

# **Unit One: Energy**

## **Lesson (1): Light**

### **1) Complete the following statement:**

- 1-.....is a form of energy that can be seen and it's called.....
- 2-Light rays never travels in .....lines.
- 3-.....,.....and.....are from the properties of light.
- 4-The object image that is formed through narrow holes is ..... and .....
- 5-The nearer object to the light source has the .....shadow.
- 6-Light can easily transmit through.....and ..... materials.
- 7-.....materials allow some light to pass through ,but ..... materials don't allow light to pass through.
- 8-Cartoon and .....are examples of .....materials.
- 9-The presence of .....and.....are from the necessary factors for light reflection.
- 10-.....and.....are types of the light reflection.
- 11-.....is the reflection of light on a rough reflecting surface.
- 12-Light .....when it falls on a mirror ,while it .....when it passes from water to air.
- 13-When a light ray passes from glass to air it .....
- 14-If you stand at 50 cm in front of a plane mirror , your image is formed at .....cm from the mirror.
- 15-When the seven visible spectrum colors accumulate together ..... light is formed.
- 16-Light bouncing when it falls on an object is called.....
- 17-.....is phenomenon produced by the separation of light into seven spectrum during raining.
- 18-In the seven spectrum colour,the.....colour lies between the red colour and the yellow colour.
- 19-Sun light separated into .....colours by passing it through a .....

20-When light pass between two transparent medium it changes its ..... so it .....

**2) Put (√) or (X) and correct the wrong one:**

1-The formation of shadow indicates that light travels in curved lines. ( )

2-Semi- transparent materials let most light to pass through and we can see objects clearly through them. ( )

3-When white light strikes a glass transparent sheet placed in front of an opaque object a shadow is formed with full details. ( )

4-The amount of light that's transmitted through tissue paper is more than the light transmitted through a glass window. ( )

5-A spoon appears broken when it is placed in a cup of water due to the reflection of light. ( )

6-Green light can be analyzed into seven spectrum colours. ( )

7-When the sunlight passes through the drops of rainwater, rainbow is formed. ( )

8-An inverted image is formed when light pass through wide holes. ( )

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**3) Write the scientific term**

1-The materials which you can see objects behind them clearly and in full details. [.....]

2-The materials which allow some light to pass through and we can see objects through it less clearly. [.....]

3-The materials that form a clear shadow with a sharp edge when light fall on them. [.....]

4-The reflection of light on a piece of white paper in different directions. [.....]

5-Red, orange, yellow, green, blue, indigo and violet. [.....]

6-A structure used to separate the white light into seven spectrum colours. [.....]

7-Seven colours are produced as a result of splitting the white light. [.....]

8-A phenomenon occurs in the sky after raining in a sunny day. [.....]

9-The materials hat from faint shadow when light falls on them. [.....]

**4) Give reason for:**

1- The formation of an inverted image through narrow holes.

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2- A clear glass is a transparent material.

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3- Shadow of an opaque body is formed when light falls on it.

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4- You can see your image in a plane mirror.

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5- Seeing the pen bending in a transparent cup of water.

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6- The formation of light spectrum.

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7-The rainbow appear in the sky after rainfall.

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## **Lesson (2) : Seeing coloured objects**

### **1) Complete the following statements:**

- 1-If the seven spectrum colours are mixed together, they produce .....
- 2-When the white light strikes a transparent green object, it absorbs .....and allows .....to pass through.
- 3-The transparent colored objects have the same colour of the .....
- 4-When a white light falls on a transparent red bottle, the bottle absorbs .....and permits the ..... to pass through.
- 5-When a white light falls on a yellow translucent plate, the plate absorbs all the light colors except .....
- 6-All the light are .....when they fall on a white opaque body.
- 7-The white board .....all the light colours , while the black board .....all the light colours.
- 8-We must wear .....clothes in summer and ..... clothes in winter.
- 9-.....reflects its own light only , while ..... allows its own colours only to pass through.
- 10-.....absorb all light colours , while .....absorb all the light colours and reflects its own colour only.
- 11-The red dress seems red when you look at it through..... glass sheet and seems .....when you look at it through a blue glass sheet.
- 12-When you look at a red apple through a yellow glass sheet, it seems .....
- 13-.....and.....are the primary coloured lights.
- 14-.....and.....are the secondary coloured lights.
- 15-Mixing .....and.....lights give yellow light.
- 16-Mixing red, blue and green lights gives.....light.

