

Unit One

Lesson One

Types of Levers

Complete the following statements:

- 1-.....is considered one of the first simple machines which were invented in the past.
- 2-the lever is a.....that rotates around a fixed point called fulcrum.
- 3-the lever is a rigid bar that rotates around a fixed point, and is affected by and
- 4-Any lever consists ofand.....and.....
- 5-Levers help us to perform tasks more easily by,.....
- 6-.....,.....,and Is from the importance of levers.
- 7-.....is an example of levers used to increase force, whileis an example of levers used to increase distance.
- 8-.....is an increasing speed lever.
- 9-.....is a lever used to avoid danger.
- 10-levers like anduse a small effort to move a heavy load.
- 11-..... and are from first class lever.
- 12-In the second class lever the resistance is found betweenand
- 13-..... and are from second class levers.
- 14-In the first class lever the fulcrum is found betweenand.....
- 15-Stapler and wheel barrow is from the Class levers.
- 16-.....andare from the third class levers.
- 17-The nutcracker is from thelevers.

18-The manual broom is from thelevers.

19-The crowbar is considered from theclass lever ,while the wheelbarrow is from.....class

complete:

1- materials that allow the flow of electricity through them are called

2-andare examples for materials that are electric conductors

3-there are two types of injuries resulting from the improper use of electricity which areand

4- thelead to destroying the tissues of the body

5- electric cables are covered withmaterials

6- you can not put out the electric fires with water , because water is

7-and are from precautions to deal with electricity

8-and are some of the causes of the burns that resulted from electricity

correct underlined word :

1- electric fire occurs due to the passage of the electric current through the human body

2- fires resulted from electricity are extinguished by water

3- electric conductors make the circuit open when they are connected to the circuit

4- the human body is good conductor of electricity as it contains gases

5- touching the nakd wires that has an electric current leads to electric fires

write the scientific term :

1- a danger tht occurs when a part of your body touches a wire that has an electric current but the other part touches a materials that is a good conductor of electricity

2- materials that allow the electric current to pass through them

3- materials that don't allow the electric current to pass through them

4- fires occur as a result of the increase in the temperature of the electric machines

5- a form of energy that is used in operating some machines as television and washing machines

give reason for :

1- Not placing flammable materials close to the electric machines that generating heat

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.....
.....
.....

2- electric wires are made of copper

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.....

3- doon't place any metallic object inside the socket

.....
.....

4- pushing the injured by anything that is non-conducting of electricity such as a piece of wood

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.....
.....
.....

what happens when ?;

1- electricity is not handled cautiously

.....
.....

2- the spark resulting from the electric fires touches any part of your body

.....
.....

3- the electric fires are put out by water

.....
.....

4- you place an electric heater close to furniture or carpets

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.....

5- plugging several electric machines in the same electric socket

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.....

mention som of the important precautions when dealing with electricity

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compare between electric conductors and electric insulators

Lesson Two

Law of Levers

1-Complete the following statements :

1-The law of Levers states that

.....

2-The distance between fulcrum (o) and resistance (R) is called

.....

3-Force \times its arm = \times

4-The lever doesn't conserve effort when.....arm is shorter than
.....arm.

5-The effort force is larger than the resistance force whenis
longer than

6-There is a conservation of effort in the first class levers ifis
longer than.....

7-The effort force is measured in

8-The force arm and the resistance arm are equal in levers
if.....

9-When the effort force equals 20 newton, resistance is 8 newton and the
effort force arm=4 cm, so resistance arm =.....

10-The second class levers have mechanical benefits , because
.....is longer than

11-In stapler and nutcracker, the is longer than

12-Tweezers and coal holder doesn't have mechanical benefit
because..... is shorter than.....

13-The type of lever that always conserve effort is while the type of lever that sometimes conserve effort is.....,while the type of lever that never conserve effort is

14-The third class levers have arm longer than

Give reason for:

1-The crowbar save effort .

.....
.....

2-Sometimes the first class levers conserve effort.

.....
.....

3-The third class lever never save effort.

.....
.....

4-In the second class lever the force is always less than the resistance.

.....
.....

5-In spite of the importance of the coal holder ,it is from the levers that doesn't save effort

.....
.....

Write the scientific term of the following:

- 1-They are simple machines that always save efforts (.....)
- 2-A type of levers that effort force may be larger or smaller than the resistance force (.....)
- 3-A type of levers that never save effort (.....)
- 4-A type of levers where the effort arm is always shorter than the resistance arm (.....)
- 5-The distance between the effort force and the fulcrum (.....)

