End of term-2

Grade 9 Advance Biology (2023-2024)

Instruction:

Students requested to practice this ppt by using Slide show.

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1. Identify the direction that impulses travel through a neuron.

- A neuron consists of three main regions: the dendrites, a cell body, and an axon.
- Dendrites receive signals called impulses from other neurons and conduct the impulses to the cell body. Each neuron contains several dendrites. The nucleus of the neuron and many of the cell organelles are found in the cell body. Lastly, an axon carries the nerve impulse from the cell body to other neurons and muscles.

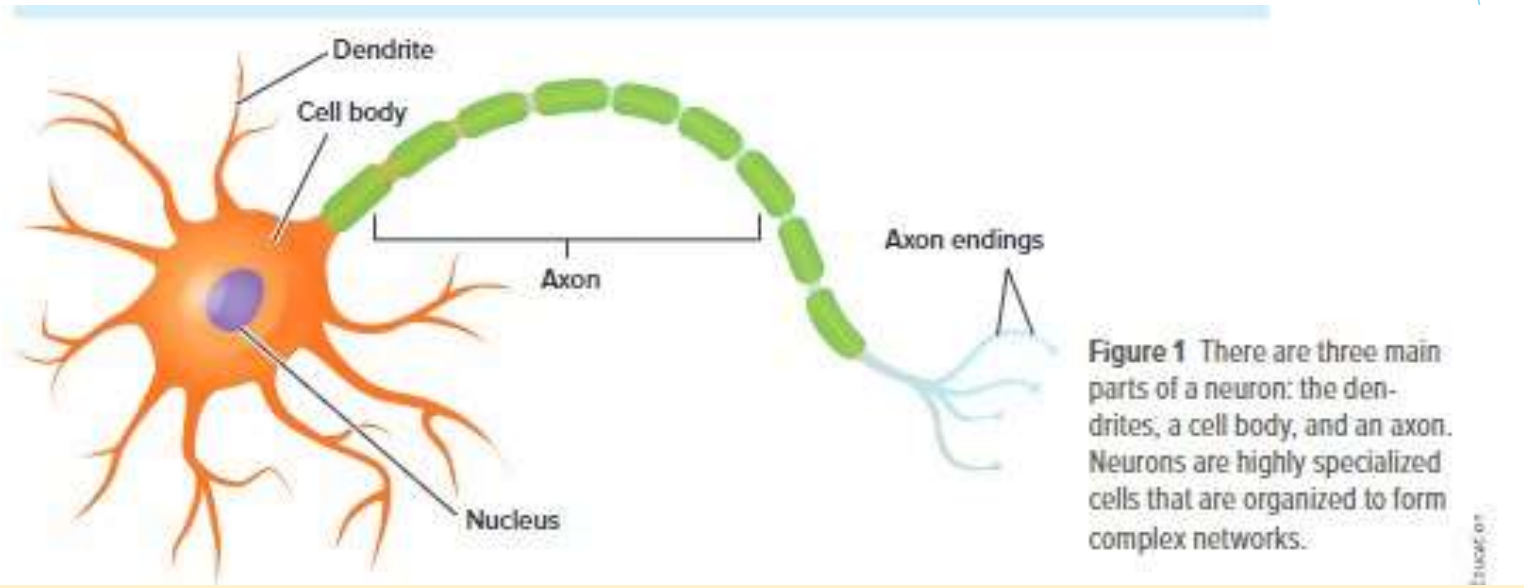

Figure 1 There are three main parts of a neuron: the dendrites, a cell body, and an axon. Neurons are highly specialized cells that are organized to form complex networks.

Dendrites → Cell body → Axon → Axon endings → synapse → Next neuron

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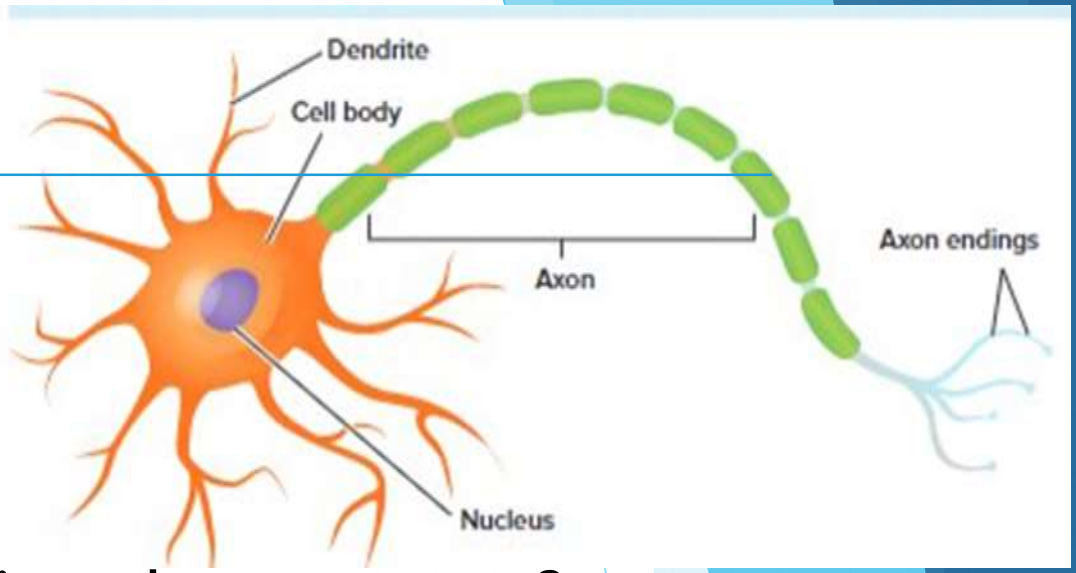
Quiz



1. What is the correct sequence of nerve impulse transport?

~~A~~ Cell body to Axon

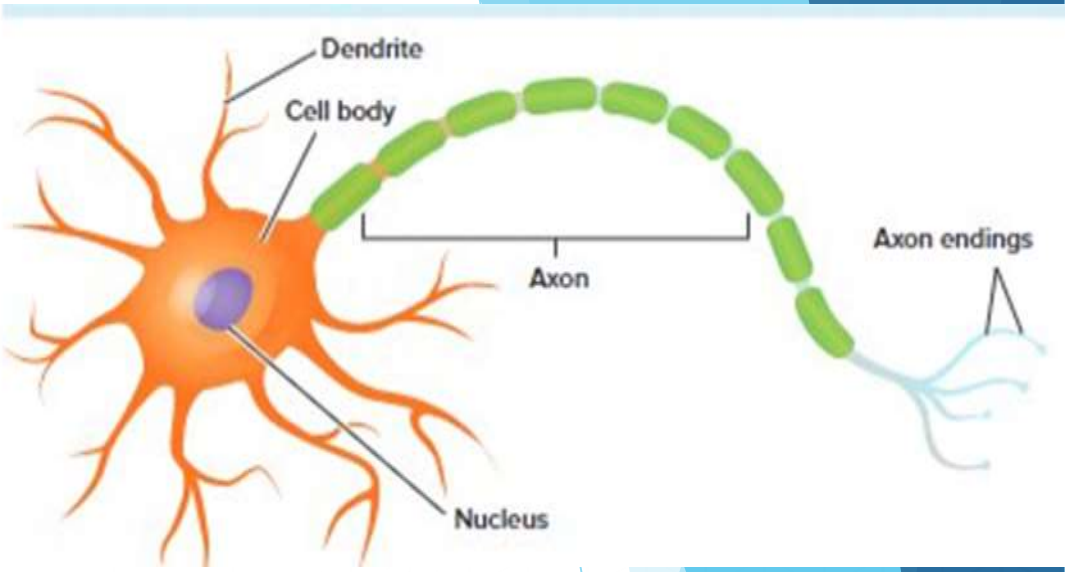
C Dendrites to Axon ending

CORRECT

~~B~~ Axon ending to dendrites

~~D~~ Axon ending to Axon

Quiz



2. Which part of the neuron receives impulse?

Axon

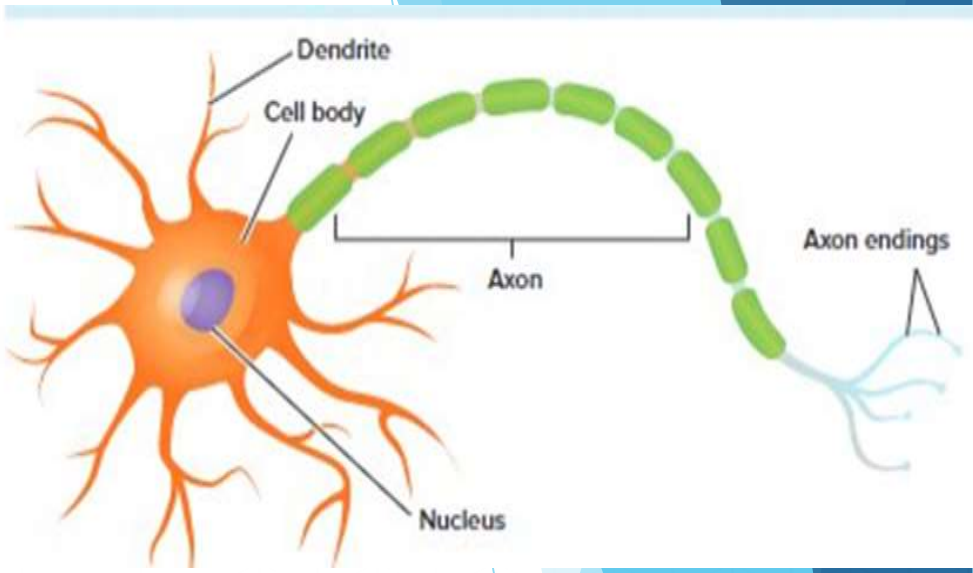
Axon endings

B Dendrite

Cell body

CORRECT

Quiz



3. Which part of the neuron transmit nerve impulse?

A Axon endings

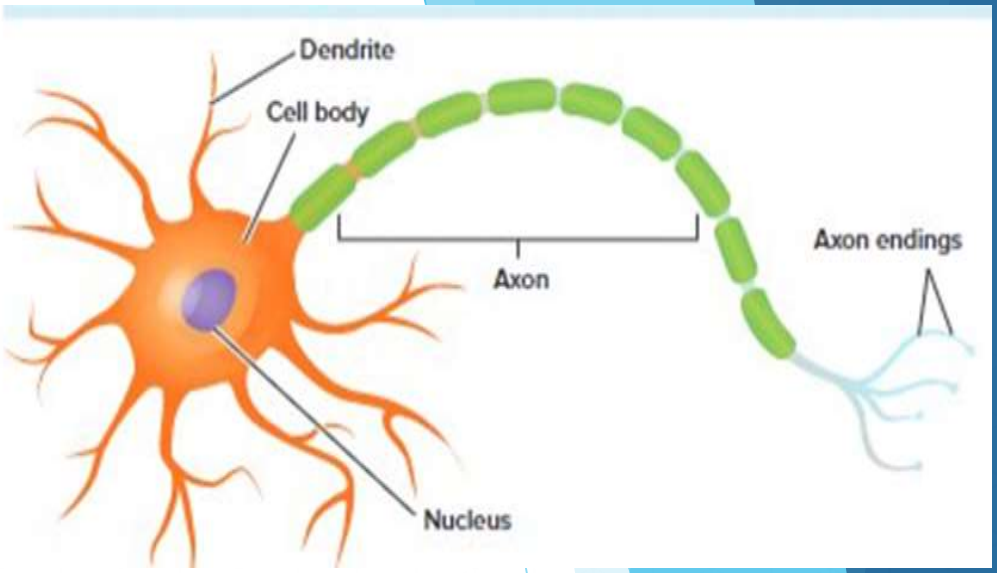
CORRECT

Axon

Cell body

Dendrite

Quiz



4. Which part of neuron transmit nerve impulse across length of neuron?

Dendrite

Axon endings

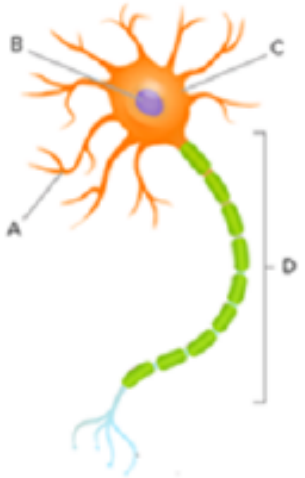
B Axon

Cell body

CORRECT

Which of the following letters represents the **axon** in the below picture?

أي من الأحرف التالية يمثل المحور في الصورة أدناه؟



Learning Outcomes Covered

- BIO.3.1.01.086

a. A

b. B

c. C

d. D

What would be the hypothetical result if a person lacks the motor neurons?	ماذا ستكون النتيجة الافتراضية إذا كان الشخص يفتقر إلى الخلايا العصبية الحركية؟

Learning Outcomes Covered

- BIO.3.1.01.086

a.	Would be unable to breath	لن يكون قادرا على التنفس
b.	Would be unable to feel a deep cut	لن يكون قادرا على الإحساس بالجرح العميق
c.	Would be unable to feel a hot plate	لن يكون قادرا على الاحساس بحرارة الطبق
d.	Would be unable to catch his pen	لن يكون قادرا على الإمساك بقلمه

2. Differentiate between the central nervous system (CNS) and the peripheral nervous system (PNS) in terms of associated structures

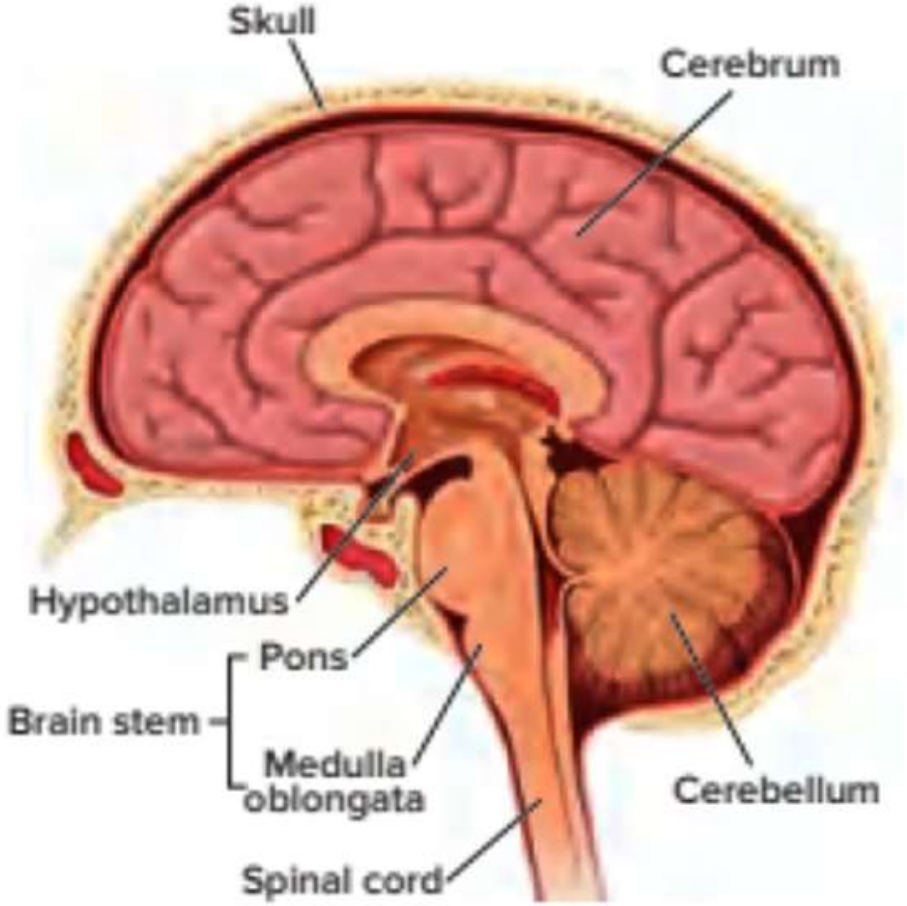
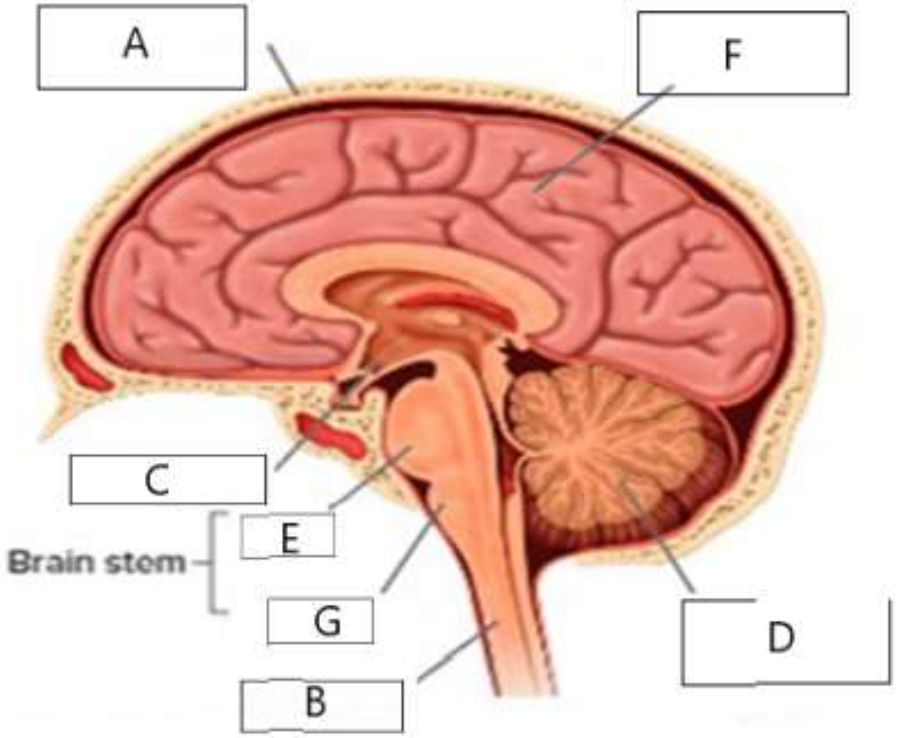


Figure 10 **Top:** A photograph of a human brain shows distinct sections. **Bottom:** The major sections of the brain are the cerebrum, the cerebellum, and the brain stem.

