بِسۡمِ اللّٰہِ الرَّحۡمٰنِ الرَّحِیۡمِ

Allah's Name to commence with the Most Gracious, the Most Merciful

SPECTRUM Science

SOLVED EXERCISES

4

Prepared by:
Rana Amir Munawar

Reviewer:
Saifullah Khalid

Spectrum
Enlightening Generations

Spectrum Science Grade-5
(Solved Exercises)

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Introduction to Spectrum Science Series Book 1 to 5

Spectrum Science Series is a completely new approach to textbooks. This series focuses on doing one thing right; imparting necessary education to young learners with no frills.

The main aim of *the Science Series Grade-4* textbook is to provide a real-life hands-on experience to the young learners regarding scientific phenomena around us. For this reason, we have ensured multiple sections within a chapter to help students digest scientific knowledge and concepts, through a step-by-step process, rushing nothing.

Every chapter starts with a warm-up section, which includes the *Think* and *Explores* section. It is followed by the *Know* section, which presents new concepts. In the end, we have an *Exercise* section, which includes the *Activity Time* section to test that which students have learnt.

Think

This section rekindles the *existing repository* of *knowledge* and information about young children. Each *Think* activity is aligned with given SLOs, focusing on exercising the mental processing of a child. It aims at directing the students toward the subject of the chapter.

Explore

The *Explore* section asks the children to *perform* an activity. The student has to write the results of their exploration. Combined with *Think* activity, the *Explore* section aims at gearing up the young learners towards the content of the chapter.

Know

The essence of the unit lies in this section. It is carefully *constructed* to disseminate knowledge that adheres to the SLOs and that caters to the curious young minds of the readers. The structure has been ensured to maintain continuity of topics within a chapter, which leads to fun reading and a better understanding of concepts.

Activity

This section comes at the end of the chapters with a focus on *cementing* the knowledge learned by students through *practical* activity. These activities take a cue from the content of the chapter and ask the student to apply it in various ways.

The language of the book has been reviewed and proofed by our language experts, who have painstakingly tried to smooth the edges and maintain continuity within texts.

Spectrum Science Teaching Guide Grade-4

Spectrum Science Teaching Guide consists of unit-wise worksheets, solved exercises of the book, unit-wise assessment papers, a terminal assessment and lesson plans. It is designed to effectively support the teachers in student-centered teaching strategies, with simple and clear instructions.

The following key features of the lesson plans make teaching easier for teachers:

⇒ **Student Learning Outcomes (SLOs)** are carefully planned goals for what students will learn. These also define what students will know and be able to do by the end of the lesson.

⇒ **Prior Knowledge** connects students to what is being taught in class.

⇒ **Resources** are required material in the lesson. Teachers are encouraged to arrange necessary materials in advance.

⇒ **Warm-up** is an icebreaker. These are done to develop students' interest in the subject and generate engagement.

⇒ **Lesson Structure** is the central part of the lesson plan. Its goal is to ensure that learning outcomes are achieved through explanation, demonstration, activities, class discussion, and brainstorming. Referencing the text, illustrations and pictures in the manual will make the lesson engaging and interesting. Teachers are encouraged to collect student feedback to determine if learning outcomes are being achieved.

⇒ **Conclusion** summarizes the topic and often includes an assessment of the topics covered in a particular lesson.

⇒ **Class Assignments** based on worksheets or activities. The teacher can assign it for homework.

⇒ **Homework** is assigned to students during the lesson to reinforce what they have learnt.

Conclusion

We hope teachers and students will find *Spectrum Science Series Books 1-5* thoroughly beneficial. These books contain modern teaching approaches which help students to become curious learners of science.

We wish all the teachers and students using Spectrum Science Series Books 1-5 all the best.

Solved Exercises

Unit-1- Human Body

Model Answers

Exercise 1

Answer the following questions.

i. A group or layer of similar structure of cells that work together for a specific function is called a tissue. Nervous tissues or muscular tissues are some examples.
ii. An organ is a group of tissues that combine to perform a specific function, whereas an organ system is a group of organs working together to perform a body function.
iii. The human skeleton has different function, which are as follows;
    a. It provides support to our body.
    b. The skeletal muscles help our body move.
    c. Human skeleton gives the body a particular shape and structure.
iv. Joints are important because joints allow body parts of the skeleton to move.
v. None of our bones can move by itself. There is always a muscle that helps to move a bone or part of the body.
vi. Calcium-rich food and regular exercise keep our bones healthy and strong.

Exercise 2
Fill in the blanks with correct words.

i. Allah said in the Holy Qur'an, "Surely we have created humans in the best form.
ii. The basic and smallest unit of all living things is called a cell.
iii. The human body has 206 bones.
iv. A skeleton gives support, movement, shape and protection to the human body.
v. The muscles are connected with the bones by tendons.
vi. Biceps and triceps are muscles in our arms that help us lift weight.
vii. Milk is a calcium-rich food.
viii. Science studies physical body and phenomena whereas what is beyond physical body and phenomena does not come inside the scope of science.
ix. The human skull protects the human brain.
x. Islam guides us about the matters beyond physical body and world and teaches us how to be morally and spiritually healthy.

Exercise 3

Write 'T' for a true and 'F' for a false statement.

i. The human body works like an amazing machine. T

ii. A bone is a group of tissues that combine to perform a specific function. F

iii. A framework of bones in our body is known as the skeleton. T

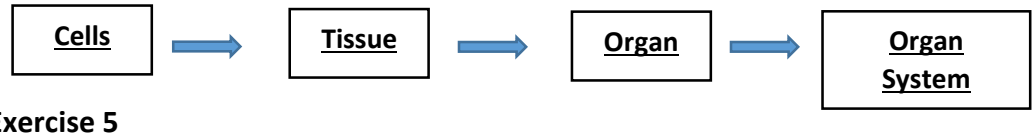
iv. Human rib cage keeps the kidneys and liver in place. T

v. Joints help us move and bend body parts. T

vi. Organs are tough and elastic tissues in our body. F

Exercise 4

Complete the following sequence regarding building material of the human body.



Exercise 5

Complete the following table.

Composition of Human Body	Functions	Examples
cell	A cell takes in nutrients from food and facilitates growth.	skin cells, bone cells, blood cells
tissue	Tissues protect the body from injury and help in body movements.	nervous tissues, muscular tissues
organ	We smell, see, taste, hear and touch with the sense organs.	nose, eyes, tongue, ears, skin

Unit-2- A Balanced Diet

Model Answers

Exercise 1
Answers of questions.

i. A balanced diet means a variety of foods from all food groups in the right amount.
ii. We get food from both plants and animals. There are many types of food that we eat like; wheat, potato, apple, almond, black pepper, milk, eggs, meat, honey, etc.
iii. Five major food groups are as follows;
    a. grains
    b. fruits and vegetables
    c. meat, fish, eggs and alternatives
    d. milk and dairy
    e. fats, oils and sweets
iv. The food we eat contains many nutrients, such as proteins, carbohydrates, fats, vitamins, minerals are vital for our health.
v. Proteins are called body-building food, because they build and repair tissues and muscles. Eggs and pulses are protein-rich foods.
vi. Vitamins and minerals are very important for our body because they protects us from different diseases.
vii. The right amount of fiber should be a part of our daily diet because it helps in the digestion of food and its excretion.
viii. Drinking clean water is important for us to remain safe from diseases as well as to maintain good health.
ix. Water becomes unclean and contaminated due to various factors, such as chemical waste from factories, pesticides applied to farmland enter surface water and ground water.
x. The food pyramid is a guide that shows what to eat every day and it consists of the major food groups.

Exercise 2

Write 'T' for a true and 'F' for a false statement.

i.	We must drink six to eight glasses of clean water daily.	T
ii.	Food nutrients are also called components of a balanced diet.	T
iii.	Sugar and starch are two types of proteins.	F
iv.	Boiling is the safest and the most reliable way to purify water.	T
v.	The food that we should eat the most are placed at the top of the food pyramid.	F

Exercise 3

Write a short note on any one of the following:

Importance of Halal Meat

Islam teaches Muslims that they must eat Halal (permissible in Islam) meat. In order for a meat to become halal, it must not belong to Haram (impermissible in Islam) category of animals, such as pig, dog, etc. Moreover, the animal must be slaughtered following the Islamic method and reciting Allah's name while slaughtering by saying: Bismillah-i-Allah-o- Akbar (In the name of Allah; Allah is the Greatest.)