17-Mixind .....and.....lights produce magenta light.

18-Mixing red and green lights gives.....light.

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**2) Put (✓) or (X), then correct it :**

1- When white light strikes a red flower, it reflects the white colour. ( )

2- We see the coloured transparent body with the same colour, because it reflects all the light colours. ( )

3-The black t-shirt reflects all the light colours. ( )

4-The red table reflects all the light colours. ( )

5- Mixing yellow, green and blue lights gives the white colours. ( )

6- Mixing red and green colours dyes give the same colour as mixing red and green colours light. ( )

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**3) Write the scientific term:**

1- The light that is impossible to be produced mixing two of other coloured lights. [...]

2- The objects that reflect all the light colours when the white light falls on them. [...]

3- The objects that absorb all light colours when the white light falls on them. [...]

4- The object that absorbs all the light colours and reflects its own colour only. [...]

5- A light that is produced by mixing red, green and blue. [...]

6- Coloured lights that are mixed together to produce cyan light. [...]

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**4) Give reason for:**

1-A banana fruit seems yellow when sunlight falls on it.

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2-The red transparent ruler appears red when white light falls on it.

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3-We see the white paper as it is.

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4-If a white light strikes a transparent blue glass sheet; the blue light only transmits through it.

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5-The chalk appears white, while the broad appears black.

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6-Red, green and blue are called primary coloured lights.

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.....

7-Magenta is called a secondary coloured light.

.....  
.....

## **Lesson (3) & (4): Magnetism & Magnetism and electricity**

### **1) Complete the following statement:**

- 1- The two types of magnet are .....and .....
- 2- The natural magnet is one of the .....ores which is known by.....
- 3- Aluminium, chalk and wood are ....., while nickel and cobalt are .....
- 4- A freely suspended magnet always takes .....direction.
5. The compass is used to identify the .....
- 6 -.....and.....are from the shapes of the artificial magnet.
- 7- The magnet which made by the effect of electricity called .....
- 8-The electromagnet loses its magnetic force by .....
- 9- .....,.....and.....are examples of devices that contain Electromagnet.
- 10.....is the scientist who discovered how to make the dynamo.
- 11.A huge electric generator consists of .....that turn between the two poles of.....
12. The electromagnet convert the .....energy into.....energy, while the dynamo convert .....energy into .....energy.
13. Generating a magnetic field by using the electric current is the idea of making.....
14. The ways to increase the amount of electricity produced by the dynamo are .....and.....
15. The dynamo fixed in the bicycle touching the bicycle .....
16. The coil of the dynamo made of .....
17. Magnetism is concentrated at the... .., while it disappears in the .....of magnet
18. A huge electric generator is used in .....station.
19. The wire winding on the electromagnet made up of .....

### **2) Write the scientific term:**

1. A black rock of iron ores known as magnetite. [...]
2. The space around the magnet where the magnetic forces appear. [...]
3. The ability of the magnet to attract the magnetic materials existed in its field. [...]

4. A set used to locate the four main geographical directions.  
[.....]
5. A device used to change the electric energy into magnetic energy.[.....]
6. A device used to detect the magnetic effect of the electric energy.  
[.....]
7. The magnet that made by the effect of the electric current.  
[.....]
8. A scientist who discovered that the magnetic energy could change to electric energy. [.....]
9. A set used to lighten the bicycle lamps. [.....]
10. An instrument used in the electric power stations.  
[.....]
11. An instrument used in the electric winches and electric bells.  
[.....]

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### **3) Give reason for:**

1. Some materials called non-magnetic material.  
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.....
2. One of the poles of the magnet called North Pole and the other the South Pole.  
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3. The north pole of the magnet attracts the south pole of another magnet, but it repels the North Pole.  
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.....
4. When you sprinkle iron filings on a glass plate placed on a magnet then you knock on the glass, the iron filings assembled at the two ends.  
.....  
.....
5. The compass used to locate the main four geographical directions.  
.....  
.....