Describe *the position of the cerebrum in relation to the cerebellum.*

pg. 140

Quiz



7. Identify the part E in the diagram?

~~A~~ Cerebellum

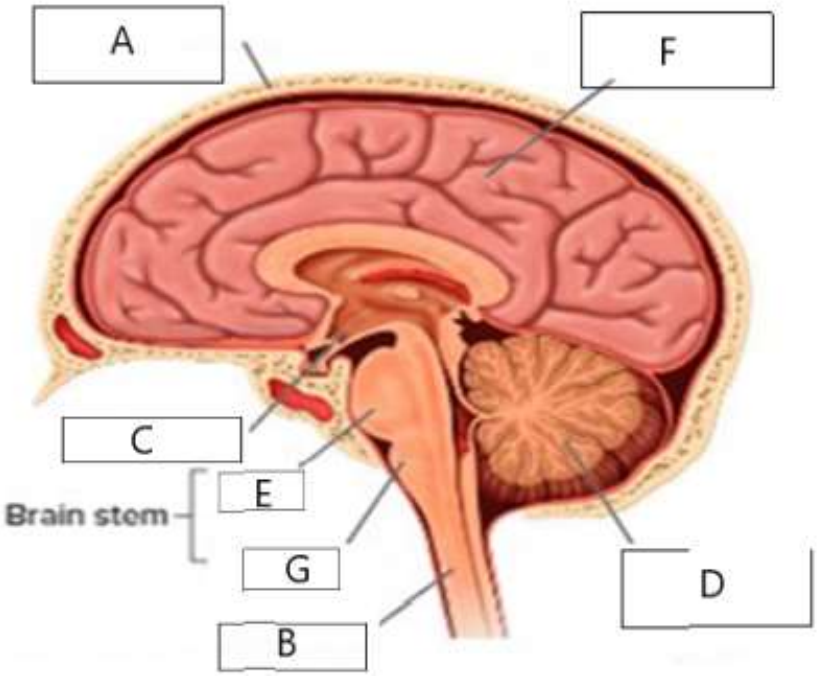
C Pons

CORRECT

~~B~~ Medulla Oblongata

~~D~~ Cerebrum

Quiz



8. Identify the part D in the picture?

Hypothalamus

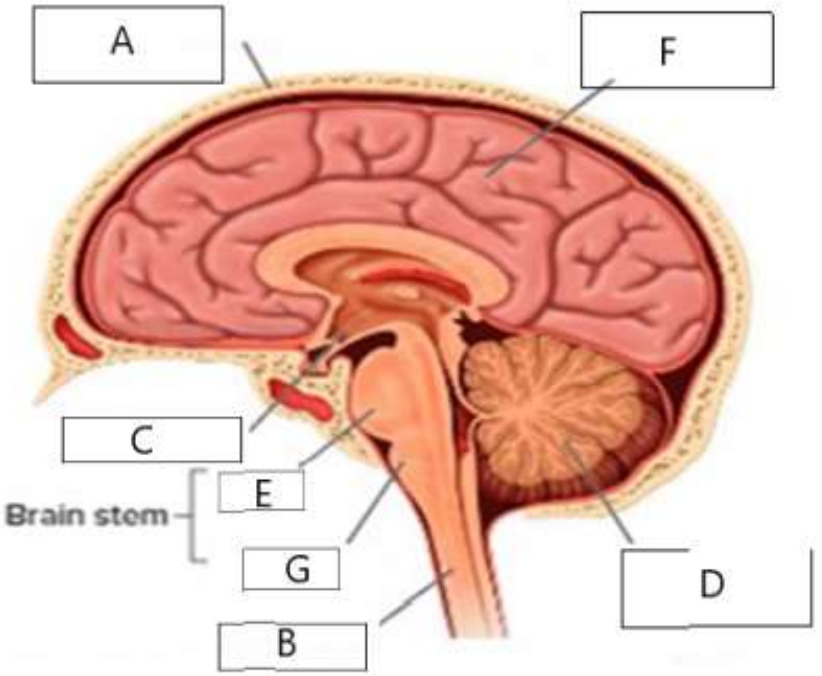
Medulla Oblongata

B Cerebellum

Cerebrum

CORRECT

Quiz



9. Which part of Brain control temperature and maintain homeostasis?

A Hypothalamus

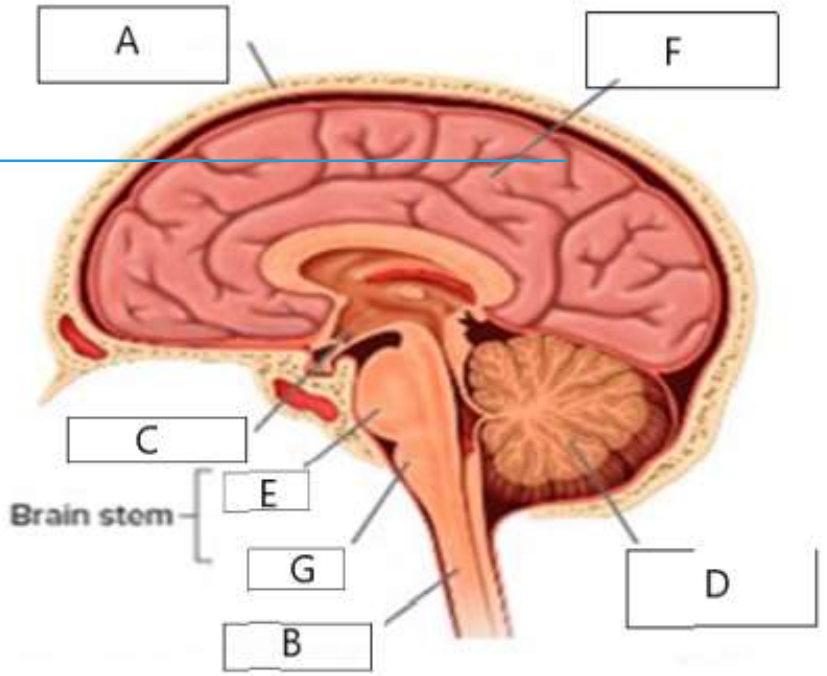
CORRECT

Medulla Oblongata

Cerebrum

Cerebellum

Quiz



10. Which part of the maintain balance and coordination?

Hypothalamus

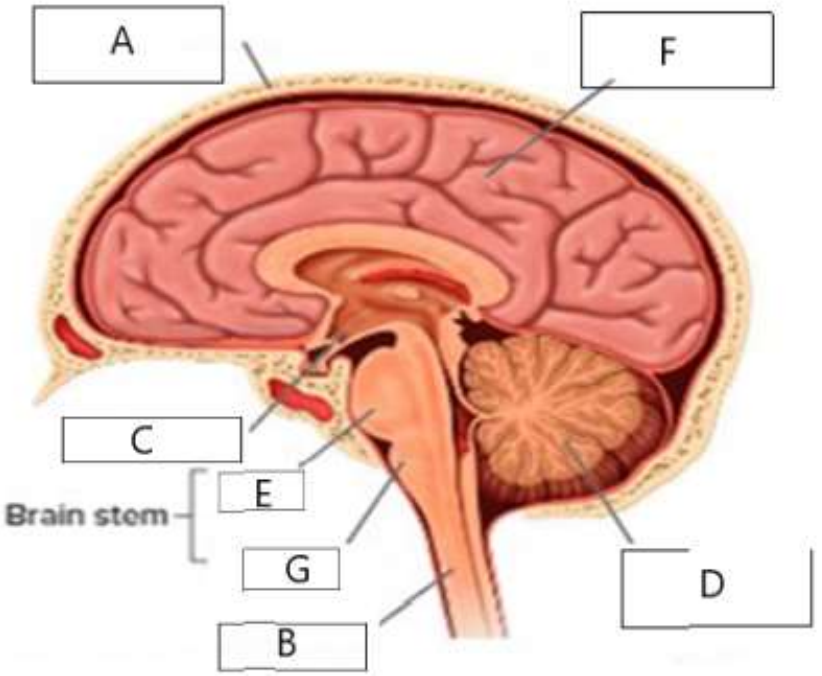
Medulla Oblongata

B Cerebellum

Cerebrum

CORRECT

Quiz



11. Which part of the brain controls thinking, speec
memory?

Hypothalamus

Medulla Oblongata

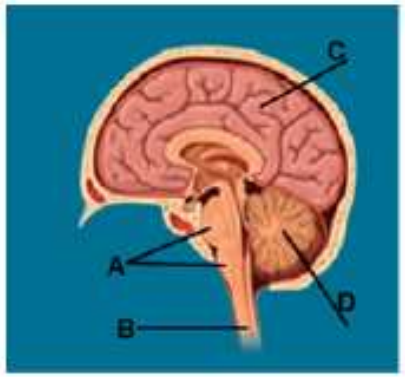
B Cerebrum

Cerebellum

CORRECT

In the below picture, which letter of the following refers to the structure that helps to control the rate of breathing?

في الصورة أدناه، أي حرف مما يلي يشير إلى التركيب الذي يساعد في المحافظة على معدل التنفس؟



Learning Outcomes Covered

- BIO.3.1.01.086

a. B

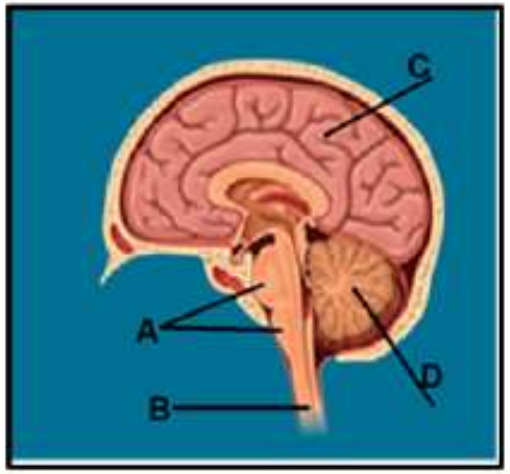
b. C

c. D

d. A

Which letter of the following refers to the spinal cord?

أي حرف مما يلي يشير إلى الحبل الشوكي؟



Learning Outcomes Covered

- BIO.3.1.01.086

a. A

b. C

c. D

d. B

What is the cause of loss of balance and decreased coordination of muscles for a person with brain cancer?	ما سبب فقدان التوازن وانخفاض التنسيق بين العضلات للشخص المصاب بسرطان الدماغ؟

Learning Outcomes Covered

- BIO.3.1.01.086

a.	Because the cancer has damaged hypothalamus	لأن السرطان يحدث ضررا في تحت المهاد
b.	Because the cancer has damaged pons	لأن السرطان يحدث ضررا في القنطرة
c.	Because the cancer has damaged cerebellum	لأن السرطان يحدث ضررا في المخيخ
d.	Because the cancer has damaged pons and hypothalamus	لأن السرطان يحدث ضررا في القنطرة وتحت المهاد

3. Identify the different sensory structures and their corresponding sensory receptors and stimuli

Hearing

- Vibrations called sound waves cause particles in the air to vibrate.
- Sound waves enter the auditory, or ear, canal and cause a membrane, called the eardrum or tympanum, at the end of the ear canal to vibrate. These vibrations travel through three bones in the middle ear: the malleus (also called the hammer), the incus (anvil), and the stapes (stirrup). As the stapes vibrates, it causes the oval window, a membrane that separates the middle ear from the inner ear, to move back and forth. In the inner ear, a snail-shaped structure called the cochlea is filled with fluid and lined with tiny hair cells. Vibrations cause the fluid inside the cochlea to move like a wave against the hair cells. The hairs cells respond by generating nerve impulses in the auditory nerve and transmitting them to the brain

Balance

- Semicircular canals transmit information about body position and balance to the brain. The three canals are positioned at right angles to one another, and they are fluid-filled and lined with hair cells. When the position of your head changes, fluid within the semicircular canals moves. This causes the hair cells to bend, which in turn sends nerve impulses to the brain.

Quiz

15. Which of the following in not part of the middle ear?

- Malleus
- C Ear canal

CORRECT

- Incus
- Stapes

Quiz

16. Snail shaped structure inside inner ear is called

A Cochlea

CORRECT

Semicircular canals

Oval window

Ear drum

Quiz

17. **Which part of the ear transmit signals for hearing to the brain?**

Semicircular canals

Oval window

B Cochlea

Malleus

CORRECT

Which part of the ear transmit information about body position and balance to the brain?	أي جزء من الأذن ينقل معلومات حول وضع الجسم والتوازن إلى الدماغ؟

Learning Outcomes Covered

- BIO.3.1.01.086

a.	Semi-circular canals	القنوات النصف هلالية
b.	Cochlea	القوقعة
c.	Middle ear	الأذن الوسطى
d.	Oval window	النافذة البيضاوية

4. Identify the nephron as the functional unit of the kidney, to include its anatomy and function in waste

Nephron filtration

Each kidney contains approximately one million filtering units called nephrons. Blood enters each nephron through a long tube that is surrounded by a ball of capillaries called the glomerulus (gluh MER uh lus) (plural, glomeruli). The glomerulus is surrounded by a structure called the Bowman's capsule.

The renal artery transports nutrients and wastes to the kidney and branches into smaller and smaller blood vessels, eventually reaching the tiny capillaries in the glomerulus. The walls of the capillaries are very thin, and the blood is under great pressure. As a result, water and substances dissolved in the water, such as the nitrogenous waste product called **urea,** are pushed through the capillary walls into the Bowman's capsule. Larger molecules, such as red blood cells and proteins, remain in the bloodstream.

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Quiz

19. **The filtration unit found in the kidney is called?**

Renal cortex

C Nephrons

CORRECT

Neurons

Ureter

Quiz

20. **What is the function of long tube surrounded by a capsule in nephron?**

Reabsorption

C Filtration

CORRECT

Osmosis

Adsorption

Quiz

21. **Which of the following is not filtered by tiny capillaries called glomerulus?**

A Proteins and RBC

CORRECT

 Glucose

 Salt

 Water

Quiz

22. **The nitrogenous water filtered by the kidney is called ?**

Glucose

protein

B Urea

Salts

CORRECT

Quiz

23. Blood filtration happens in which location of nephron?

Renal tubules

C Glomerulus

CORRECT

Loop of Henle

Blood capillaries

Quiz

24. Excess water, salt and urea are passed from capillaries to tubules this led to :

A Formation of Urine

CORRECT


Reabsorption


filtration


secretion

What are the functional units in the kidneys?	ما الوحدات الوظيفية في الكلية؟

Learning Outcomes Covered

- BIO.3.1.01.055

a.	Alveoli	الحويصلات الهوائية
b.	Renal pelvis	حوض الكلية
c.	Diaphragms	الحجاب الحاجز
d.	Nephrons	النفرونات

The mineral is placed back into the bloodstream by the kidneys through a process called.....	يتم إعادة المعادن مرة أخرى في مجرى الدم عن طريق الكليتين من خلال عملية تسمى.....

Learning Outcomes Covered

- BIO.3.1.01.053
- BIO.3.1.01.055
- BIO.3.1.01.086

a.	Filtration	الترشيح
b.	Excretion	الافراز
c.	Coupled transport	النقل المزدوج
d.	Reabsorption	إعادة الامتصاص

How do the kidneys help maintain normal blood (pH)?	كيف تساعد الكلى في الحفاظ على الرقم الهيدروجيني الطبيعي للدم (pH)؟

Learning Outcomes Covered

- BIO.3.1.01.053

a.	By absorbing white blood cells	عن طريق امتصاص خلايا الدم البيضاء
b.	By absorbing red blood cells	عن طريق امتصاص خلايا الدم الحمراء
c.	By excreting dopamine into renal tubules	عن طريق إفراز الدوبامين في الأنيبيبات الكلوية
d.	By excreting hydrogen into renal tubules	عن طريق إفراز أيونات الهيدروجين في الأنيبيبات الكلوية

5. Identify the anatomy of the ear and function

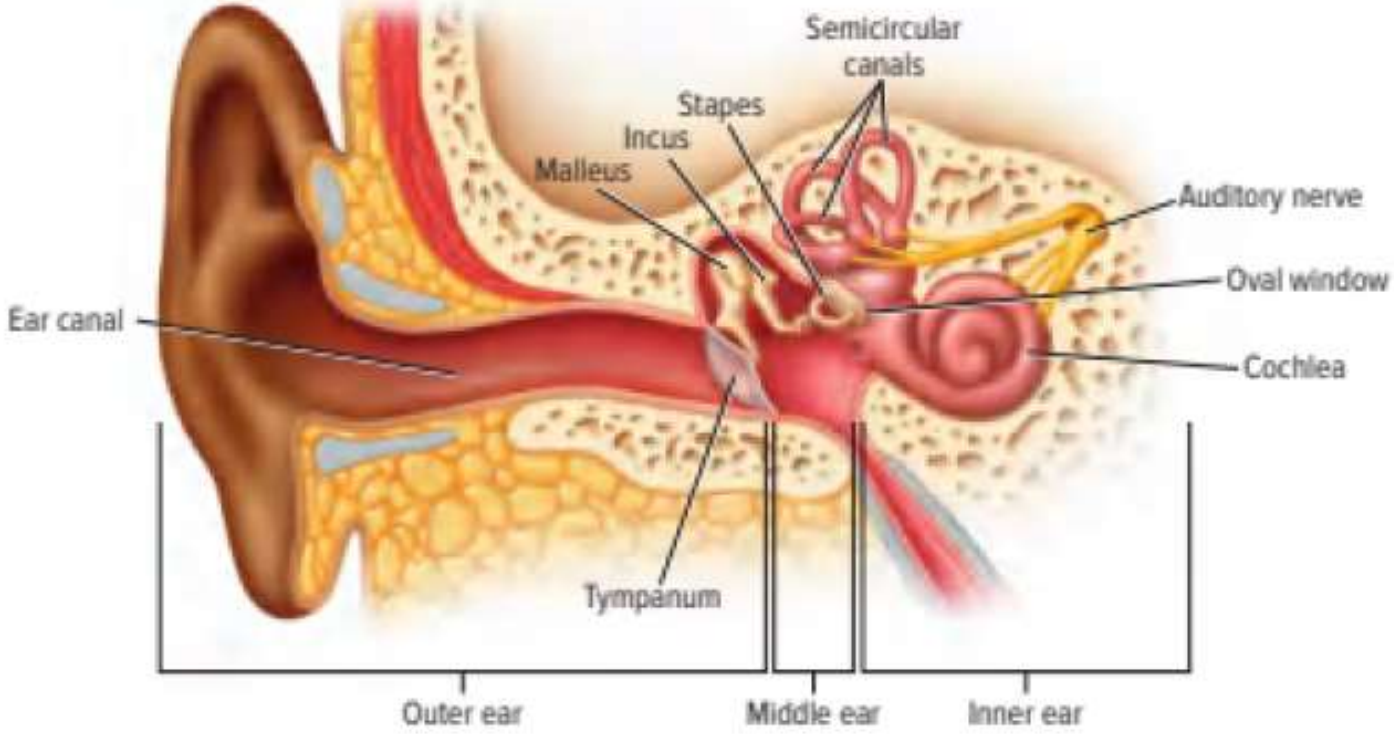

Figure 15 Sound waves cause the tympanum to vibrate, and the vibrations travel through the bones of the middle ear to the cochlea. Hair cells in the cochlea generate nerve impulses, which are sent to the brain through the auditory nerve.

