

Biology- II ADV LESSON-2 PHOTOSYNTHESIS (Part-I)



تم تحميل هذا الملف من موقع المناهج الإماراتية

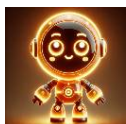
موقع المناهج ← المناهج الإماراتية ← الصف الحادي عشر العام ← علوم ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 22:22:03 2026-07-01

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

How organisms obtain energy

1

كن مستعدا مراجعة نهاية الفصل 2026م غير محلول

2

مراجعة وفق الهيكل الوزاري منهج انسباير المسار M مع الإجابات

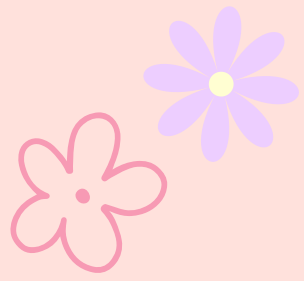
3

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

4

حل مراجعة اعتماداً على صفحات وفق الهيكل الوزاري

5



Biology- II ADV

LESSON-2

PHOTOSYNTHESIS (Part-I)



Hi every one

I made this file to help you in your study

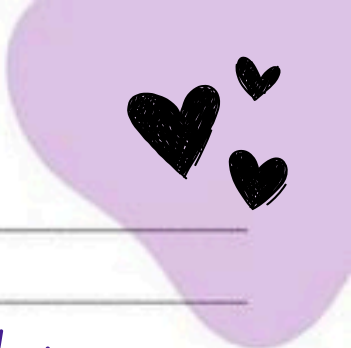
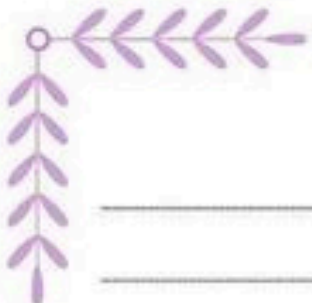
Hope its helpful!

Thanks for reading



Done By: 



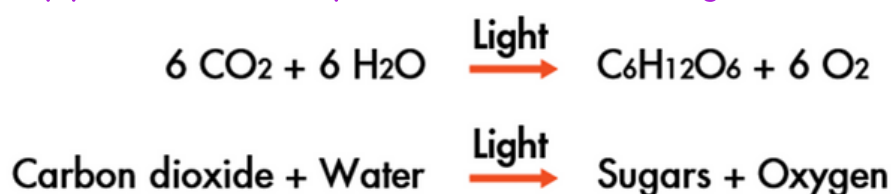


PHOTOSYNTHESIS

Differentiate between autotrophs and heterotrophs:

- Organisms that obtain food by consuming other living things are known as heterotrophs.
- Some heterotrophs get their food by eating plants. These are called HERBIVORES
- Other heterotrophs, obtain food from other animals. These are called CARNIVORES
- Some heterotrophs get their food by eating both plants and animals. These are called OMNIVORES
- other heterotrophs, such as mushrooms and other fungi, obtain food by decomposing other organisms. These are called SAPROPHYTES

Photosynthesis is a process where green plants convert Carbon dioxide and water into sugar and oxygen as a byproduct. This process happens in the presence of sunlight and chlorophyll



Done By: 

Chloroplasts

- 1-large organelles found mainly in the cells of plant leaves
- 2-capture light energy in photosynthetic organisms.
- 3- consist of two main compartments: the thylakoid and the stroma.

Thylakoids are flattened, saclike membranes arranged in stacks called grana, where light-dependent reactions occur

The stroma, a fluid-filled space outside the grana, is where light-independent reactions take place in phase two of photosynthesis.