6. The electromagnet is a necessary device.

7. When an electric current flows through a wire that is put beside a Compass, the compass needle deflects.

8. In the electromagnet, we must increase the number of batteries

9. The small cylinder in the bicycle's dynamo touches the bicycle's wheel tire.

10. The huge electric generator is used in electric power stations.

#### **4) Put (✓) or ( X ) and correct the wrong one:**

1. There different shapes of natural magnet. ( )

2. Materials that are attracted to magnet are called magnetic materials.( )

3. Iron, cobalt and copper are magnetic materials. ( )

4. Glass, nickel and wood are non- magnetic materials. ( )

5. The freely suspended magnet always takes a fixed direction. ( )

6. Magnetism decreases as we go far from the two poles towards the middle.  
( )

7. When the north pole of a magnet get near to the north pole of another magnet , the two poles attract each other. ( )

8. The magnetic field is the ability of the magnet to attract the magnetic materials existed in its field. ( )

9. The electric current has a magnetic effect. ( )

10. The electromagnet changes the electric energy to mechanical energy.( )

11. Electromagnet used for making electric bells, electric winches and cranes.(  
)

12. When an electric current passes through a wire oiled around a wrought iron bar , the wrought iron bar becomes a permanent magnet.( )

13. William Gilbert is the scientist who discovered that the magnetic energy could change into electric energy. (   )
14. Electric current can be generated from magnetism, but magnetism can't be produced from electric current. (   )
15. Dynamo changes the electric energy into kinetic energy. (   )

## Unit Two: Mixtures

### Lesson (1): Mixtures

#### 1) Complete the following statements:

- 1-Substance that made of only identical particles is called .....
- 2-.....consists of more than one type of particles.
- 3-Milk and concrete are examples of ....., While distilled water and baking soda are examples of .....
- 4-Air and mineral water are examples of .....
- 5- .....,..... and..... are from the types of mixtures
- 6-vinegar and water is ..... mixture, while sand and water is ..... mixture
- 7- Both sea water and mineral water are ..... because each of them consists .....
- 8-Each component in the ..... keeps its own properties
- 9-Mixtures can be formed by .....,..... and .....
- 10-A mixture of salt and pepper can be formed by .....or .....
- 11-Components of a mixture can be separated by ....., .....and.....
- 12-Iron fillings and sand can be separated by using .....
- 13-.....process is used to separate sand and water.
- 14-.....process is used to separate a salt from its solution.
- 15-.....is used to separate water –oil mixture.
- 16-To separate insoluble solid like sand from salty solution , we use .....process.

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#### 2) Put (✓) or (X), then correct it:

- 1-Sugar and baking soda are mixtures. ( )
- 2-A mixture is made of only one type of identical particles. ( )

- 3-You can see the different components of the salty water. ( )
- 4-Mixtures are formed by magnetic attraction, filtration and evaporation. ( )
- 5-Solid –liquid mixture is separated by a separating funnel. ( )
- 6-Sand and water mixture is separated by evaporation process. ( )
- 7-A mixture of any solid and iron filings can be separated by using a strong magnet. ( )
- 8-Sugary solution can be formed by shaking or stirring. ( )
- 9-A mixture of mango and banana juices is formed by stirring or shaking. ( )
- 10-Vegetables soup is considered as a mixture. ( )
- 11-The properties of mixture are the same properties of its components. ( )
- 12-The separating funnel is used to separate a solid-liquid mixture. ( )
- 13-We can separate a mixture of oil and water by filtration. ( )
- 14-A mixture of rice and iron nails can be separated by using a magnet. ( )
- 15-Salty solution can be separated by evaporation. ( )
- 16-We obtain table salt from seas and oceans by evaporation process. ( )

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### **3) Write the scientific term:**

- 1-Substance in which,their components can be separated easily.  
[.....]
- 2-A mixture of oxygen,nitrogen,carbon dioxide and water vapour.  
[.....]
- 3-A method used to separate a soluble solid material from water.  
[.....]
- 4-A method used to separate magnetic substances from any solid mixture.  
[.....]
- 5-A type of mixture in which, we cannot distinguish between its components. [.....]
- 6-A type of mixture in which , we can distinguish between its components.  
[.....]
- 7-A method used to mix solid-solid mixture.  
[.....]
- 8-A mixture formed by dissolving sugar in milk.  
[.....]
- 9-A type of matter that its components keep their own properties.  
[.....]

10-A method used to separate a substance that is insoluble in water.

[.....]

11-A set used to separate a mixture water and oil.

[.....]

12-A method used to form a mixture of salt and pepper.

[.....]

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#### **4) Give reason for:**

1-Mineral water considered as a mixture.

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2-Table salt is collected from sea water.

