

Photosynthesis Part 2



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر العام ← علوم ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-07-01 22:27:41

ملفات اكتب للمعلم اكتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي للمدرس

المزيد من مادة
علوم:

التواصل الاجتماعي بحسب الصف الحادي عشر العام



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الحادي عشر العام والمادة علوم في الفصل الثالث

الدرس الثاني البناء الضوئي

1

How organisms obtain energy

2

كن مستعدا مراجعة نهاية الفصل 2026م غير محلول

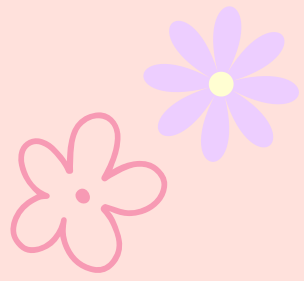
3

مراجعة وفق الهيكل الوزاري منهج انسباير المسار M مع الإجابات

4

مراجعة نهائية وفق الهيكل الوزاري منهج انسباير المسار A-101-M

5



Biology- II ADV

LESSON-2

PHOTOSYNTHESIS (Part-2)



Hi every one

I made this file to help you in your study

Hope its helpful!

Thanks for reading



Done By: 





Electron Transport Chain

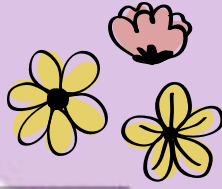


- The electron transport chain is a series of proteins and organic molecules found in the inner membrane of the mitochondria.
- Electrons are passed from one member of the transport chain to another in a series of redox reactions. Energy released in these reactions is captured as a proton gradient, which is then used to make ATP in a process called chemiosmosis.
- Together, the electron transport chain and chemiosmosis make up oxidative phosphorylation
 - Chemiosmosis refers to the process of moving ions (e.g. protons) to the other side of the membrane resulting in the generation of an electrochemical gradient that can be used to drive ATP synthesis.
 - The gradient also incites the ions to return passively (from regions of high to low concentrations) with the help of the proteins embedded in the membrane.

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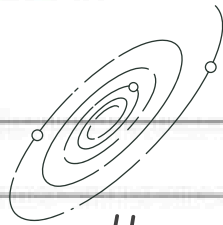
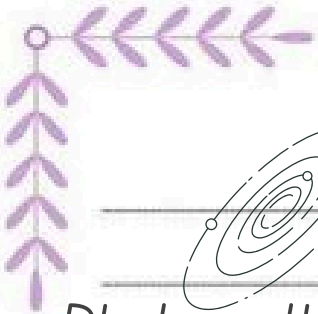
Phase Two: The Calvin Cycle



- In the first step of the Calvin cycle, six carbon dioxide (CO_2) molecules combine with six 5-carbon compounds to form twelve 3-carbon molecules called 3-phosphoglycerate (3-PGA). The joining of carbon dioxide with other organic molecules is called carbon fixation.
- In the second step, the chemical energy stored in ATP and NADPH is transferred to the 3-PGA molecules to form high energy molecules called glyceraldehyde 3-phosphates (G3P). ATP supplies the phosphate groups for forming G3P molecules, while NADPH supplies hydrogen ions and electrons.
- In the third step, two G3P molecules leave the cycle to be used for the production of glucose and other organic compounds.
- In the final step of the Calvin cycle, an enzyme called rubisco converts the remaining ten G3P molecules into 5-carbon molecules called ribulose 1, 5-bisphosphates (RuBP). These molecules combine with new carbon dioxide molecules to continue the cycle.



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Alternative Pathways



Photosynthesis might be difficult for plants that grow in hot, dry environments. Many plants in extreme climates have evolved other photosynthesis pathways.



Tropical plants such as sugar cane and corn use the C_4 pathway. Instead of the 3-carbon molecules of the Calvin cycle, C_4 plants fix carbon dioxide into 4-carbon molecules. Less water is lost in the C_4 pathway



Another alternative pathway is called the CAM pathway. CAM plants live in deserts, salt marshes, and other environments

Cacti and orchids are CAM plants. Carbon dioxide enters the leaves of CAM plants only at night, when the atmosphere is cooler and more humid. The plants also fix carbon dioxide into organic compounds at night. During the day, carbon dioxide is released from organic compounds in the plants. The carbon dioxide enters the Calvin cycle at that point. The CAM pathway minimizes water loss, while allowing for adequate carbon uptake.

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