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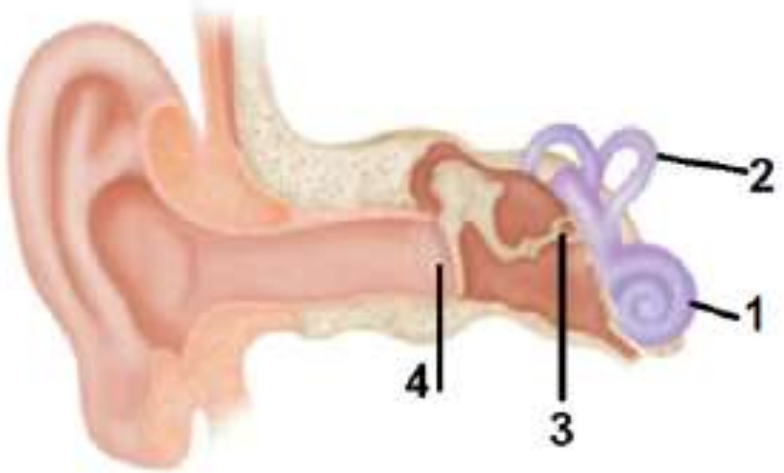
Quiz



28. Which of the following number represents **stapes** in the picture?

~~A~~ 1

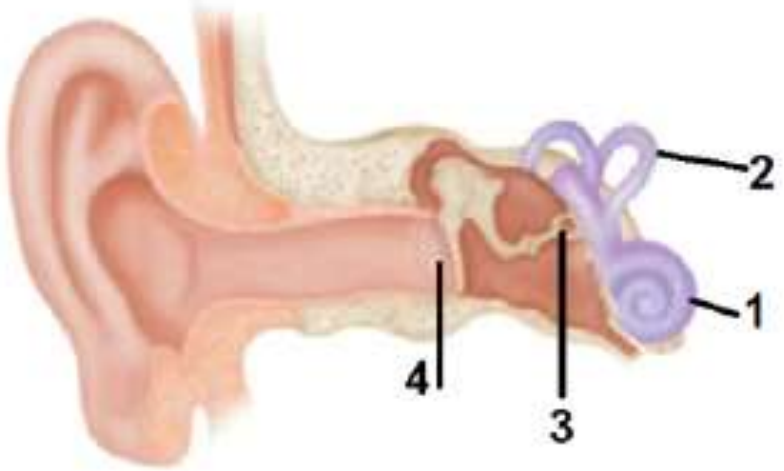
C 3

CORRECT

~~B~~ 2

~~D~~ 4

Quiz



29. Which of the following number represents **ear drum** in the picture?

A 4

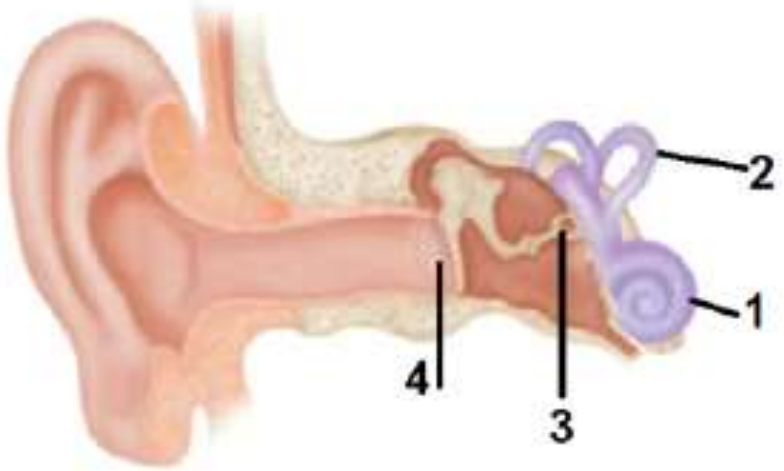
3

CORRECT

2

1

Quiz



30. Which of the following number represents **semi circular canals** in the picture?

~~A~~ 1

~~C~~ 3

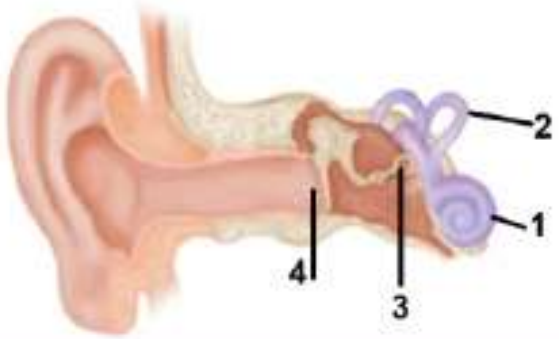
B 2

~~D~~ 4

CORRECT

Which of the following numbers represent the cochlea in the below picture?

أي من الأرقام التالية يمثل القوقعة في الصورة أدناه؟



Learning Outcomes Covered

- BIO.3.1.01.086

a. 1

b. 2

c. 3

d. 4

6. Identify the anatomy of the eye and function.

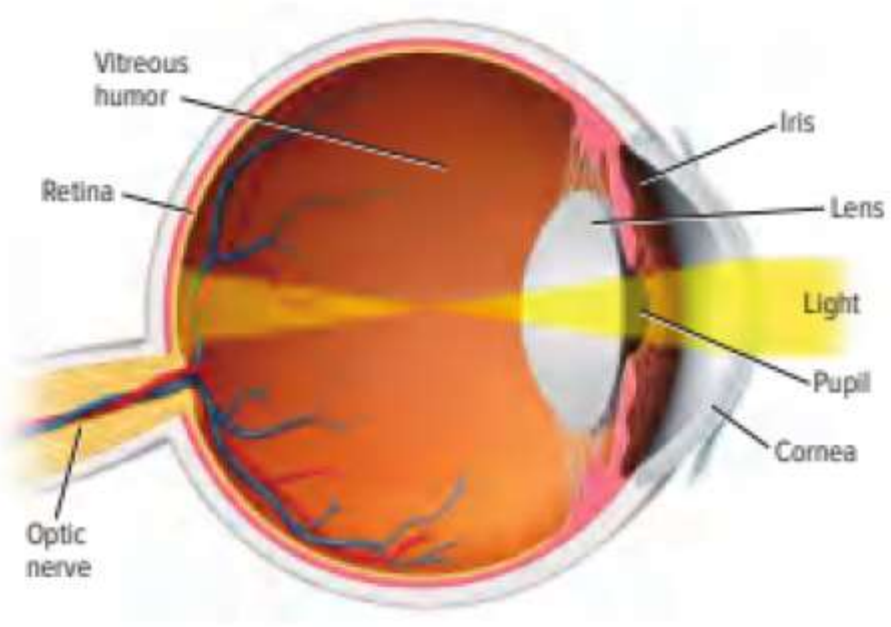
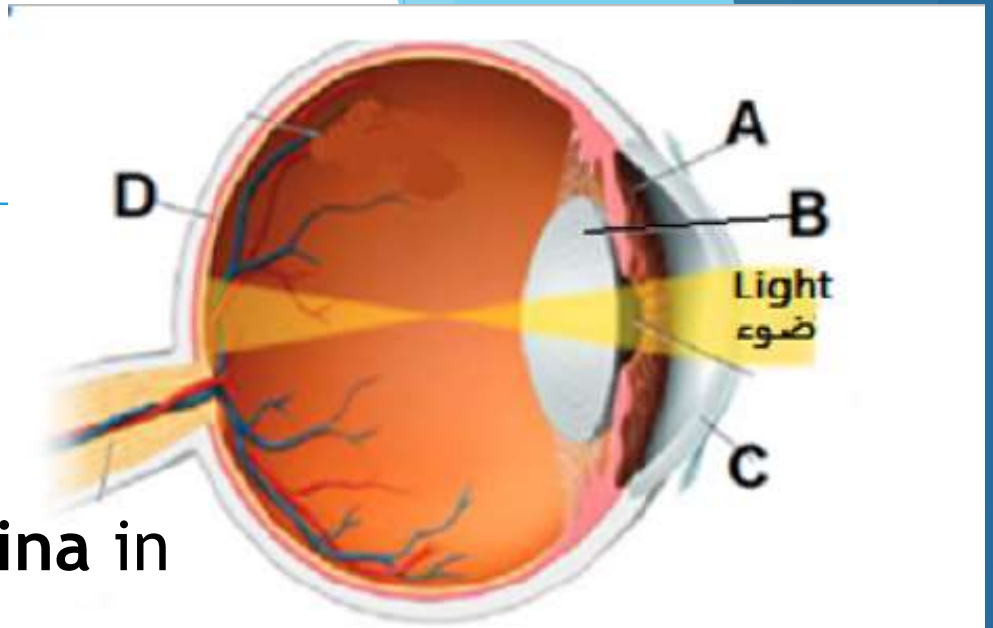


Figure 14 Light travels through the cornea and the pupil to the lens, which focuses the image on the retina. Rods and cones in the retina send information to the brain through the optic nerve.

Quiz



32. Which of the following letter represents **Retina** in the picture?

A

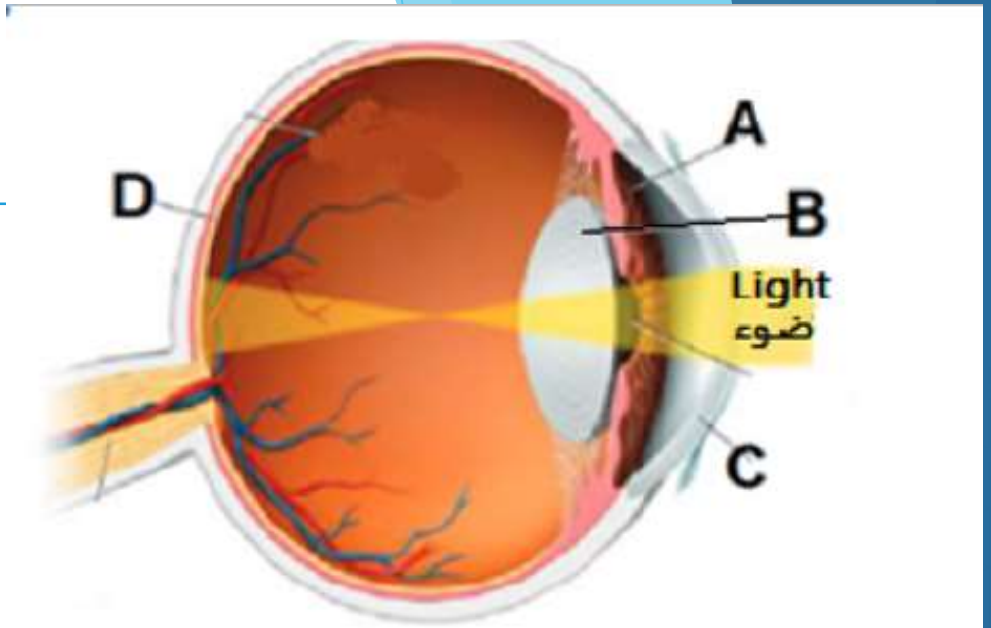
C D

CORRECT

B

C

Quiz



33. Which of the following letter represents **Iris** in the picture?

A A

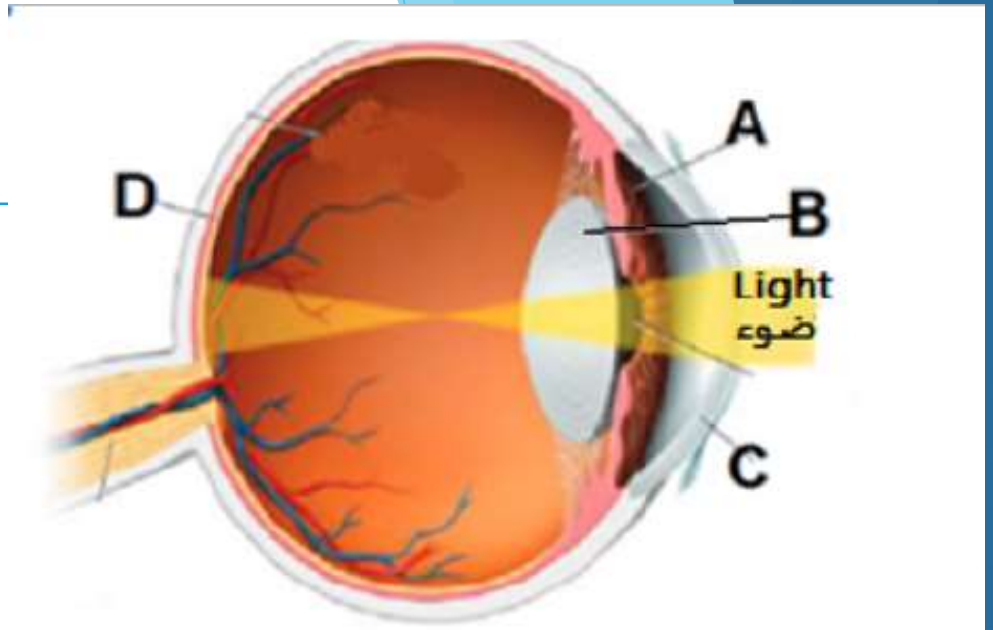
CORRECT

B

C

D

Quiz



34. Which of the following letter represents **Cornea** in the picture?

A

B

B C

CORRECT

D

Which part of the eye provide information about color to the brain?	أي جزء من العين يرسل معلومات عن الألوان الى الدماغ؟

Learning Outcomes Covered

- BIO.3.1.01.086

a.	Iris	القزحية
b.	Rods	العصي
c.	Pupil	البؤبؤ (الحدقة)
d.	Cones	المخاريط

7. Differentiate between the types of sensory receptors in the skin (temperature, pressure, pain)

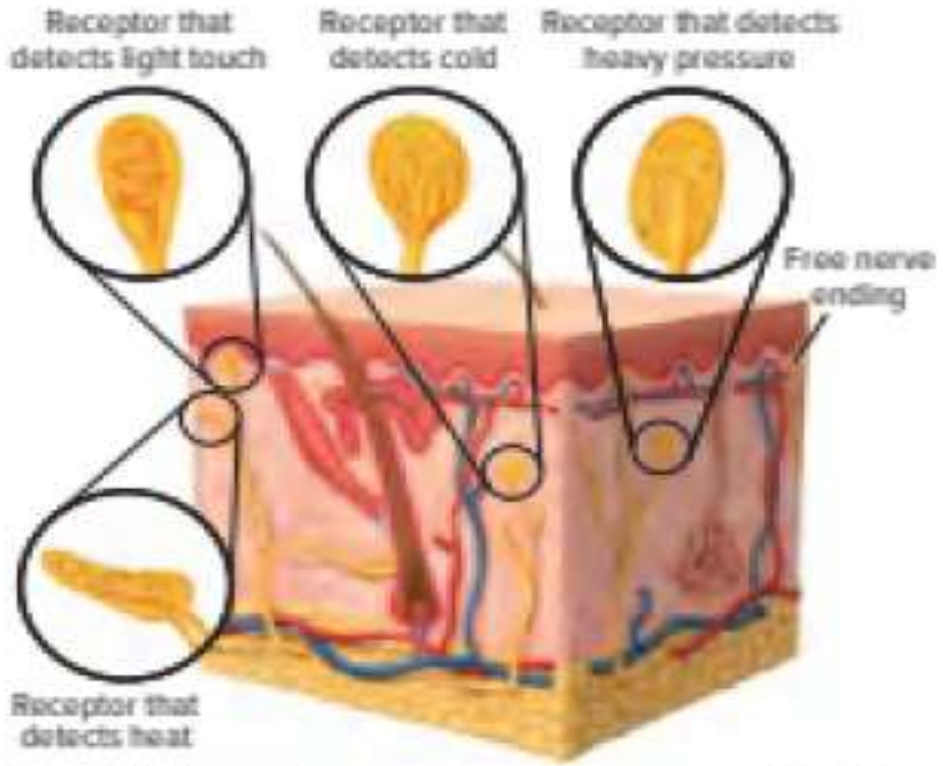
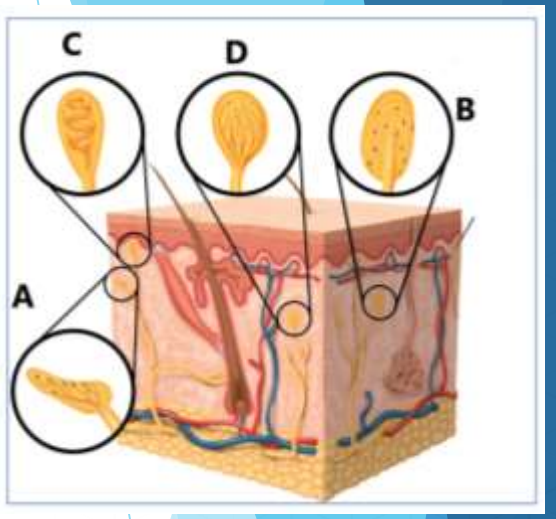


Figure 16 Many types of receptors are found in the skin. A person can tell if an object is hot or cold, sharp or smooth.

pg. 147

Quiz



36. Which of the following letter represents **receptor that detect light touch** in the picture?

A

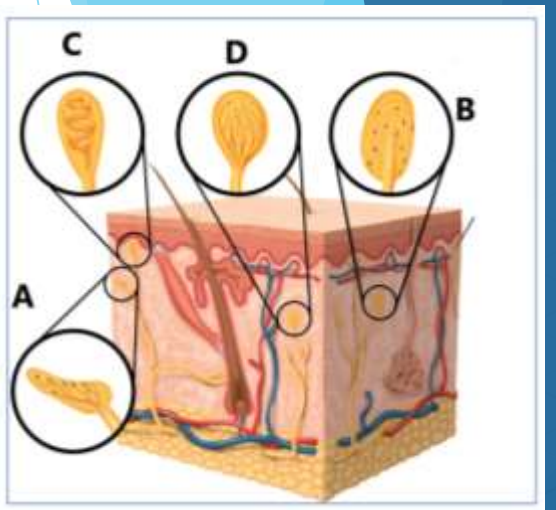
C C

CORRECT

B

D

Quiz



37. Which of the following letter represents **receptor that detect heat** in the picture?

A A

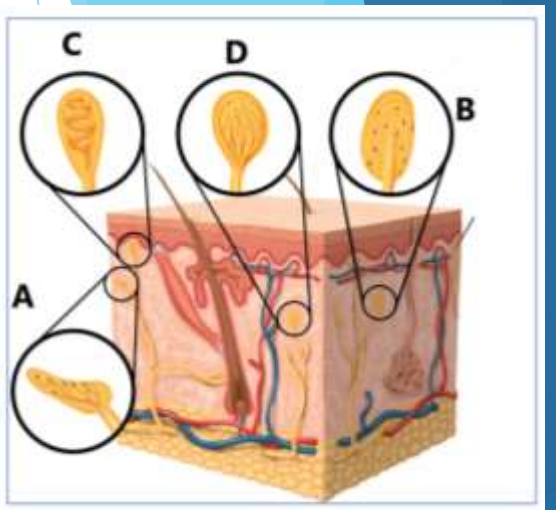
CORRECT

C C

B B

D D

Quiz



38. Which of the following letter represents **receptor that detect cold** in the picture?

A

B

C

D D

CORRECT

8. Explain the main structure and function of the excretory system

Parts of the Excretory System

As you breathe, eat, walk, study, and sleep, your body collects wastes. These wastes include toxins, waste products, and carbon dioxide, that result from metabolic functions that occur in your body constantly and without you thinking about it.

