AP BIO INSTA-REVIEW

TOPIC 3.7

Fitness

SYI-3.A.1

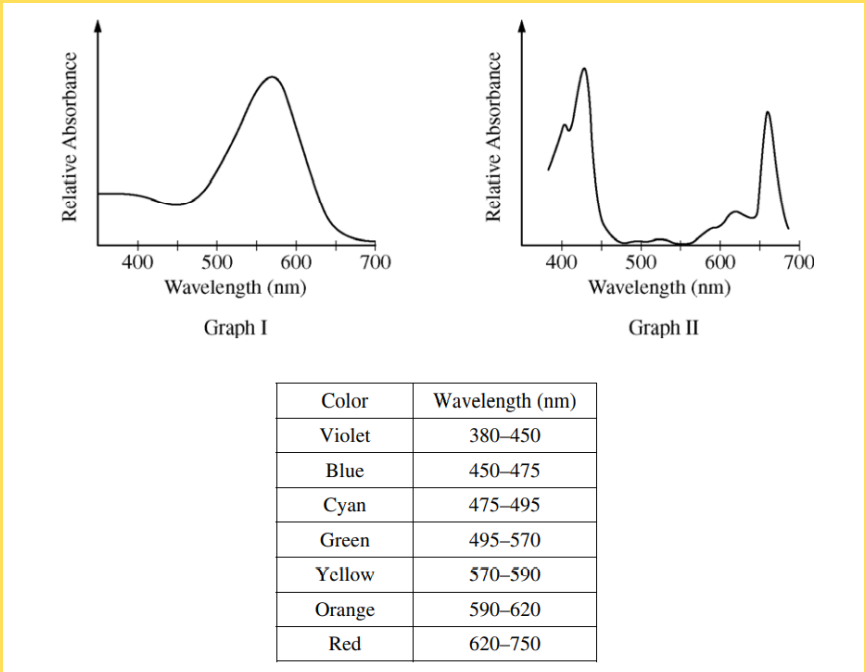
Variation at the molecular level provides organisms with the ability to respond to a variety of environmental stimuli.

SYI-3.A.2

Variation in the number and types of molecules within cells provides organisms a greater ability to survive and/or reproduce in different environments.

AP BIO INSTA-REVIEW

TOPIC 3.7



Color	Wavelength (nm)
Violet	380–450
Blue	450–475
Cyan	475–495
Green	495–570
Yellow	570–590
Orange	590–620
Red	620–750

Which pigment would be more favorable in green light?

A. Pigment A (Graph I)

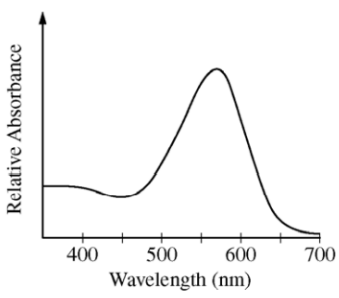
B. Pigment B (Graph II)

AP BIO INSTA-REVIEW

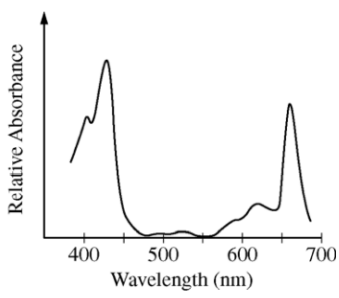
TOPIC 3.7

Which pigment would be more favorable in green light?

A. Pigment A (Graph I)



Graph I



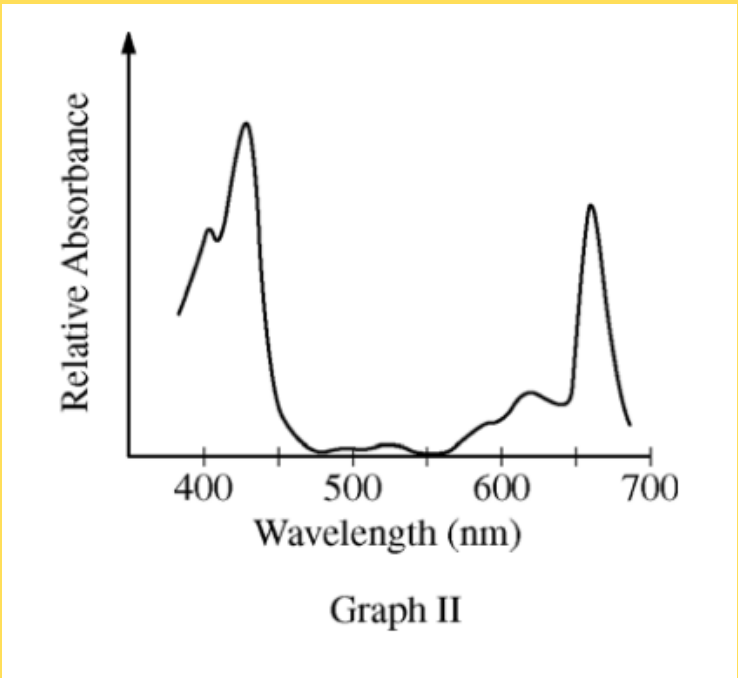
Graph II

Color	Wavelength (nm)
Violet	380–450
Blue	450–475
Cyan	475–495
Green	495–570
Yellow	570–590
Orange	590–620
Red	620–750

This is showing the absorption spectrum of two different pigments. The graph with the highest absorption in the green range (490 – 570) is the favorable in green.

