

Science Grade 4 Final revision

Give reason and what happens if

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Q1 Give reason

1-The starred agama lizard always looking for shade areas in desert

To keep its body cool during hot days

2- The penguin's body has a thick layer of fat and dense feathers

To keep its body warm

3- The blood vessels in the penguin's feet weave around each other

To keep its toes from freezing as the warm blood vessels heat up the cold blood vessels

4- Some desert lizards have colorful scales

To hide among the colorful rocks in the desert

5-Fennec fox has sandy/tan colored fur, while polar bear has a white fur

So, the fennec fox can hide in the sand while the polar bear can blend in with snow

6-Some animals have the ability to make camouflage adaptation

To hide from their predators or prey in different environments

7- Fennec fox undergoes panting

To cool its body

8-Arctic fox has a thick fur coat

To keep its body warm in extreme cold weather

9-The fur of the Arctic fox is white in winter and brown in summer

To sneak up on its prey in any season

10-Burrow is an excellent place for arctic and fennec foxes

Fennec fox to stay cool during sunny days while Arctic fox to stay warm at night

11- Fennec fox has extra-large ears, while arctic fox has short ears

Fennec fox to lose heat and cool its body while arctic fox to stay warm

12-Bull sharks have less competition for finding food on fresh water

Because other types of sharks live in salt water only

13- panther chameleon has V shaped feet and a long tail

To hold tightly the branches of trees

14- Branches of acacia tree gather on the top of its trunk

To prevent animals from reaching their leaves

15- Acacia tree has sharp spines around its leaves

To prevent animals from eating their leaves

16- wind is important to acacia tree

To send smelly messages to nearby acacia tree to start making poison if there is danger

17- kapok tree has hand shaped leaves

To allow wind to move gently through the leaves without tearing them

18- kapok tree stay firmly rooted in the soggy soil although they are very tall

Because of the large wide roots called buttress roots that hold the trunk in the soggy soil

19- pine tree has a triangular shape and short branches

To allow the snow to slide easily over it so the branches do not break

20- water lilies have wide floating leaves

To absorb a large amount of sunlight

21- mangrove trees have long and strong roots

To resist the water waves

22- palm trees have thick roots and small leaves

To resist the strong winds

23- Barbary fig has sharp spines

To prevent animals from eating its fruits and leaves

24- the human body is made up of different systems

To perform different functions

25- the importance of juices of liver and pancreas

To help in breaking down food into nutrients

26- Anus is an important organ in the digestive system

Because solid wastes can leave the body through it

27- the inhaled air differs from the exhaled air

Because the inhaled air is rich in oxygen gas while the exhaled air is rich in carbon dioxide gas

28- diaphragm plays an important role in respiration process

Because it contracts and moves downward during inhalation to increase the size of chest while it relaxes and moves upward during exhalation to decrease the size of the chest

29- Gills are unique structural adaptation in fish

Because they enable fish to breathe oxygen underwater

30- changes that occur rapidly to the ecosystem are more dangerous for living organisms than slow changes

Because rapid changes can cause death and extinction of some living organisms while slow changes give a chance for the organisms to adapt

31- cars and factories exhaust causes breathing problems

Because they produce smog which causes damage to the lungs, asthma, and heart diseases

32- sometimes people in big cities are forced to change their lifestyles

To decrease air pollution

33- Skin of fish is different from that of frog, although both of them live in water

Because frog's skin can absorb oxygen gas from water while fish cannot

34- Dry season is very harmful for amphibians

Because their skin must be wet all the time to extract oxygen gas from water

35- Pollution of air and water can affect the survival of amphibians

Because they breathe oxygen gas from water and air

36- Scientists must study how amphibians interact with their environments

To help them survive

37- The Egyptian mongoose make sounds

To communicate with other mongoose to move from one place to another or when searching for food

38- Owls can hunt during the night

Because they have extraordinary senses of hearing and sight to hunt at night

39- Dogs are used in guarding

Because they have sharp senses of hearing and smell

40- Dolphins can hear all kinds of sounds

Because they have super senses of hearing

41-Animals that live in hot regions become active at night

To hunt in cool weather

42- Snakes have a part in their faces that have super ability to sense heat

To locate their prey at night through sensing their body heat

43-Owls have bowl shaped faces

To detect the location of their preys through picking up sounds around them

44- Snakes can find food at night, although they cannot see well in the dark

Because they have a special body part in their faces that can sense the heat of the prey's bodies

45- The Egyptian Jerboa can jump for long distances

Because it has long hind legs to jump for long distances

46- The presence of hair on the Egyptian Jerboa's feet and toes

To help it catch the sand when it jumps

47- The Egyptian Jerboa's ears play a very important role in its survival

Because it has large and sensitive ears that detect even a quiet snake

48- Stopping suddenly when you hear the horn of a car coming up behind you

Because the ears send a signal to the brain to avoid being hit by a car

49- Runners start to run at the sound of a referee whistle

Because the ears send a signal to the brain to process the information and transmit a message to the leg to run