Halal meat is healthier because by slaughtering according to Islamic method, blood is completely drained out from the animal's arteries taking away all kinds of harmful substances and toxins from the meat. Blood comprises high levels of uric acid which can be quite damaging to the human body if consumed. Research suggests that that those animals killed through other methods their meat consists of E. Coli, other bacteria and harmful substances which causes different diseases, **due to its scientifically established healthy features, Halal meat are becoming increasingly important in European countries as well.**

Benefits of Sunnah Foods

Food considered part of the Sunnah of Prophet Muhammad ﷺ for those who would give thought" (The Noble Quran, 2001). Thus, honey is a source of healing for mankind. In an authentic tradition of the Prophet ﷺ a man came to him and said, "My brother has some abdominal trouble." The Prophet said to him "Let him drink honey." The man came for the second and third time and the Prophet said to him, 'Let him drink honey." He returned and said, "I have done that." The Prophet then said, "Allah has said the truth, but your brother's abdomen has told a lie. Let him drink honey." So he made him drink honey and he was cured" (Bukhari, 2002). In addition, in a study, "Honey as a Dressing for wounds, burns and ulcers; because honey has proven to be useful medicine. Black cumin (seeds) is another diet of the Prophet ﷺ. All contents of black seeds are ideal cure for the prevention and treatment of cancer. The Prophet ﷺ said, "Use this black seed regularly, because it is a cure for every disease, except death" (Bukhari, 2002). Another important drink of the Prophet ﷺ is milk. The Prophet said, "Drink milk, it strengthens the back, increases the brain power, augments intelligence, renews vision and drives away forgetfulness" (Ibn-e-Majah, 1998). Milk is the very source of calcium (around 120mg/100g).

Exercise 4

Match the food groups in column A with their functions in column B.

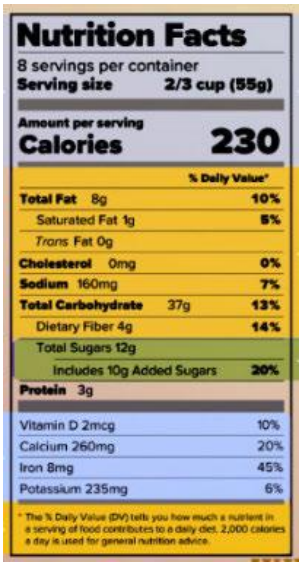
Column A	Column B
fruits and vegetables	source for quick energy
milk and dairy	keep the body warm
grains	help the body to fight diseases
fats, oils and sweets	make bones strong

Exercise 5

Identify and name the food groups in the given food pyramid. Also, write their servings.

Exercise 6

Find out the quantity of fats in different packaged foods. Cut and paste three nutritional information tables given on packaged foods.



Also, write the name of each food and its value of fats in the table below.

Food Items	Fats
Tomato Basil Soup	3%
Steam Meal	5%
Vegetable Soup	6%

Unit-3- Health and Illness

Model Answers

Exercise 1

Answer the following questions.

1. Maintaining good health is important, because of good health you enjoy greater energy and fewer aches and pains.
2. We can maintain good health by adopting a healthy lifestyle and a healthy lifestyle includes eating balanced diet, drinking clean water, regular exercise and enough sleep.
3. An illness is a disease or a state of ill health and is usually indicated by some symptoms, like fever and influenza.
4. Contagious diseases are infectious diseases that can spread from one person to another person, whereas Non-contagious diseases are diseases that do not spread from person to person.
5. The disease-causing microbes are called germs. Bacteria and Viruses are the most common germs.
6. Communicable Diseases spread through direct or indirect contacts, such as touching or shaking hands, through air transmission, contaminated food and drinking water and insects or animals.
7. We can protect ourselves from communicable diseases by taking the following precautionary measure:
    i. Always wash hands well before eating and after using the toilet.
    ii. Fruits and vegetables should always be washed well before eating.
    iii. Covering mouth and nose while coughing or sneezing.
    iv. Keeping social distance is a simple way to prevent communicable diseases.
    v. Avoiding crowded places unless very urgent.
    vi. Wear a face mask and disposable gloves in public or in public places.

Exercise 2

Fill in the blanks with suitable words.

i. Disease is a condition that makes people unhealthy.
ii. Nasal congestion and sore throat are symptoms of Influenza.
iii. Non-communicable disease may occur due to deficiency of vitamins and minerals.
iv. Microbes are microscopic organisms.
v. COVID -19 is an example of contagious diseases.
vi. Most of infectious diseases spread through indirect contact.
vii. Some microbes cause many communicable diseases.
viii. Allah cures us when we become ill.

Exercise 3

Complete the following saying of Rasoolullah ﷺ

"If you hear of an outbreak of plague in a land, do not enter it. And if the plague breaks out in a place while you are in it, do not leave that place."

Exercise 4

Write 'T' for a true and 'F' for a false statement.

i.	A contagious disease does not spread from a person to another.	F
ii.	Diabetes is a non-contagious disease.	T
iii.	Disease-causing microbes are called nutrients.	F
iv.	Vaccines protect us from many diseases such as hepatitis B.	T
v.	Mosquitoes can never transmit malaria.	F
vi.	An infection is a disease caused by germs or bacteria.	T
vii.	We frequently fall ill when we do not adopt a healthy lifestyle**.**	T

Unit-4-Plant Kingdom

Model Answers

Exercise 1

Answer the following questions.

i.

Simple Plants	Higher Plants
• They have simple body structure. • They do not have leaves, flowers, stems, roots and fruits. • Algae, ferns and mosses are simple plants.	• They have complex body structure. • They have leaves, stems, roots, flowers and fruits. • Conifers, vines and shrubs are higher plants.

i. Flowering plants are very common seed-bearing plants also known as angiosperms. Examples are; trees, vines, shrubs, etc.

ii. Non-flowering plants do not produce flowers. Conifers are non-flowering plants which belong to a group of plants known as gymnosperms.

iii. Flowering-plants produce flowers, whereas Non-flowering plants do not produce flowers. Both have vascular system.

A. Frond is a collective term for roots, stem and leaves.

B. Vascular system is a well-developed system due to which plants can grow tall.

Exercise 2

Fill in the blanks.

i. The flowering-plants are also known as angiosperms.

ii. Algae are the simple plants.

iii. Conifers belong to a group of plants known as gymnosperms.

iv. Allah has put His signs in His creation.

v. Mosses make a velvety green carpet on the forest floor.

vi. Unlike algae and mosses, ferns have roots, stems and specialized leaves.

vii. Religion tells us about the creator whereas science is the knowledge about Allah's creation.

viii. Al-Dinawari was a great Muslim scholar and botanist who wrote a book "Kitab-al-Nabat".

ix. In Islam, planting tree is a charity.

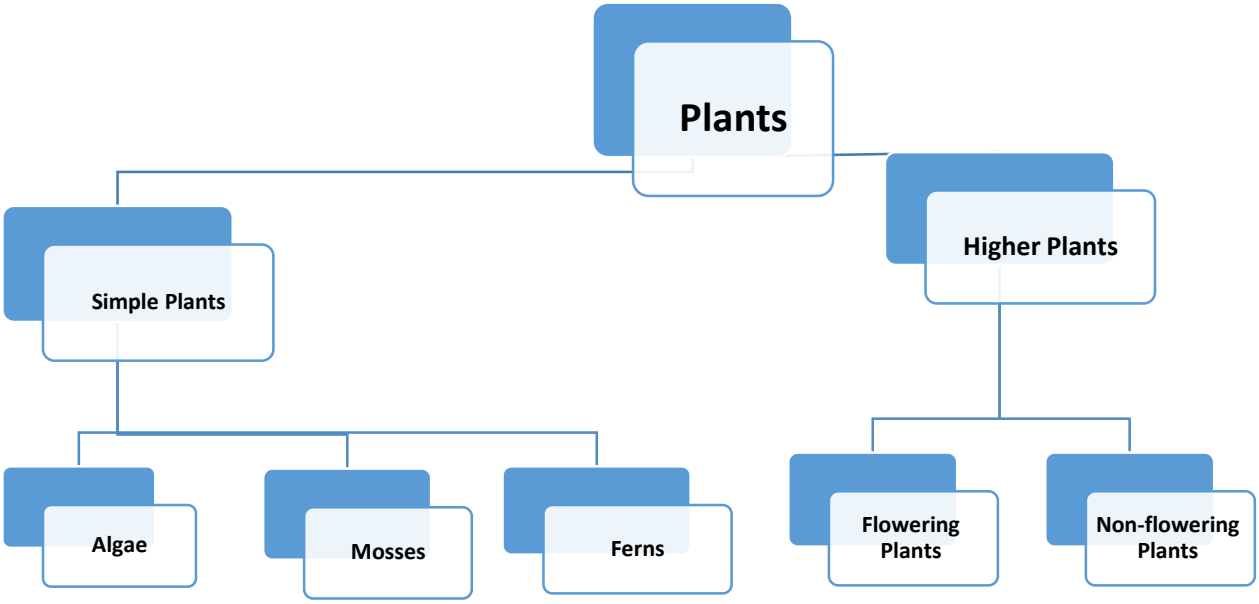
Exercise 3

Match the plants of column A with their features in column B.