What happens to all of these wastes? The excretory system removes them from the body. In addition, the excretory system regulates the amount of fluid and salts in the body, and it maintains the pH of the blood. All of these functions help to maintain homeostasis.

The components that make up the excretory system include the lungs, skin, and kidneys, as illustrated in **Figure 17**. The lungs primarily excrete carbon dioxide. The skin primarily excretes water and salts contained in sweat. The kidneys, however, are the major excretory organs in the body. The kidneys filter wastes and other substances from the blood. The ureters carry urine produced in the kidneys to the bladder. Urine exits the body through the urethra.

pg. 173

Quiz

39. Organ which help remove carbon dioxide from body is

Liver

C Lungs

CORRECT

Kidney

skin

Quiz

40. Organ which removes water and sweat from the body is ?

A Skin

CORRECT

Liver

Kidney

Lungs

Quiz

41. Organ which removes toxic waste from the body is ?

A Kidney

CORRECT

Liver

Skin

Lungs

Quiz

42. Which of the following is not the function of excretory system?

Regulate body fluid

Maintain salt balance

Maintain pH level

D Regulate calcium level

CORRECT

9. **Identify the anatomy of the kidney..**

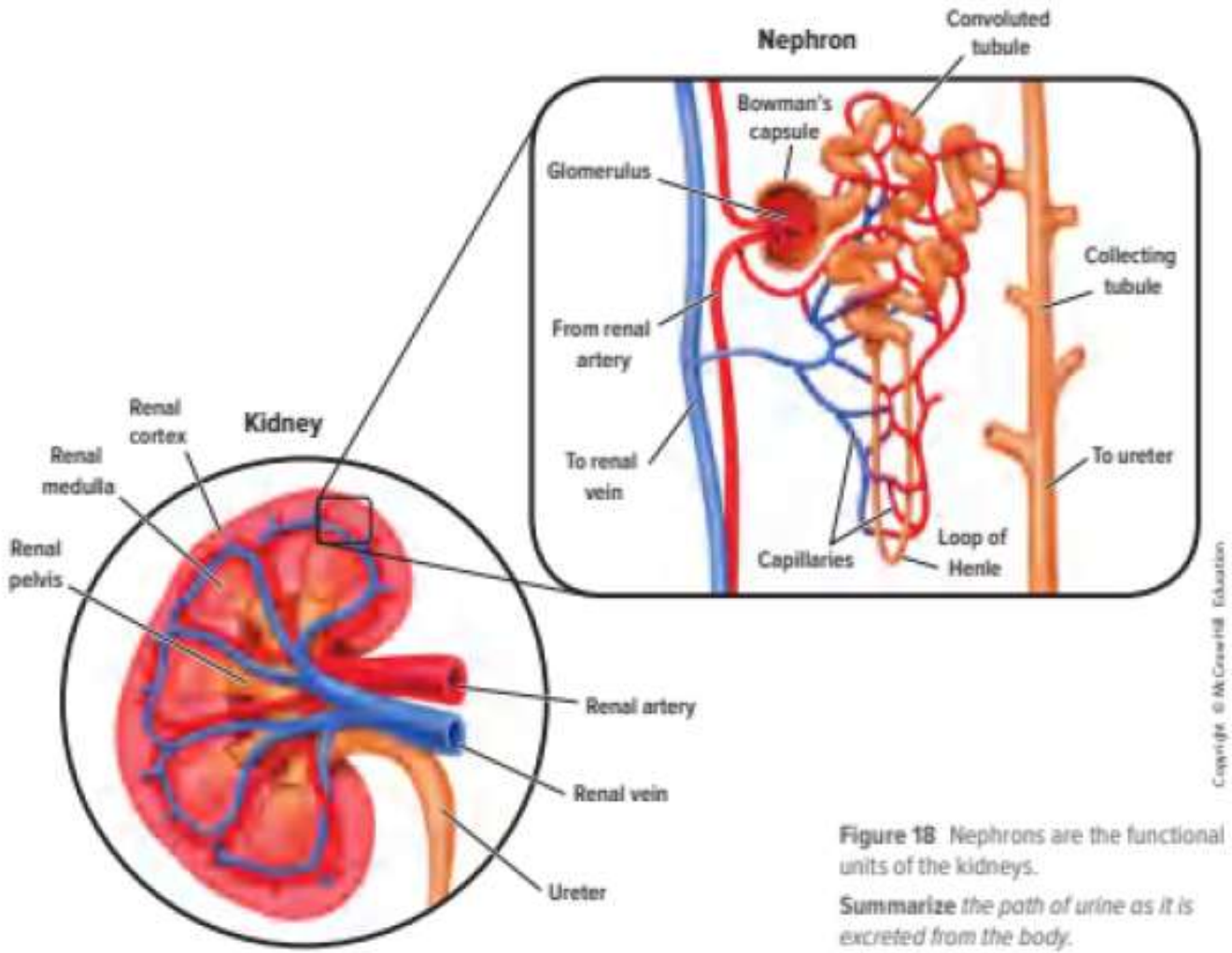


Figure 18 Nephrons are the functional units of the kidneys.

Summarize *the path of urine as it is excreted from the body.*

pg. 174

Quiz

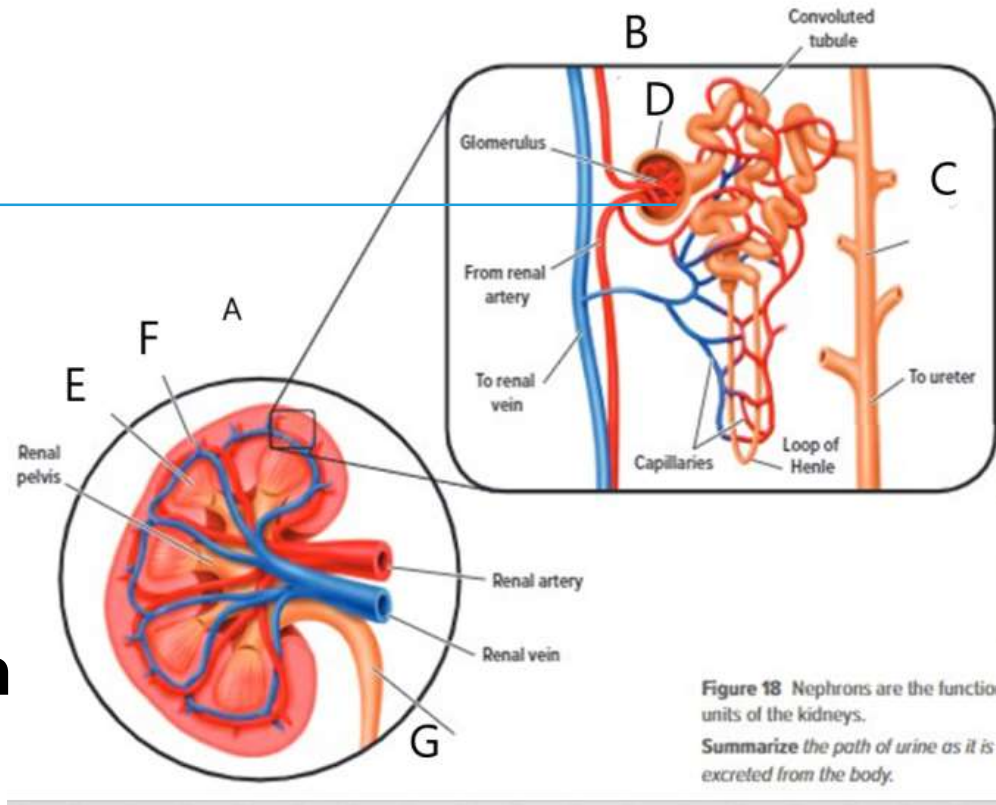


Figure 18 Nephrons are the functio units of the kidneys.
Summarize *the path of urine as it is excreted from the body.*

43. **Identify the location where blood filtration happens?**

- Renal cortex
- C Glomerulus

CORRECT

- Renal tubules
- Ureter

Quiz

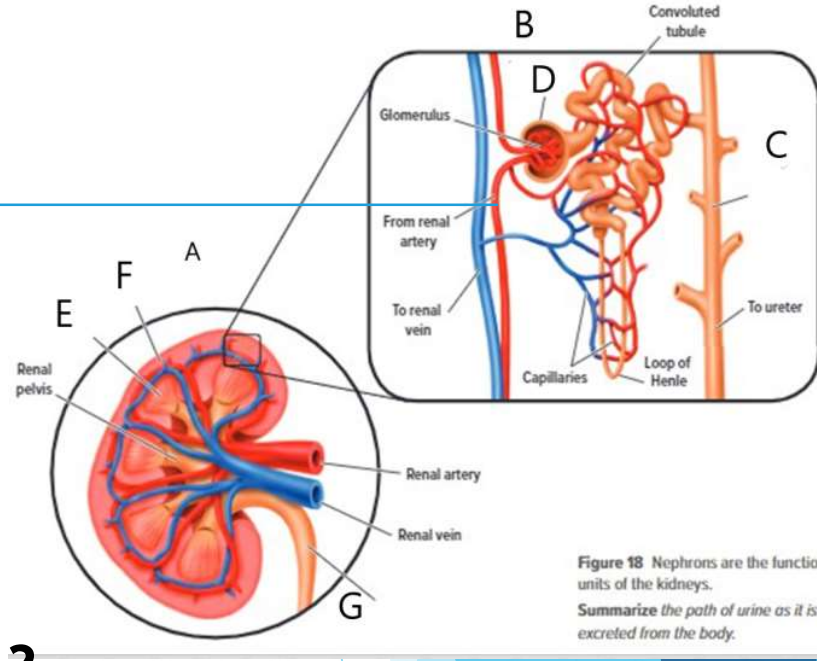


Figure 18 Nephrons are the functio units of the kidneys.
Summarize *the path of urine as it is excreted from the body.*

44. **Identify the location where blood is reabsorbed ?**

Renal cortex

C Renal tubules

CORRECT

Glomerulus

Ureter

Quiz

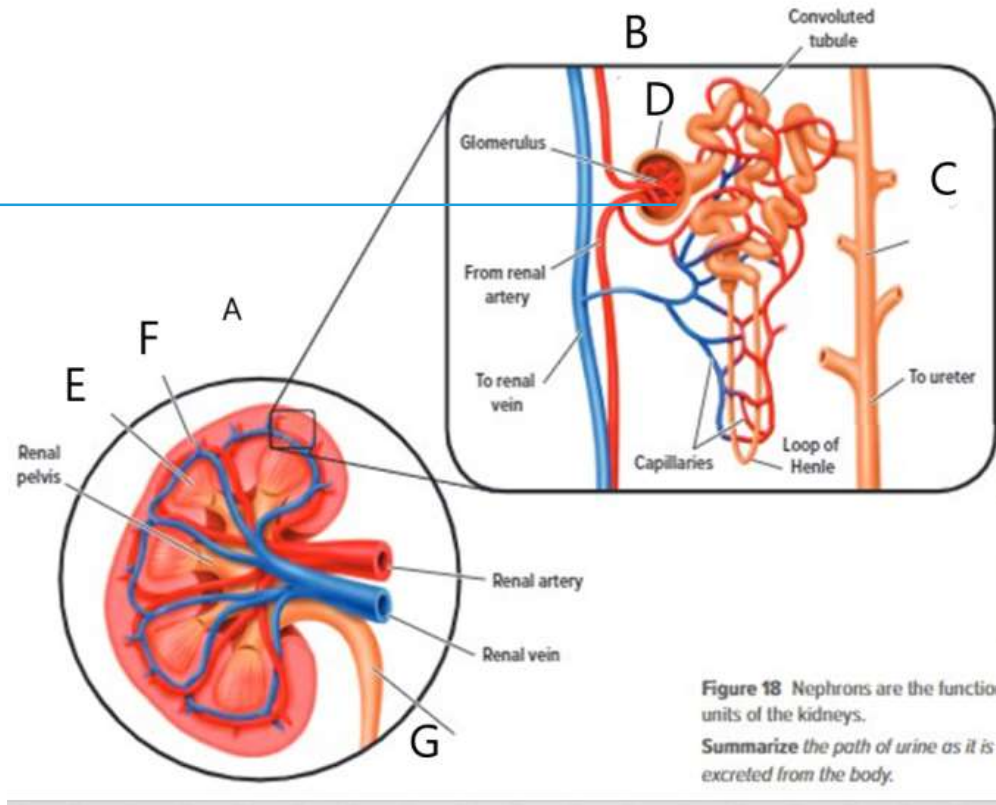


Figure 18 Nephrons are the functio units of the kidneys.
Summarize *the path of urine as it is excreted from the body.*

45. **Identify the E in the picture?**

A Renal medulla

CORRECT

Renal cortex

Renal pelvis

Ureter

Quiz

46. **Identify the C in the picture?**

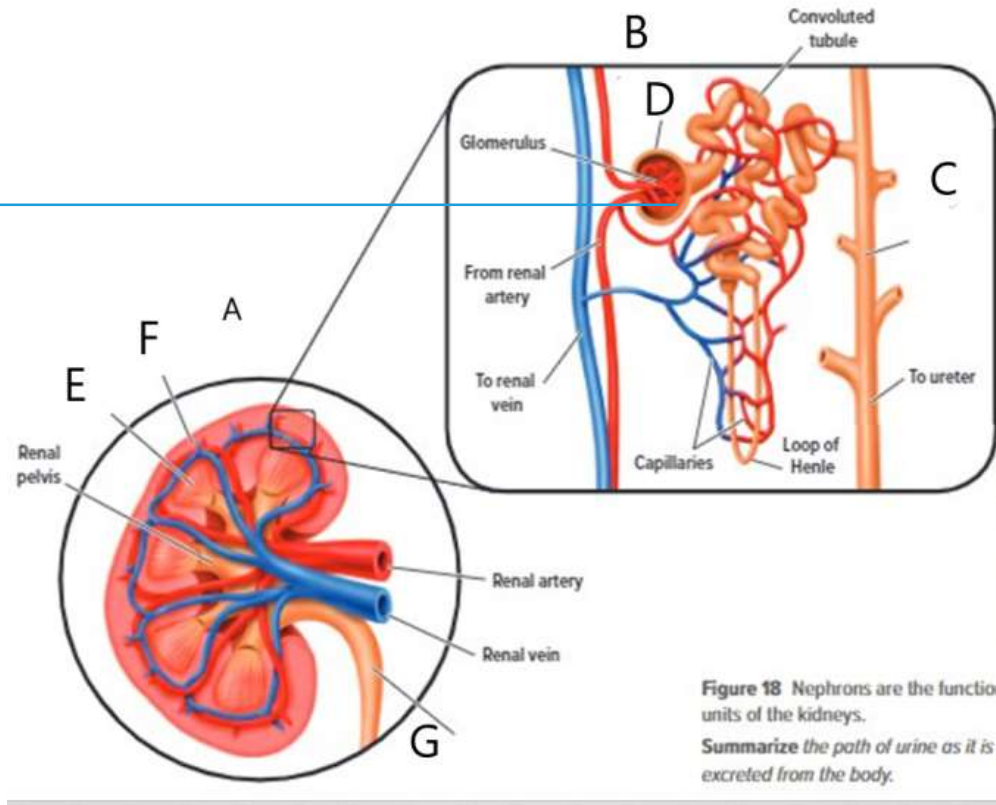


Figure 18 Nephrons are the functio units of the kidneys.
Summarize *the path of urine as it is excreted from the body.*

Renal pelvis

Glomerulus

B Collecting tubule

Loop of Henle

CORRECT

10. Compare and contrast, using visuals, the two different types of hormone actions: Steroid hormones and amino acid hormones

Actions of Hormones

The endocrine system is composed of glands and functions as a communication system. **Endocrine glands** produce hormones, which are released into the bloodstream and distributed to body cells. A **hormone** is a substance that acts on certain target cells and tissues to produce a specific response. Hormones are classified as steroid hormones and nonsteroid or amino acid hormones, based on their structure and mechanism of action.

Steroid hormones

Estrogen and testosterone are two examples of steroid hormones. All steroid hormones work by causing the target cells to initiate protein synthesis, as illustrated in **Figure 13**.

pg. 195

Quiz

47. Endocrine gland functions as

Transport system

C Communication system

CORRECT

Filtration system

Cleaning system

Quiz

48. _____ are the substance which work on target cell and cause a specific response?