Put \surd in front of right statements and \times in front of the wrong ones ,then correct it:

- 1-The resistance arm is the distance between the resistance and the fulcrum ()
- 2-If the arm of force is shorter than the arm of resistance , the lever save effort ()
- 3-The effort force is measured in cm or metre()
- 4-In the third class lever ,the arm of force may be equal to the arm of resistance ()
- 5-Manual broom and tweezers have mechanical benfits()
- 6-In the nutcracker , the effort arm is shorter than the resistance arm ()
- 7-The first class lever always save effort ()
- 8-The soda opener , the resistance force is smaller than the effort force ()

Solve the following problems:

1-The exerted force of the first class lever equals 500 Newton ,and the length of its arm is 20 cm ,it is affected by a resistance with the value of 200 Newton .Find the length of the arm of the resistance.

.....
.....

2-The affecting force on a second class lever equals 200 Newton , and the length of its arm is 50 cm. If the value of the resistance 1000 Newton ,Calculate the value of the resistance arm.

.....
.....

3-A Force of 480 Newton affects a lever and o the length of the force arm is 40 cm, if the length of resistance arm is 60 cm , calculate :

1-The value of the resistance that regains the balance of the lever .

.....

2-From the previous answer , complete the following statement:

This levereffort ,and it considered from theor
.....class levers.

4-A force of 500 Newton affects a lever of the first order and its force arm is 20 cm . calculate the resistance given that the arm of the resistance equals 50 cm.

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.....

5-A force of 500 Newton affects a first class lever and its arm of force equals 10 cm , the resistance equals 200 Newton and its arm of resistance equals 20 cm .in this example is the lever in state of balance or not and why?

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.....

What happens when:

1-The force arm and the resistance arm are equal.

.....2-The force arm is longer than the resistance arm.

.....

3-The resistance arm is longer than the effort arm.

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4-The effort force is longer the resistance force.

.....

5-The resistance force is larger the effort force.

.....

Unit 2

Lesson 1

The Electric lamp

Complete the following statement:

- 1-The is the main source of light.
- 2-The scientist who invented the light bulb.
- 3-..... and are from artificial light sources.
- 4-Electric lamp converts energy into.....energy.
- 5-The light bulb consists of,..... and
- 6-The filament of the light bulb is made ofbecause it has high.....
- 7-The light bulb contains inert.....gas.
- 8-There are two types of lamp base which arebase andbase
- 9-All light bulbs are connected in.....in houses.
- 10-The simple electric circuit consists of,.....and
- 11-When connecting lamps inthe light intensity of the lamps decreases bytheir numbers.
- 12-The electric current in the connection has only one route, while it has many branching route in theconnection.

Give reason for:

1-The filament of the light bulb is made of tungsten.

.....
.....

2-The glass bulb is filled with inert gas.

.....
.....

3-There are pieces of lead in the base of the light bulb.

.....
.....

4-The light bulb is connected in house in parallel.

.....
.....

5-Decorative lights are connected in parallel not in series.

.....
.....

What happens if:

1-There is no glass bulb around the parts of the electric lamp.

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2-The electric lamp contains atmospheric air.

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.....

3-You make the filament of the light bulb from iron.

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.....

4-Many light bulbs are connected in series in an electric circuit.

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.....

5-The electric lamp in the house are connected in series.

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.....

6-Turning off one lamp in an electric circuit contains many lamps connected in series.

.....
.....

Compare between

	<u>Parallel connection</u>	<u>Series connection</u>
<u>Light intensity</u>		
<u>Turing off one lamp</u>		

Put \checkmark in front of right statement and \times in front of the wrong ones and correct:

- 1-Flourescent lamp contains neon gas()
- 2-The spiral base of the light bulb glows due to passing electric current through it ()
- 3-Electric lamps are connected in parallel ()
- 4-When the electric circuit close , an electric current will pass through them ()
- 5-The filament is made of iron and has low melting point ()
- 6-The swelling of the light bulb contains oxygen gas ()

Label the following figure:

- 1-.....
- 2-.....
- 3-.....
- 4-.....
- 5-.....
- 6-.....



unit (3)

lesson(1)

write the scientific term :

1- the astronomical phenomenon in which the sunlight is blocked from reaching the Earth by the moon (.....)

