

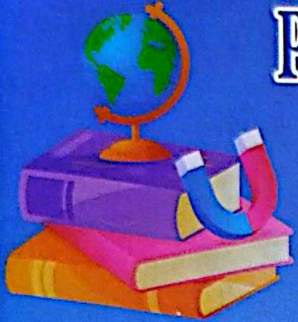


Science

4

Performances and Assessments

Primary Four



First Term
2025-2026

Concept one :Adaptation and survival

Week (1)

Get started - lesson (1)

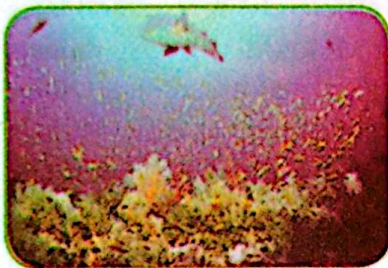
Date: / /

Classroom Performance:

The camel is called the desert ship, **think**, why they called it by this name?

Amazing environments - Diversity of ecosystems

Notice the following pictures of the environment then record the name that describes them



Environment

Environment

Environment

1- With your partner, identify one of the organisms that live in the desert environment.

.....

2- Infer the characteristics that enable organisms to live in the desert environment.

.....

The secrets of survival: Organism and adaptation

From your observation of living organisms in different ecosystems and their ways of adaptation to survive .

Choose from columns (b) and (c) what matches the statements in column (a):

(a)	(b)	(c)
Forms of adaptation of the living organisms	Ecosystems	The living organism
1-Keep its body cool	(....) desert environment	(...) camel
2- Looking for shadow area		(...) polar bear
3- Stores its food	(....) polar environment	(...) lizard
4- Dense feather and thick layer of fat		(...) penguin

Collaborate with your partner and suggest examples of other living organisms that live in:

1-Desert environment:

2-polar environment:

Strange structures :Adaptation for survival



Arctic fox



penguin



Polar bear

In your opinion:

Which of the above living organisms can slide on the snow with bare feet?

.....

Discuss with your partner:

What are the characteristics that help it to adapt to its environment?

.....

By using your textbook and the light of your study, write what the following refers to:

Adaptation	.....
Camouflage	.....

Homework (Performance):

- 1- **Explain:** The characteristics that help desert organisms adapt to their environment.
- 2- **Write the scientific term:** “ A type of adaptation that help the living organism to sneak up on prey”.
- 3- **Give reasons for:** Polar bear has a white thick fur.
- 4- **What happened if:** the fur of the bear that live in the forest became white?
- 5- **Explain** the characteristics that helps penguin to stand bare feet on ice for a longtime.

Classroom Performance:



From desert to ocean

Mention one difference between fennec fox and arctic fox.

.....

Types and ways of adaptation:

- From what you learned about the types and adaptations of both the fennec fox and the arctic fox
- Identify the ways in which each of them adapts to its environment and the type of adaptation.


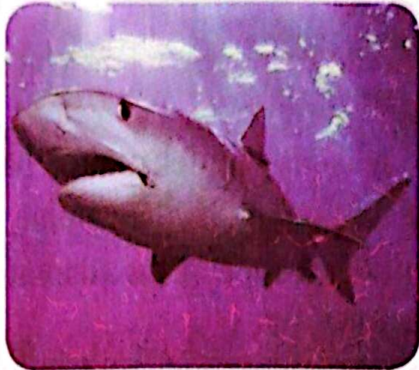
			
Behavioral adaptation	Structural adaptation	Behavioral adaptation	Structural adaptation

Observe the opposite image then answer:

- Name the living organism:
- Lives in environment.



Discuss with your partner, identify the adaptations of the following two organisms and classify them in the following table:

			
Behavioral adaptation	Structural adaptation	Behavioral adaptation	Structural adaptation

By using your textbook and the light of your study, write what the following refers to:

Behavioral Adaptation	.....
Structural Adaptation	.....

Homework (Performance):

- 1- **Identify** the types of adaptations in living organisms and give examples of each type?
- 2- **Write the scientific term:** “characteristics that help the living organisms to live and survive”
- 3- **Give reasons for :** the fennec fox fur is brown.
- 4- **What happened if:** a fennec fox’s ears are short.
- 5- **Explain** what is meant by countershading?

▶ Weekly assessment:

Model one

- 1- **Write the scientific term:** characteristics that help the living organisms to live and survive.
- 2- **Give reasons for:** fennec fox has a brown fur.
- 3- **What happened if:** the panther chameleon has not v-shaped feet.
- 4- **Mention** the type of the adaptation of the following: polar bear covered by a white thick fur.
- 5- **Mention** one example of: behavioral adaptation of one of living organisms.

Model two

- 1- **Write the scientific term :** a way of adaptation that help the living organisms to hide from the predators or sneaking up on their prey.
- 2- **Give reasons for:** penguin covered with a dense feather.
- 3- **What happened if:** the living organisms cannot adapt to their environment.
- 4- **Mention** the type of the adaptation of the following: the fennec fox lives in burrows.
- 5- **Mention** one example of: structural adaptation of ones of living organisms.

Model three

- 1- **Write the scientific term:** a change that happened the structure of the living organism to help it to survive.
- 2- **Give reasons for:** fennec foxes have long ears.
- 3- **What happened if:** the arctic fox have no white dense fur.
- 4- **Mention** the type of the adaptation of the following: the bull shark hunt its prey at day and night.
- 5- **Mention** one example of: living organism have the ability to camouflage.

Concept one :Adaptation and survival

Week (2)

Follow Lesson (2)



Date: / /

Classroom Performance:

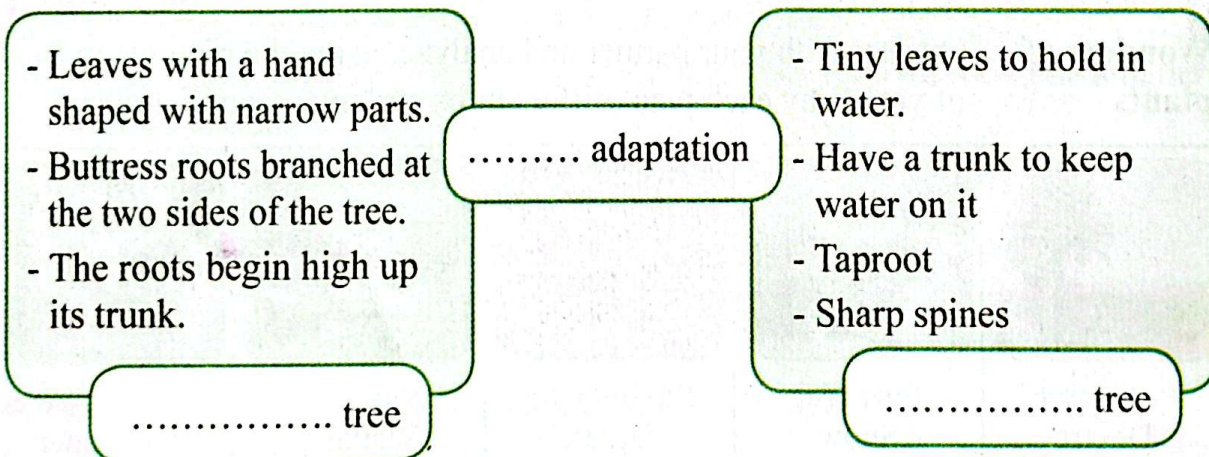
Discuss with your partner why Barbary fig have spins, and are there adaptations in plants like animals?

How can my tree survive? Way of plant adaptation

Observe the image then complete the table below:

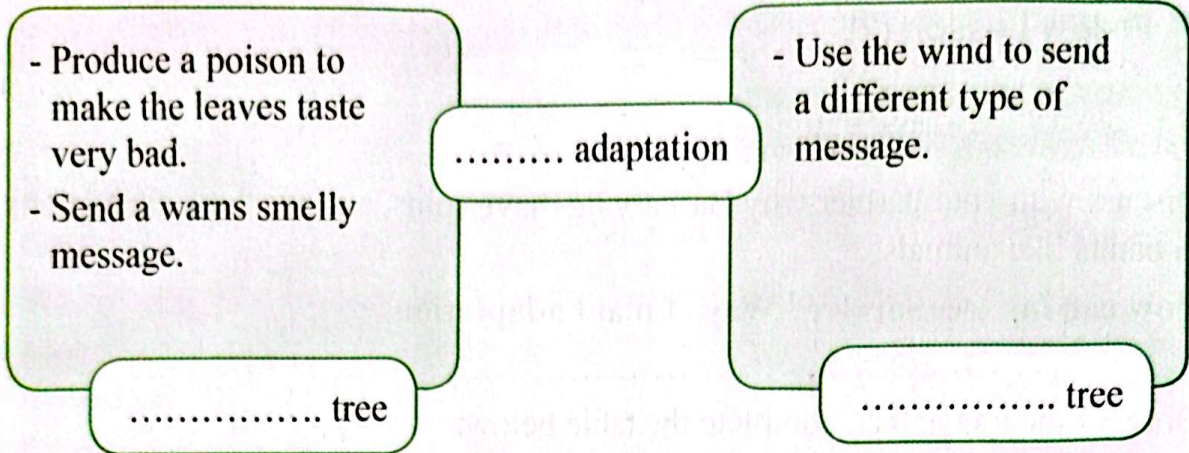
	
The root of tree Live in	The root of tree Live in

Complete the following:



First Term

Complete the following:








Homework (Performance):

- 1- **Mention** the difference between structural and behavioral adaptations in plants.
- 2- **Write the scientific term:** »A tree whose leaves most animals cannot reach«
- 3- **Give reasons for:** The acacia tree emits a bad smell.
- 4- **What happened if:** The kapok tree did not have buttress roots.
- 5- **Explain** how acacia tree protect themselves from organisms.

Concept one :Adaptation and survival **Week (2)**
Lesson (3) **Date: / /**

Classroom Performance:

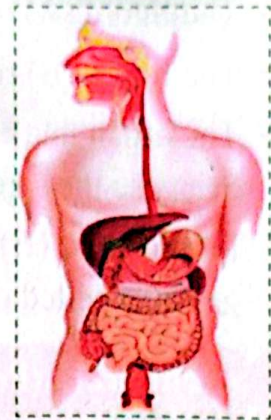
Wonders of plants Discuss with your partner and analyze, using the pictures in front of you, Why each plant differs in its structure from the other?

				
<p>Palm tree Desert environment Structural adaptation:</p>	<p>Pine tree Snow environment Structural adaptation:</p>	<p>Barbary fig Desert environment Structural adaptation:</p>	<p>Water lily Wetland environment Structural adaptation:</p>	<p>Mangrove tree Salt water environment Structural adaptation:</p>

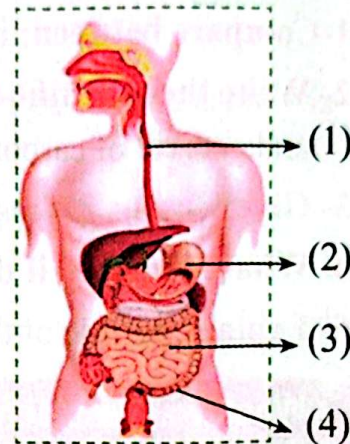
The food trip

Remember with your partner the name of the body systems that you have been studied before

- system.
- Its function is
- Starts with which helps in
- Ends by which helps in



- The organ (1) is
- Its function is
- The organ (2) is
- Its function is
- The organ (3) is
- Its function is
- The organ (4) is
- Its function is



Digestion process is:

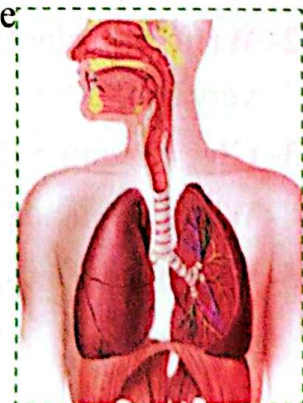
.....