50- Humans can recognize the sounds of different musical instruments

Because ears receive the different sounds and transmit them to the brain to be processed and determine the type of music

51-The brain has an important function in the nervous system

Because it is the main control center of the body

52- The fishing cat eyes seem to glow in the dark

Because it has a mirror like membrane on the back of its eyes which bounces off light

53- Candle is considered as a source of light

Because it gives off their own light

54- We can see the moon shining at night although it is not a source of light

Because it does not give off their own light, but it reflects light

55- Nocturnal animals can see better than humans at night

Because they have bigger eyes and wider pupils which are more sensitive to light than human

56- Although tarsier and owl cannot move their eyes, they can see surroundings objects in all directions

Because they can turn their heads 180 degrees

57-Tarsier and owl have huge eyes

To collect and reflect any light available

58- Importance of tapetum lucidum for some nocturnal animals

Because it reflects light like a mirror allowing the eye to collect more available light

59-the eyes of humans do not glow like cats in the dark

Because human eyes do not contain tapetum lucidum

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

Because the opaque body does not allow light to pass through

61-you can see an object placed behind a glass cup

Because transparent materials allow light to pass through

62- A mirror can reflect light better than a painted surface

Because the mirror is more smooth than the painted surface

63- Humans receive and send information through speaking, writing, and reading

To communicate with each other

64- Fireflies use different patterns of flashlight to communicate with each other

To warn off their predators or attract a mate

65- Fireflies produce a chemical reaction inside their bodies

To light up their bodies and communicate with each other

66- The songs of humpback whales have high pitched sounds during winter months

Because high pitched sounds travel better through cold water

67-Humpback whales sing different songs

TO communicate with each other in different seasons

68- The symbols that are used in writing have a specific pattern

To give a specific meaning according to the arrangement of letters in a word

69- We use the expressions on faces during talking with each other

To help people predict our feelings

70- A honeybee makes figure-eight pattern movement as a way of communication with other bees

To communicate with other bees to find food and water resources

71- the nurse ants send smelly messages to scout ants

To alert the scout ants that the food is low

72- the soldier ants use smells in their communication

To communicate with the other ants in case of danger

73- The echo that is picked up by the special cane of blind people is turned into vibrations

To tell the blind person where objects are around him

74- The blind people cannot hear the sound that emits from their special canes

Because their special canes emit a high-pitched sound that human's ears cannot hear

75- The shockwave truck is faster than the normal truck

Because it has three jet engines

76- Engineers use parachutes in the shockwave truck designs

To stop the shockwave truck

77- When you kick a ball laying on the ground, it moves

Because of the pushing force of your leg on it

78- When two equal pushing forces act on an object in opposite directions, the object does not move

Because the two forces are balanced so the object doesn't move

79-If you let a pen out of your hand, it falls to the ground

Because of the pulling force of gravity down toward the Earth

80-When your friend catches a ball that is thrown in the air, the motion of the ball is stopped

Because of the pushing force of his hand

81- When your toy car crashes into a wall, it will stop moving

Because the wall applied a force to the car equal to the force of the car moving towards the wall and in opposite direction

82- When you stop pedaling during the movement of your bicycle, it slows down until it stops

Because of the friction force between the bicycle tires and the road

83- If you push two similar toy cars on the same ground, one of them may travel for a longer distance than the other

Because you applied two different forces on them

84- If the same force acts on a small car and a truck, the smaller car will travel for a longer distance than the truck

Because the smaller object travels faster than the bigger object when applying the same force

85- The roller coaster doesn't need electricity during the movement down the hill

Because the stored potential energy changes to kinetic energy

86-The speed of the roller coaster increases as it moves down the hill

Because its kinetic energy increases

87- The goal net vibrates when a ball hits it

Because the kinetic energy of the ball transfers to the goal net

88- A bird stops on a tree has energy

Because it is found at a height from the Earth, so it has potential energy

89- When a stone is thrown upwards, its potential energy increases

Because its height from the Earth increases

90- Electric lamp produces different forms of energy

Because it produces light and thermal energies

91- On filling the spring of a toy car, then let it free, the car moves

Because the potential energy in the spring changes to kinetic energy

92-The speed of the ball increases when the bat hits it hard

Because the kinetic energy of the bat transfers to the ball

93- Seatbelts in cars are very important

Because they keep the driver's body and passengers from moving forward when the car stops suddenly

94-Airbags in cars are very important

Because they slow down the speed of the driver moving forward and absorb the energy of the car due to its collision