2- an astronomical phenomenon occurs when Earth , sun and moon are on one straight line and the moon in the middle (.....)

3- Hiding the sunlight totally in the day (.....)

4- A phenomenon formed when the moon comes in an orbit higher from the Earth (.....)

5- it occurs when the Earth is in semi-shaded area of the moon and in this case we can see part of the sun (.....)

complete:

1- is the phenomenon that happens when the moon comes between the sun and the earth during its rotation

2- solar eclipse occurs when thelies between theand the sun on one straight line

3- is the moon's dark shadow area in which the total solar eclipse appears

4- types of solar eclipse are,and annular solar eclipse

5- when the earth lies in the semi-shaded area of the moon , we can see..... of the sun and this is known as.....

6- Doctors advice to useto observe the solar eclipse

7- focus looking at the sun during the solar eclipse may causein few minutes

give reason for:

1- the type of solar eclipse differs according to the movement of the moon in front of the sun

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.....
.....
.....

2- the annular solar eclipse occurs when the moon comes in an orbit higher than earth

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.....
.....
.....

3- we shouldn't look directly at the sun with naked eye during the solar eclipse

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.....
.....
.....

what happens when:

1- the moon lies in a higher orbit from the earth

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.....
.....

2- an object is put between a light source and a screen

.....
.....

3- the solar eclipse is watched from the umbra region

.....
.....

4- the solar eclipse is watched from the antumbra region

.....
.....

what is meant by ?

1- the penumbra

2- cone umbra

3- partial solar eclipse

4- annular solar eclipse

look at the following figure then answer:

label the figure

1-.....

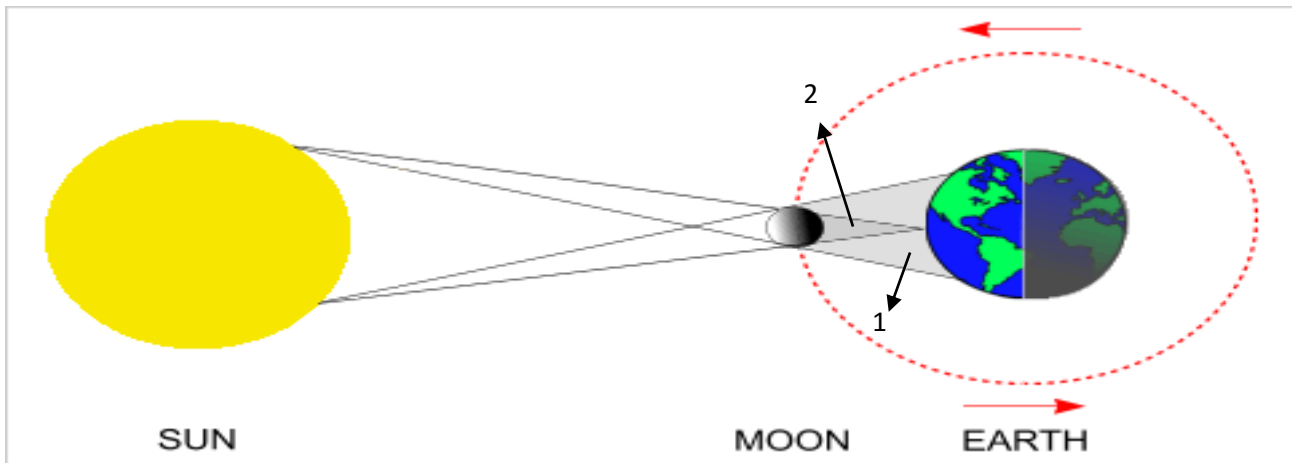
2-.....

what is the type of eclipse when you stand in area no.

(1).....

what is the type of eclipse when you stand on label no.