Column A	Column B
gymnosperm	non-flowering plants
angiosperm	having a root-like structure
ferns	flowering plants
mosses	unicellular and multicellular plants
algae	fronds

Exercise 4

Complete the tree map of simple and higher plants.



Unit-5-Animal Kingdom

Model Answers

Exercise 1
Answer the following questions.

i. Classification of animals among all living things is categorized as animal kingdom.
ii. Animals with a backbone or vertebrate column are known as vertebrates and animals without a backbone of vertebrate column are known as invertebrates.
iii. Animals whose body temperatures change according to the surrounding temperature are called cold-blooded animals. And animals that retain their body temperature are called warm-blooded animals.
iv. Scientist describes a mammal as warm-blooded animals, they give birth to their babies and feed them with milk.
v. The reptiles are different from other vertebrates as;
   a. They lay leathery eggs.
   b. Reptiles have scaly bodies.
   c. Reptiles breathe through their lungs.
vi. Islam teaches us that we should treat animals with kindness and compassion. They exist for the benefits of human beings.

Exercise 2
Circle the correct answer.

i. There are approximately 45,000 living species of:
   a. vertebrates b. invertebrates c. plants
ii. Fish breathe in water through their;
   a. lungs b. gills c. skin
iii. Which of the following animal is not a mammal?
   a. frog b. sheep c. lion
iv. Which of the following animals is an invertebrate?
   a. owl b. bee c. deer
v. What do birds have on their bodies?
   a. scales b. fins c. feathers
vi. Human beings belongs to the group of:
   a. bird b. mammal c. insect
   a. bird b. mammal c. insect
vii. Bat is a

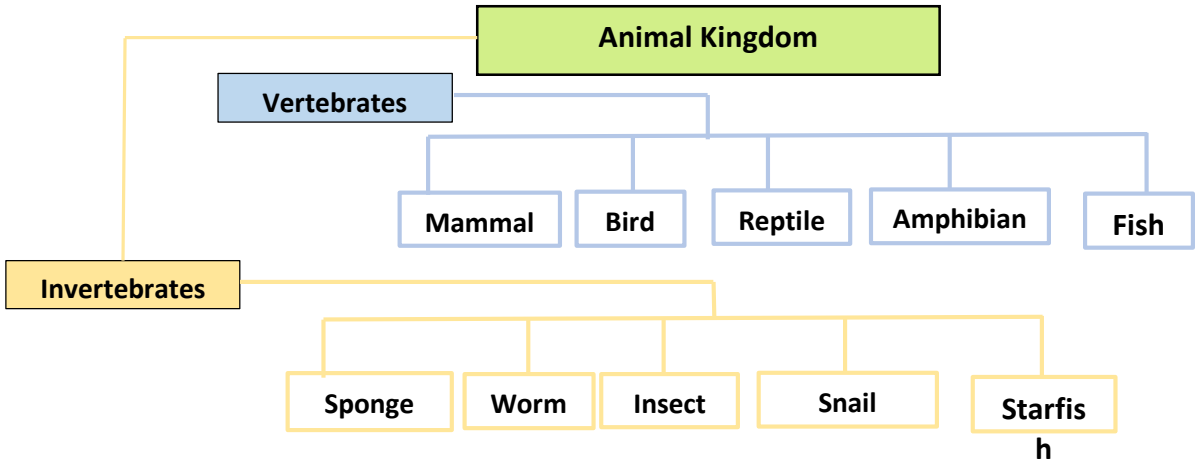
Exercise 3

Match each animal in column A with its respective feature in column B.

Column A	Column B
humming bird	largest bird
ostrich	running bird
kiwi	largest mammal
blue whale	smallest bird

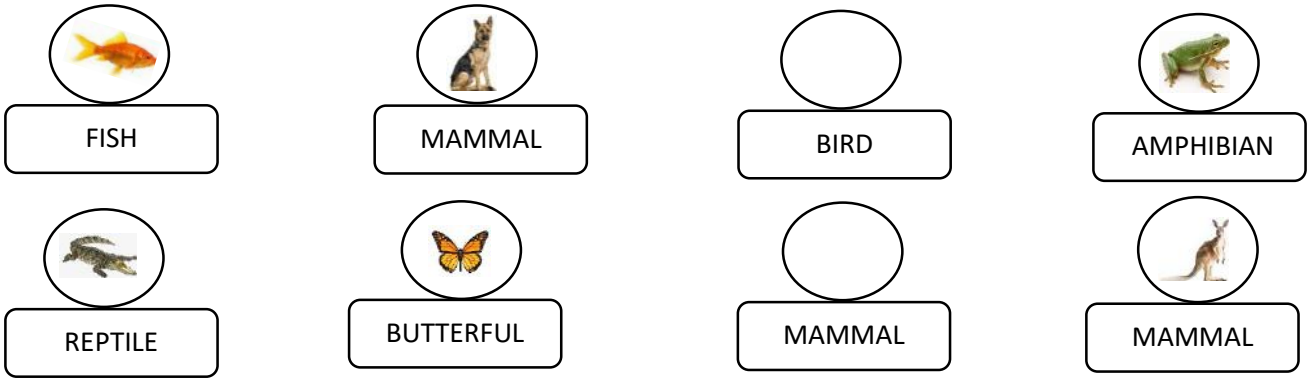
Exercise 4

Complete the flow chart of animal kingdom.



Exercise 5

Look at the chart below. Recognize the animals and write their respective groups (Bird, Reptile, Fish, Amphibian, Mammal, Worm, and Insect) under each picture.



INSECT

REPTILE

MAMMAL

REPTILE

MAMMAL

REPTILE

FISH

MAMMAL

Unit-6- Ecosystem and Food Chain

Model Answers

Exercise 1

Answer the following questions.

i. An ecosystem is a naturel environment in a particular area made up of all the living and non-living things. Deserts, forests, oceans, ponds and grasslands are different types of ecosystems.
ii. Livings things or living components like humans, animals and plants are biotic, on the other hand non-living things or non-living components like rainfall, temperature, air soil and water are abiotic of an ecosystem.
iii. Plants and animals are interdependent, because most of the animals consume vegetables, fruits and grains to live. Similarly, plants used dead bodies of animals and plants to get the nutrients to survive. Their remains get mixed with the soil. Plants take these nutrients from the soil by their roots.
iv. Transferred of energy from one living thing to another in the form of food is **Food Chain**. The parts of food chain are the sun, primary consumer, secondary consumer, tertiary consumer, decomposer and producer.
v. The food chain starts with plants as they can make their own food. Green plants are called producers.
vi. The Sun is a great blessing of the Almighty Allah. The Sun radiates energy for the plants to make food. The Sun's energy gets stored in plants in the form of food. This food energy passes from plants to the animals when they eat plants.
vii. Those who get their food directly or indirectly from plants are consumers. Humans and animals consume both plants and animals; hence they are called consumers. The grasshopper, frog and hawk are examples of consumers.
viii. Decomposers provide nutrients to the soil. Plants (producers) use these nutrients in their food-making process. In this way decomposers help us to keep our Earth clean by recycling the dead matters.
ix. The competition occurs when more than one organism in an environment has the same need for sources as another to survive.
x. A balanced ecosystem is important because it ensures survival of all organisms along with stability of the environment.

Exercise 2
Fill in the blanks with correct words.

i. A food chain starts with Plants (Producers).
ii. The Sun is essential for all food chains.
iii. Deforestation leads to drought.
iv. The animals which get their food by eating animals that eat plants are known as Secondary consumers.

v. There should be a balance within each ecosystem in order to stay vital.
vi. Human activities, such as farming and resources exploitation, should be checked to prevent excessive destruction of the forests.
vii. A network of a large number of food chains is known as a food web.