A Hormone

CORRECT

Glucose

Fats

Nucleic acid

Quiz

49. **Identify the correct pair of classes of hormones?**

Steroid and Glucose

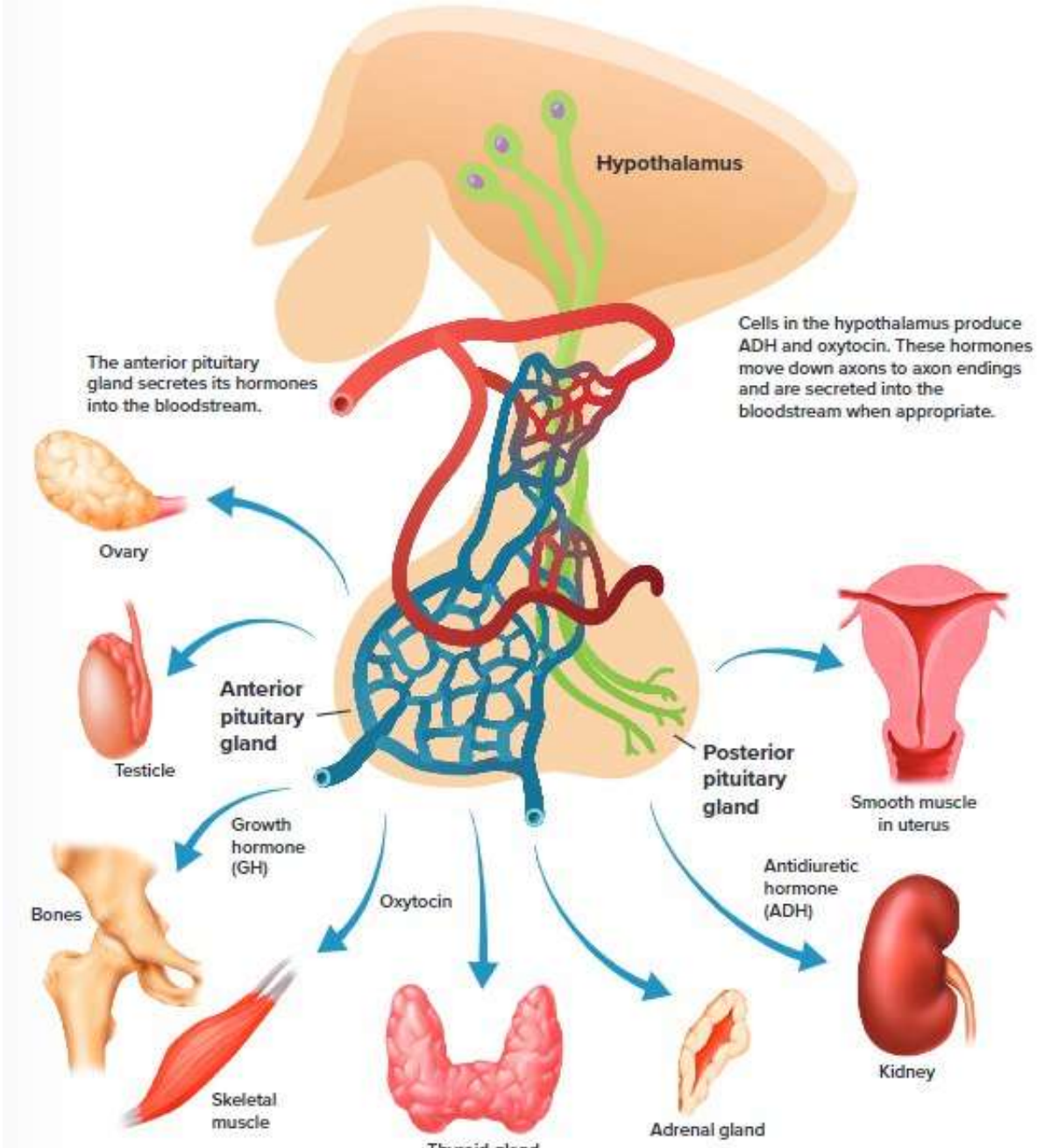
Non-steroid and amino acid hormone

B Steroid and non-steroid

CORRECT

Non-steroid and Glucose

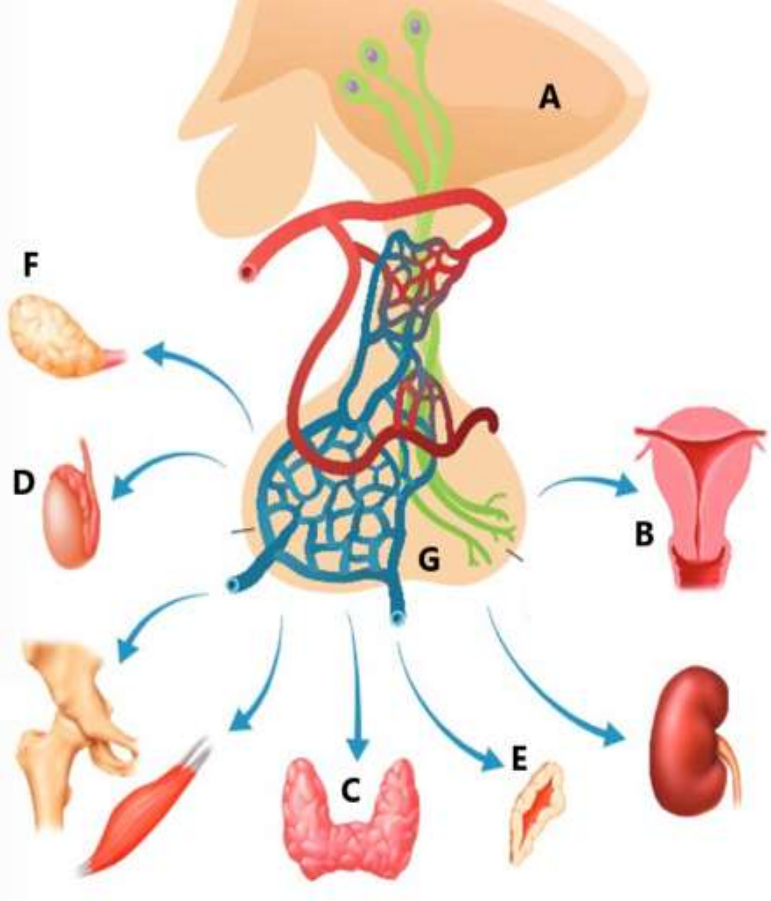
11. Identify the major glands of the endocrine system and their related



pg. 200

Quiz

50. Which of the following letter represents **testes** in the picture?



A

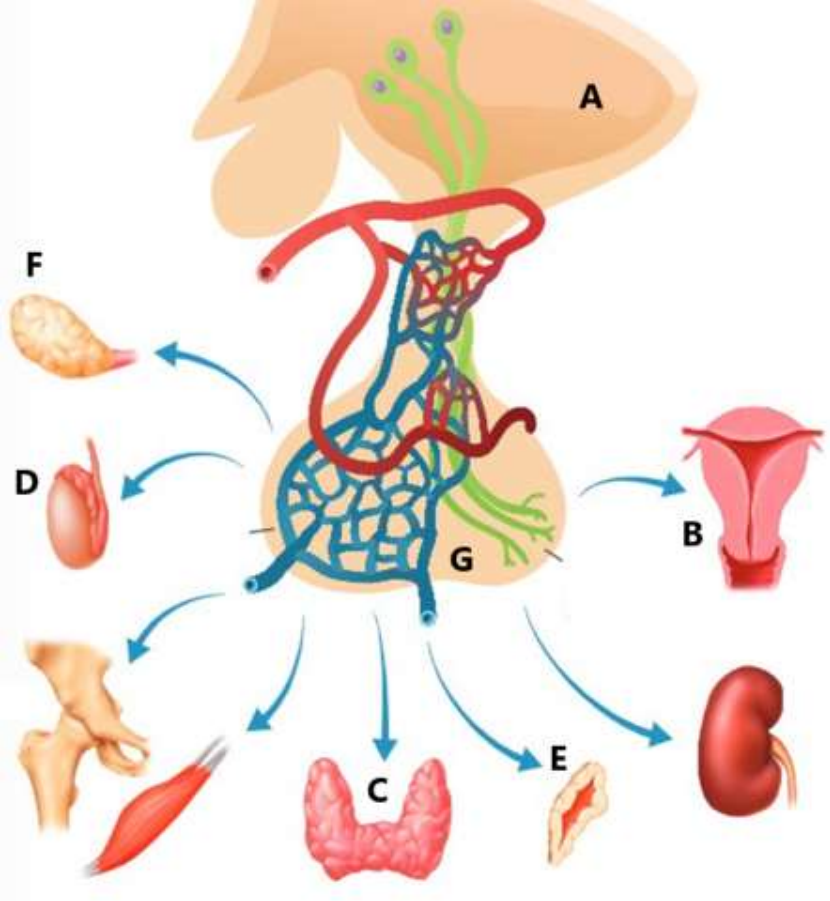
D

CORRECT

B

C

Quiz



51. Which of the following letter represents **Hypothalamus** in the picture?

A A

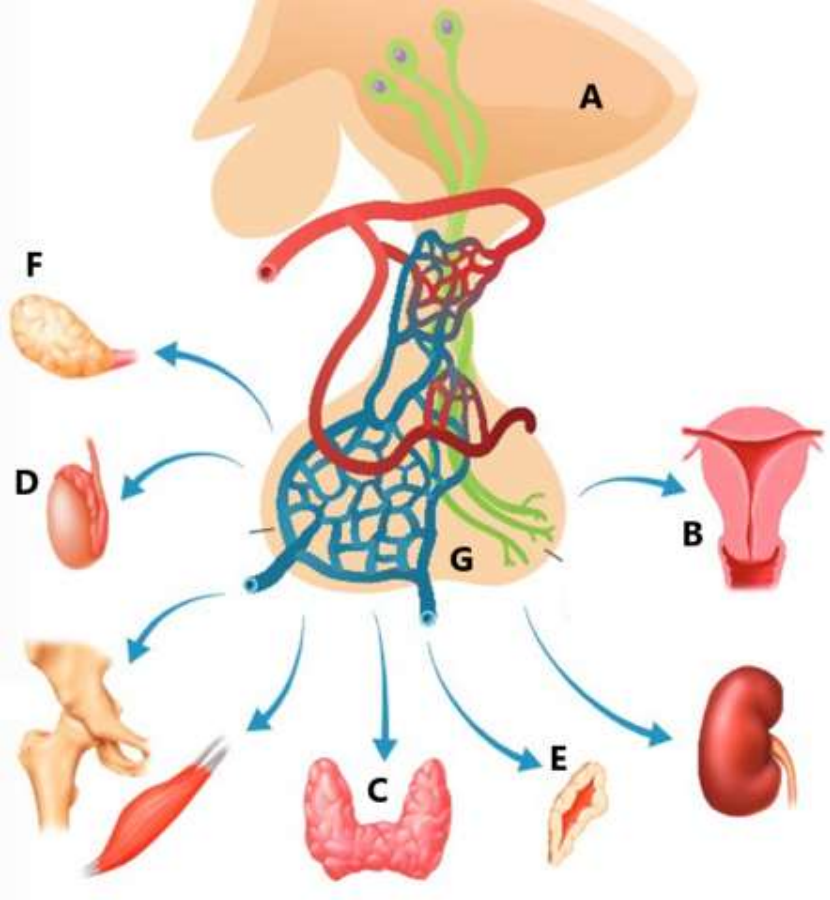
CORRECT

C C

B B

D D

Quiz



52. Which of the following letter represents **Pituitary gland** in the picture?

D

E

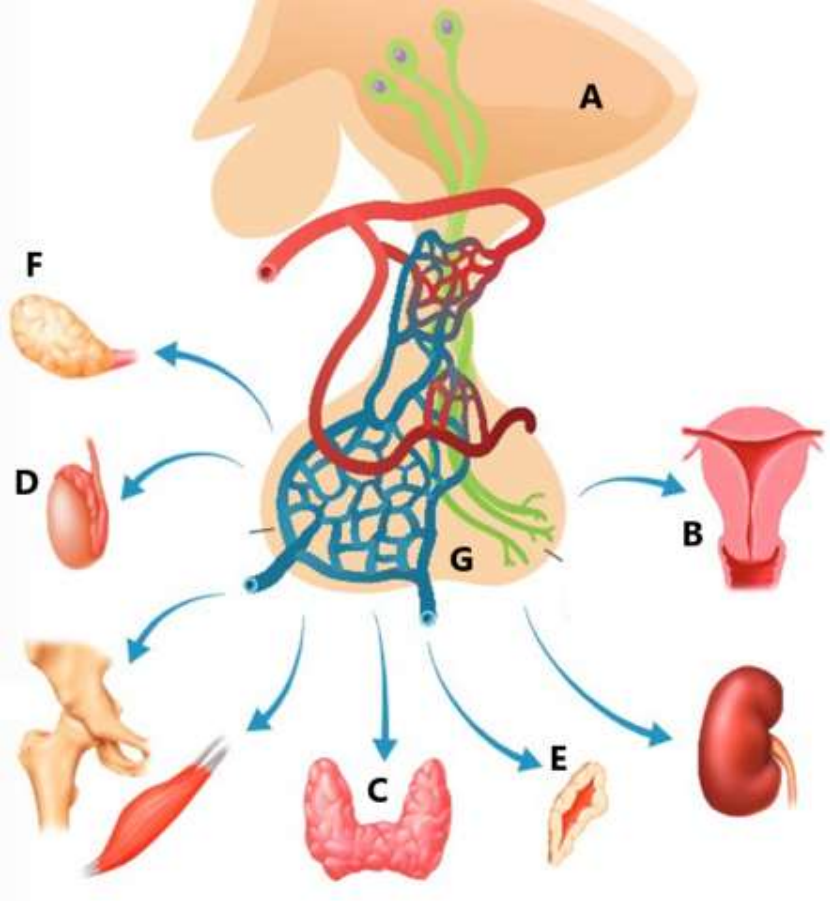
B G

CORRECT

F

Quiz

53. Which of the following letter represents **Thyroid** in the picture?



A

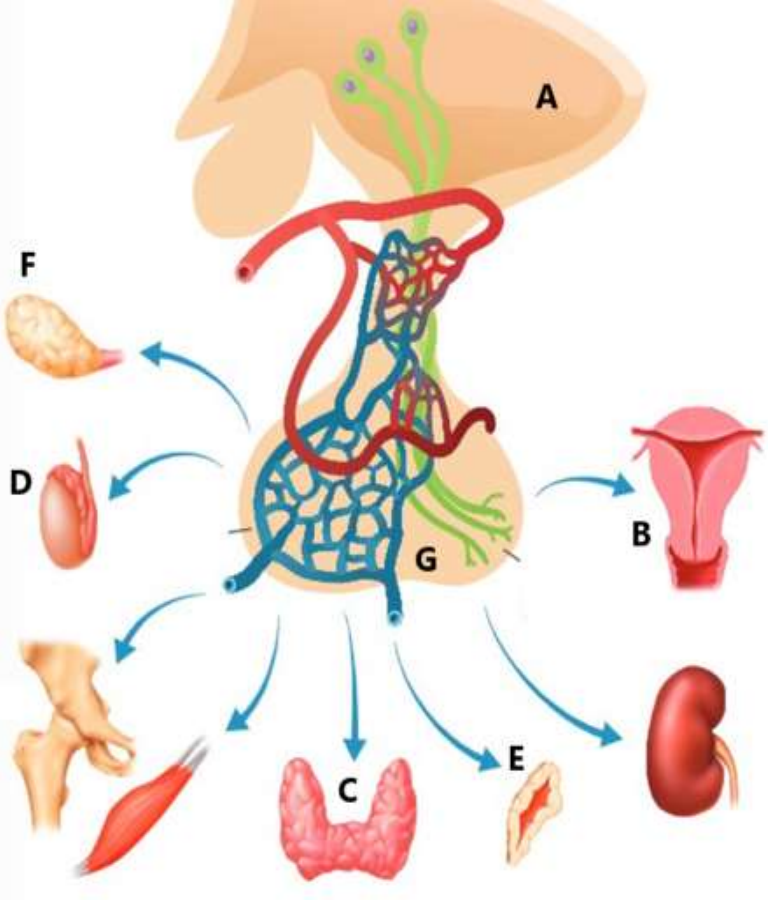
C C

CORRECT

B

D

Quiz



54. Which gland control the glucose level in the blood?

~~A~~ Thyroid

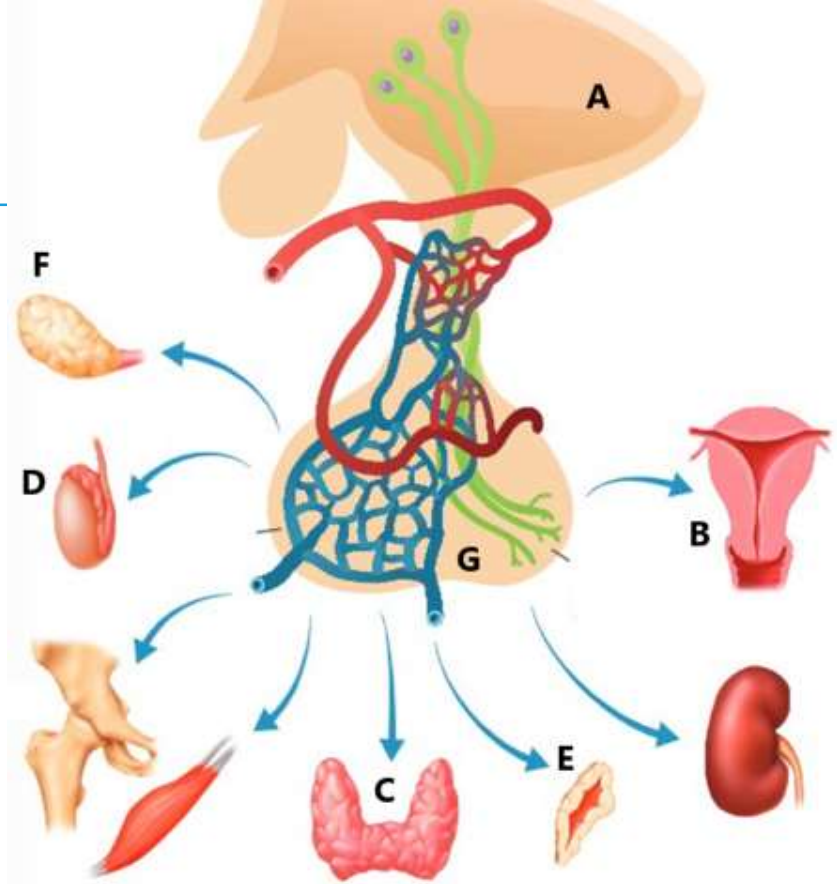
C pancreas

CORRECT

~~B~~ Adrenal gland

~~D~~ Pituitary gland

Quiz



55. Which pair of gland control calcium level int the blood?

A Thyroid and parathyroid

CORRECT

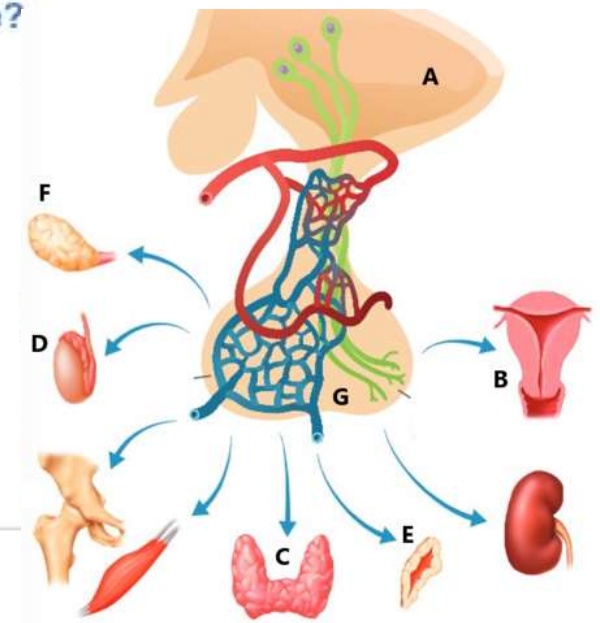
Pituitary and thyroid

Parathyroid and spleen

Adrenal and thyroid

Which of the following letters represents a thyroid gland in the below picture?