(2).....



compare between :

1- total solar eclipse and annular solar eclipse

lesson (2)

put (✓) or (x):

- 1- the duration of solar eclipse is longer than that of lunar eclipse ()
- 2- looking directly at the at the lunar the lunar eclipse is harmful to the eyes ()
- 3- the earth forms one type of shadow when it comes in front of the sun ()
- 4- total lunar eclipse occurs when the whole moon enters the shadow area of the earth ()
- 5- although the lunar eclipse and solar eclipse attract people's attention they don't affect the life on the earth ()
- 6- the lunar eclipse can last for seven minutes and few seconds only ()

correct underlined word :

- 1- lunar eclipse occurs at the end of the lunar month
- 2- the solar eclipse occurs when the Earth comes between the moon and the sun
- 3- the only time in which lunar eclipse occurred three times was is 1999
- 4- annular solar eclipse occurs when the moon enters completely in the umbra region of the earth

write the scientific term:

- 1- the phenomenon that occurs when the sun , the Earth and the moon are on one straight line with the earth in the middle (.....)
- 2- the phenomenon that occurs in the middle of lunar month at rate of two times per years (.....)
- 3- the lunar eclipse in which the whole moon enters the shadow area of the earth (.....)
- 4- the phenomenon which occurs when part of the moon enters shadow area of the earth (.....)
- 5- it occurs when the moon enters the semi-shadow area of the earth (.....)
- 6- the type of the eclipse that can be seen at night only and it lasts for two hours (.....)

complete :

- 1-is the phenomenon that occurs when the earth comes between the sun and the moon
- 2- lunar eclipse occurs when the sun , earth andare on one straight line and in the middle
- 3-occurs when the comes between the sun rays and a part or whole of the moon

4- the color of the moon tends to beduring the start of the lunar eclipse

5- we can see..... eclipse when the sun is behind the horizon at night whereas eclipse always occurs in the morning

6- the duration ofeclipse doesn't exceed seven minutes and few seconds , while that ofeclipse may last for more than two hours

7- theeclipse doesn't harm the eyes , whileeclipse causes serious harms to the eyes

give reason for :

1- the lunar eclipse doesn't require precautions or special devices to observe it

.....
.....

2- no annular lunar eclipse is formed like the annular solar eclipse

.....
.....

3- the phenomena of solar and lunar eclipses are considered applications of the umbra phenomenon

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.....
4- the two phenomena of lunar and lunar eclipses are repeated regularly and can be predicted

what happens when :

1- the earth blocks the sunlight from reaching the whole moon

.....
.....

2- the whole moon enters the semi-shaded area of the earth

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.....

3- parts of the moon enters the shadow area of the earth

.....
.....

4- the earth comes between the sun and the moon on one straight line

.....
.....

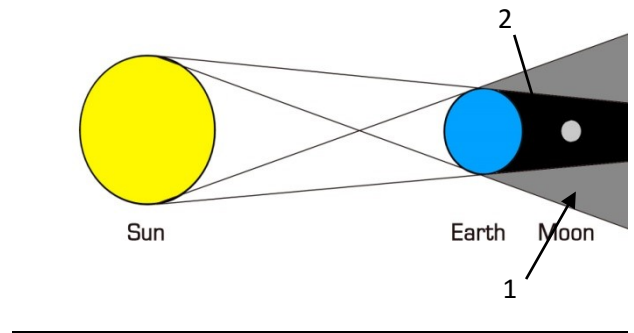
the opposite figure represents lunar eclipse observe it and answer :

1- the type of the lunar eclipse is

2- label the figure

1-.....

2-.....



compare between

-lunar eclipse and solar eclipse

unit (4)

absorption and transmission of water

and mineral salts in plants

write the scientific term :

1- a part of the plant that penetrates through the soil particles

()

2- a structure extends from the root wall (skin) to absorb water

()

3- a structure in the plant , where water passes through it from root to stem , then to leaves ()

4- transmission of water molecules through a semi-permeable membrane from an area with high concentration of water to an area with a low concentration of water ()

5- a biological process through which plants lose water in the form of vapour from the plant leaves through stomata

()

complete:

1- the plants takes from air and water from soil with the presence of light to form its food byprocess

2- the root hair secretessubstance to help penterating the root through soil particles

3- the concentration of inside the root hair vacuole isthan the concentration of the salt solution in soil

4- the process that allows some salts to pass according to the plant's need is called.....

5- stomata are widely spread on the surface of plant leaf

6- on both surfaces of the most plant leaves , there are tiny holes calledthrough whichprocess takes place

give reason for :

1- plant's root is branched and extended through the soil particles

.....
.....

2- root hair can absorb water from the soil

.....
.....

3- the age of the root hair doesn't exceed a few days

.....
.....

4- each stoma is surrounded by two guard cells

.....
.....

what happens if :

1- the concentration of soil solution is higher than the concentration of solution inside the root hair

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2- there are no stomata in the plant leaves

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3- there is no osmosis feature in the plant

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.....

4- absence of cell membrane of root hairs

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