Homework (Performance):

- 1- **Explain** how food is absorbed within the human body.
- 2- **Write scientific term** “a system whose organs break down food into smaller parts so the body can use them”.
- 3- **Give reasons for:** Your body needs energy.
- 4- **What would happen if:** humans didn't have a small intestine.
- 5- **Explain** the role of saliva, teeth, and tongue in the digestive

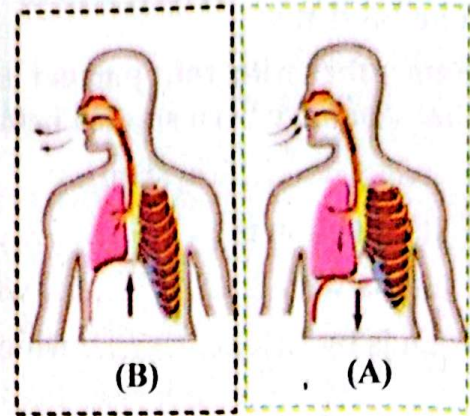
The secret of breathing

- The opposite figure is known as system.
- Its function is
- Its consists of,,
- It has important muscles called
- Its function is.....



First Term

- The figure (A) represents process
- The figure (B) represents process
- The organ that responsible for increase or decrease the size of the chest is
- In the figure (B) the air which carry gas is expelled out.



Homework (Performance):

- 1- **Compare between:** inhalation and exhalation process.
- 2- **Write the scientific term:** the system that supplies the body with oxygen gas and gets rid of carbon dioxide gas.
- 3- **Give reasons for** respiration is very important for the living organism.
- 4- **What happened if** there is no alveoli in the respiratory system
- 5- **Explain** the role of the diaphragm muscles in the breathing process.

Weekly assessment :

Model one

- 1- **Complete the following:** palm tree has root.
- 2- **Write the scientific term:** type of tree that grow in Amazon rain forest
- 3- **Give reasons :** The animals cannot eat leaves of Acacia tree.
- 4- **What happened if :** some plant moves from one environment to another?
- 5- **Give one example:** structural adaptation in water lily

Model two

- 1- **Complete the following :** Barbary fig has leaves.
- 2- **Write the scientific term:** tree that produces a poison to make its leaves taste very bad.
- 3- **Give reasons :** Kapok trees stay straight in muddy soil.
- 4- **What happened if :** palms tree did not have thick roots ?
- 5- **Give one example:** of structural adaptation in the Acacia tree.

Model three

- 1- **Complete the following:** The pine tree hasshape.
- 2- **Write the scientific term:** tree that live in Southern African Savannah
- 3- **Give reasons :** water lily has wide leaves.
- 4- **What happened if :** The acacia tree does not produce poison .
- 5- **Give one example:** of structural adaptation in the Kapok tree.

Weekly assessment (2):

Model one

- 1- **Complete the following :** The process which the oxygen gas enter the body is called
- 2- **Write the scientific term:** a system that responsible for breaks down food and use it to get the body with nutrient.
- 3- **Write the scientific term:** the process of pulling air in and pushing air out of the body.
- 4- **Give reasons for the following:** The diaphragm muscle is very important in breathing?
- 5- **What happened if :** saliva is not secreted in the mouth?

Model two

- 1- **Complete the following :** The process which the oxygen gas enter the lung is called
- 2- **Write the scientific term:** the process of breaks down food from complex food into simple one.
- 3- **Write the scientific term:** A muscle that is very important in breathing.
- 4- **Give reasons for the following:** saliva is very important in digestion process?
- 5- **What happened if :** there is no large intestine in the digestive system ?

Model three

- 1- **Complete the following :** the bronchioles end with little air sac called
- 2- **Write the scientific term:** the system that responsible of pulling air in and pushing air out of the body.

3- Write the scientific term: An organ of the digestive system where the digestion process begins .

4- Give reasons for the following: the lung is very important in breathing.

5- What happened if : there is no diaphragm in the human body ?

Concept one :Adaptation and survival

Week (3)

Lesson (4)

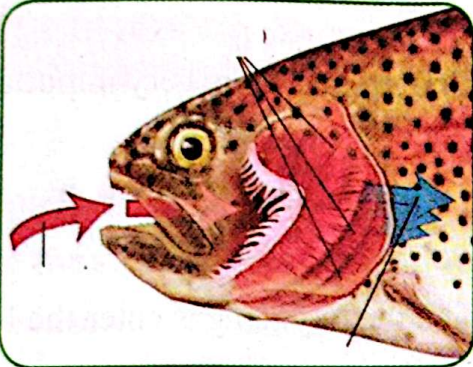
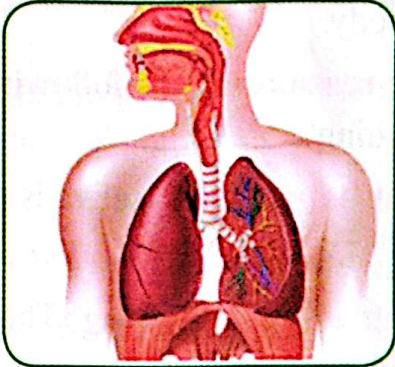
Date: / /

Classroom Performance:

How do fish breathe easily?

What would your respiratory system look like to be able to breathe underwater?
Try to imagine you are a fish

.....
Look at the picture and identify the similarities between the human and fish respiratory systems and what are the differences?

	
<p align="center">Fish respiratory system</p>	<p align="center">Human respiratory system</p>
<ul style="list-style-type: none"> - Fish use to breathe. - Fish live in - Fish breathe gas dissolved in 	<ul style="list-style-type: none"> - Humans use to breathe. - Humans live on gas. - Humans breathe gas from the air in the atmosphere .

The environment is in danger - Human impact on the environment

Discuss with your partner and analyze, using the picture in front of, what human activities lead to changes in the ecosystem



Cut
for.....



Plow and
clear



Enter.....
from and



Remove
for

Our planet need us - Impact of human activities on the environment

Discuss with your partner and analyze, through the pictures in front of you what is the human activities affect the environment.



Exhausts from and pollute



Throwing away and
Leads to

Throwing away and
leads to

Using the textbook and in light of what you have studied, write what the following refers:

Gills	
-------	--

Homework (Performance):

- 1- **Explain** the similarities and difference between humans and fish in respiration process.
- 2- **Write the scientific term:** Structure found in the body of fish is important for respiration.
- 3- **Give reasons:** Some human activities cause air and water pollution.
- 4- **What happens when:** Exposure to high levels of air pollution over a long period.
- 5- **Explain** how humans can restore the ecosystem to its original state.

Concept one :Adaptation and survival

Lesson (5)

Week (3)





Date: / /

Classroom Performance:

Facing challenges with courage

How the different way of adaptation does help animals and plants to survive?

Note the picture of the following living organisms and then record the type of adaptation they represent.

The living organisms				
The type of adaptation	.....	.....	.....	.....
The way of adaptation	The vessels weave around each other in its feet causes	Puffs up its body with air to cause	White thick fur cause	Needle leaves to

Observe: the pictures of the following organisms, then record your answers:

Why does a desert lizard look for a shaded area?



Why do plants that live in aquatic environments need wide leaves?



Survival story:

The relationship between functions and adaptation

Amphibians are living organisms that live in and on

Observe the pictures of the following organisms, then record your answers

These living organisms are known as



These organisms breathe by

..... while it was in
.....

..... while it was in
.....

These type of respiration is considered as adaptation.

Water pollution exposes these organisms to the danger of

Choose the odd word and why:

(golden frog - salamander - penguin - toads)

The odd word: Why:

Homework (Performance):

- 1- **Explain** how a penguin keeps its feet warm in the polar environment.
- 2- **Write the scientific term:** "An adaptation that includes the way organisms live , such as foxes, live in burrows."
- 3- **Explain the following:** Blood vessels play an important role in survive penguin's life.
- 4- **What would happen if** an organism could not adapt to its environment?
- 5- **Explain** the similarities between human and fish adaptations in the process of respiration.

Weekly assessment:

Model one

- 1- **Complete:** Amphibians breathe using and
- 2- **Write the scientific term:** Organs in humans extract oxygen from the air.
- 3- **Give reasons:** Fish die when they leave the water.
- 4- **What happens if:** forests are cut down and grassland are cleared?
- 5- **Identify** some human activities that negatively impact the air.

Model two

- 1- **Complete:** Changes that affect ecosystems include and
- 2- **Write the scientific term:**
Special organs in fish allow them to extract dissolved oxygen from the water and expel carbon dioxide.
- 3- **Give reasons:** Humans and fish have some similar characteristics.
- 4- **What would happen if** forest trees were cut down?
- 5- **Identify** some human activities that negatively impact water.

Model three

- 1- **Complete:** During exhalation, gas is released, and during inhalation, gas is entered.
- 2- **Write the scientific term:** Pollution caused by car and factory exhaust.
- 3- **Give reasons:** Amphibians can live in both water and land.
- 4- **What happens if:** Many building communities are built and agriculture is neglected?
- 5- **Identify** some human activities that negatively impact soil.

Concept Two: Senses at work

Lesson (1)

Week (4)

Date: / /

Classroom Performance:

How do animals understand the world?

How do animals receive information from the environment and respond to them?

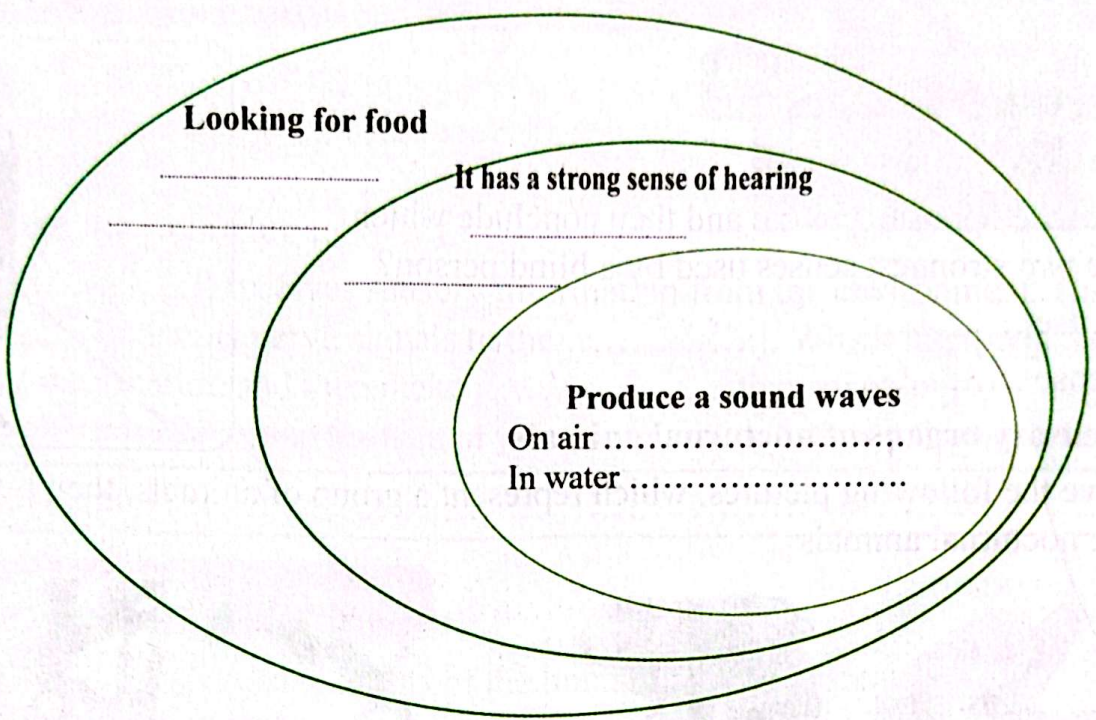
.....
The Egyptian mongoose spends all night searching for dinner for itself and its family, and during its journey it faces many dangers.