أي من الأحرف التالية يمثل الغدة الدرقية في الصورة أدناه؟



Learning Outcomes Covered

- BIO.3.1.01.062
- BIO.3.1.01.070

a. A

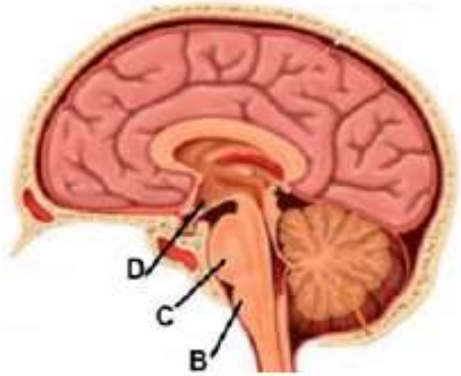
b. B

c. C

d. D

Which of the following letters represents a part responsible for maintaining homeostasis by serving as a link between the nervous system and the endocrine system?

أي من الأحرف التالية يمثل الجزء المسؤول عن الحفاظ على الاتزان الداخلي من خلال التنسيق بين الجهازين العصبي والهرموني؟



Learning Outcomes Covered

- BIO.3.1.01.070
- BIO.3.1.01.086

a. A

b. B

c. C

d. D

12. Describe the three types of neurons (sensory, motor, and interneurons) and their involvement in the reflex arc

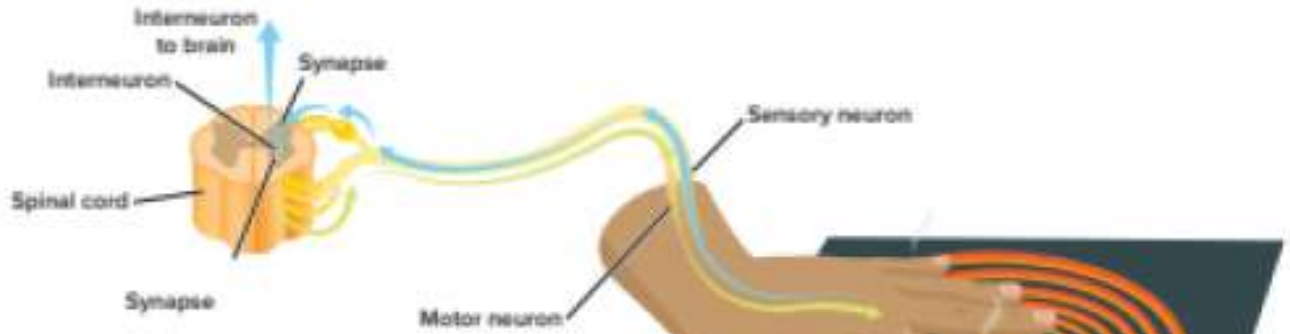


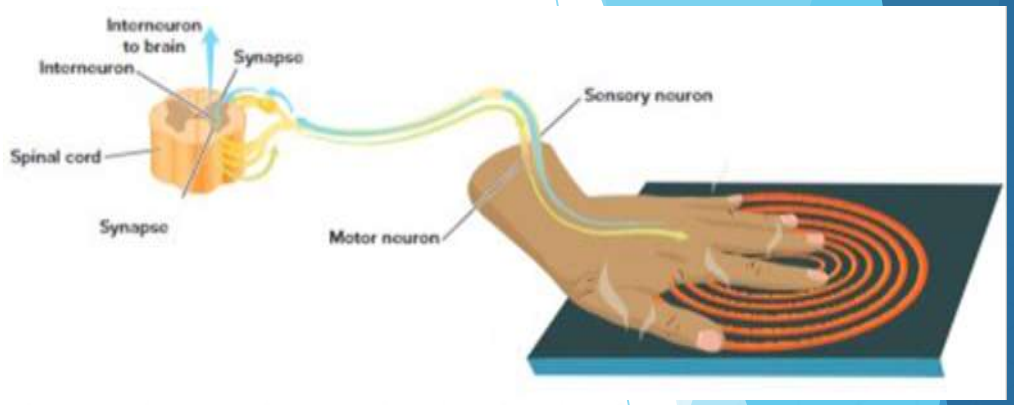
Figure 2 A simple reflex involves a sensory neuron, an interneuron, and a motor neuron. Interneurons can also carry impulses to the brain.

Explain *how a reflex might be completed before the brain interprets the event.*

There are three kinds of neurons: sensory neurons, interneurons, and motor neurons. Sensory neurons send impulses from receptors in the skin and sense organs to the brain and spinal cord. Sensory neurons signal interneurons, which are found in the spinal cord and brain. Interneurons carry the impulse to motor neurons, which carry impulses away from the brain and spinal cord to a gland or muscle, which results in a response. Refer to **Figure 2** to follow the path of an impulse for a simple involuntary reflex. The nerve impulse completes what is called a reflex arc. A **reflex arc** is a nerve pathway that consists of a sensory neuron, an interneuron, and a motor neuron. Notice that the brain is not involved. A reflex arc is a basic structure of the nervous system.

pg. 133

Quiz



58. Name the neuron which transport signals from sensory organ to brain?

~~A~~ Motor neuron

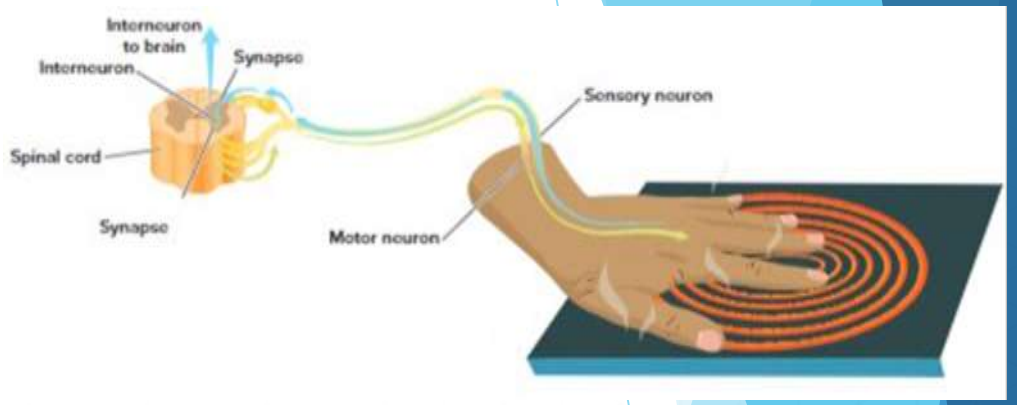
C Sensory neuron

CORRECT

~~B~~ interneuron

~~D~~ Mixed neuron

Quiz



59. Name the neuron which transport signals from brain to muscles?

~~A~~ Sensory neuron

~~B~~ Mixed neuron

~~C~~ interneuron

D Motor neuron

CORRECT

Which is the correct path that a nerve impulse will follow in a reflex arc?	ما المسار الصحيح الذي سيتبعه السيال العصبي في القوس الانعكاسي؟

Learning Outcomes Covered

- BIO.3.1.01.086

a. Sensory neuron → interneuron → motor neuron — عصبية حركية

b. Motor neuron → sensory neuron → interneuron — عصبية بينية

c. Interneuron → motor neuron → sensory neuron — عصبية حسية

d. Motor neuron → interneuron → sensory neuron — عصبية حسية

13. Explain how a nerve impulse is transmitted through the neuron and through the synapse between the three types of neurons

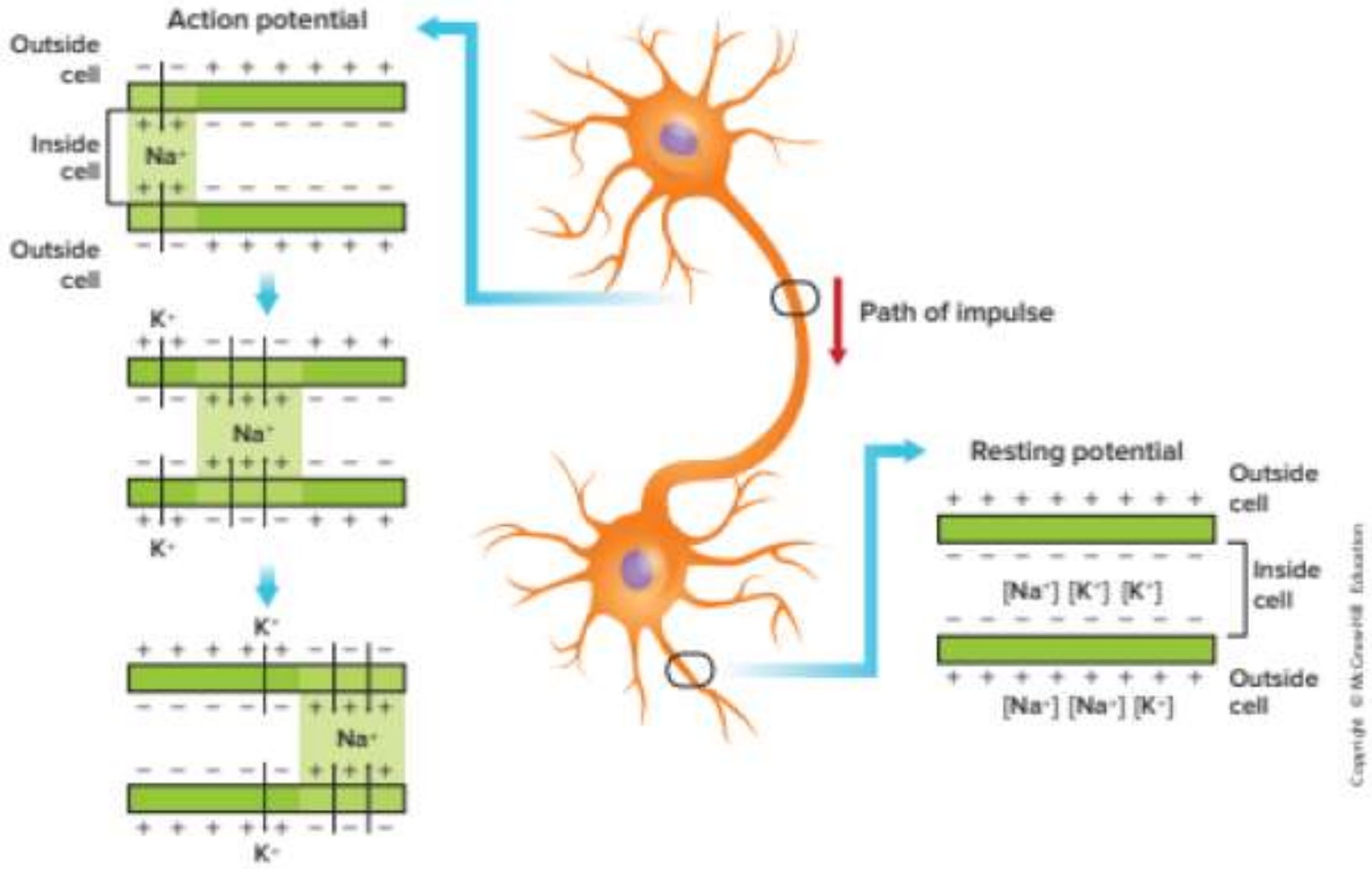


Figure 4 Follow as an action potential moves along an axon from left to right. Notice what happens to the Na^+ and K^+ and how this changes the relative electrical charges inside and outside the neuron.

pg. 134

Quiz

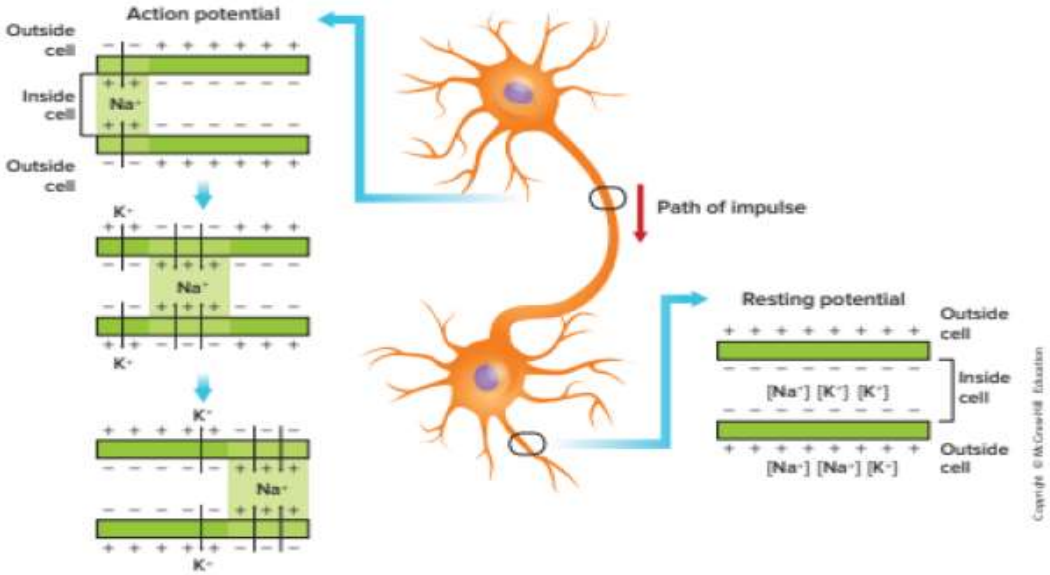


Figure 4 Follow as an action potential moves along an axon from left to right. Notice what happens to the Na^+ and K^+ and how this changes the relative electrical charges inside and outside the neuron.

61. In action potential _____ channel opens?

~~A~~ K ions

C Na ions

CORRECT

~~B~~ Cl ions

~~D~~ Mg ions

Quiz

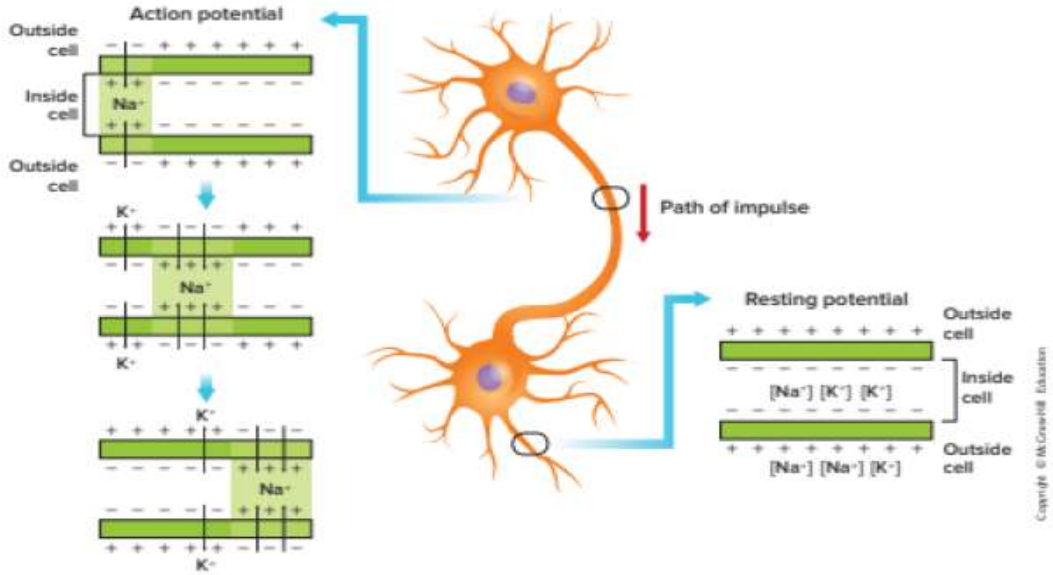


Figure 4 Follow as an action potential moves along an axon from left to right. Notice what happens to the Na^+ and K^+ and how this changes the relative electrical charges inside and outside the neuron.

62. During action potential charge inside the axon is ?

A Positive with Na ions

Positive with K ions

CORRECT

Negative with Na ions

Negative with K ions

14. Differentiate between the two types of sensory receptors in the eye (rods and cones)

Sight

Figure 14 shows the path of light as it travels through the eye. Light first enters the eye through a transparent, yet durable, layer of cells called the cornea. The cornea helps to focus the light through an opening called the pupil. The size of the pupil is regulated by muscles in the iris—the colored part of the eye. Behind the iris is the **lens,** which inverts the image and projects it onto the retina. The image travels through the vitreous humor, which is a colorless, gelatinlike liquid between the lens and the retina. The **retina** contains numerous receptor cells called rods and cones. **Rods** are light-sensitive cells that are excited by low levels of light. **Cones** function in bright light and provide information about color to the brain. These receptors send action potentials to the brain via the neurons in the optic nerve. The brain then interprets the specific combination of signals received from the retina and forms a visual image.

pg. 145

Quiz

63. _____ has numerous receptors for bright light and dim (low level light)?

Lense

C Retina

CORRECT

Cornea

Iris

Quiz

64. Which cell receptors helps us to see in low level light?

A Rod cells

CORRECT

Cone cells

Cornea cells

Iris cells

Quiz

65. Which cell receptors helps us to see in bright light?

Cornea cells

Rod cells

B Cone cells

CORRECT

Iris cells

15. Compare and contrast, using visuals, the two different types of hormone actions: Steroid hormones and amino acid hormones
hormones

- **Steroid hormones** : Estrogen and testosterone are two examples of steroid hormones.
- Steroid hormones are soluble in lipids and therefore can diffuse through the plasma membrane of a target cell. Once **inside a target cell**, they bind to a receptor in the cell. The hormone and the receptor that are bound together bind to DNA in the nucleus, which activates specific gene.

Estrogen and testosterone are two examples of steroid hormones. All steroid hormones work by causing the target cells to initiate protein synthesis, as illustrated in **Figure 13**.