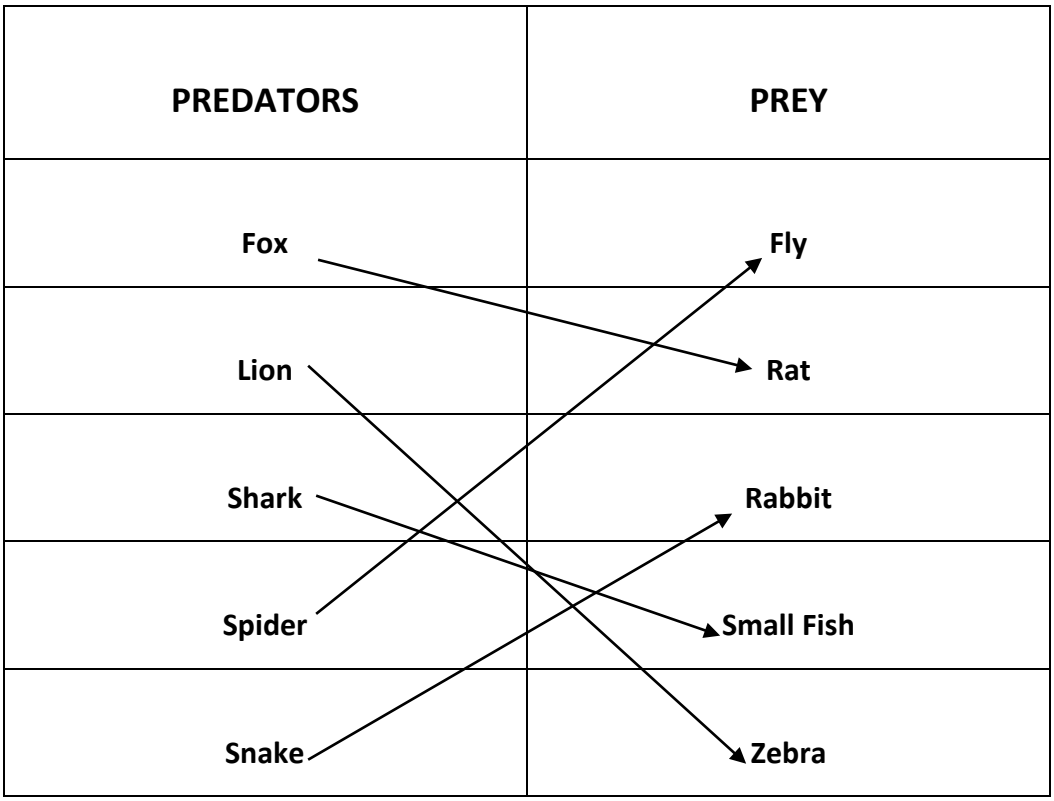
Exercise 3

Write 'T' for a true and 'F' for a false statement.

i. Animals and plants depend upon each other. T
ii. Plants absorb oxygen and release carbon dioxide during photosynthesis. F
iii. Energy flows from consumers to producers. F
iv. When animals die, their body nutrients get mixed in the soil. T
v. Herbivores, carnivores, omnivores and scavengers are all producers. F
vi. Human being plays a key role to maintain a balanced ecosystem. T
vii. Both biotic and abiotic components of an ecosystem are dependent on each other directly or indirectly. T

Exercise 4

Match the predator on the left with its prey on the right.



Exercise 5

Discuss the Ayah number 95 of Surah Al-An'am of the Holy Quran with reference to the concept of a food chain.

Allah said in the Holy Quran (Surah Al-An'am: 95)

"Surely Allah splits open the seed and fruit stones. He brings froth the living from the dead, and produces the dead out of the living. This is Allah, so how are you misguided?"

In the above Ayah of the Holy Qur'an our attention is drawn to the concept of a food chain. Today we know that when a living thing dies, microorganisms, such as fungi, bacteria and earthworms, quickly cause it to decompose. The dead body is thus divided up into organic molecules that mix with the soil and from the basic source of food for plants, animals and, ultimately, humans. Dead creatures play a vital role in the emergence of new ones.

Exercise 6

Complete the following table.

<table>
<tr><th>PRIMARY SOURCE OF ENERGY</th><th>PRODUCER</th><th colspan="3">PRIMARY CONSUMER</th></tr>
<tr><td rowspan="5">The Sun</td><td>Plants</td><td colspan="3">Insects</td></tr>
<tr><td>Producer</td><td>Primary Consumer</td><td colspan="2">Secondary Consumer</td></tr>
<tr><td>Plants</td><td>Insects</td><td colspan="2">Frog</td></tr>
<tr><td>Producer</td><td>Primary Consumer</td><td>Secondary Consumer</td><td>Tertiary Consumer</td></tr>
<tr><td>Plants</td><td>Insects</td><td>Frog</td><td>Eagle</td></tr>
</table>

Unit-7- States of Matter

Model Answers

Exercise 1

Answers of questions.

i. Matter is anything that occupies space and has mass.
ii. In solids, particles are closely packed thus solids cannot change their shape. In liquids there are some spaces between particles, therefore, can change their shape and in gases particles are far from each other, therefore, gases can be compressed easily.
iii. In solids, particles are very closely packed. They do not have enough space between them to move freely. Therefore, solids cannot change their shape easily.
iv. In gases, particles are far away from each other, since they are in constant motion.
v. Liquids do not have a definite shape. They change shape according to the shape of their container. For example, when you pour some water from a jug into a glass, it changes its shape according to the shape of the glass.

Exercise 2

Fill in the blanks with suitable words.

i. Solids have a definite shape.
ii. Molecules of gases are arranged in an irregular repeating pattern.
iii. Liquids are also called fluids.
iv. The scientific knowledge is not absolute or infallible.
v. The shape of a solid can be changed by applying force on it.
vi. The scientific knowledge is tentative and subject to change.

Exercise 3

Choose the correct options to fill in the blanks.

i. Matter is made up of tiny particles called molecules.
   a. Solids b. Liquids c. Molecules

ii. A gas has ability to be compressed.
   a. Liquid b. Gas c. Solid

iii. Matter is found in three states (solids, liquids and gases) on basis of the arrangement of their particles.
   a. Particles
   b. Volume
   c. Shape

iv. The molecules of liquids are arranged in an irregular pattern.
   a. Regular
   b. Irregular
   c. Fixed

v. As the human knowledge evolves, the scientific ideas and principles change too.
   a. Remain absolute
   b. Change
   c. Remain infallible

Exercise 4

The students will draw the arrangement of particles in solids, liquids and gases in their respective boxes.

Exercise 5

The students will identify the solids, liquids and gases in the given pictures and name these objects.

Unit-8- Light

Model Answers

Exercise 1

Answer the following questions.

i. Objects which can produce their own light are called luminous objects. Examples of luminous objects include the Sun and a light bulb.
ii. Objects which cannot produce their own light are called non-luminous objects. For example, the Moon and our body are non-luminous objects.
iii. An opaque object down not allow light to pass through it, The Sun and a wall are the examples of opaque.
iv. When the Earth, the Sun and the Moon come in a line, an eclipse is formed. Eclipse are of two types: solar and lunar.
v. When light hits an object with a smooth polished surface, it reflects light better. A mirror and shiny metal surfaces are its examples.
vi. Ibn Al-Haytham was a great Muslim scholar and scientist. He was known for his contribution to the principles of optics. He formulated laws of reflection. He also explained the working of the human eye.

Exercise 2
Fill in the blanks with suitable words.

i. The biggest natural source of light is the Sun.
ii. Firefly is a luminous insect.
iii. Many rays of light together make a beam of light.
iv. When the Moon comes between the Earth and the Sun, it blocks the light of the Sun. this is called a solar eclipse.
v. When the Earth comes between the Sun and the Moon, it blocks the light of the Sun. This is called a lunar eclipse.
vi. It is nonsense to deny the existence of reality of something just because we cannot know or identify it through our five senses.

Exercise 3
Write 'T' for a true and 'F' for a false statement.

i.	The Moon is a luminous object.	F
ii.	Light always travels in a straight path.	T
iii.	Reflection of light depends upon the surface of the object on which it strikes.	T
iv.	An opaque object allows light to pass through it.	F
v.	The Earth gets dark during a solar eclipse.	T

Exercise 3
The students will complete the pectoral depiction of a lunar and solar eclipse.

Unit-9-Temperature and Heat

Model Answers
Exercise 1
Answer the following questions.

i. (a) Temperature is the measure of hotness or coldness of an object.
(b) Heat is the flow of thermal energy from one object to another object.
(c) Temperature Scale temperature is measured in three different scales: Celsius Scale, Fahrenheit Scale & Kelvin Scale.

ii. A thermometer is a device which is used to measure the exact temperature of a body.

iii. (a) Wash a thermometer preferably with an antiseptic solution before and after using it.
(b) Do not place a thermometer near heat.
(c) Never break a thermometer to get the mercury.