AP BIO INSTA-REVIEW

TOPIC 3.7



Graph II

Color	Wavelength (nm)
Violet	380–450
Blue	450–475
Cyan	475–495
Green	495–570
Yellow	570–590
Orange	590–620
Red	620–750

What color is the pigment from graph II?

A. Blue

B. Green

C. Red

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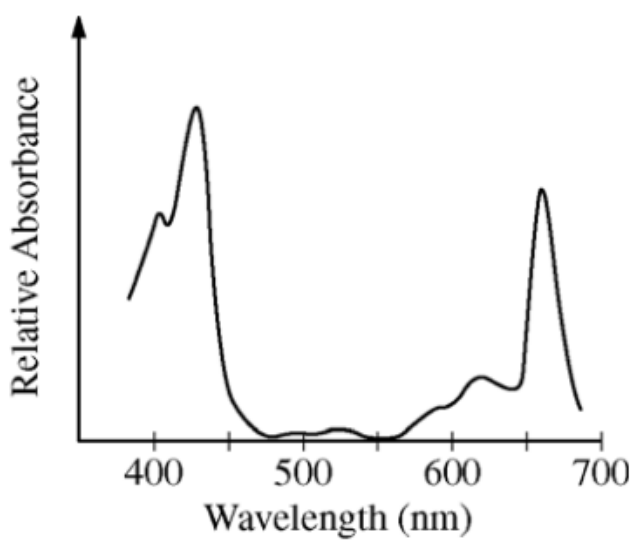
TOPIC 3.7

What color is the pigment from graph II?

B. Green



Graph II

As you see there is a low absorption in the green range (490 - 570), which means that it is the color of the pigment. Colors that are observed are reflected or transmitted while absorbing all other colors.

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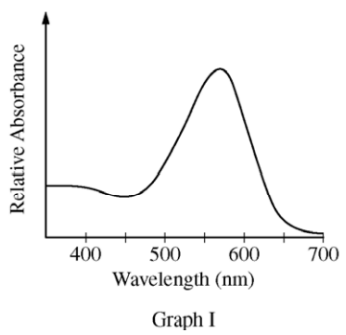
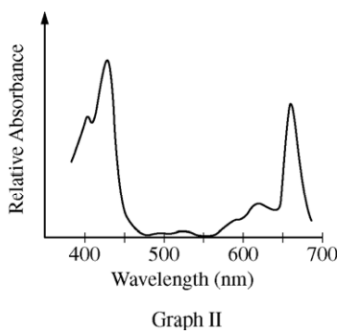
TOPIC 3.7



Graph I



Graph II

Color	Wavelength (nm)
Violet	380–450
Blue	450–475
Cyan	475–495
Green	495–570
Yellow	570–590
Orange	590–620
Red	620–750

Justify your claim that Pigment A (Graph I) is more favorable in green light.

AP BIO INSTA-REVIEW

TOPIC 3.7

Justify your claim that Pigment A (Graph 1) is more favorable in green light.

Pigment A absorbs more light for photosynthesis than Pigment B at green wavelengths.

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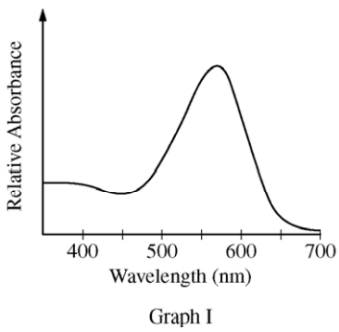
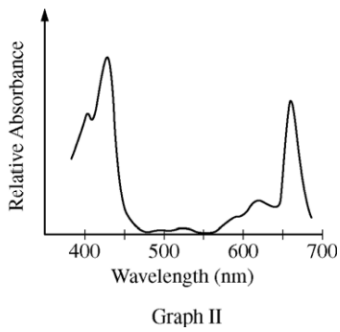
TOPIC 3.7



Graph I



Graph II

Color	Wavelength (nm)
Violet	380–450
Blue	450–475
Cyan	475–495
Green	495–570
Yellow	570–590
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Red	620–750

Why would the pigment in Graph II be less favorable in green light?

AP BIO INSTA-REVIEW

TOPIC 3.7

Why would the pigment in Graph II be less favorable in green light?