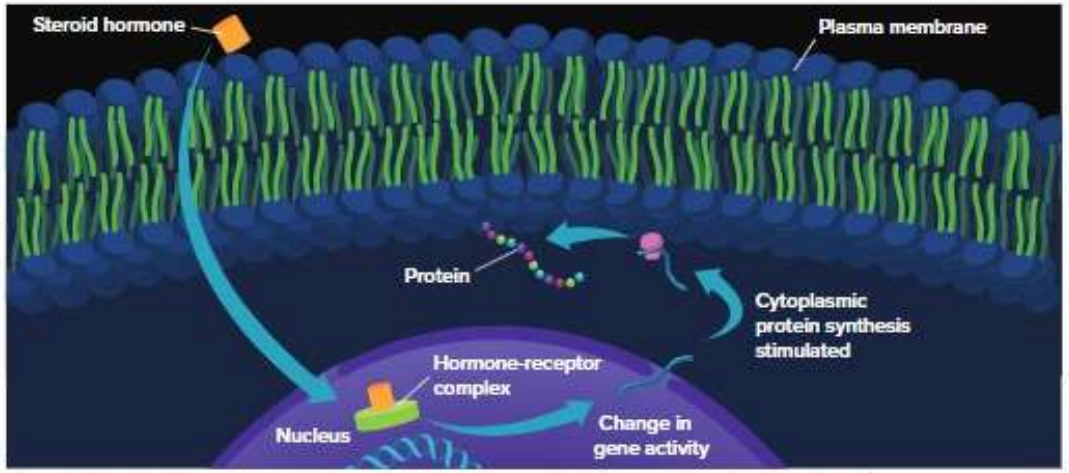


Figure 13 A steroid hormone passes through a cell membrane, binds to a receptor within the cell, and stimulates protein synthesis.

pg. 195

Quiz

66. What happens when amino acid hormone binds to receptor?

Genes get activated

C receptor activates an enzyme found inside of the membrane

CORRECT

The plasma membrane is destroyed

Cell gets destroyed

Which of the following is a structural classification of hormones?	أي مما يلي يعتبر تصنيفاً تركيبياً للهرمونات؟

Learning Outcomes Covered

- BIO.3.1.01.062
- BIO.3.1.01.070

a.	Proteins and other nucleic acids	بروتينات وأخرى أحماض نووية
b.	Steroid and amino acid	ستيرويدية وأخرى أحماض امينية
c.	Nucleic acids and amino acids	أحماض نووية وأخرى أحماض امينية
d.	Steroid and other carbohydrates	ستيرويدية وأخرى مواد كربوهيدراتية

What happens after the steroid hormone and its receptor bind to the DNA?	ماذا يحدث بعد ارتباط الهرمون الستيرويدي ومستقبلاته بالحمض النووي DNA؟

Learning Outcomes Covered

- BIO.3.1.01.070
- BIO.3.1.01.086

a.	The cell is destroyed.	يتم تدمير الخلية
b.	The plasma membrane is destroyed.	يتم تدمير الغشاء الخلوي
c.	Genes are activated.	يتم تنشيط الجينات
d.	The nucleus prevents gene activation.	النواة تمنع تنشيط الجينات

16. Identify the anatomy of the ear and function

Hearing

- Vibrations called sound waves cause particles in the air to vibrate.
- Sound waves enter the auditory, or ear, canal and cause a membrane, called the eardrum or tympanum, at the end of the ear canal to vibrate. These vibrations travel through three bones in the middle ear: the malleus (also called the hammer), the incus (anvil), and the stapes (stirrup). As the stapes vibrates, it causes the oval window, a membrane that separates the middle ear from the inner ear, to move back and forth. In the inner ear, a snail-shaped structure called the cochlea is filled with fluid and lined with tiny hair cells. Vibrations cause the fluid inside the cochlea to move like a wave against the hair cells. The hairs cells respond by generating nerve impulses in the auditory nerve and transmitting them to the brain

Balance

- Semicircular canals transmit information about body position and balance to the brain. The three canals are positioned at right angles to one another, and they are fluid-filled and lined with hair cells. When the position of your head changes, fluid within the semicircular canals moves. This causes the hair cells to bend, which in turn sends nerve impulses to the brain.

Quiz

69. The membrane which separates middle ear from inner ear is called

Ear drum

C Oval window

CORRECT

Cochlea

Incus

Quiz

71. The hairs which bends to cause impulse for hearing are found in ?

A Cochlea

CORRECT

Semicircular canal

Ear drum

Oval window

Quiz

72. The fluid which move when you change the position of your head is found in

Cochlea

Stapes

B Semicircular canal

CORRECT

Ear drum

Quiz

73. Which bone found in ear vibrates oval window?

Femur

Malleus

B Stapes

CORRECT

Incus

Which part of the ear transmit information about body position and balance to the brain?	أي جزء من الأذن ينقل معلومات حول وضع الجسم والتوازن إلى الدماغ؟

Learning Outcomes Covered

- BIO.3.1.01.086

a.	Semi-circular canals	القنوات النصف هلالية
b.	Cochlea	القوقعة
c.	Middle ear	الأذن الوسطى
d.	Oval window	النافذة البيضاوية

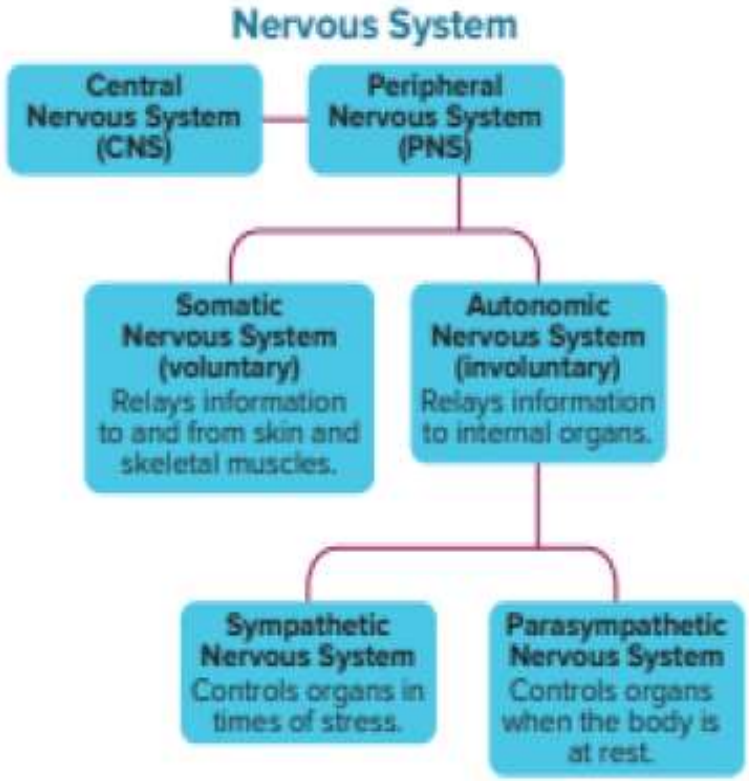
17 . Differentiate between the central nervous system (CNS) and the peripheral nervous system (PNS) in terms of associated structures and functions

- **Somatic nervous system** relay information from external sensory receptors to the centr nervous system.
- Somatic motor nerves really information from central nervous system two skeletal muscl
- This is voluntary action.

- **Autonomic nervous system** carries impulse from central nervous system to the heart an other organs.
- The body responds involuntarily, not under conscious control.

- Autonomic nervous system has 2 divisions

1. Sympathetic nervous system which controls organs in times of stress.
2. Parasympathetic nervous system which controls organs when the body is at rest.



Quiz

75. Which part of nervous system controls body organs when in stress?

Autonomic nervous system

C Sympathetic Nervous system

CORRECT

Parasympathetic Nervous system

Somatic nervous system

Quiz

76. Which part of nervous system relay information from central nervous system to heart and other organs?

- Somatic nervous system
- Parasympathetic Nervous system
- B Autonomic nervous system
- Autonomic nervous system

CORRECT

Quiz

77. Which part of nervous system controls body when your body is at rest?

- Autonomic nervous system
- Sympathetic Nervous system
- Somatic nervous system
- D Parasympathetic Nervous system

CORRECT

Quiz

88. Which part of nervous system relay information from central nervous system to muscles?


Autonomic motor nerves


Autonomic sensory nerves

B Somatic motor nerves


Somatic sensory nerves

CORRECT

18. **Identify the anatomy of the kidney.**

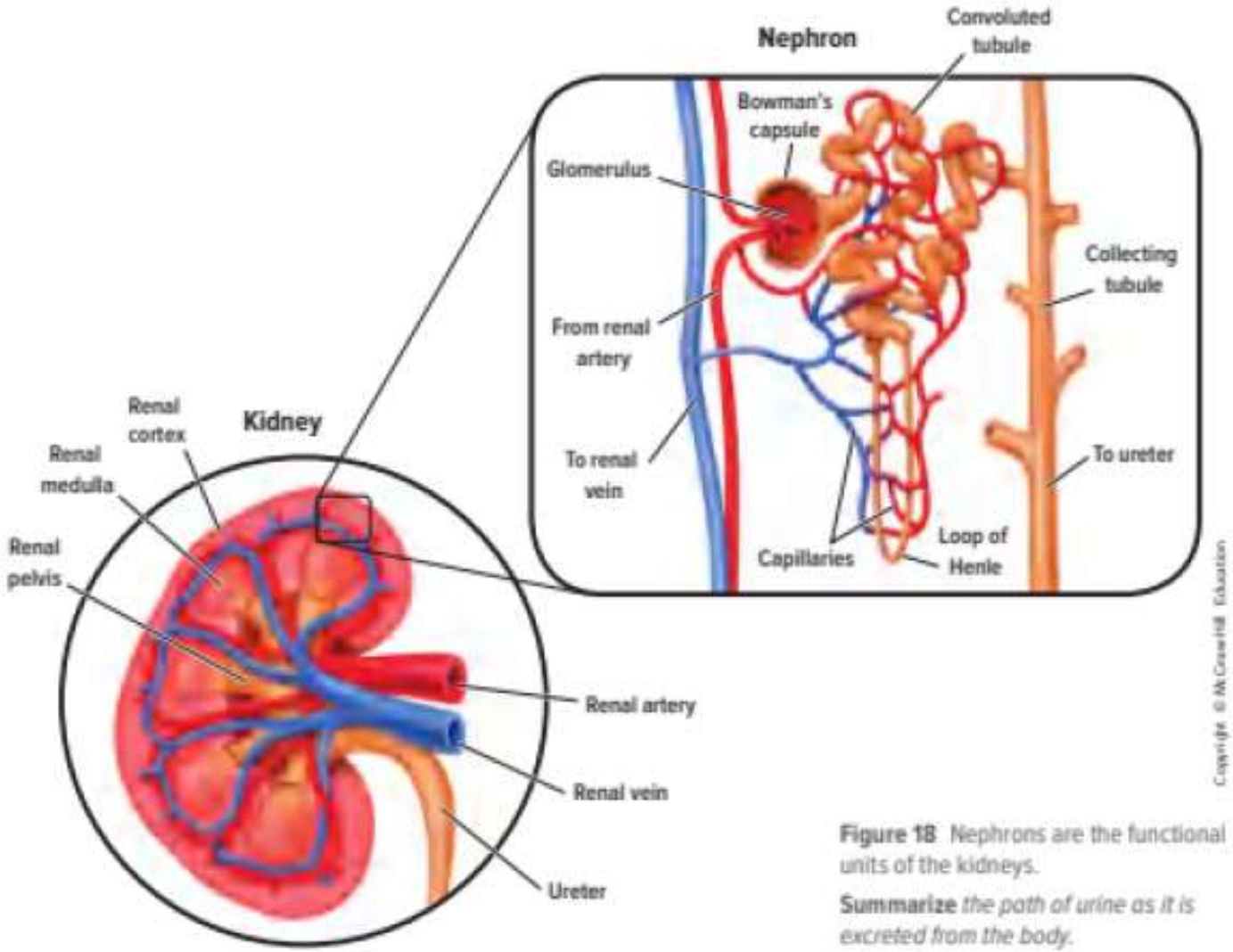
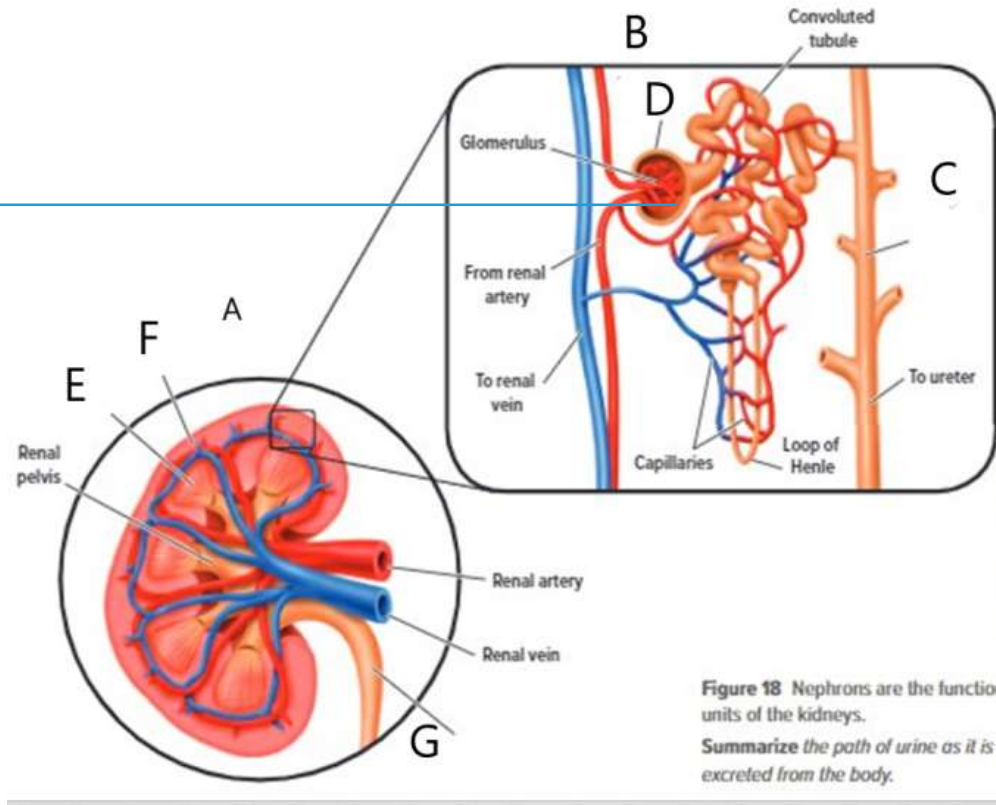


Figure 18 Nephrons are the functional units of the kidneys.