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3-A magnet can be used to separate iron fillings from sand.

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.....

4-A mixture of sand in water is different from a mixture of sugar in water.

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.....

5-Distilled water and baking soda are pure substance.

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.....

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#### **5) How can you separate the following?**

1- A mixture of sand, water and sugar.

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2- A mixture of oil and rice.

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3- A mixture of iron nails, sugar and rice.

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.....

4- A mixture of oil and water.

.....  
.....

5- A mixture of salt in water.

.....  
.....

## Lesson (2): Solutions

### 1) Complete the following statement:

1. Mixture are classified into two types.....and.....
2. ....is a type of mixture that its components cannot be distinguish
3. Heterogeneous liquid mixture is called a .....
4. The components of .....can be distinguished, while the components of ..... can't be
5. The solution consists of .....and ..... Which are mixed by..... process
6. ....and.....are heterogeneous liquid mixture
7. Homogenous liquid mixtures are called..... , while heterogeneous liquid mixtures are called .....
8. The substance which dissolves in a liquid is called.....
9. The substance the solute dissolves is called.....
10. In sugary solution , sugar is the ....., while water is the.....
11. When a substance doesn't dissolve in a certain solvent a .....is formed
12. Solubility process is affected by ....., .....,.....and .....
13. Decreasing .....increase the solubility time
14. The time required to dissolve the same quantity of salt in cold water is .....than that in hot one
15. The quantity of .....and..... affects the solubility process
16. Increasing the quantity of solvent.....the solubility
17. ....process is required to dissolve sugar in a cup of tea
18. Suspension is a mixture in which the particles of the solute are..... throughout the solvent

### 2) Put ( √ ) or ( X ):

1. Solution is heterogeneous mixture. ( )
2. The substances that its components cannot distinguish are suspension. ( )
3. Any solution is composed of a solvent and a material dissolved in it. ( )
4. Lemon juice and mud in water considered as suspensions. ( )
5. Solubility does not depend on the amount of the solute and the solvent.
6. In case of sugary solution, sugar is the solute. ( )
7. The heterogeneous mixture can be separate by using a strong magnet. ( )
8. Water considered as the common solvent for many solutes. ( )
9. As the temperature increase, the solubility time increases. ( )

10. Increasing the quantity of solvent when using the same amount of solute leads to increase in the solubility time. (    )
11. Shaking leads to decrease the solubility time. (    )

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**3) Write the scientific term:**

1. The mixture of insoluble solid substance in water.  
[.....]
2. The liquid that used to dissolve the solid substance.  
[.....]
3. A process by which the solute disappear in the solvent forming a solution.  
[.....]
4. The mixture that composed of a solute and a solvent.  
[.....]
5. The mixture that its component cannot be distinguished.  
[.....]
- 

**4) Give reason for:**

1. The solubility time of sugar differs than that of sodium chloride.  
.....  
.....
2. The solubility time is affected by temperature and stirring.  
.....  
.....
3. It is better to dissolve 10 gm of sugar in 20 ml of water than dissolving it in 5 ml of water.  
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.....
4. Water is a common solvent.  
.....  
.....
5. We can easily separate sand from water.  
.....  
.....

## **Unit Three: Environmental balance**

### **Lesson (1): Food relationships among living organisms**

#### **Complete the following statement:**

1. Green plants make photosynthesis process by using ..... In the presence of .....as a source of energy.
2. In predation, the animal that devours another one is called ....., while the devoured animal is known as.....
3. .... Is a temporary relationship that ends up by devouring the prey.
4. Predation is less common in.....world than in .....world
5. ....plants have to prey some insects to get their needed elements for making .....substances
6. ....and .....are from the ways of self-defense against predation in living organisms
7. During .....phenomenon, the living organisms changes its colour to simulate its surrounding environment
8. Bees which look like wasps undergo .....phenomenon ,while chameleon undergoes .....phenomenon to protect themselves against enemies
9. The food relationship between nodular bacteria and leguminous plants is known as ..... Where it provides leguminous plant with ..... and nodular bacteria benefit .....from it
10. There is a .....food relationship between crocodiles and some birds.
11. In saprophytic relationship, the saprophytes get their food by decomposing .....and .....
12. In parasitism relationship, the death of the ..... is considered a loss to the.....
13. In the external parasitism , the parasite suck the .....and also convey .....to it
14. In internal parasitism, the parasites share the hosts .....or feed on their.....
15. Fleas can convey .....disease to man , while Ascaris worm causes .....to him