From what you have read, explain how the Egyptian mongoose secures its way and invites its family members to food.

.....

Using the following figure, classify the following three animals: Egyptian mongoose, dolphin, and bat.



How do animals sense the world?

Sensation in animals

- By reading about how the senses and supersensory abilities work, complete the table in front of you:

Animal	Super senses	The purposes
.....	Echolocation, sharp hearing	Fishing in the Dark Depths
.....	Echolocation, acute hearing	Night catching insects
.....	Night vision, hearing to locate sound source acutely.	Hunting rodents in the dark

By using your textbook and the light of your study, write what the following refers to:

echolocation	
--------------	--

1- Explain: How the Egyptian mongoose communicates with each other's .

2- Write what the sentence refers : “ A sense used by dolphins to locate living organisms under water “ .

3- Give reasons: Dolphins make a number of sounds under water .

4- **What happen if :** Dolphins do not have a super sense of hearing .

5- **Explain:** How dolphins use sound to locate prey

Concept Two: senses at work

Lesson (2)

Week (4)

Date: / /

Classroom Performance:

Sharp eyes , super ears

Look at the opposite picture and then conclude which are the two strongest senses used by a blind person?

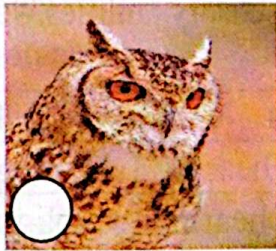
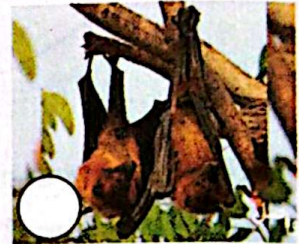
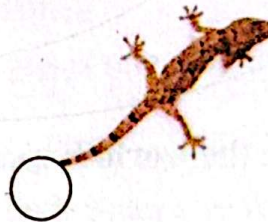
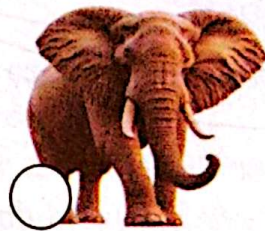
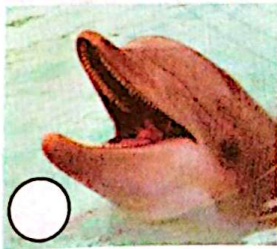
The sense

The sense



The sensory organs of nocturnal animals

Observe the following pictures, which represent a group of animals, then put (√) for the nocturnal animals



1- Identify with your partner the reasons for nocturnal animal activity ?

a-

b-

c-

2- What adaptations help owls hunt at night ?

a-

b-

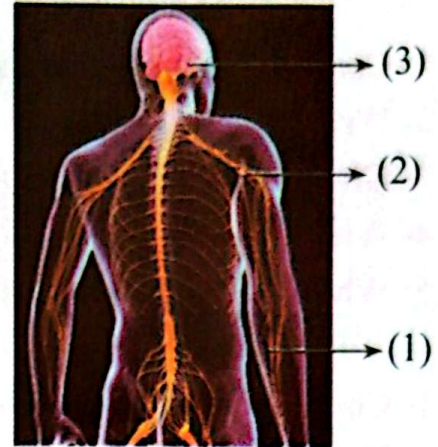
c-

Communication game

Nervous system

After studying the nervous system , write the name of the organs indicated:

- 1-
- 2-
- 3-



Complete the following :

Thereceives sensory information from the environment, The transmits nerve signals to the Which interprets the sensory information and then make that suitable .

By using your textbook and the light of your study, write what the following refers to:

echolocation
--------------	-------

Homework (Performance):

- 1- **Identify** the main components of the human nervous system.
- 2- **Write the scientific term:** “a group of nerves passing through the backbone.”
- 3- **Give reasons :** Animals are active in very hot areas at night,
- 4- **What happens when** an owl moves its head in all directions?
- 5- **Explain** why a bat look like a dolphin.

Weekly assessment:

Model one

- 1- **Complete:** The nervous system consists of , and
- 2- **Write what the sentence refers :** The property that enables bats to locate their prey.
- 3- **Give reasons:** The jerboa can jump long distances.
- 4- **What happens if :** Owl eyes were small.
- 5- **What** is the function of brain in human body .

Model two

- 1- **Complete:** Examples of nocturnal animals..... and
- 2- **Write what the sentence refers:** The main control unit of the human body.
- 3- **Give reasons:** Bats can locate their prey in the dark .
- 4- **What happens if:** nerves were not part of human body ?
- 5- **What is the** function of spinal cord in human body.

Model three

- 1- **Complete:** Animals that have the ability to locate their prey by echolocation are and
- 2- **Write what the sentence refers:** Nerves that connect directly to the brain .
- 3- **Give reasons:** Animals that live in hot area are active at night .
- 4- **What happens if:** organisms cannot locate their prey.
- 5- **What is the function** of the nerves in human body.

Concept Two: senses at work

Follow of Lesson (2)

Week (5)

Date: / /

Classroom Performance:

Solving the mystery

Sensing the environment

Study the picture than answer the following:

- 1- What the name of this organism? and it belongs to
- 2- Where does it live? When is it active ?
- 3- What structure helps it jump long distance?
- 4- It runs in path and the on its feet and toes help grip the sand.



By using your textbook and the light of your study, write what the following refers to:

Reaction time
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Homework (Performance):

- 1- **Identify** a structural adaptation in the Egyptian jerboa.
- 2- **Write what the sentence refers:** “ A nerve that connects directly to the brain”

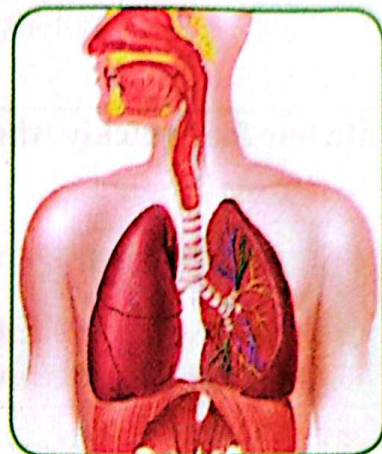
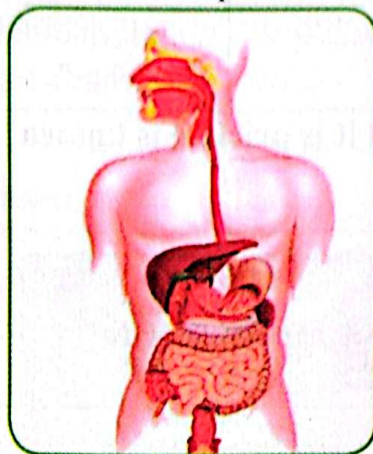
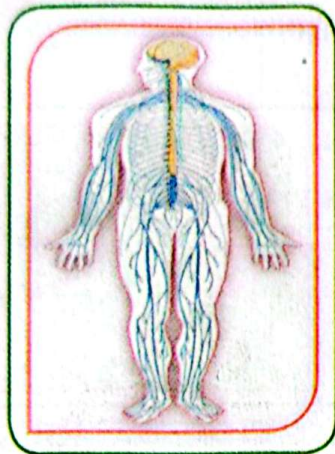
- 3- Give reasons: The Egyptian jerboa has long legs.
- 4- What happens if: the Egyptian jerboa heard the noise made by snake.
- 5- Explain: The Egyptian jerboa is able to survive in its environment.

Concept Two: senses at work Week (5)
Lesson (3) Date: / /

Classroom Performance:

The hidden leader of your body

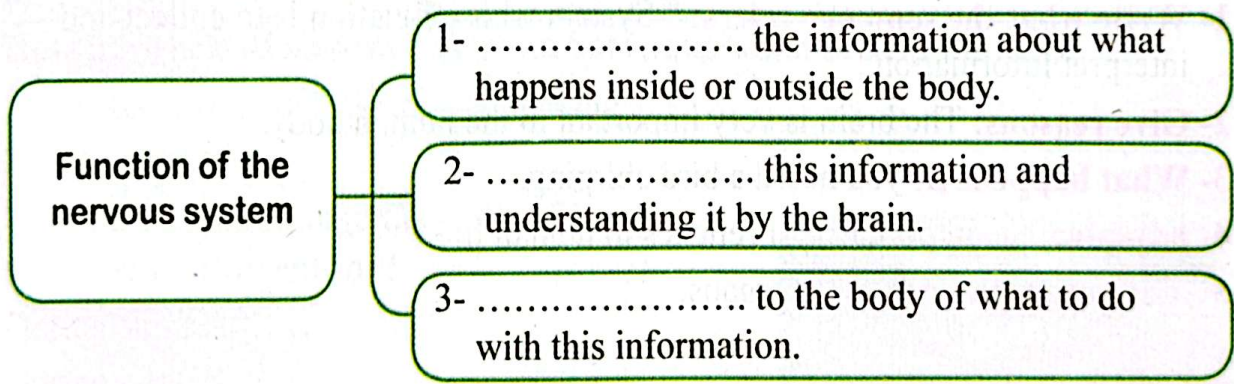
Write the names of the following systems, then circle the system that receives information from the environment and response .



.....





How does the nervous system work ?

Choose from the following words which suit the phrases in the following diagram: (interpret - sending signals - collect)

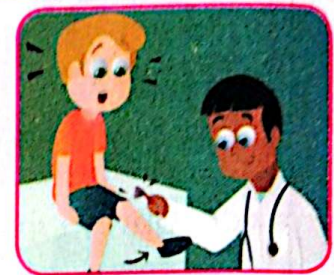


Example : What happens when you hear a bird chirp in a tree ?

Complete the following table:

Stimulus	Sensory organ	Brain	Body parts
			
The bird makes a chirping sound.	..... collects sound and sends messages to	The processes the sound, translates it, and sends a signal to the which distinguishes the bird's sound.	The body turns to the location of the bird.

Pull your foot quickly when it is pricked is known as



By using your textbook and the light of your study, write what the following refers to:

The brain	.....
The nerves	.....
Reflex actions	.....

Homework (Performance):

- 1- Write what the sentence refers: " System whose function is to collect and interpret information .
- 2- Give reasons: The brain is very important in the human body.
- 3- What happens if: you heard a bird chirping.
- 4- Explain: The importance of reflexes in human life.
- 5- Give examples of : sense organs.

Concept Two: senses at work

Lesson (4)

Week (5)

Date: / /

Classroom Performance:

Discovered game

How do animals receive information from the environment and respond to them?

Look at the figure in front of you and complete
The name of the animal in the opposite figure
is






What are the effects of its inability to produce strong smells?

1-

2-

Identify the following animals:

		
1-	2-	3-
What are the ways of communication of these animals?		
1- By	2- By	3- By

How have scientists benefited from bats adaptation to help humans?

Scientists have benefited through making

Whales sing 🎵🎵

Why do whales change the tones of their songs with the seasons?

During summer

During winter



Complete the following table using the following words :
(whale - tall - short - ant)

Communications by sounds	Communications by odors
Reaches distances	Reaches distances
Example	Example

Homework (Performance):

- 1- **Explain** the difference between whales and ants in their communication.
- 2- **Write what the sentence refers:** "A type of ant responsible for locating food.»
- 3- **Give reasons:** Humpback whales sing in the winter.
- 4- **What would happen if:** Humpback whales didn't make a sound?
- 5- **Explain** how groups of ants communicate with each other.