Summarize *the path of urine as it is excreted from the body.*

Quiz



79. **Identify ‘D’ in the picture?**

Renal cortex

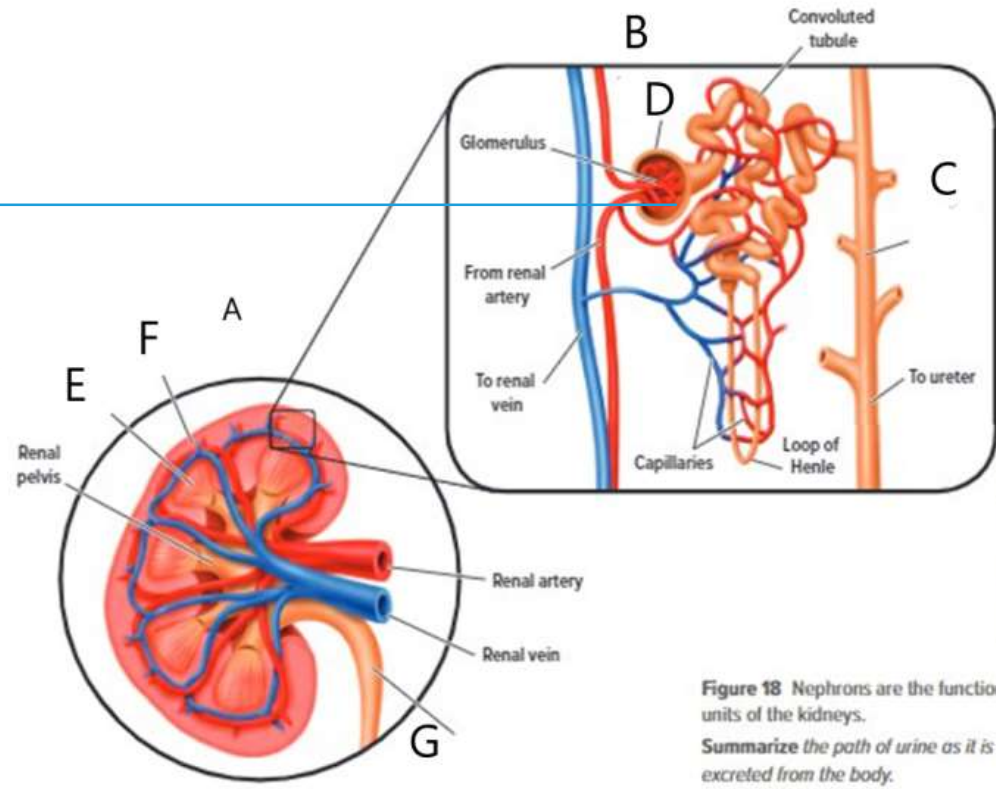
C Bowmen’s capsule

CORRECT

Renal tubules

Renal artery

Quiz



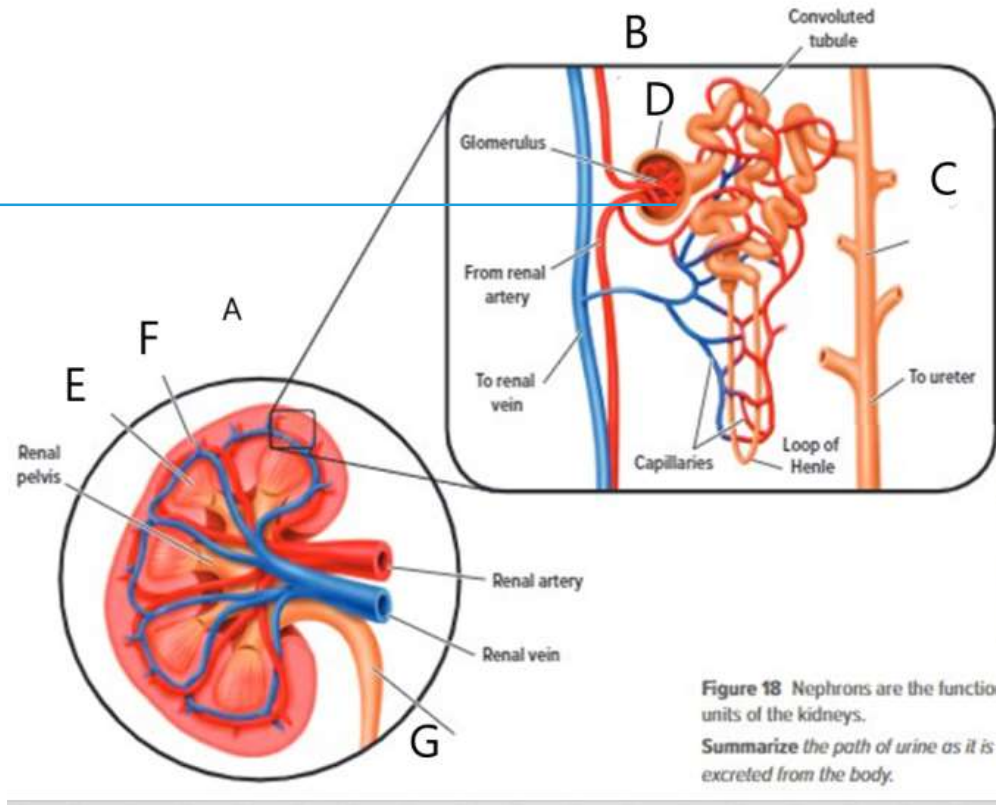
80. **Identify 'F' in the picture?**

- ~~A~~ Renal medulla
- C Renal cortex

CORRECT

- ~~B~~ Glomerulus
- ~~D~~ Ureter

Quiz



81. **Identify the E in the picture?**

A Renal medulla

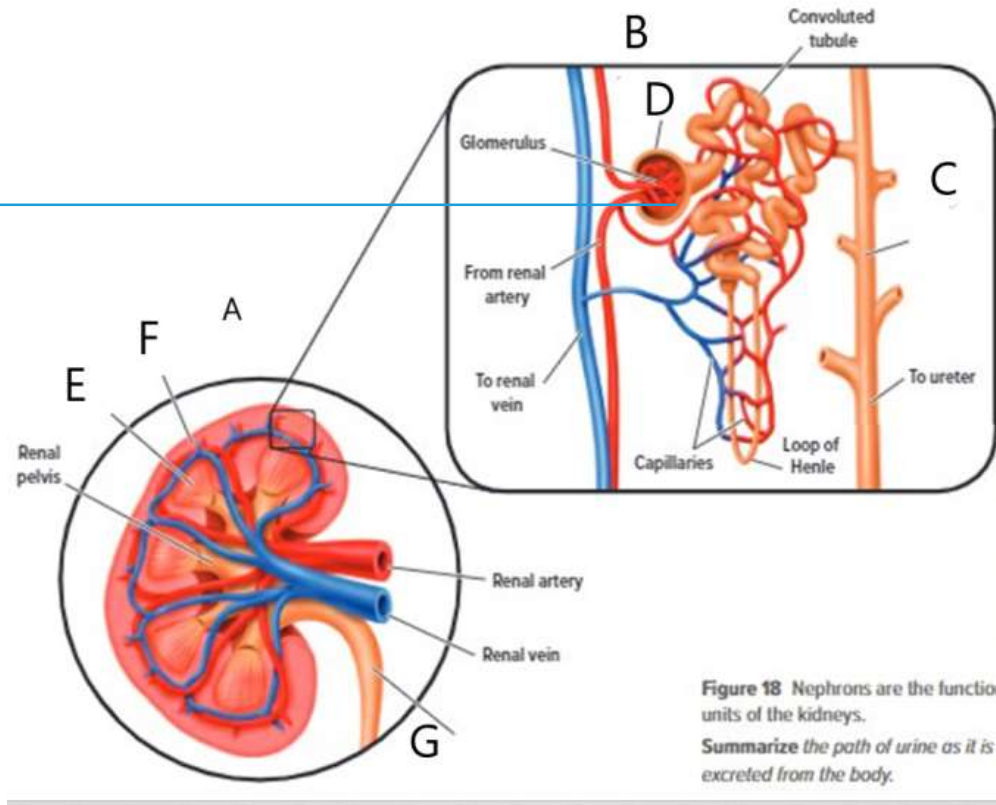
CORRECT

Renal cortex

Renal pelvis

Ureter

Quiz



82. **Identify the C in the picture?**

Renal pelvis

Glomerulus

B Collecting tubule

Loop of Henle

CORRECT

The mineral is placed back into the bloodstream by the kidneys through a process called.....	يتم إعادة المعادن مرة أخرى في مجرى الدم عن طريق الكليتين من خلال عملية تسمى.....

Learning Outcomes Covered

- BIO.3.1.01.053
- BIO.3.1.01.055
- BIO.3.1.01.086

a.	Filtration	الترشيح
b.	Excretion	الافراز
c.	Coupled transport	النقل المزدوج
d.	Reabsorption	إعادة الامتصاص

19. **Explain how negative feedback is important in maintaining homeostasis**

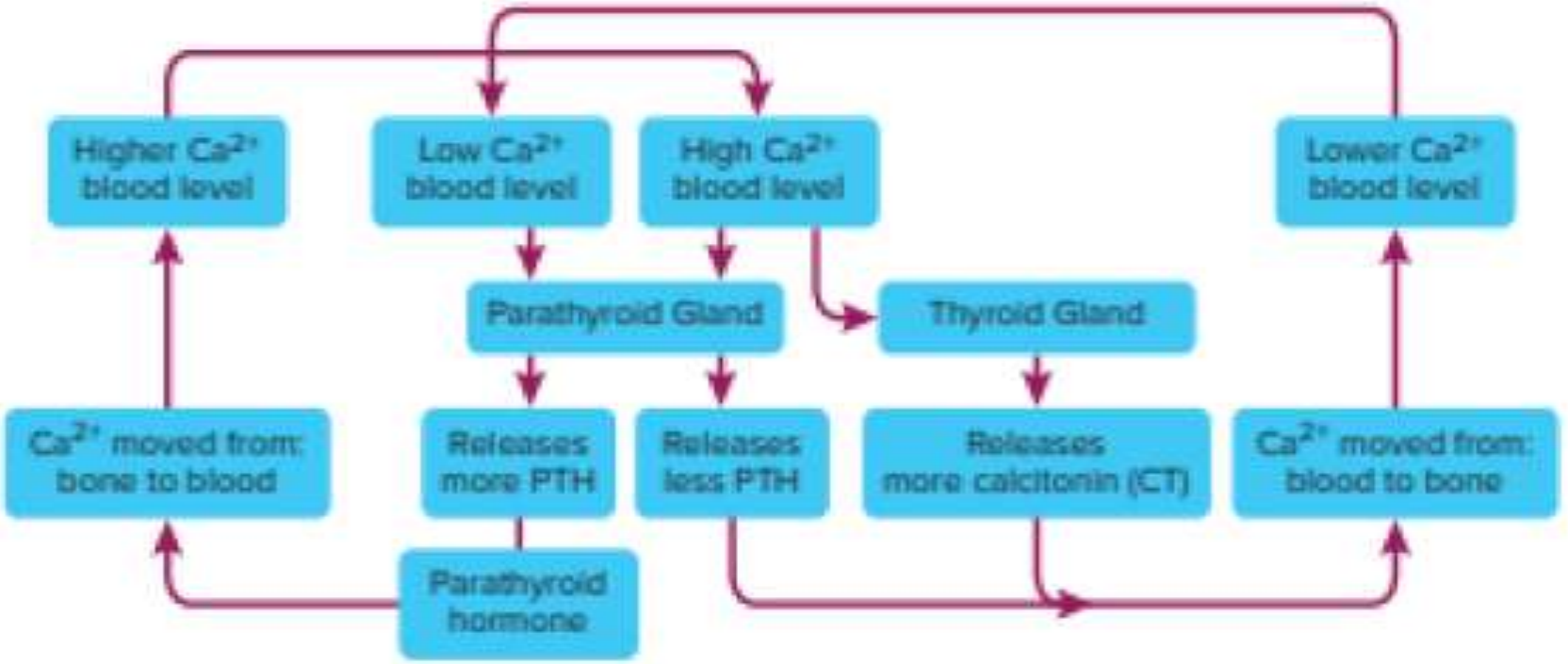
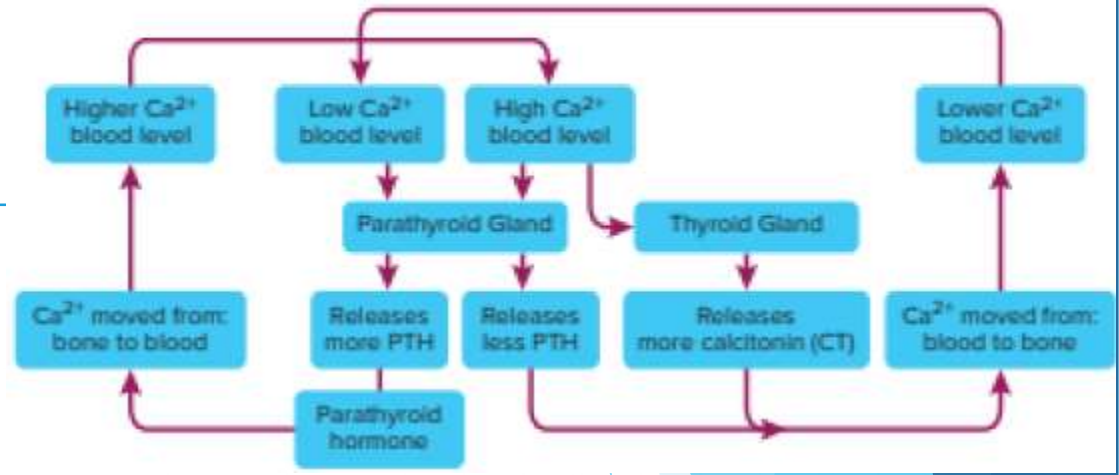


Figure 18 Parathyroid hormone (PTH) and calcitonin (CT) regulate the level of calcium in the blood.

Explain *how PTH and CT illustrate negative feedback.*

pg. 198

Quiz



85. **Which gland release Parathyroid hormone when calcium level is low in blood.**

Thyroid gland

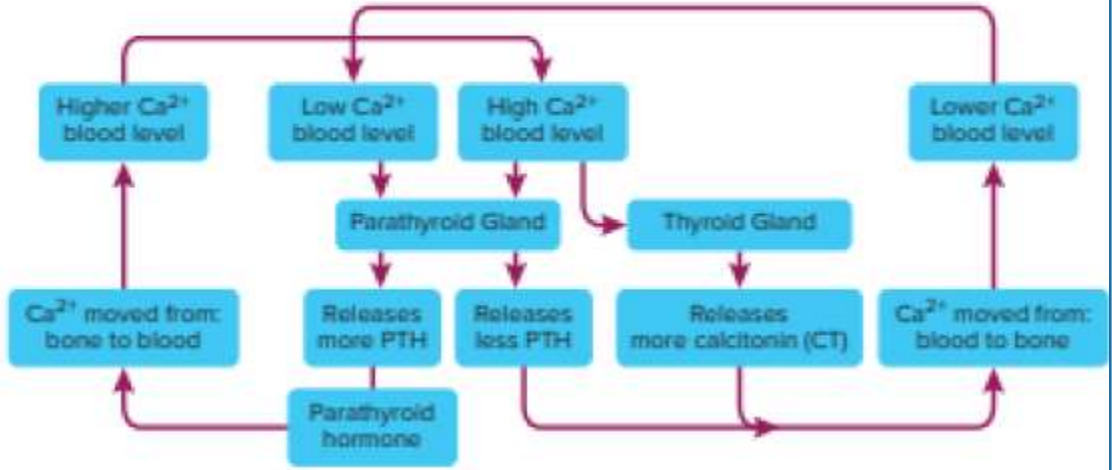
C Parathyroid gland

CORRECT

Pituitary gland

Adrenal gland

Quiz



86. **When calcium level is low, the hormone helps calcium to move from**

~~A~~ Blood to bone

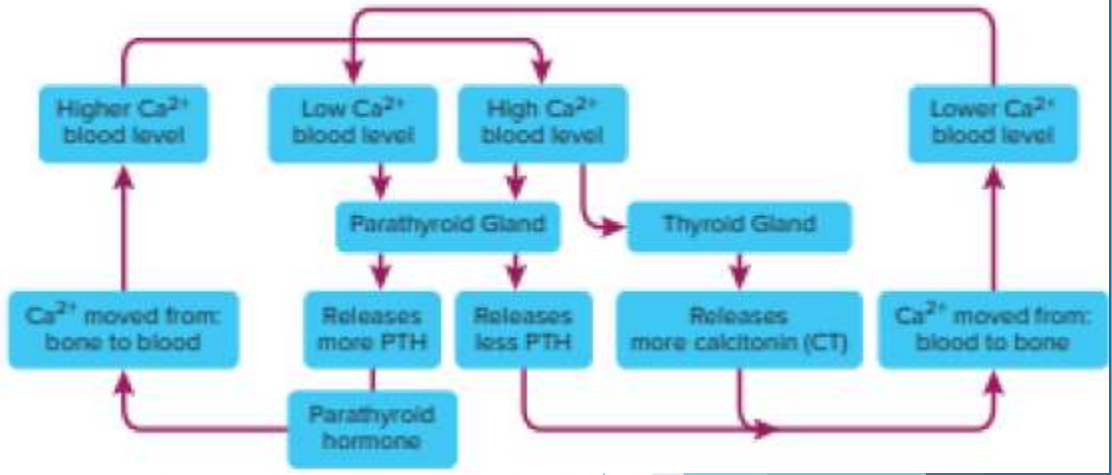
C Bone to blood

CORRECT

~~B~~ Blood to muscle

~~D~~ Muscle to bone

Quiz



87. **When calcium level is high, the hormone helps calcium to move from**

A Blood to bone

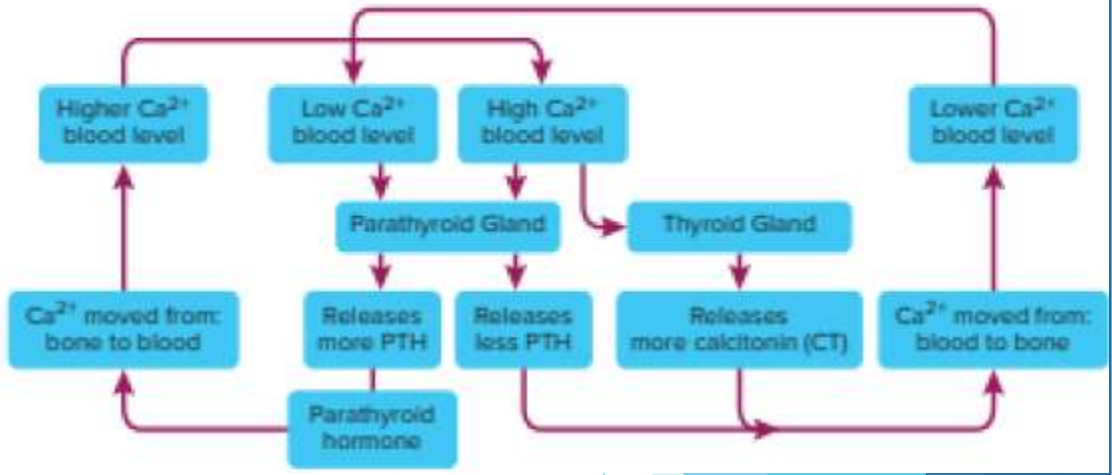
CORRECT

~~C~~ Bone to blood

~~B~~ Blood to muscle

~~D~~ Muscle to bone

Quiz



88. **Which gland release Calcitonin hormone when calcium level is high in blood.**

Adrenal gland

Parathyroid gland

B Thyroid gland

Pituitary gland

CORRECT

20. Identify the major glands of the endocrine system and their related hormones

- Pancreas

- pancreas secrete hormones **insulin** and **Glucagon**; they work together to maintain homeostasis.

- When blood glucose levels are high pancreas release insulin,
- Insulin helps in conversion of glucose to glycogen which is stored in liver.

- When blood glucose levels are low Glucagon is released,
- Glucagon binds to liver cell and give signals to convert glycogen to glucose which is released in blood.

- Type 1 Diabetes is a disease when not enough insulin is not produced and the body
- type 2 diabetes he's caused when the body become insensitive to insulin.

Quiz

89. The hormone which decrease level of glucose the in blood?

Cortisol

C Insulin

CORRECT

Aldosterone

Glucagon

Quiz

90. Glucose is stored in live by conversion of_____ with help of hormone insulin?

A Glucose to glycogen

CORRECT

Glycogen to glucose

Glucose to protein

Glycogen to protein

Quiz

91. The hormone which increases level of glucose the in blood?

Insulin

Epinephrin

B Glucagon

CORRECT

Cortisol

Quiz

92. Disease in which insulin is insensitive to glucose is called

Diabetes type 1

C Diabetes type 2

CORRECT

Diabetes type 3

Diabetes type 4

Which of the following hormone is released from the pancreas when blood glucose is high?	أي من التالي هرمون يتم إطلاقه من البنكرياس عندما يكون مستوى السكر في الدم مرتفعا؟

Learning Outcomes Covered

- BIO.3.1.01.062
- BIO.3.1.01.070

a.	Calcitonin	الكالسيتونين
b.	Glucagon	الجلوكاجون
c.	Aldosterone	الالدوستيرون
d.	Insulin	الأنسولين

20. Identify the major glands of the endocrine system and their related hormones

- **Adrenal gland**

- Adrenal glands are located above the kidney outer part of kidney is called cortex.
- Cortex manufacture steroid hormone called aldosterone and a group of hormones called glucocorticoids.
- Aldosterone affects the kidney and is important for reabsorbing sodium.
- Cortisol raises blood glucose level and reduce inflammation.

- In a stressful situation the inner portion of adrenal glands secrete epinephrin and norepinephrine.
- Together these hormones increase heart rate blood pressure breathing rate and sugar levels which are important in increasing the activity of blood cell.

Quiz

94. Hormone released by outer region of adrenal gland is ?

epinephrin

C Aldosterone

CORRECT

Norepinephrine

insulin

Quiz

95. Hormone which raises blood glucose level and reduce inflammation is called

A Cortisol

CORRECT

Aldosterone

Epinephrine

Norepinephrine

Quiz

96. Hormones which work together and controls blood pressure, sugar levels etc.


Epinephrine and cortisol


Aldosterone and norepinephrine

B Epinephrine and norepinephrine


Aldosterone and cortisol

CORRECT

Quiz

97. Which of the following letter represents **Thyroid** in the picture?

A

C C

CORRECT

B

D