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#### **Write the scientific term:**

1. The plants that devour small insects.  
[.....]



2. The phenomenon that the living organism makes it to protect itself from enemies by changing its colour to simulate its surrounding environment. [...]
  3. The food relationship between insects as bees and the flowers of plants. [...]
  4. The harmed organism in parasitism relationship. [...]
  5. The worm which infects man with elephantiasis disease. [...]
  6. A disease caused by parasitic ascaris worm. [...]
- 

**Mention the kind of food relation ship between each of the following:**

1. Lion and deer. [...]
  2. Halophila plant and insects. [...]
  3. Jawless lamprey and fish. [...]
  4. Lice and man. [...]
  5. Crocodiles and some birds. [...]
  6. Hippopotamus and some birds. [...]
  7. Fungi and dead organisms. [...]
  8. Nodular bacteria and bean plants. [...]
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**3) Give reason for:**

1. Predation is less common in plant than in animal.  
.....  
.....
2. Some plants are called insectivorous plants.  
.....  
.....
3. Some animals have the ability to camouflage.  
.....  
.....

4. There is a mutualism between nodular bacteria and leguminous plants.

.....  
.....

5. Saprophytic organisms are decomposers.

.....  
.....

6. Parasitism relationship differs from the predation relationship.

.....  
.....

**5) Put ( √ ) or ( X ):**

1. The commensalisms relationship ends by killing one organisms or devouring a part of it ( )

2. Predation is a permanent relationship ( )

3. In parasitism, animals get their food by attacking , killing and devouring other living organisms ( )

4. In mimicry relationship , the living organisms protect themselves by changing their colour to simulate the colour of the surrounding environment ( )

5. In camouflage, harmless living organisms imitate other harmful or poisonous living organisms to frighten their enemies ( )

6. Fleas conveys small pox disease to man ( )

7. In parasitism, the organism that is harmed is known as the host. ( )

## **Lesson (2): Environmental balance**

### **1) Complete the following statements:**

- 1-An ecosystem is any natural .....area including ..... and .....
- 2-The balance between the components of the ecosystem is called.....
- 3-.....is a food relationship that organizes the numbers of preys.
- 4-The components of ecosystem are ..... and .....
- 5-Man interference as .....and ..... leads to .....
- 6-The balance between the components of the ecosystem is called .....
- 7-The disturbance happens in the ecosystem produced as a result of .....and .....
- 8-.....and.....are from the factors that harm the environmental balance.
- 9-In ancient eras, the changing in natural conditions cause the extinction of .....
- 10-Predators help preys in getting rid of ..... or..... members.
- 11-The disappearance of predators in an ecosystem causes the increase of .....and.....become insufficient.
- 12-.....and.....are relationships that keep the environmental balance.
- 13-.....organisms help the environment to get rid of dead organisms and help in .....the chemical elements found in dead organisms.
- 14-The chemical elements as .....and phosphorus back to the environment with the help of .....

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### **2) Write the scientific term:**

- 1- The balance among the components of the ecosystem. [...]
- 2- The phenomenon that appears among preys populations due to the storage of food in the ecosystem. [...]
- 3- A huge ecosystem. [...]

- 4- The phenomenon that had occurred to some animals in ancient eras.  
[.....]
- 5- Natural area, which includes non-living things and living organisms.  
[.....]

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**4) Put (✓) or (X):**

- 1-Ecosystem is an artificial area including living organisms and non- living things. ( )
- 2-Any disturbance in the ecosystem will lead to environmental balance( )
- 3-If saprophytic living organisms were extinct; earth surface would cover with dead bodies. ( )
- 4-Predation helps in environmental imbalance. ( )
- 5-Interaction among the environmental components keeps the balance within the ecosystem. ( )
- 6-The ecosystem may be very large as the ocean. ( )
- 7-When food resource in the ecosystem become insufficient, mutualism appears among preys population. ( )
- 8-Saprophytic organisms are responsible of recycling chemical elements found in dead bodies. ( )

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**5) Give reason for:**

- 1- The change of natural condition causes an environmental imbalance.

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- 2- Predation is useful to environmental balance.

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- 3- Competition may appear among prey's population in the ecosystem.

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- 4- The extinction of many animals as dinosaurs.

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