Weekly assessment:

Model one

- 1- **Complete:** The brain is an organ of the system.
- 2- **Write what the sentence refers:** "A feature used in a blind person's cane to help them know the directions."
- 3- **Give reasons:** Humpback whales sing underwater.
- 4- **What happen if** the Egyptian jerboa did not have long legs?
- 5- **State the function** of the sensory receptors in the jerboa's ears.

Model Two

- 1- **Complete:** The is considered the control organ in the human body.
- 2- **Write what the sentence refers:** " The time it takes the body to respond to various information, such as danger."
- 3- **Give reasons:** A blind person's cane enables them to navigate.
- 4- **What happen if** the jerboa did not have a sensitive ear for sound?
- 5- **State one function** of the human nervous system.

Model Three

- 1- **Complete:** The transmits messages to the brain.
- 2- **Write what the sentence refers:** Organisms that communicate with each other through the sense of smell.

- 3- Give reasons: The Egyptian jerboa jumps quickly when it senses danger.
- 4- What happen if: Humpback whales couldn't sing underwater?
- 5- State the importance of: the cane used by a blind person.

First monthly exercise.

Complete the following sentences:

- 1- The way that bats depend on an adaptation to be able to see at night is called.....
- 2- Lizards live in.....
- 3- Penguins live in.....
- 4- in penguins' feet enables them to stay on the snow for long periods.
- 5- In penguins, heat is transferred from blood vessels to blood vessels.
- 6- One of the polar bear's adaptations that helps it feel warm is
- 7- Desert animals are characterized by fur.
- 8- Many lizards have scales.
- 9- From the examples of desert animals are and.....
- 10- The fennec fox has fur.
- 11- Arctic foxes live in
- 12- Bull sharks live in the and..... water.
- 13- The panther chameleon lives in
- 14- The colored scales of pnther chameleon is considered as adaptation .
- 15- The acacia tree is found in
- 16- The kapok tree is found in.....
- 17- The mixes food with digestive juices.
- 18- Your body needs to made-up its internal functions.
- 19- The digestive process begins in.....
- 20- helps to moisten and break down food.
- 21- Nutrients are absorbed through the walls of.....
- 22- Undigested food flows into.....
- 23- We obtain from the air in the atmosphere.
- 24- The bronchi end in.....

- 25- The respiration process produces gas.
- 26- The muscle is responsible for inhalation and exhalation.
- 27- Fish breathe through.....
- 28- Fish cannot use..... to breathe like humans.
- 29- Fish extract dissolved in water.
- 30- Gills are adaptation.
- 31- Amphibians breathe by and
- 32- Scientists working in Panama on a project are seeking to develop a
- 33- The Egyptian mongoose make a..... to communicate with each other.
- 34- Dolphins use their sense to communicate with each other.
- 35- The sound produced by dolphins travels in water as a form of
- 36- The animals which active at night are called.....
- 37- Owls have both extraordinary of and
- 38- The nervous system consists of,, and
- 39- The brain is connected to a group of nerves that pass through the backbone called
- 40- Some nerves are connected directly to the brain, such as the nerves.
- 41- Nerves spread throughout the body connect the sense organs with
- 42- Groups of ants communicate with each other by sense.

Write what the sentences refer:

- 1- Characteristics that help living organisms survive.
- 2- A type of adaptation that helps animals hide from predators.
- 3- An adaptation that occurs in the structure of an animal's body.
- 4- A change in the behavior of a group of animals.
- 5- A camouflage strategy used by sharks to sneak up on their prey.
- 6- Body parts that work together.
- 7- A long, coiled tube, one of the components of the digestive system.
- 8- The process of breaking down food into smaller parts so the body can use them.
- 9- A body system responsible for bringing air into the body and expelling carbon dioxide.
- 10- The process of pushing air in and out of our bodies and exchanging gases.

- 11- Small sacs surrounded by blood vessels.
- 12- An organ in fish responsible for respiration.
- 13- A system consisting of the brain, nerves, and spinal cord.
- 14- Messages that are so fast you are barely of them.
- 15- The time it takes an organism to react to danger.

Give reasons:

- 1- Lizards research shade in the desert.
- 2- Penguins need to adapt to their environment.
- 3- Penguins' feet don't freeze even when standing on snow.
- 4- Polar bear fur is white.
- 5- Desert animals' fur is dark in color.
- 6- Lizards have colored scales.
- 7- Countershading strategy help bull sharks to sneak up on prey.
- 8- Most of animals cannot reach the leaves of Acacia tree.
- 9- The nervous system is very important to humane life .
- 10- Saliva has important function during the digestion process .
- 11- Small intestine has vital role in the digestion process .
- 12- Diaphragm has important function during the respiration process.
- 13- Humans have a big effect of its environment which living inside.
- 14- Some animals are active at night.
- 15- Egyptian jerboa has a long hind legs.
- 16- Humpback whales song in both summer and winter .

The third concept: Light and the sense of sight

Week (6)

Lesson (1)

Date: / /

Classroom Performance:

Think: Can you see in the dark?

Look at the opposite picture and answer:



- This animal is active and hunts its food

(day-night).

- The pupil of this animal isthan that of a human (more - less)

Is the structure of the eyes of nocturnal animals different that in humans eyes?

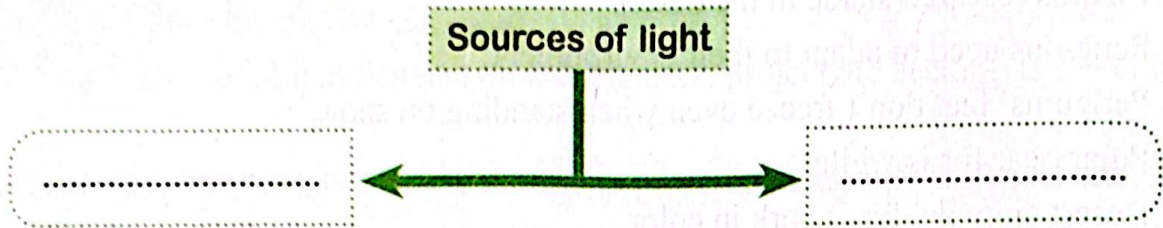
First Term

Complete the following table:







Point of comparison	Nocturnal animals	Human
Size of the eye		
Eye pupil		

Discover the world of lights

Complete the following diagram



Put (✓) in front of suitable light source for the pictures in front of you:

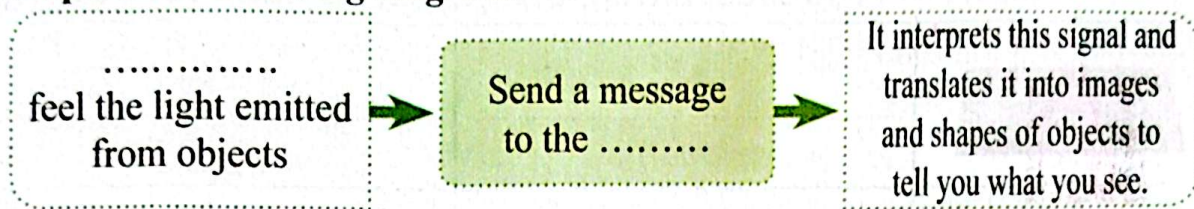
	Natural sources	Artificial sources
		
		
		
		
		
		

How can we see things ?

Draw the correct light path so the child can see the ball , showing the path of the arrows.



Complete the following diagram:



By using your textbook and the light of your study, write what the following refers to:

light	.....
Source of light	.....

Homework (Performance):

- 1- How can you see objects?
- 2- Write what the sentence refers: A type of animal whose eye structure helps it find its prey in the dark.
- 3- Give reasons: All cats can see in the dark.
- 4- What happened if : Humans have large eyes with larger pupils.
- 5- Compare between: sun and moon as a source of light.

Classroom Performance:

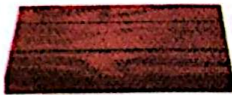



Amazing reflection

Think: Do you see your image when you look at a piece of wood ?

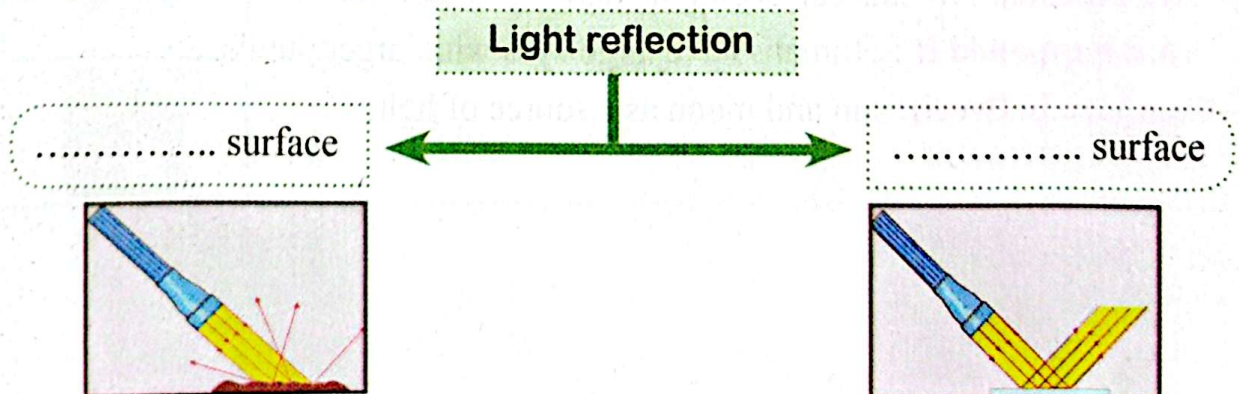
Which body reflects light best?

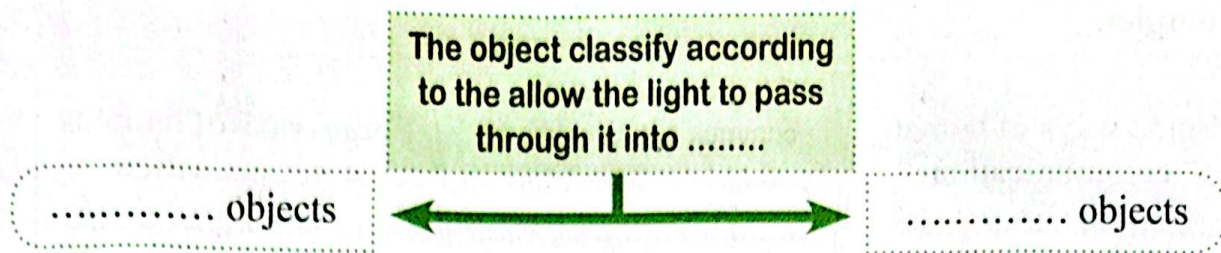
In front of you a group of objects made of different materials.

Explain which one reflects light better and which one does not, mention the type of each object:

The object	Reflect the light/doesn't reflect the light	Body type (shiny/rough)





Complete the following diagram:





By using your textbook and the light of your study, write what the following refers to:

Light reflection	.....
Transparent object	.....
Opaque object	.....

Homework (Performance):

- 1- Give examples of objects that reflect light and objects that do not .
- 2- Write what the sentence refers:” objects which light does not pass through”
- 3- Give reasons: The human body has a shadow.
- 4- What happened if: Light falls on rough objects .
- 5- Compare between: Light falling on a shiny surface and light falling on a painted wall.

The third concept: Light and the sense of sight

Week (7)

Lesson (3)

Date: / /

Classroom Performance:

light shows

Think:

Have you ever seen animals use light to communicate with each other?

Why do fireflies use their senses to communicate?

- 1-
- 2-

What do you know about communication and information transfer?