Notice in the green range (495 – 570), there is very LOW absorbance of light with the pigment in Graph II. The less light absorbed, the less energy is converted to chemical energy for the plant.

AP BIO INSTA-REVIEW

TOPIC

3.7

Many species of bacteria grow in the mouths of animals and can form biofilms on teeth (plaque). Within plaque, the outer layers contain high levels of oxygen and the layers closest to the tooth contain low levels of oxygen. The surface of the tooth is covered in a hard layer of enamel, which can be dissolved under acidic conditions. When the enamel breaks down, the bacteria in plaque can extract nutrients from the tooth and cause cavities.

Certain types of bacteria (e.g., *Streptococcus mutans*) thrive in the innermost anaerobic layers of the plaque and are associated with cavities. Other types of bacteria (*Streptococcus sanguinis*) compete with *S. mutans* but are unable to thrive in acidic environments.

If you forget to brush your teeth, which bacteria is favorable in your mouth (for them not you)?

A. S. mutans

B. S. sanguinis

AP BIO INSTA-REVIEW

TOPIC 3.7

If you forget to brush your teeth, which bacteria is favorable in your mouth (for them not you)?

A. S. mutans

If you don't brush your teeth, you are unable to break up the plaque layer on your teeth. The layers closest to the teeth contain low levels of oxygen. The S. mutans is favorable in the innermost anaerobic layers of the plaque.

AP BIO INSTA-REVIEW

TOPIC

3.7

Many species of bacteria grow in the mouths of animals and can form biofilms on teeth (plaque). Within plaque, the outer layers contain high levels of oxygen and the layers closest to the tooth contain low levels of oxygen. The surface of the tooth is covered in a hard layer of enamel, which can be dissolved under acidic conditions. When the enamel breaks down, the bacteria in plaque can extract nutrients from the tooth and cause cavities.

Certain types of bacteria (e.g., *Streptococcus mutans*) thrive in the innermost anaerobic layers of the plaque and are associated with cavities. Other types of bacteria (*Streptococcus sanguinis*) compete with *S. mutans* but are unable to thrive in acidic environments.

Justify the S. mutans is more favorable in a non-brushed mouth.

AP BIO INSTA-REVIEW

TOPIC 3.7

Justify the S. mutans is more favorable in a non-brushed mouth.

If you don't brush your teeth, there is less oxygen (you don't aerate your teeth). The S. mutans is favorable in an anaerobic environment.

AP BIO INSTA-REVIEW

TOPIC 3.7

Many species of bacteria grow in the mouths of animals and can form biofilms on teeth (plaque). Within plaque, the outer layers contain high levels of oxygen and the layers closest to the tooth contain low levels of oxygen. The surface of the tooth is covered in a hard layer of enamel, which can be dissolved under acidic conditions. When the enamel breaks down, the bacteria in plaque can extract nutrients from the tooth and cause cavities.

Certain types of bacteria (e.g., *Streptococcus mutans*) thrive in the innermost anaerobic layers of the plaque and are associated with cavities. Other types of bacteria (*Streptococcus sanguinis*) compete with *S. mutans* but are unable to thrive in acidic environments.

What process performed by the bacteria caused the low pH?

A. Fermentation/Glycolysis

B. Krebs Cycle

C. Oxidative Phosphorylation

D. All of the above

AP BIO INSTA-REVIEW

TOPIC 3.7

What process performed by the bacteria caused the low pH?

A. Fermentation/Glycolysis

Fermentation is a form of anaerobic respiration that takes place after glycolysis. There are two different types: ethanol fermentation and lactic acid fermentation. The increase in lactic acid will result in a low pH. Glycolysis ends with pyruvate (or pyruvic acid).

AP BIO INSTA-REVIEW

TOPIC 3.7

Many species of bacteria grow in the mouths of animals and can form biofilms on teeth (plaque). Within plaque, the outer layers contain high levels of oxygen and the layers closest to the tooth contain low levels of oxygen. The surface of the tooth is covered in a hard layer of enamel, which can be dissolved under acidic conditions. When the enamel breaks down, the bacteria in plaque can extract nutrients from the tooth and cause cavities.

Certain types of bacteria (e.g., *Streptococcus mutans*) thrive in the innermost anaerobic layers of the plaque and are associated with cavities. Other types of bacteria (*Streptococcus sanguinis*) compete with *S. mutans* but are unable to thrive in acidic environments.

Toothpaste is alkaline, which bacteria is more favorable?

A. S. mutans

B. S. sanguinis

AP BIO INSTA-REVIEW

TOPIC 3.7

Toothpaste is alkaline, which bacteria is more favorable?

B. S. sanguinis

Since toothpaste is alkaline (which means basic), this will increase the pH in the mouth. The S. sanguinis is unable to compete with S. mutans in acidic environments, but now that its alkaline they are more favorable