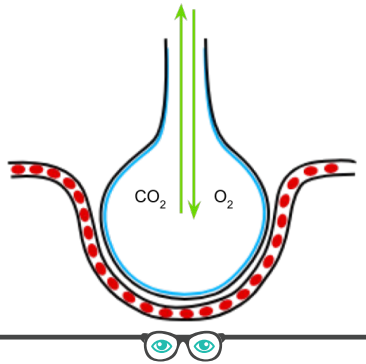
- Small sacs with capillaries around them
- Contain a surfactant so walls don't stick together and so gases can dissolve to help diffusion



What is the purpose of the pleural membrane?

What is the purpose of the pleural membrane?

The pleural membrane covers the lungs, reduces friction and keeps the lungs moist.

What are the intercostal muscles?

What are the intercostal muscles?

They are a group of muscles found between the ribs that are involved in breathing by changing the size of the thorax.

How do the diaphragm and intercostal muscles work together during expiration (breathing out)?

How do the diaphragm and intercostal muscles work together during expiration (breathing out)?

Expiration:

- Diaphragm r**e**laxes and moves up
- **E**xternal intercostal muscles r**e**lax
- Volume in the thorax decreases and air moves out

How do the diaphragm and intercostal muscles work together during inspiration (breathing in)?

How do the diaphragm and intercostal muscles work together during inspiration (breathing in)?

Inspiration:

- Diaphragm contracts and moves down
- External intercostal muscles contract
- Volume in the thorax increases and air moves in

Give 3 health issues caused by smoking

Give 3 health issues caused by smoking

- Cancer
- Bronchitis
- Coronary heart disease

How does smoker's cough arise?

How does smoker's cough arise?

- Cilia on cells lining the trachea waft mucus containing dirt out of the lungs
- Smoking can kill cells lining the trachea
- A build-up of mucus in the lungs can cause people to develop smoker's cough