Complete

Some ways of human communication	Some common communication methods between humans and animals	Some ways of animals communication
---	---	---

Homework (Performance):

- 1- **How** do humans use light to communicate with others?
- 2- **Write what the sentence refers:** "Organisms that use their wings to emit flashes of light."
- 3- **Give reasons :** A chemical reaction occurs inside the body of fireflies.
- 4- **What would happen if** fireflies emit flashes at regular intervals?
- 5- **Explain how :** fireflies communicate with each other.





The third concept: Light and the sense of sight **Week (7)**
Lesson (4) **Date: / /**

Classroom Performance:

Communication keys

Imagine that your friends are smiling at you, which sense would you use to understand that he is happy?

Here are several traffic sign symbols .Which signs can be used in the following situations?

(1)		School zone (.....)	(3)		There is an accident on the road (.....)
(2)		No U-turn (.....)	(4)		Bike line (.....)

Is the sound of an ambulance considered a code?

.....

By using your textbook and the light of your study, write what the following refers to:



The code
----------	-------

Homework (Performance):

- 1- Explain the importance of codes in our daily lives.
- 2- Write the scientific term: "A pattern with meaning".
- 3- Give reasons : Travelers used mirrors.
- 4- What would happen if: languages did not exist in different countries?
- 5- Mention several examples of codes.

Weekly assessment:

Model one

- 1- Complete: Fireflies use to emit flashes of light.
- 2- Write the scientific term: A pattern that has meaning.
- 3- Give reasons : Fireflies emit a flash of light.
- 4- What happens if predators close to fireflies?
- 5- Explain how humans use signals or codes to transmit information.

Model one

- 1- Complete: from the examples of codes are ,
- 2- What the sentence refers: Animals communicate with each other using flashes of light.
- 3- Give reasons : Humans sometimes use codes.
- 4- What happens if: A group of fireflies meets another group of fireflies?
- 5- Explain the importance of the membrane in cats' eyes.

Model three

- 1- Complete: Fireflies are found on..... trees.
- 2- Write what the sentence refers :thumbs up or thumbs down.
- 3- Give reasons : Codes are very important in human life.
- 4- What would happen if fireflies did not emit light flashes?
- 5- Explain how we can see things?

Revision - Unit one

Week (8)

Date: / /

Weekly assessment:

Model one

- 1- Complete: The diaphragm rises up during the process of and lowers down during the process of

First Term

- 2- **Write the scientific term:** the time it takes a jerboa to respond to danger.
- 3- **Give reasons:** The moon is not considered a source of light.
- 4- **What happens if:** saliva is not secreted during the digestion process.
- 5- **Explain** the similarities between a bat and a blind man's cane.

Model two

- 1- **Complete:** pharynx is from system, lungs is from system.
- 2 - **Write what the sentence refers:** Animals be active at night research the food.
- 3- **Give reasons:** The glass is transparent objects .
- 4- **What happens if :** there are no small intestine in digestive system .
- 5- **Explain** how amphibians adapted to its environment.

Model three

- 1- **Complete:** Fish extract gas dissolved in water, and humans obtain this gas during the process of
- 2 - **Write what the sentence refers:** the main control center of the human body.
- 3- **Give reasons:** Fireflies produce a bright flashes.
- 4- **What would happen if:** humans did not have lungs?
- 5- **State the scientific idea** upon which the cane for the blind is based.

First Concept: Starting and Stopping

Week (9)

Get -Started - Lesson 1 - Beginning of Lesson 2

Date: / /

Classroom Performance:

The Hidden force

Look at the picture of the man sitting in a wheelchair on a ramp.

- **Think?** What force helps a man move down the ramp?

.....

- **Explain?** A man needs extra force as he climbs the ramp.

.....

How do forces affect the movement and stopping of objects?

Look at the static cart image and complete:

- The static shopping cart will not move unless affected by.....
- The cart is moving in direction



In front of you a picture of a goalkeeper blocking a moving football:

- **Complete:** Moving objects need..... until it stops, otherwise it will still be moving at the same speed.



Speed Challenge








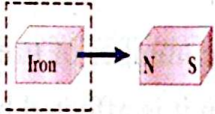
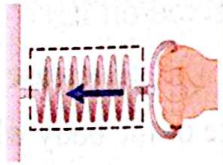

Comparison between trucks and aircraft

- **Give reason for?** The shockwave is the fastest truck in the world.
- **How** is this truck stopped?



How do objects move?

Notice the following pictures that represent the set of activities you do in your daily life and then deduce the force that moves each of them (pulling or pushing force)?

				
Force	Force	Force	Force	Force
				
Force	Force	Force	Force	Force

By using your textbook and the light of your study, write what the following refers to:

Pushing force	.....
Pulling force	.....

Homework (Performance):

- 1-**When** is it said that the body is in motion?
- 2-**Give reason for:** The ball placed on the ground does not move from itself.
- 3-**What happens if:** The shockwave is not provided with umbrellas?

4-The shockwave truck is the fastest truck in the world, **state the reason.**

5-**Compare between:** Pushing force and pulling force with examples?

▶ Weekly assessment:

Model 1

1-**Complete the following statement:** The moving object is affected by the forces of while the static object is affected by the forces of

2-**Write the scientific term:** The forces that pull objects downward in the direction of the Earth .

3- **Give reasons for:** The speed of the jet plane is greater than the speed of the truck.

4-**What happens if :** A suitable force acts on a static object?

5-**Mention an example** of pushing and pulling force.

Model 2

1- **Complete the following statement:** There are two types of forces, force and force.

2- **Write the scientific term:** Changing the position of an object relative to a fixed point.

3- **Give reasons for:** The car begins to move when the gases come out of the fire extinguishers fixed on it.

4- **What happens when:** Increase the number of fire extinguishers fixed on the vehicle?

5- **Explain** the state of the body when it is affected by balanced and unbalanced forces.

Model 3

1- **Complethe the following statement:** Kicking the ball is Force, while using the hook is force

2- **Write the scientific term:** the movement of the body from one place to another .

3- **Give reason for:** The object does not move when it is affected by balanced forces.

4-**What happens when:** An unbalanced force acts on an object.

5- **Mention** an example of a movement that can be easily seen and another that cannot be seen.

First Concept: Starting and Stopping

Week (10)

Completion of Lesson 2 - Lesson 3

Date: / /

Classroom Performance:

Get some rest Force and stopping objects from moving

Note the opposite pictures and then conclude:



(A) The apple fell from the tree and moved it down due to..... that represents the force.

➤ Capturing the apple with your hand and stopping its movement is force.

(B) What are the forces acting on the child's body in Figure (1)?

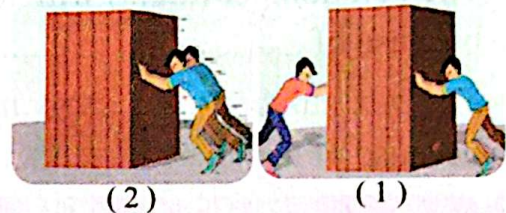


➤ When you lift the bag as in Figure (2), it is affected by forces in different directions, mention them?

(C) -Explain the reason for each of :

1-The box does not move in Picture No. (1)

2-The box moved in Picture No. (2).



Brake Secret

Objects stop moving

Think and then complete : When a moving car hits a wall or concrete bumper next to the road?

The car stops moving as a result of an exerted force opposite in and in the amount.



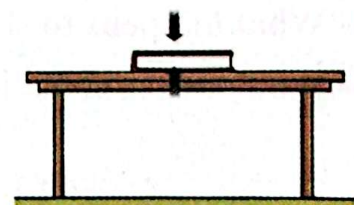
Balance of forces Game

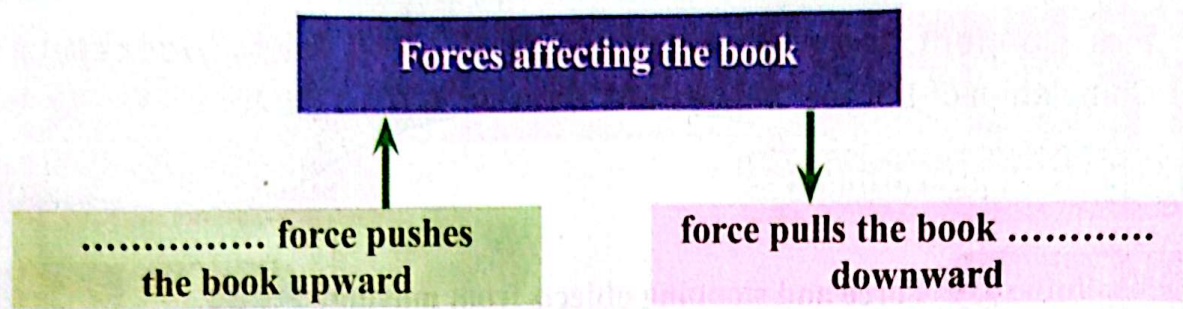
(1) The effect of balanced forces on the body of:

Look the opposite figure, then answer:

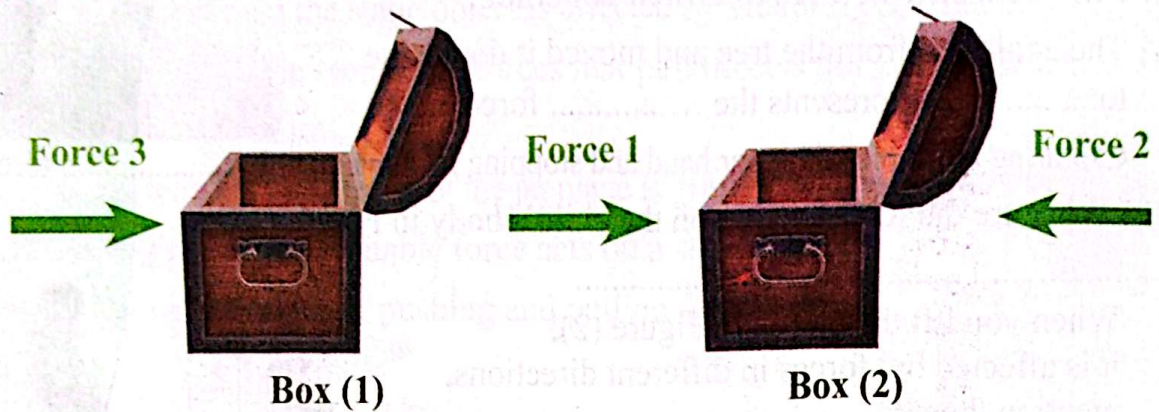
Does the book move over the table? (YES / NO)

Explain why:





(2) Effect of unbalanced forces on an object:



Look at the previous figure and then complete:

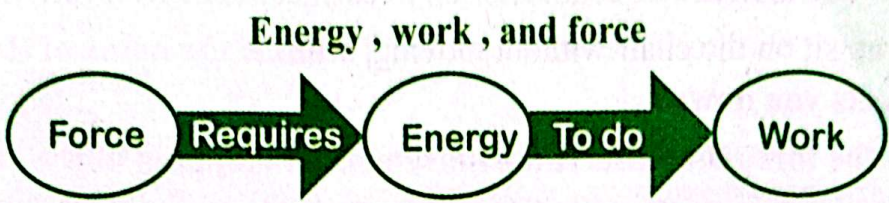
- The box number (.....) will not move from its place because of
- The box number (.....) may move towards the right because of the

Homework (Performance):

- 1- **Explain** the difference between balanced forces and unbalanced forces through a tug- of-war game.
- 2- **Write the scientific term:** “The force that arises between the surfaces of two objects in contact and affects in an opposite direction to the movement of the object”
- 3- **Give reasons for:** The car stops moving when it collides with a concrete bumper.
- 4- **What happens to:** The static object when it is affected by balanced forces?
- 5- **What** are the conditions that must be existed for the body to be in motion?