95-When two objects collide with each other, you can hear a sound

Because part of the kinetic energy changes into sound energy

96- Driving fast is very dangerous

Because increasing speed increases the kinetic energy that results in exerting a large force during accidents

97- A truck needs a bigger engine than that of a small car to move with the same speed

Because the truck has more mass than the car

98- A car consumes less fuel than that consumed in a bus to move at the same speed

Because the car has a smaller engine than the bus

99- A moving truck has kinetic energy more than that of a small moving car at the same speed

Because the truck has a bigger mass than the small car

100- A car with mass= 3 tons moves down a hill reaches its bottom faster than another car with mass =1 ton moves down the same hill

Because it has speed and kinetic energy more than that of the car with 1 ton mass

101- The speed of a truck is more than that of a car when both of them move down a ramp

Because the mass of the truck is more than the car

102- You can hear a sound during collision between marbles

Because some of the kinetic energy changes into sound energy during collision

103- The amount of energy before collision is equal to the amount of energy after collision

Because the energy is conserved during the collision

Q2 What happens if

1-The warm blood vessels and cold blood vessels in the penguins' feet do not weave around each other

Penguins' toes will freeze

2- The polar bear has thin fur instead of thick fur

It cannot adapt with the cold weather in the polar region, and it will die

3- The body of fennec fox is covered with black fur

It cannot hide in the desert from prey or predators

4- some types of lizards are not able to make camouflage adaptation

They cannot hide from prey or predators

5- Arctic foxes have a brown coat during winter but it turns white during summer

It cannot hide from its prey in winter or summer

6- Fennec fox has short ears

It cannot cool its body

7- Sense of hearing becomes weak in foxes

They cannot hunt their prey

8- Arctic fox has only a white coat during all seasons of the year

It cannot sneak up on its prey in the summer

9- Both eyes of panther chameleon move in one direction only

It cannot hide from its prey and predators

10- Panther chameleon is exposed to danger

It puffs up its body with air, opens its mouth wide and changes the color of its scales

11- the length of acacia taproot does not exceed three meters downward

It cannot search for water in the deep soil

12- the acacia leaves are not guarded by sharp spines

Animals can eat these leaves

13- there are no buttress roots in the kapok tree

Kapok tree cannot stay firmly in the soggy soil

14-the pine tree has an umbrella shape not a triangular shape

The snow cannot slide easily over its branches so branches can break down

15- some plants of rainforest habitat became very short

The sunlight cannot reach these plants easily

16- water lily has narrow leaves instead of wide leaves

It cannot absorb a large amount of sunlight

17- palm tree has thin roots and large leaves

It cannot resist the strong winds

18- the small intestine is removed from the human body

The digestive system cannot perform its function properly

19- the nutrients absorbed by the walls of small intestine enter the tiny blood vessels

The blood carries these nutrients to all body parts

20- the diaphragm moves downward during inhalation

The size of the chest increases and the air rich in oxygen gas enters the lungs

21- the diaphragm moves upward during exhalation

The size of the chest decreases and the air rich in carbon dioxide gas comes out of the lung

22- The ecosystem is slowly changed

Living organisms will be able to adapt over time to survive

23- the ecosystem is rapidly changed

Living organisms may die or extinct

24- human activities and bad habits increases

Air, water, and soil pollution will increase

25- the exhaust from cars and factories increases in big cities

Smog increases causing breathing problems such as damage of lungs, asthma, and heart diseases

26- water pollution increases (for human and fish)

Human cannot find clean water to drink, and fish cannot find clean water to breathe

27- pollution level increases in the natural habitat of amphibians

The number of amphibians will decrease

28- the ecosystem of amphibians contains clean air and water

Amphibians will survive and their number increase

29- Amphibians do not have lungs and breathe only through skin

They can live only underwater

30- the number of predators of amphibians increases

The number of amphibians will decrease

31- salamanders have lungs only to respire

Salamanders can live on land only

32- skin of frogs becomes dry

They cannot survive

33- the sound waves produced by a dolphin hit an object under water

It bounces back to the dolphin in the form of echo so the dolphin can detect the location of the object