Leaf Tissue

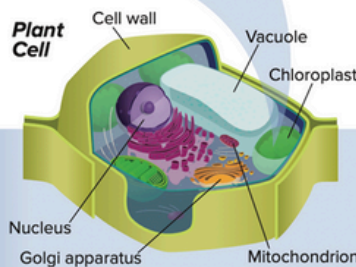
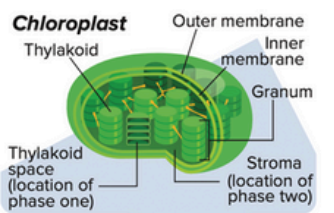
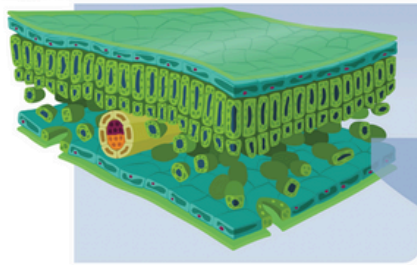
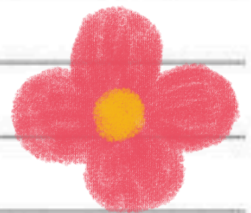


Figure 5 Photosynthesis occurs inside pigmented organelles called chloroplasts. Identify the location of the stroma and thylakoids within a plant cell.



Done By: 

Relate the role of various pigments to light absorption in photosynthetic organisms

- Pigments reflect or transmit the wavelengths they cannot absorb, making organisms appear in the corresponding color.
- Chlorophylls and carotenoids are the major pigments in plants
- Chlorophyll a absorbs light in the blue-violet region, chlorophyll b absorbs red-blue light, and both a and b reflect green light (which is why chlorophyll appears green).

Carotenoids absorb light in the blue-green and violet region and reflect the longer yellow, red, and orange wavelengths; these pigments also dispose excess energy out of the cell. Includes the familiar compound carotene which gives carrots their color



Figure 7 When chlorophyll breaks down in the leaves of some trees, the other pigments become visible.

Absorption Spectrum of Photosynthetic Pigments

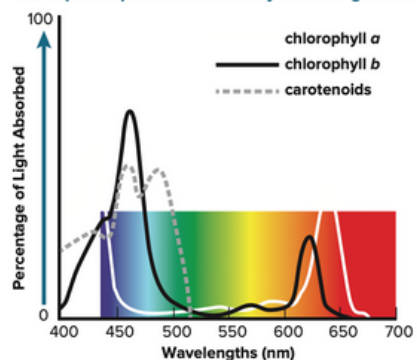


Figure 6 Colorful pigments found in the leaves of trees differ in their ability to absorb specific wavelengths of light. Hypothesize the effect on light absorption if a plant did not have chlorophyll b.

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Compare and contrast the light dependent and light independent phases of photosynthesis

- One of the most important compounds that cells use to store and release energy is adenosine triphosphate (ATP)
- ATP consists of adenine, a 5-carbon sugar called ribose, and three phosphate groups.

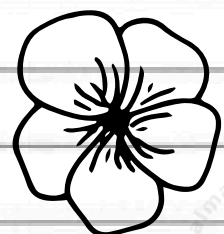


Light dependent Photosynthesis

- They require the direct involvement of light and light-absorbing pigments (chlorophyll).
- The light-dependent reactions use energy from sunlight to produce ATP and NADPH (through the electron transport chain)
- These reactions take place within the thylakoid membranes of the chloroplast.

Light-independent Photosynthesis (Calvin Cycle)

- ATP and NADPH molecules produced in the light-dependent reactions are used to produce high-energy sugars from carbon dioxide.
- No light is required to power the light-independent reactions.
- The light-independent reactions take place outside the thylakoids, in the stroma.



Done By: 

ATP-ADP CYCLE

Light-Dependent	Both	Light-Independent
Happens in thylakoids	Happens in chloroplast of plant cell	Happens in stroma
Photolysis and ATP synthase	Parts of photosynthesis	Carbon fixation
Requires light		Doesn't require light
O ₂ made		C ₆ H ₁₂ O ₆ made

The End

Done By: 