First Concept: Starting and Stopping Week (10)
Lesson (4) Date: / /

Classroom Performance:

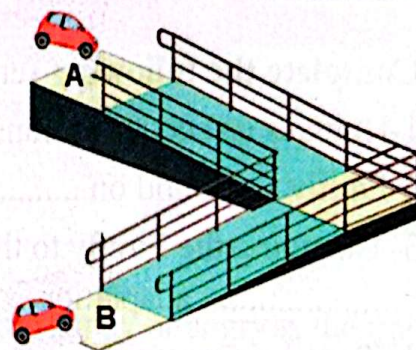


In front of you two toy cars (A) and (B):

Circle the correct choice

- Which of the two paths needs more force:

- 1- Push car A downwards.
- 2- Push car B upwards.



From the following figures, describe the force caused by the person(s) in each case:



Case (1): Children playing with the ball



Case (2): Girl opens the door

By using your textbook and the light of your study, write what the following refers to:

Energy	.....
Work	.....
Force	.....
Friction	.....

Homework (Performance):

- 1- **Explain** the difference between balanced and unbalanced forces.
- 2- **Write the scientific term:** "The ability to do work."
- 3- **Give reasons for:** The effect of friction in each car is different from the other .
- 4- **When** you sit on the chair without moving, **what is the name of the force that affects you down?**
- 5- **What is the force that affects the movement or stopping of the car?**

Second Monthly Exercise

Complete the following sentences:

- 1-Humans use codes to transfer.....
- 2-Firefly are found on trees
- 3- Changing the Firefly to the pattern in which they flash is considered an adaptation
- 4- Travelers are used..... to get the attention of the helicopter pilots to rescue them.
- 5- Raise the thumb up or down are a type of
- 6- One of the common methods of communication between humans and animals is the use of
- 7- is consider as a code, the order of the letters carries meaning and transfer information.
- 8- Vehicles equipped with extinguishers move when air is emitted due to the force of.....
- 9- In order for any object to move, it needs effects on it.
- 10-The umbrellas provided to the jet truck help to reduce
- 11-To move a car more quickly, you must.....the thrust of the engine.
- 12- Objects moving in the air are affected by a friction force in direction of its movement.
- 13- When a car moves forward, we infer its movement by changing its
- 14- Objects whose position does not change are considered objects
- 15- During a tug-of-war game, if each team pulls the tug-of-war with equal force, the forces are

Write the scientific term is:

- 1-The ability to do work.
- 2-A force that causes objects to approach in your direction.
- 3-The force that makes objects move away from you.
- 4-The force that pulls objects down towards the center of the Earth.
- 5- A force that arises between two touching surfaces & opposite to the direction of movement.
- 6- The amount of energy required to move an object a distance through the force acting on it.
- 7-The movement of an object from one place to another.
- 8-The influence which changes the energy to be able to do work .

Correct the underlined words:

- 1-Animals can communicate by writing.
- 2- Firefly communicate with each other using the sense of smell.
- 3- From codes that help those around us to know if we are happy or angry is the fire
- 4- The light used in the communication between the Firefly is produced by reflecting the moonlight.
- 5-Human communicates by echolocation.
- 6- Writing is one of the common ways of communication between humans and animals.
- 7- When exerted pushing force on the body increases, the body mass increases.
- 8- The speed of the bike decreases when you press the brakes due to the force of gravity.
- 9- The leaves of trees move due to the repulsion force of air.
- 10- When a force affects in opposite direction to movement of the object, its speed increases.

Give reasons for :

- 1- Travelers are make sure to have mirrors with them on their trips.
- 2- Firefly communicate with each other through flashes of light.
- 3-When a ball hits the floor of the room, it stops after a while.
- 4-The ball returns again after being thrown upwards.

Answer the questions.

Explain how bats can locate the position of their prey?

The second concept: Energy and motion

Week (11)

Lesson (1)

Date: / /

Classroom Performance:

Think? How does a person skiing on sand dunes get energy to move?



.....

When does the person move fast and when does move slow?

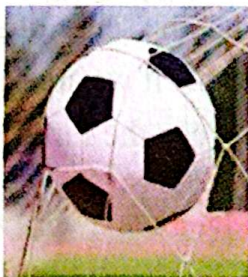
.....

Study the following figures and determine which one has more potential energy than its kinetic energy and vice versa? Record your answer at the bottom of each figure



The roller coaster at the top of the ramp

.....
.....



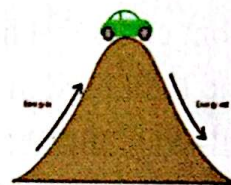
A ball that shakes the goal

.....
.....



A person skiing the sand down the ramp

.....
.....



Car up the hill

.....
.....

Energy transfer

Note the following figures and think if the ball has a force in each figure .

Circle the figure that you think it has force .



(1)



(2)



(3)

then complete the explanation of your answer :

By using your textbook and the light of your study, write what the following refers to:

Energy	.....
Kinetic energy	.....

Homework (Performance):

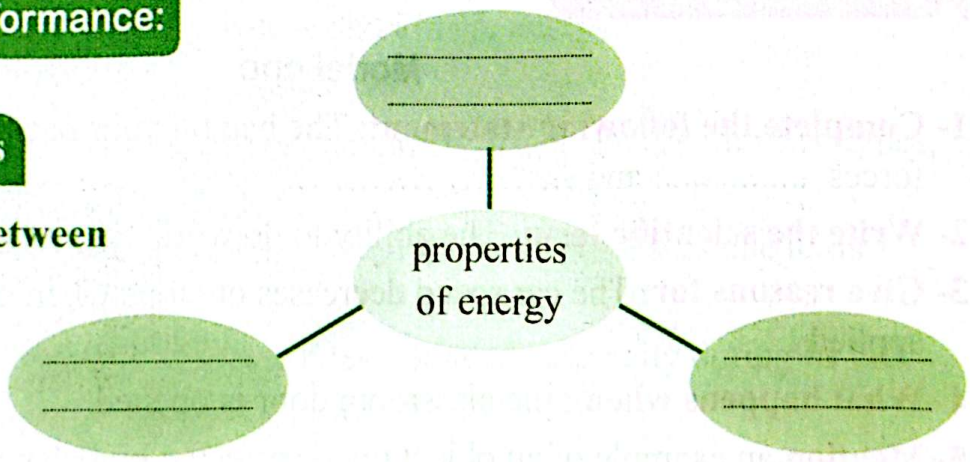
- 1- Compare between potential energy and kinetic energy with examples .
- 2- Write the scientific term: “ The ability to do work “
- 3- Give reasons for: The beginning of the movement of the roller coaster needs motors equipped with electricity .
- 4- What happens when : The roller coaster climbs up the ramp.
- 5- Give reasons for : The roller coaster does not need electricity when moving down the ramp .

The second concept: Energy and motion Week (11)
 Lesson (2) Date: / /

Classroom Performance:

Inseparable twins

The relationship between energy and work :
 Complete the following diagram:



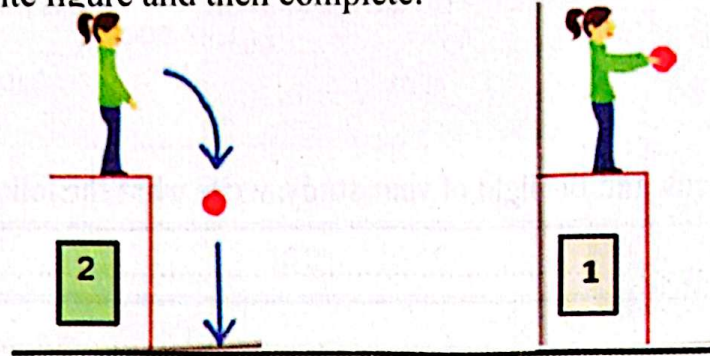
First Term

Note the opposite figure and then complete :

If the force of the boy kicking the ball is large, the work done so the ball moves a distance

Transformations of potential & kinetic energies:

Note the opposite figure and then complete:



The ball above has large stored
..... energy

..... energy is changed into
..... energy, when you throw
it down

Homework (Performance):

- 1- **Identify** the energy changes of potential and kinetic energies that occur when the player kicks a ball .
- 2- **Write the scientific term** : “Stored energy inside an object “
- 3- **Give examples** of types of energy that cannot be seen but can be measured .
- 4- **What happens if**: you put a book on a high shelf and it falls?
- 5- **What is the relationship between energy and work?**

Weekly assessment:

Model one

- 1- **Complete the following statement**: The bag on your back is affected by two forces and
- 2- **Write the scientific term**: The ability to do work .
- 3- **Give reasons for**: The car speed decreases or stops when the brakes are applied .
- 4- **What happens when** : the classroom door is opened.
- 5- **Mention** an example of an object that is affected by balanced forces.

Model two

- 1- **Complete the following statement:** The fall of the apple from the tree is the force, while kicking the ball isforce.
- 2- **Write the scientific term:** a force that arises between the surfaces of two objects in contact .
- 3- **Give reasons for :**The body moves when unbalanced forces affect it.
- 4- **What happens when :** Pressing on the car brakes.
- 5- **State the difference** in the distance traveled by two different cars in the mass for a time of 30 minutes .

Model three

- 1- **Complete the following statement:** There are two types of forces and
- 2- **Write the scientific term:** a force that pulls objects down towards the ground .
- 3- **Give reasons for:** The distance traveled by the car varies according to its mass at the same time .
- 4- **What happens when:** Kick the ball with suitable force.
- 5- **Mention** an example of an object affected by unbalanced forces.

Weekly assessment:**Model one**

- 1- **Complete the following statement:** is a stored energy.
- 2- **Write the scientific term:** It is the ability to do work .
- 3- **Give reasons for:** The book on a table has energy .
- 4- **What happens when:** The train moves downhill .
- 5- **Compare between:** Potential energy and kinetic energy.

Model two

- 1- **Complete the following statement:** Scientists divide energy into two types, energy and energy.
- 2- **Write the scientific term:** The energy that the body possesses due to its movement.
- 3- **Give reason for:** The roller coaster does not need electricity during its fall.
- 4- **What happens when:** A player kicks a ball.
- 5- **Compare between:** Energy changes during the rise and fall of the roller coaster.

Model three

- 1- Complete the following statement: is the force that causes objects to move a certain distance.
- 2- Write the scientific term: Energy that helps to moving from one place to another .
- 3- Give reason for: There are energy changes inside the roller coaster.
- 4- What happens when: the ball falls from the top of a slope .
- 5- What are the properties of energy?

The second concept: Energy and motion

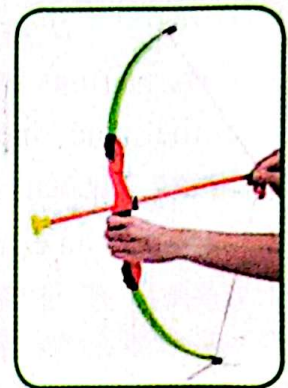
Week (12)

Lesson 3

Date: / /

Classroom Performance:

Potential Energy Stock



Think : What happens when :

Leaving the bow string after pulling it towards you in the bow and arrow game? energy is changed into energy .

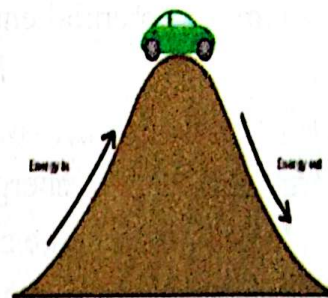
Forms of potential energy and kinetic energy

Complete: The potential energy means that the body is now in a state of, but it has energy enable him to do the work later.

What type of stored potential energy in each of the following cases?



In Battery
..... potential energy.



In the car at the top of the hill
..... potential energy.