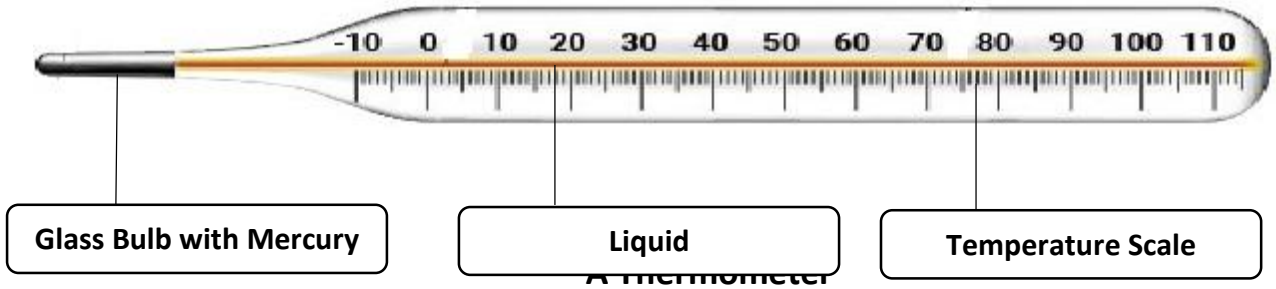
iv. Two scales of measuring temperature are Celsius and Fahrenheit.
On Celsius scale, the freezing point of water is 0 degree Celsius and the boiling point of water is 100 degrees Celsius. It is written as 0°C and 100°. On Fahrenheit scale, the freezing point of water is 32degrees Fahrenheit and the boiling point of water is 212 degrees Fahrenheit. It is written as 32°F and 212°F.

v. **(a) Warm Water:** When the thermometer is placed in contact with a hot object, the level of the mercury rises.
(b) Cold Water: When the thermometer is places in contact with a cold object, the level of the mercury falls

Exercise 2
Fill in the blanks.

i. The faster the molecules move, the higher the temperature gets.
ii. Temperature is measured in three different scales.
iii. Heat flows from one object to another object.
iv. The freezing point of water is 0 °C.
v. The boiling point of water is 212 °F.

Exercise 3
Label the parts of a thermometer.



Exercise 4
Look at the temperatures of the thermometers below. Write the readings in the given scales.

i. 42 °F
ii. -14°C
iii. 92 °F
iv. -26 °C
v. 16 °C
vi. 108 °F
vii. 88 °F
viii. 32 °F
ix. 29 °C

Exercise 5
Complete the following table with accurate temperatures.

Status	°C	°F
Freezing Point of Water	**0**	**32**
Boiling Point of Water	**100**	**212**

Unit-10-Sound

Model Answers

Exercise 1

Answer the following questions.

i. A sound is produces by a vibrating body. A vibration is a quick, repeated back and forth movement of particles.

ii. Sound needs a medium to travel. It travels at different speed through different materials and in all directions. The medium through which sound travels are solids, liquids or gases.

iii. The intensity is the loudness and softness of a sound. A loud sound is high in volume, for example a car's horn. A soft sound is low in volume, for example, the ticking of a clock.

iv. The pitch of a sound means how high or low the sound is.

v. Some sounds travel fastest through solids because their molecules are tightly packed.

Exercise 2

Fill in the blanks with suitable words.

i. When an object vibrates, it produces sound.

ii. An object that vibrates fast makes high sound.

iii. The loudness and softness of a sound is called pitch.

iv. A sound needs a medium to travel.

v. Sound waves travel very fast through water.

Exercise 3

Choose the correct options to fill in the blanks.

i. Sound is produces by _____.

d. Vibrating objects

e. invertebrates

f. plants

ii. The intensity of a sound is related to its _____.

d. speed

e. loudness and softness

f. medium

iii. The pitch of a sound is related to _____.

d. travelling of sound

e. loud and soft sound

f. high and low sound

iv. A sound cannot pass through _____.

d. solids
e. gases
f. vacuum

Exercise 4

Sound of a railway engine, sound of a car's horn, sound of an aeroplane, whisper, sound of a cat, roar of a lion, sound of a violin, ticking of a clock, sound of a waterfall, sound of a piano.

No.	Loud Sound	Soft Sound
1.	Sound of a railway engine	Whisper
2.	Sound of a car's horn	Sound of cat
3.	Sound of an aeroplane	Sound of violin
4.	Roar of a lion	Ticking of a clock
5.	Sound of a waterfall	Sound of a piano

Unit-11- Forces on Earth

Model Answers

Exercise 1

Answer the following questions.

i. The force or resistance that one surface or object experiences when there is a relative motion with other surface is known as friction.it is important to us because it causes moving objects to slow down and finally stop.

ii. Friction produces heat and noise in machines which may affect the parts of machines. It causes the surfaces of objects to wear away. For example, the sole of shoes and the tyres of vehicles wear away because of friction.

iii. The force of attraction of the Earth is called gravity.

iv. We need some extra force to move upward against the force of gravity.

v. Gravity plays very important role in daily lives. It holds us on the ground. We cannot walk on the ground without the force of gravity. It makes water flow downwards and makes the rain fall to the ground.

Exercise 2

Fill in the blanks with correct words.

i. The force that slows down the motion of any object is called friction.

ii. Gravity is a force that attracts everything towards the centre of the Earth.

iii. We can reduce friction by using oil, wax and grease.

iv. Rainfall is an advantage of the force of gravity.

v. Friction produces heat in machines.

Exercise 3

Write 'T' for a true and 'F' for a false statement.

i. False

ii. False

iii. True

iv. True

v. True

Exercise 4

With the help of your teacher, find out two examples of the force of friction and gravity in your surroundings.

Examples of Friction	Examples of Gravity
It helps us to walk or run on the ground.	It holds us on the ground.
It helps vehicles move on the roads without slipping.	It makes water flow downwards.

Exercise 5

Identify the forces of friction and gravity in the pictures below. Write the image number in the correct column.

Friction	1	3	6	8
Gravity	2	4	5	7

Unit-12- Electricity and Simple Electric Circuit

Model Answers

Exercise 1

Answers of questions.

i. Uses of electricity are numerous. People use electricity for lighting, heating, and cooling.

ii. Electric circuit consists of three parts.

- **A cell or a battery**
- **Wires**
- **An electrical device (for example, an electric bulb)**

iii. **Electric Energy:** The energy generated by the flow of electricity is called Electrical energy.

Electric Current: The flow of electric charge is called on electric current.

iv. Closed Circuit: Electricity needs a complete path to flow through a circuit. This complete path is called a **closed circuit**.

Open Circuit: If there are breaks or gaps in the path of electricity, the current will not flow. It is called an open circuit or an incomplete circuit.

v. There are two types of circuits; Series and Parallel.

In a series circuit, light bulbs are connected one after another in a series, whereas in parallel circuit, the light bulbs are connected to different branches of the same wire.

Exercise 2

Fill in the blanks with suitable words.

i. Electricity is a form of energy.

ii. A radio converts electrical energy into sound energy.

iii. An electric heater converts electrical energy into heat energy.

iv. The path along which electric current flows is called electric circuit.

v. In a series circuits, light bulbs are connected one after another.

vi. In the late 7^{th} century, Muslims used windmills to grind grains and pump water and now, such windmills are used to generate electricity.

Exercise 3

Write 'T' for a true & 'F' for a false statement.

i. False
ii. True
iii. False
iv. True
v. False

Exercise 4

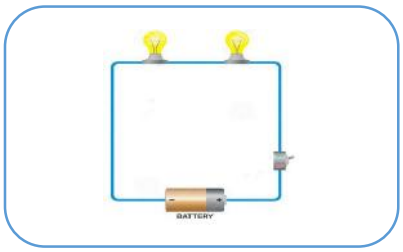
Identify the closed and open circuits.

i. Open circuit
ii. Closed circuit
iii. Open circuit

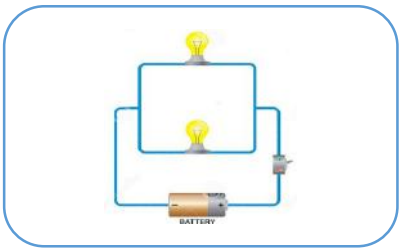
Exercise 5

Draw a series and parallel circuits.

Series Circuit



Parallel Circuit



Unit-13- Weather

Model Answers

Exercise 1

Answer the following questions.

- **i.** Different atmospheric conditions of a particular area at a particular time are known as weather, for example 'Sunny', 'Cold', 'Cloudy'.
- **ii.** Weather is an atmospheric condition of a particular area at a particular time, whereas climate is the long-term average pattern of weather in a particular area.
- **iii.** Factors that affect the weather are Sun, the humidity, the wind, the clouds and the rain.The Sun is the basic source of heat and light on the Earth. The heat that the Earth receives from the Sun is the basic cause of changing weather. Wind is another factor that affects our weather. Winds blow due to heat of the Sun. When the temperature increases due to the heat of the Sun, warm air rises up. Cool air from the surroundings rushes in to take its place. So, the wind is produced.
- **iv.** Clouds form in the air when water vapours turn into tiny water droplets. With the heat of the Sun, water on the Earth's surface turns into vapours. These water vapors and the warm air form clouds. The Sun plays an important role in clouds formation. The clouds cause rain. The dark clouds bring more rain. Rain can make the weather cool and pleasant on a hot summer day;
- **v.** The growth and development of crops depend on suitable weather. Most crops are damaged by a sudden change in the weather.

Exercise 2

Fill in the blanks with suitable words.

- **i.** Weather can be different in different parts of a country.
- **ii.** The rate of evaporation depends on the heat of the Sun.
- **iii.** All changes in the weather take place because of the Sun
- **iv.** Too much rain can cause storm.
- **v.** A rain can make the weather cool and pleasant on a hot summer day.