34- A snake is injured in its face in the part that senses the heat

It cannot sense the heat of its prey's body at night so it cannot hunt at night

35- Bats lose the ability to hear by using echolocation property

They cannot hunt at night

36- Owls cannot turn their heads in all directions

They cannot search for preys everywhere

37- Your hand touches the spines of a barbary fig plant

Your hand will move quickly away

38- The Egyptian Jerboa hears a snake moves towards it

It hops in zigzag path so it can escape quickly

39- The spinal cord became absent from the components of the nervous system

Messages cannot be transmitted between brain and body parts

40- sensory receptors related to the eyes stopped sending messages to the brain

Brain cannot process what the eyes see

41- The mirror like membrane in the fishing cats' eyes is damaged

Fishing cat cannot see at night

42- the moon cannot reflect light

It appears dark and we cannot see it

43- the sensory receptors of fishing cat's eyes are damaged

They cannot see

44- Tarsier and owl have heads with small range of movement like human

They cannot see in all directions

45- Snakes have tapetum lucidum layer in their eyes

They will have excellent night vision

46- you place an opaque object between a light source and a wall

Light cannot pass through the opaque object to the wall, so shadow of the object is formed on the wall

47- light falls on a transparent body such as a glass window

Light passes through the glass window

48- light falls on a rough surface according to the direction of the reflected light rays

Light rays are reflected in different directions

49- A person makes flashing pattern by LED lights near to a group of fireflies

The fireflies imitate the flashing pattern that the person made

50- A firefly wants to attract a mate to reproduce

It produces a chemical reaction inside its body to light up and attract a mate

51- The hearing sense of humpback whales becomes weak

They cannot communicate by songs using their hearing sense

52- The traffic light becomes red while you are going to cross the road

The eyes send a message to the brain to stop walking and not to cross the road

53- the bees in the hive did not understand the movements of the dancer bee

They cannot communicate to reach the location of food and water resources

54- A person with special needs does not learn the sign language

He cannot communicate with other people

55- The smell sense of ants becomes weak

They cannot communicate with each other by smelling messages

56- the amount of food in the ant's colony decreases

The nurse ants send a smelly message to the scout ants to alert the ants where to find food

57- there is a danger near an ant's colony

The soldier ants send smelly messages to alert the other ants that there is danger

58- High-pitched sound that is produced by the blind person's cane hits an object

It bounces back to the cane in the form of echo which is turned into vibrations

59- bats cannot use echolocation property

They cannot communicate with each other or locating the objects by the sense of hearing

60- There is a wall in front of a blind person who uses his special cane

The cane will make vibrations that tell the blind person that there is a wall in front of him

61-You kick a stopped ball on the ground

It moves due to the pushing force

62- Engineers placed jet engines inside a normal truck instead of its normal engine

It turns to shockwave and move much faster

63- The shockwave driver opens the parachutes

It will stop gradually

64- The pulling force of the two teams are equal in the tug of war game

The rope will not move

65- You let your toy out of your hand

It will fall down due to the pulling force of gravity

66- You kick a football

It will move a distance due to pushing force then stops due to friction force

67- You push two similar balls with different forces on the ground

The ball that is affected with greater force will move longer distance

68- Roller coaster moves down the hill (according to energy)

Its stored potential energy changes into kinetic energy

69- The roller coaster loses its kinetic energy

It will stop

70- If a stopped ball at the top of a ramp starts to move down (according to energy)

Its stored potential energy changes to kinetic energy

71- An object is placed at a height from the Earth's surface (according to potential energy)

The object has potential energy

72- An apple falls from a tree to the ground

The potential energy of the apple changes into kinetic energy

73- You transfer a book from a lower shelf to a higher shelf (according to potential energy)

The potential energy will increase

74- You operate a washing machine (according to the change of energy)

The electrical energy changes into mechanical energy

75- A boy moves down the slide (according to the change of energy)

The potential energy changes into kinetic energy

76- You switch on an electric lamp (according to the change of energy)

The electrical energy changes into light and thermal energies

77- The moving cricket bat hits a ball

The kinetic energy of the bat transfers to the ball

78- Airbags in a car don't inflate during a crash

The energy of collision pushes the driver forward and harms him

79- The speed of a car increases (according to kinetic energy)

The kinetic energy increases

80- Two bicycles move in an opposite direction, collide with each other

The damage would be more severe

81- The pushing force that acts on an object decreases (according to kinetic energy)

The kinetic energy will decrease

82- The speed of a moving object increases (according to kinetic energy)

The kinetic energy will increase

83- The kinetic energy of a moving car increases (according to the damage of collision)

The damage would be more severe

84- A truck and a small car move at the same speed (according to kinetic energy)

The kinetic energy of the truck is more than the car

85- The mass of a toy car that moves down a ramp increases (according to the time taken to reach the end of ramp)

The time taken will decrease

86- Increasing the angle of inclination of a ramp where a ball moves down it (according to the ball speed)

The speed will increase

87- The newton's cradle ball is raised up without leaving it go (according to its energy)

It stores potential energy

88- You left the ball of newton's cradle move towards the rest of balls (according to the change of energy)

The potential energy changes into kinetic energy

89- Friction occurs between the string and the other parts of newton's cradle during collision (according to the change of energy)

Some of the kinetic energy changes into thermal energy