Complete the following diagram:

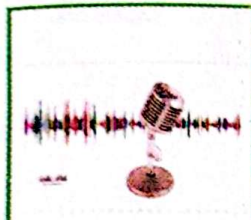




Factors on which gravitational potential energy depends on

Object's height
 as the object's height
 above the Earth's surface,
 potential energy

Object's mass
 as the object's mass
,
 potential energy

Forms of Kinetic energy:

Examples of Transformations of the potential and kinetic energies

 <p>..... energy</p>	 <p>..... energy</p>	 <p>The movement of electrons within the wire energy</p>	 <p>Vibration of material particles during heating energy</p>	 <p>Heat and light transfer from the sun energy</p>
--	--	--	--	---

Notice the following pictures and then complete the sentences as appropriate:

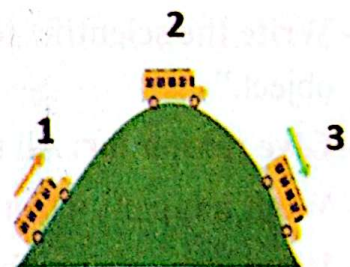
The child number (1) on top of the sled represents the largestenergy.

The energy is changed into energy for the child (2)







Where does the car have the most potential energy value and the most kinetic energy value?

.....



Transformations of energy forms:

Complete the transformations of energy in the following table:

Example	Input energy	Output energy
 Spring Powered Toy Car	Potential	.....
 Gas Oven	.....	Thermal
 Battery Operated Flashlight	Chemical	.....
 Petrol car	Chemical	.....

By using your textbook and the light of your study, write what the following refers to:

Stored energy
---------------	-------

Homework (Performance):

- 1- What factors does gravitational potential energy depend on?
- 2- Write the scientific term: "The energy that contributes to the movement of an object."
- 3- Give reason for: All things around us have stored potential energy.
- 4- What happens when: the compressed spring releases.
- 5- What is the energy form which changes into when the roller coaster rushes on the sloping surface downward.

The second concept: Energy and motion Week (12)
Lesson (4) Date: / /

Classroom Performance:

Think: How can you take advantage for changes of energy forms to design a simple machine?



Machine Name:

Its job:

Its energy Source:

Energy changes occurring:

Use arrows to show how energy is changed

.....

.....



Homework (Performance):

- 1- **Determine** the type of energy that the roller coaster has when it reaches the top of the ramp?
- 2- **Write the scientific term:** “Stored energy in objects.”
- 3- **Give reasons for:** Natural gas is a stored chemical energy.
- 4- **What happens then?** There was no energy on Earth planet .
- 5- **What** are the factors that depend on the potential energy that the body has?

Weekly assessment:

Model one

- 1- **Complete the following statement:** In the electric fan, the energy is changed into energy
- 2- **Write the scientific term:** Stored energy inside objects .
- 3- **Give reason for:** The book on a table has energy .
- 4- **What happens when:** the gas oven is turned on.
- 5- **Mention one of the forms of kinetic energy.**

Model two

- 1- **Complete the following statement:** In the flashlight, the energy is changed into energy
- 2- **Write the scientific term:** the energy that the body has due to its movement.
- 3- **Give reason for:** The food we eat has energy.
- 4- **What happens when:** the fan is turned on at home .
- 5- **Name one of the forms of the potential energy.**

Model three

- 1- **Complete the following statement:** Factors affecting kinetic energy and
- 2- **Write the scientific term:** The force that is affected by the height of the objects.
- 3- **Give reason for:** The car on the road has energy .
- 4- **What happens when:** a spring is pressed.
- 5- **Mention the difference between potential energy and kinetic energy.**

Third Concept: Energy and Collisions

Week (13)

Lesson (1)

Date: / /

Classroom Performance:

Collision

Collision



Some countries suffer from the large number of road accidents and the consequent losses. In light of your personal follow-ups and readings about this problem, Write some suggestions to reduce the number of road accidents and reduce losses if they occur. You can use the following guiding words:



Establish laws that ensure :

.....
Carrying out a periodic technical inspection on vehicles to ensure that :

.....
Carrying out a periodic health check on motorists to ensure :

Knocking down Buildings :

Look at the figure in front of you and then answer
Have you ever seen a building being knocking down?
Usedin the knocking down of the building
It is



Collision, In cricket game:

Study the opposite figure and then answer: -

1- What is the force that effects on the ball when it is thrown towards the wooden bat?

.....

2- Does the collision of the ball with the racket produce sound energy or not?

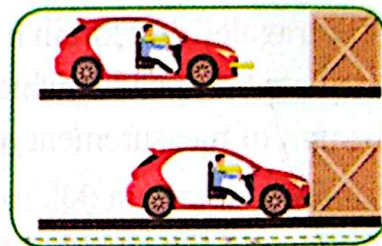
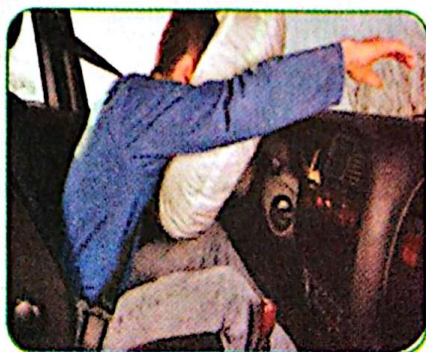
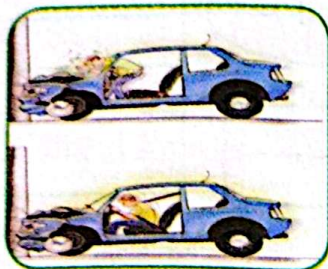
.....

3- Is the conservation law of energy can be applied in this case or not? Why?

.....



Watching objects collide :



See and analyze the previous images and answer the following questions:

* What happens to your body when you are inside a moving car and then the car suddenly stops moving?

.....

* What parts of the car keep you safe during a collision?

1 - and its function

2 - and its function

By using your textbook and the light of your study, write what the following refers to:

Wrecking ball	.....
Airbag	.....

Homework (Performance):

1- **Mention the importance of:** Seat belt - airbag .

2- **Write the scientific term:** “ A huge ball made of steel.”

3- **Give reason for:** It is always advisable to wear a seat belt while driving .

4- **What happens if?** The car stopped while driving suddenly .

5- **Explain how the airbag works.**

Third Concept: Energy and Collisions

Lesson (2)

Week (14)

Date: / /

Classroom Performance:

Speed race

Objects move around us at different speeds all the time.

..... is moving faster than Speed is a quantity indicates how fast an object is moving.

Speed is used to measure that the body covers while moving through the unit of

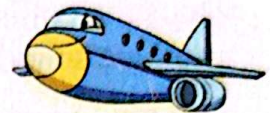
*** Answer the following:**

A car traveled 300 km in 3 hours.

Calculate the speed at which the car is moving.

The unit of measurement of speed

is /



Speed =

= /

Comparing the speed of two objects

When the time is constant:

Two cars move for an hour so that the red car travels 30 km and the blue car travels 40 km.

Calculate the speed of the two cars

Which car is faster and why?

..... Car is faster than

..... Car Because.....



30km



40km

When the distance is constant:

Two cars move to cover a distance of 1000 meters so that the red car takes 25 seconds and the blue car takes 50 seconds.

Calculate the speed of the two cars.

Which car is faster and why? Car is faster than

..... Car, Because

Speed depends on two factors..... and



25s



50s

By using your textbook and the light of your study, write what the following refers to:

speed	
-------	--

Homework (Performance):

- 1- Write the scientific term: "The distance traveled during the unit of time".
- 2- Give reason for: There is a relationship between speed and kinetic energy.
- 3- What happens if: Reduce the time it takes a car to travel a specific distance.
- 4- A car travels 200 kilometers in two hours , **calculate the speed at which the car moves.**
- 5- What are the factors that depend on the speed of the moving object?

Weekly assessment:**Model one**

- 1- Complete the following statement: Speed measurement unit and
- 2- Write the scientific term: A very heavy ball used to destroy buildings .
- 3- Give reason for: Drivers are advised to wear a seat belt while driving .
- 4- What happens when: The ball hits the tennis racket.
- 5- Calculate the speed of a bicycle moving a distance of 200 meters in 5 minutes.

Model two

- 1- Complete the following statement: From the safety and security equipment in the car and
- 2- Write the scientific term: a physical quantity determined by distance and time.
- 3- Give reason for: The largest object in the mass causes greater damage upon collision.
- 4- What will happen if: Increasing the angle of inclination of the moving object.
- 5- Calculate the speed of a car traveling a distance of 200 kilometers every two hours.

Model three

- 1- Complete the following statement: Speed depends on two main factors and
- 2- Write the scientific term: safety equipment that prevents the body from moving forward when the car collides.
- 3- Give reason for: The airbag is very important in the car .
- 4- What happens when two objects collide with each other ?
- 5- Calculate the speed of a car traveling a distance of 500 kilometers every 5 hours .

Third Concept: Energy and Collisions

Lesson (3)

Week (14)

Date: / /

Classroom Performance:

Speed and Collision

Notice the opposite picture and then answer:

Mona was riding her bike quietly when Omar, who was riding his bike at high speed, hit her on the road. So what will happen? Do you hear the crash?



The speed of Omar's bike (increases - decreases) after the collision.

Notice the opposite picture and then respond

If you were running down the road without looking in front of you, what would happen if you hit the sign?

- You will stop forward.
- You may bounce to direction and get injured.
- may oscillate a little bit and shake.



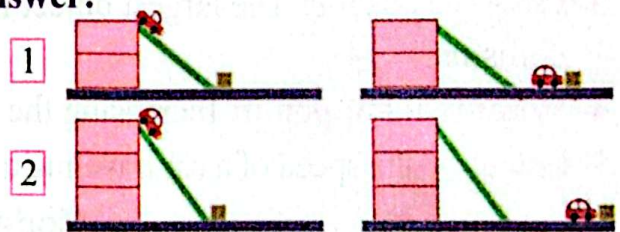
Energy changes that occur upon collision:

- Kinetic energy travels from to the and cause it to move or fall.
- Part of the energy is transformed into energy (The sound you hear when you crash).

Effect of speed in collision:

Notice the opposite picture and then answer:

When an object moves on an inclined surface, the speed of the object changes as the inclination of the surface on which it moves changes.



Car is moving faster than the car, when moving on the inclined surface and the distance increases moved by the box in front of it .

This is because

Effect of object speed on collision:

- As the velocity of the body increases, the energy increases which is possessed and therefore transmitsenergy (Larger / Lower) upon collision, and the collision becomes more powerful and harmful.

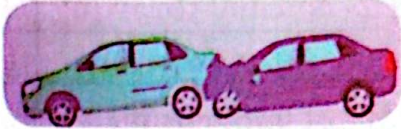


- Fast objects have energy than slow objects and so the force of the objects is larger than objects and cause more damage when colliding.



Effect of the direction of motion on the collision:

- When two cars that are moving in the opposite direction collide, they occur serious damage because the force of the collision depends on



- When two cars move in the same direction with different speed, The damages will be



By using your textbook and the light of your study, write what the following refers to:

Collision
-----------	-------

Homework (Performance):

- 1- **Compare between:** The collision of two cars moving in the same direction and two cars moving in the opposite direction in terms of (the severity of the damage caused them in both cases).
- 2- **Give reason for:** It is advised not to use fast drive for cars.
- 3- **What happens if:** A truck and a car collide moving in the opposite direction?
- 4- **What is meant by?** The collision
- 5- **Explain:** What are the energy transformations that occur upon collision .