Exercise 3

Write 'T' for a true and 'F' for a false statement.

Rainy Windy Sunny

Unit-14-Our Earth & Its Resources

Model Answers

Exercise 1

Answer the following questions.

i. Our Earth is enriched with naturel resources. We live on Earth and use these resources for our survival. Some examples of natural resources include air, water, soil, forest, minerals and fossil fuels, etc.

ii. **Water**: About 98% of all liquid freshwater can be found underground. The remaining small fraction of on the surface or in the air. Ponds, lakes, streams and river s are the resources of freshwater. We use it for farming, drinking, cooking and generating electricity.

Forest: A forest is an extensive area of land covered with trees and plants. It is a natural habitat of many animals and birds. Many plants of forest are the source of the raw materials to manufacture the medicines. It is also used to make furniture.

iii. Natural resources are classified as renewable resources and non-renewable resources.

Renewable Resources	Non-renewable Resources
These resources can be replaced and renewed by the natural process as quickly as we use them.	These resources cannot be replaced and renewed quickly and may take a hundred and thousands of years.
These resources do not decrease with time.	These resources are depleting with time.
Most renewable resources are environment-friendly.	Burning of non-renewable resources causes air pollution.
Examples of renewable natural resource are air (wind), forest, water and sunlight.	Examples of non-renewable natural resources are coal, petroleum, natural gas, etc.

iv. Conservation of natural resources deals with the protection and care of natural resources and the environment of the Earth. We can protect natural resources by taking the following three steps.

v. Planting Trees, Recycling and Reduction in Pollution.

Exercise 2

Fill in the blanks.

i. 71 per cent of the Earth is covered with water whereas 29 per cent is land.

ii. Breeze, gale and storm are types of wind.

iii. A large area of land covered with trees and plants is called forest.

iv. Coal and petroleum are examples of non-metallic minerals.

v. The gradual increase in the Earth's temperature is called global warming.

Exercise 3

Look at the pictures below. Tick ✓ the renewable resources and cross ✗ the non-renewable resources.

i. ✓

ii. ✗

iii. ✓

iv. ✗

v. ✓

Exercise 4

Write 'T' for a true and 'F' for a false statement.

i. False

ii. True

iii. False

iv. True

v. True

Unit-15-Our Earth in Space

Model Answers

Exercise 1

Answer the following questions.

i. **(a)Orbit**: The Earth rotates on its axis, it also moves around the Sun in a fixed oval-shaped path called the **orbit**.
(b)Rotation: The movement of the Earth around its own axis is called the **rotation**.
(c)Revolution: The movement of Earth around the Sun is called **revolution**.

ii. When the part of the Earth that faces the Sun, has day, and the part of the Earth that faces away from the Sun, has night.

iii. Our Earth is divided into two equal parts by an imaginary line. This imaginary line is called equator, and each part is called a hemisphere. The northern half is called the **northern hemisphere**, and the southern half is called the **southern hemisphere**.

iv. In the month of January the South Pole is tilted away from the Sun, it receives less heat and light therefore Pakistan as winter while North Pole is tilted towards the Sun, it receives more heat and light therefore, and Australia has summer.

v. Equator is the center of the Earth and Sunlight hits the Earth most directly at the Equator therefore equator is always hot.

Exercise 2

Fill in the blanks with suitable words.

i. The orbit of the Earth has oval shape.

ii. The Earth takes 24 hours to complete one rotation on its axis.

iii. The Earth takes one revolution to complete one orbit around the Sun.

iv. The imaginary line on which the Earth rotates is called the orbit.

v. The Earth's revolution around the Sun and its tilt on its own axis create seasons.

Exercise 3

Write 'T' for a true and 'F' for a false statement.

i. True

ii. False

iii. True

iv. False

v. False

Unit 1- The Human Body

Worksheets 1

Circle the correct answer.

Bones and Muscles

1. How many bones do you have as an adult?

300 **206**

2. What are the parts of the body that help you move by contracting and relaxing?

brain **stomach** **bones** **muscles**

3. What is the function of the bones?

to hold up the body **to break down food**

4. Match the name of the bones correctly.

rib

leg

finger

skull

Unit 2- A Balanced Diet

Worksheets 2

Write the name of food in Column A and mention the Nutritional Facts given on its packaging in Column B.

Column A Food Items (name)	Column B Nutritional Facts

Unit 3- Health and Illness

Worksheets 3

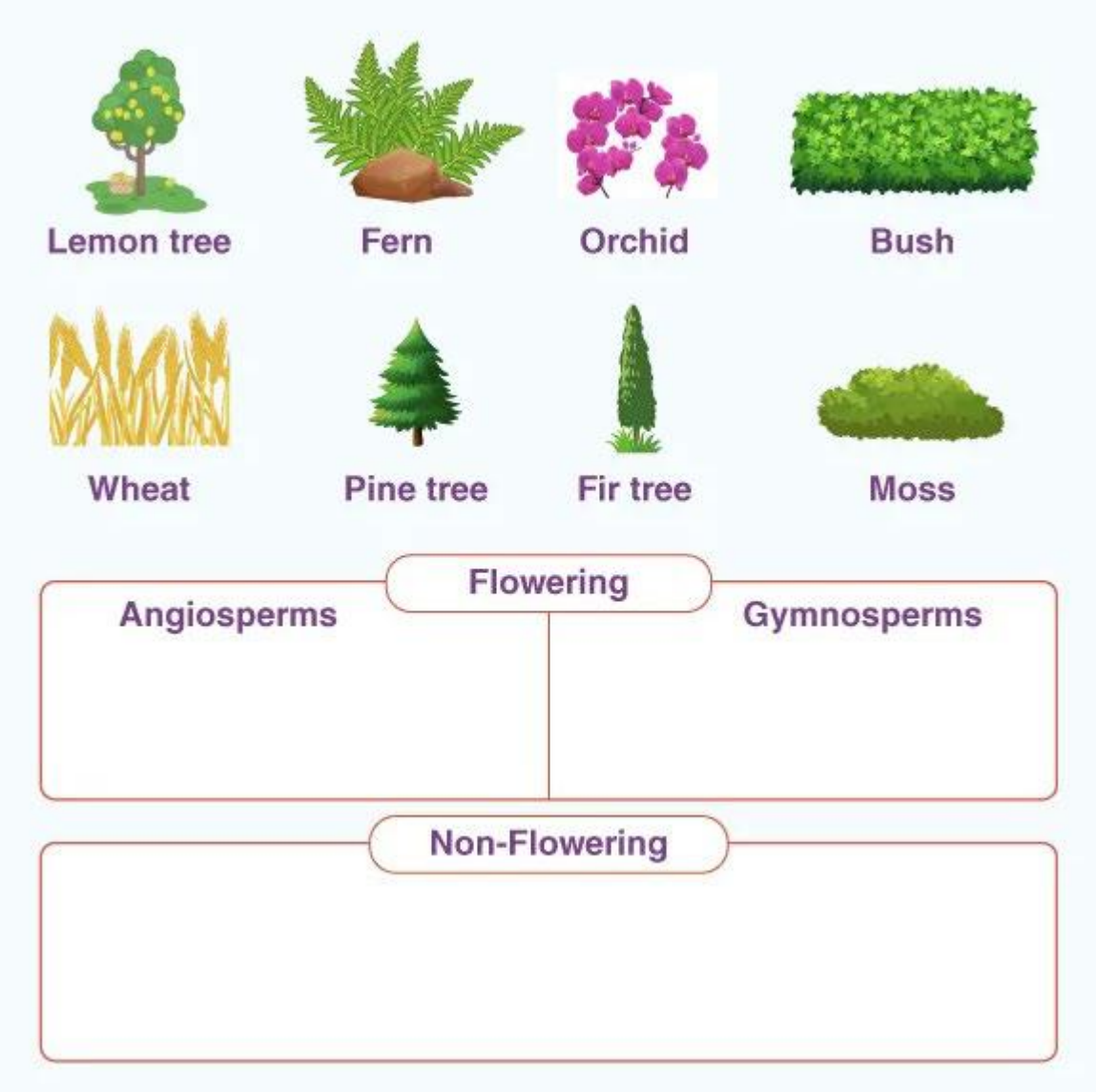
Tick ✓ for the correct answer and ✗ for the wrong answer.

1. **"Health is wealth" is a world-famous proverb about health. _____**
2. **There are four general types of diseases. _____**
3. **Diabetes and cancer are contagious diseases. _____**
4. **Unhealthy lifestyle is another reason for communicable diseases. _____**
5. **Coronavirus emerged in China in January 2020.**
6. **Tuberculosis (TB) is a non-contagious disease. _____**
7. **We should not wash fruits and vegetable before eating. _____**
8. **Keeping social distance is a simple way to prevent communicable diseases. _____**
9. **Typhoid do not spread through contaminated food and water. _____**
10. **Vaccines do not protect us from diseases such as hepatitis B. _____**

Unit 4- Plant Kingdom

Worksheets 4

Identify flowering and non-flowering plants and write their names in the table.