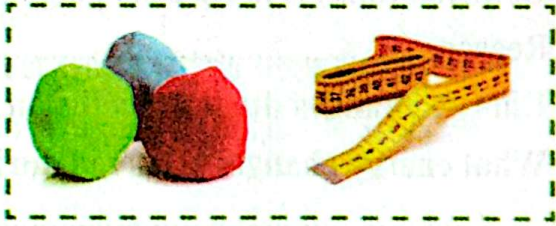
Third Concept: Energy and Collisions Week (14)
Lesson (4) Date: / /

Classroom Performance:

Scientific research: Speed and Collision

Think? What is the shape of a ball of clay when you drop it from your hands and then increase the force of the dropping and then drop it more strongly?

.....



Connect the magnitude of each force to your prediction of the shape of the ball after a collision.

The amount of force in the case of	The shape of the ball after the collision
1- Free fall	() The shape of the ball changes more than the usual throw
2- Normal throwing	() The shape of the ball changes slightly and becomes uneven
3- Throwing hard	() The shape of the ball changes greatly and becomes uneven

What happens if :

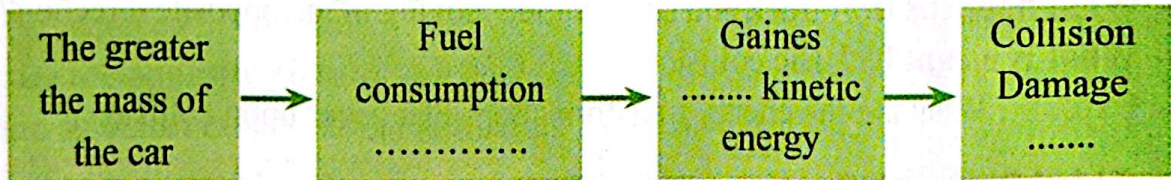
- The speed of the moving object increased relative to the amount of its kinetic energy in the collision.
- The magnitude of the dropping force of an object increased in relation to its speed and kinetic energy.

Effect of object's mass in collision

Imagine you are playing football with your family, and you are running towards the players during the match. Think about which collision would be more damaging - hitting a 2-year-old or hitting another adult? (Explain your answer)



Complete the following diagram:

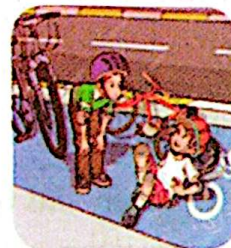


Notice the pictures and then answer:

Which collisions are more damaging (a) or (b), and why?

Collision (.....) is more damaging

Reason:



(A)

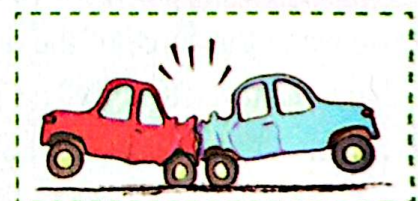


(B)

Energy changes during a collision

What energy changes occurred during the collision?

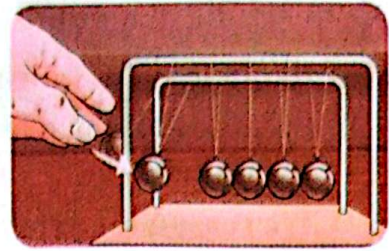
.....



Energy transformations in Newton's cradle

Complete :

- Total energies before the collision =
- When two objects collide with each other ,
..... transmits between the two bodies.
- Energy is neither nor created from nothing
- are equal during moving on both sides of it.
- A Newtonian cradle consisting of a set of identical with the same size and mass.



By using your textbook and the light of your study, write what the following refers to:

Mass	.....
Newton's cradle	.....

Homework (Performance):

- 1- Write the scientific term: "hitting an object with another object".
- 2- Which of the following consumes less fuel for the truck or the small car?
- 3- Correct the underline word: Upon collision, part of the energy is lost in the form of light energy
- 4- Compare between: the force of collision in the following cases:
A-Two cars are moving in the same direction .
B-Two cars are moving in the opposite direction .
- 5- Show the forms of the energy lost when the balls of the Newton's cradle collide.

Weekly assessment:

Model one

- 1- Complete the following statement: The danger of collision increases with the increase of..... and
- 2- Write the scientific term: hitting one object with another object.
- 3- Give reason for: In Newtonian cradle, a loss of energy occurs in form of thermal energy.
- 4-What happens when: Two cars collide moving in the same direction .
- 5-Explain the relationship between energy before the collision and energy after the collision.

Model two

- 1- **Complete the following statement:** As the object's and increased, the danger of collision
- 2- **Write the scientific term:** Audible energy produced during a collision .
- 3- **Give reason for:** There is a loss of energy when the balls of the Newton's cradle collide.
- 4- **What happens when:** Two cars collide moving in the opposite direction .
- 5- **Explain** the relationship between the speed of the object and its kinetic energy.

Model three

- 1- **Complete the following statement:** A Newton's cradle loses energy in the form of energy and energy.
- 2- **Write the scientific term:** Energy stored by the pendulum when lifting a ball up.
- 3- **Give reason for:** The risk of collision increases with the increase in mass .
- 4- **What happens when:** Increasing the speed of an object relative to its kinetic energy.
- 5- **Explain** the relationship between the speed of the object and the force of the

Third Monthly Exercise

Complete:

- 1- Chemical energy is considered as energy
- 2- Light energy is considered as energy
- 3- When increasing body mass, its potential energy
- 4- Energy forms are divided into two basic types: and
- 5- When you clap your hands, the energy is transformed to energy
- 6- The wrecking ball is used in.....
- 7-When the tennis ball hits the racket, we hear
- 8-The kinetic energy of the body increases with the increase of
- 9-The distance travelled by the object is measured in units of
- 10- As the force of increases, risks have increased.
- 11- As the object's mass increases, the force of collision
- 12- When balls of a Newton's cradle collide, energy and energy are produced.
- 13- Total energies before collision total energies after collision .

Write the scientific term:

- 1- The energy that gasoline stores inside the car.
- 2- The energy that one of its forms is the light energy.
- 3- A physical quantity determined by distance and time.

- 4- Distance traveled during the unit of time
- 5- Hitting an object with another object.
- 6- A tool used to clarify energy transformations during a collision.
- 7- An effect that changes the state of the body from static to movement or vice versa.
- 8- Change the position of an object relative to a fixed point.
- 9- The force that moves things away from you .
- 10- The force that moves objects towards you .
- 11- A force that arises between two touching surfaces.
- 12- Ability to do work .
- 13- The amount of energy needed to move an object .
- 14- Hitting one object with another.

Mention the scientific reason:

- 1- The apple falls down in the direction of the ground .
- 2- Airbag and seat belt are very important in the car .
- 3- The jet truck is the fastest truck in the world .
- 4- The pendulum balls stop after some time.
- 5- Serious damage results from the collision of two objects moving in opposite directions.
- 6- The ball moving on a surface moves a distance and then stops .

What happens when:

- 1- A static object is affected with a balanced force.
- 2- A static object is affected with unbalanced force.
- 3- Increasing the speed of the moving object in relation to its kinetic energy.

*** Mention the type of power as follows :**

- 1- The book on a table . 2- Energy stored in batteries .
- 3- A car travels 200 kilometers in two hours, calculate the speed at which the car moves.
- 4- Describe the energy transformations in the Newton's cradle.

General Revision **Week (15)**

▶ Weekly assessment:

Model one

- 1- Complete the following statement:** There are two basic types of force which are and
- 2- Write the scientific term:** A force that arises between two touching surfaces, and affects in an opposite direction to the direction of movement of the body .
- 3- Give reason for:** Newton's cradle balls stop after a while .
- 4- What happens when:** objects collide with each other .

First Term

- 5- **Calculate** the speed of a train traveling a distance of 200 kilometers in a time of two hours .

Model two

- 1- **Complete the following statement:** The potential energy depends onand.....
- 2- **Write the scientific term:** a force that pulls objects down towards the Earth's center .
- 3- **Give reason for:** The jet truck is one of the fastest trucks .
- 4- **What happens if:** An unbalanced force acts on a static object.
- 5- **Calculate** the speed of a car traveling a distance of 300 kilometers in a time of 3 hours.

Model three

- 1- **Complete the following statement:** Scientists divided energy into two types:and.....
- 2- **Write the scientific term:** the ability to do work .
- 3- **Give reason for:** The car takes less time than the bike for the same distance .
- 4- **What happens if:** A balanced force acts on a moving object.
- 5- **Calculate** the speed of a bicycle traveling a distance of 100 meters in a time of two minutes .

Model Exams

Model (1)

Question 1 :

- A- If two cars move for (10) seconds, the first car covers (50) meters and the second car (80) meters, Which car is faster?

(b) Complete the following statements using the following words:

(Friction - Gravity - Energy - Inhalation - Exhalation - Behavioral - structural)

- 1- The long ears of the fennec fox to keep the body cool are considered adaptation.
- 2- The diaphragm rises up during the process of
- 3- Ability to do work is called
- 4- The force that pulls objects down towards the center of the Earth is the force of

Question 2:

(a) Write the scientific term:

- A system that helps a person to realize and avoid danger. (.....)

(b) Give reason for :

- 1- The hind legs of the jerboa are long .
-

2- Using the seat belt in the car .

3- Glass is from transparent materials

4- Construction workers use a wrecking ball in their work

Question 3 :

A - Mark (✓) in front of the correct sentence and (X) in front of the wrong ones:

- 1- During landing of the roller coaster , the kinetic energy is converted into potential energy ()
- 2- The umbrellas that are supplied to the truck help the shockwave to slow down and stop ()

(b) Compare between:

1- Acacia tree and kapok tree in terms of:

Acacia tree have leaves and its importance

Kapok tree have leaves and its importance

2- Transparent objects and opaque objects in terms of: Definition

Transparent objects Opaque objects

3- Balanced and unbalanced forces in terms of: Definition

Balanced forces Unbalanced forces

Question 4 :

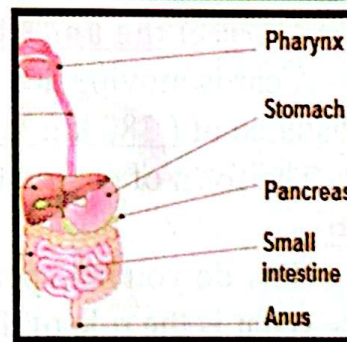
- If the mass of children is equal,
 any of them has more potential energy?



**B - The opposite figure represents the digestive system ,
 answer the following questions**

1- What is the organ that pushes food from the mouth
 into the esophagus?

2- What is the function of the small intestine?



Model 2

Question 1 :

a) The armadillo resorts to hiding in burrows during the day to avoid extreme heat.

What is the type of adaptation of this animal?

First Term

(b) Complete the following statements using the following words:

(Codes - Thermal - Backward - Movement - Reflection - Refraction - forward)

- 1- When an object falls from top to bottom, the potential energy changes into energy.
- 2- Different languages are considered as
- 3- The property of helps to see yourself in the mirror.
- 4- When the car suddenly stops, passengers rush to

Question 2 :

A - Cross out the odd word :

Glass - Book - Water - Air (.....)

(b) Compare between:

- 1- Structural adaptation and behavioral adaptation in terms of: Definition -
Example Structural adaptation such as Behavioral adaptation
.....such as
- 2- Speed and mass in the effect of the collision:
Speed..... Mass.....

Question 3 :

A - Mark (✓) in front of the correct sentence and (X) in front of the wrong sentence:

- 1- Fish need clean water to survive. ()
- 2- The engine of the truck is much stronger than the engine of the plane. ()

(b) Define each of the following :

- 1-Ecosystem
- 2-Reflex action
- 3-Friction force

Question 4 :

(a) Correct the underlined word :

- 1- A car is moving at a speed of (80km / h) and after 3 hours it has travelled a distance of (380 km).
- 2- The form of energy that can be seen is thermal energy.

(b)

- 1- How do you help penguin feet adapt to the cold?
- 2- What is the role of the diaphragm in the process of respiration?
- 3- Why are modern cars equipped with airbags?