Unit 5- Animal Kingdom

Worksheet 5

Write 'T' for true and 'F' for the false answer.

i. All the mammals are vertebrates. _____

ii. There are eight kingdoms of living things. _____

iii. Cold-blooded animals retain their body temperature. _____

iv. Reptiles, fish and amphibians are cold-blooded animals. _____

v. Mammal and birds are warm-blooded animals. _____

vi. Most of the mammals live in water. _____

vii. Amphibians can live both on land and in water. _____

viii. Fish breathe through their lungs. _____

ix. Ostrich can fly very high. _____

x. Animal kingdom is the largest kingdom. _____

xi. All the mammals are vertebrates. _____

xii. There are eight kingdoms of living things. _____

xiii. Cold-blooded animals retain their body temperature. _____

xiv. Reptiles, fish and amphibians are cold-blooded animals. _____

xv. Mammal and birds are warm-blooded animals. _____

Unit 6- Ecosystem and Food Chain

Worksheet 6

Circle the correct answer.

i. The animals that get their food directly from plants are called:
   a. Secondary Consumer
   b. Primary Consumer
   c. Tertiary Consumer

ii. Plants are:
   a. Decomposer
   b. Primary Consumer
   c. Producer

iii. The essential part for all food chains is:
   a. Sun
   b. Air
   c. Water

iv. Giraffes are an example of:
   a. Omnivores
   b. Carnivores
   c. Herbivores

v. Secondary Consumers are eaten by:
   a. Primary Consumers
   b. Producers
   c. Tertiary Consumer

vi. Which one of the following is a Secondary Consumer?
   a. Frog
   b. Cat
   c. Eagle

vii. Plants get energy from:
   a. Soil
   b. Water
   c. Sunlight

viii. Dead plants and animals are an example of:
   a. Producer
   b. Decomposer
   c. Primary Consumer

Unit 7 States of matter - Worksheet

Worksheet 7

Write 'S' for the solids, 'L' for the liquids and ‘G’ for gases.


house


oil


helium


air


ocean


rock


smoke


stapler


juice


paint

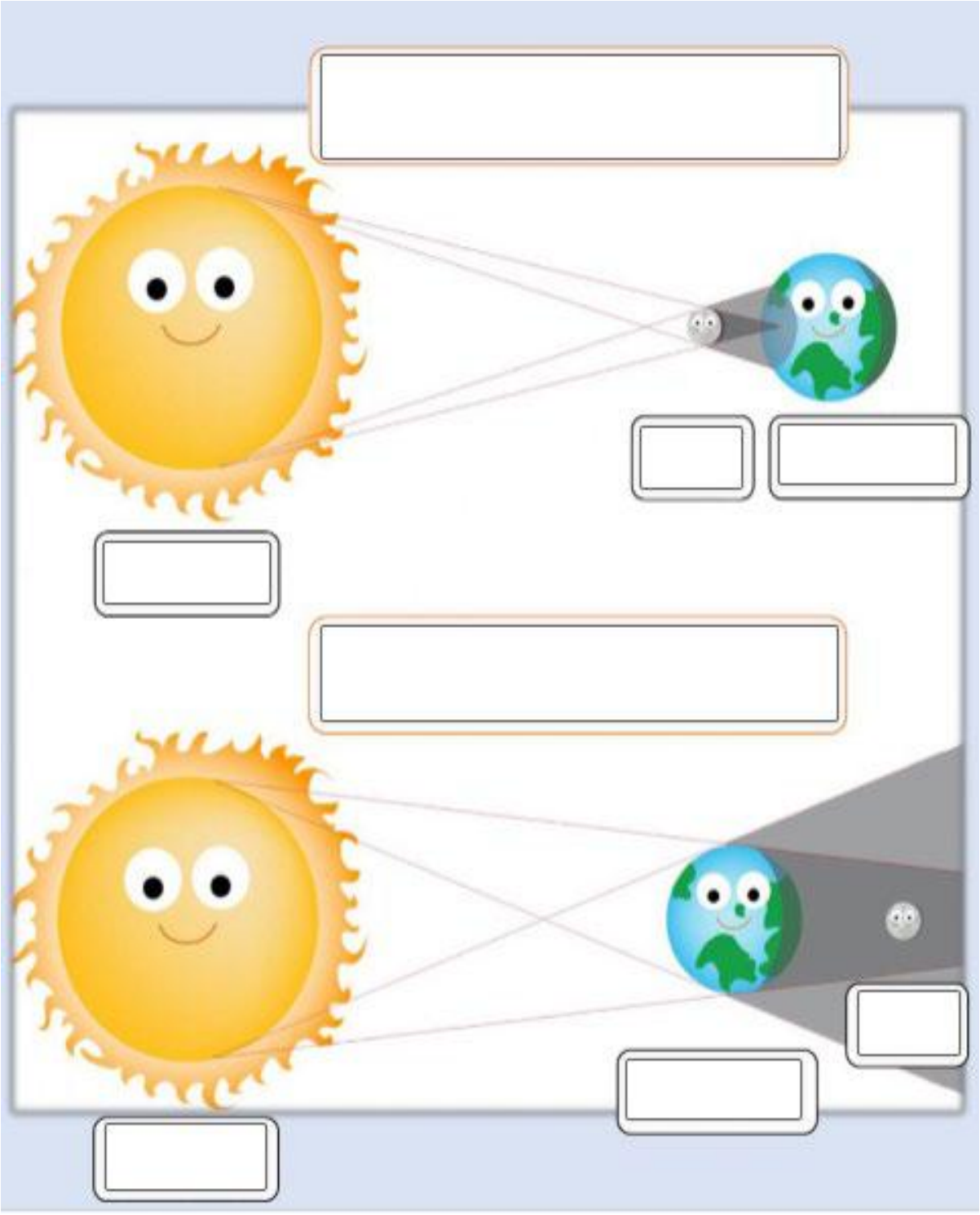

steam


calculator

Unit 8 - Light - Worksheet

Worksheet 8

Write which is a solar eclipse and which is a lunar eclipse. Then write the names of each element.



Unit 9 - Temperature and Heat - Worksheet

Worksheet 9

Write 'Hot' for the hot objects and 'Cold' for the cold objects in the given boxes.

Unit 10 - Sound - Worksheet

Worksheet 10

Tick ✓ for the correct answer and ✗ for the wrong answer.

i. As the body stops vibrating, the sound also stops. _____

ii. A vacuum is a space where there is no air. _____

iii. A sound can travel through solids, liquids or gases. _____

iv. Sound can be heard in Space. _____

v. Motor cycle has a low sound. _____

vi. We cannot hear the sound underwater when we are swimming. _____

vii. Vibration of butterfly wings can be heard by human ears. _____

viii. A sound can travel through walls and doors. _____

ix. An object that vibrates fast makes low sound. _____

x. Sound of a door bell travel through air. _____

Unit 13- Weather-Worksheet

Worksheet 11

Circle the correct answer.

i. When the wind blows gently, it is called;

d. breeze

e. storm

ii. _____ is the total amount of water vapours present in the air:

d. breeze

e. humidity

iii. When the wind blows strong, the weather is:

d. windy

e. rainy

iv. _____ is the long-term average pattern of weather in a particular area.

d. climate

e. weather

v. _____ can be different in different parts of a country

d. climate

e. weather

Unit 14 – Our Earth and Its Resources-Worksheet

Worksheet 12

Write 'T' for true and 'F' for a false statement.

i. The Earth's water exists naturally in different forms and location. _____

ii. Water is not essential for life. _____

iii. Trees of the forest provide us with wood and also purify the air. _____

iv. Minerals are not useful substances that are found naturally in rocks. _____

v. The inner layer of Earth's crust comprises soil. _____

vi. 29% of the Earth is covered with land. _____

vii. Our Earth is enriched with natural resources. _____

viii. Plants grow in the land's soil. _____

Unit 15 – Our Earth in Space-Worksheet

Worksheet 13

Choose the best answer.

i. The Earth rotates around its own _____.

(axis, hemisphere)

ii. The Earth takes about _____ hours to complete one rotation.

(36, 24)

iii. Movement of Earth around the Sun is called _____.

(rotation, revolution)

iv. One revolution around the Sun in 365.25 days is called _____.

(a year, a rotation)

v. The Earth's revolution around the Sun and its tilt on its own axis create _____.

(equator, seasons)

vi. The direction of rotation of Earth is _____.

(clockwise, anticlockwise)

Unit-Assessments

Unit-1 Human Body

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Fill in the blanks with correct words. **/4**

i. A cell is the basic and _____ unit of all living things.
a) largest b) smallest

ii. Nose, eyes and tongue is the examples of _____.
a) organ b) tissue

iii. The hard tissue of eh human skeleton is called the _____.
a) muscle b) bone

iv. The human skeleton consists of _____ bones.
a) 206 b) 306

Question B

Match the picrtures with their correct names. **/4**

SKULL

RIB CAGE

FINGERS

LEGS

Question C
Answer the questions. **/2**

1. What is a cell?
Answer: _____

2. What is an organ?
Answer: _____

Unit-2 A Balanced Diet

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

i. _____ give energy to the body and keep it warm.

a) protein b) fats

ii. Food Pyramid is a food _____.

a) dictionary b) guide

iii. _____ makes bones strong.

a. grains b) milk and dairy

iv. Walnut is a _____.

b) Pulse b) dry fruit

Question B

Draw a line to match correct types of food **/3**

fruits	**almond, walnut and dates**
cereals	**apple, banana and mango**
dry fruits	**corn, wheat and rice**

Question C

Answer the questions. **/3**

1. What is the meaning of a balanced diet?

Answer: _____

2. What keeps us active all day long?

Answer: _____

3. Which foods can protect us from different diseases?

Answer: _____

Unit-3 Health and Illness

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

i. Coronavirus disease emerged in China in December _____.
a) 2019 b) 2020

ii. Tuberculosis (TB) and influenza are examples of _____.
a) contagious disease b) Non-contagious disease

iii. Contagious diseases are also called _____ diseases.
a) communicable b) non-communicable

iv. _____ do not spread from person to person.
a) contagious disease b) Non-contagious disease

Question B

Match the name of diseases with their types. **/3**

Polio	Contagious	COVID-19
Tuberculosis		Diabetes
	Non- contagious	
Cancer		Influenza

Question C

Answer the questions. **/3**

1. What causes a deficiency of essential nutrients (e.g. vitamin and minerals)?

Answer: _____

2. Define germs. Also give an example.

Answer: _____

3. What are the signs and symptoms of Fever?

Answer: _____

Unit 4 Plant Kingdom

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Write 'T' for true and 'F' for a false statement. **/4**

i. Planting a tree is a charity.

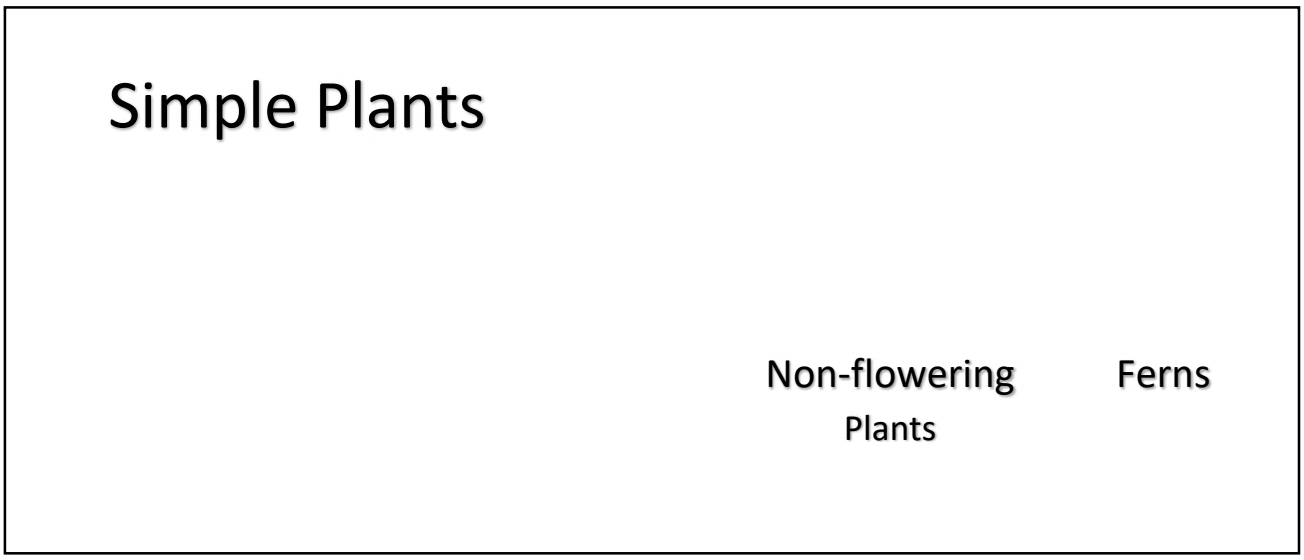
ii. Flowering-Plants are also known as gymnosperms.

iii. Cone-bearing plants have seeds inside cones.

iv. All the plants of world make plant kingdom.

Question B

Match the plants with their classification. **/3**



Question C

Answer the questions. **/3**

1. What is the name of the book written by a great Muslim scientist Al-Dinawari?

Answer: _____

2. What is simple or lower plants?

Answer: _____

Unit 5 Animal Kingdom

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/3**

i. There are _____ kingdoms of living things. (three, five)

ii. Animals with backbone are known as _____. (vertebrates, ono-vertebrates)

iii. Animals who retain their body temperature are called. (cold-blooded animals, Warm
-blooded animals)

Question B

Match the animals with their kingdoms. **/4**

Question C

Answer the questions. **/3**

1. How many kingdoms of living things are there?

Answer: _____

2. Define cold-blooded animals with an example.

Answer: _____

3. What is the difference between vertebrates and invertebrates?

Answer: _____

Unit-6 Ecosystem and Food Chain

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Fill in the blanks with correct words. **/4**

i. Humans, animals & plants are _____ or living components of an ecosystem.
a) biotic b) abiotic

ii. Green plants prepare their food by _____.
c) Soil b) photosynthesis

iii. Humans & animals consume both plants and animals: hence they are called _____.
b) consumers b) producers

iv. _____ shows how energy is transferred from one living thing to another in the form of food.
a) food web b) food chain

Question B

Match the picrtures with their correct consumers. **/4**

PRIMARY CONSUMERS

SECONDARY CONSUMERS

TERTIARY CONSUMERS

Question C

Answer the questions. **/2**

a. Define a food chain?

Answer: _____

b. Define an ecosystem?

Answer: _____

Unit-7 States of Matter

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

i. _____ have a definite shape.

a) volume b) solids

ii. _____ do not have a definite shape.

a) liquids b) solids

iii. In _____, particles are far apart from each other.

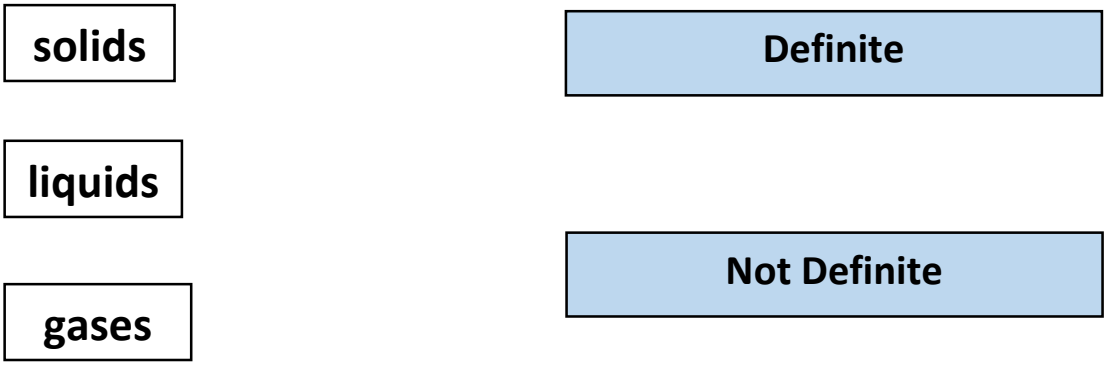
a)gases b) liquids

iv. _____ do not change their shape.

a)solids b) liquids

Question B

Draw a line to match correct types of shape. **/3**



Question C

Answer the questions. **/3**

1. Define matter?

Answer: _____

2. Why do the particles of a gas spread in all directions?

Answer: _____

3. Write the properties of liquids.

Answer: _____

Unit-8 Light

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

i. Objects which can produce their own light are called _____.

a) luminous objects b) non-luminous objects

ii. An opaque object _____ light to pass through it

a) does not allow b) allows

iii. _____ occurs when moon comes between the Earth and the Sun.

b) Solar eclipse b) lunar eclipse

c) Objects which cannot produce their own light are called _____.

a) luminous objects b) non-luminous objects

Question B

Match the luminous and non-luminous objects. **/3**

Luminous objects

Non-luminous objects

Question C

Answer the questions. **/3**

1. How is shadow formed?

Answer: _____

2. Define eclipse.

Answer: _____

3. Why does light reflect?

Answer: _____

Unit 9 Temperature and Heat

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Write 'T' for true and 'F' for a false statement. **/4**

i. Temperature is the measure of hotness or coldness of an object.

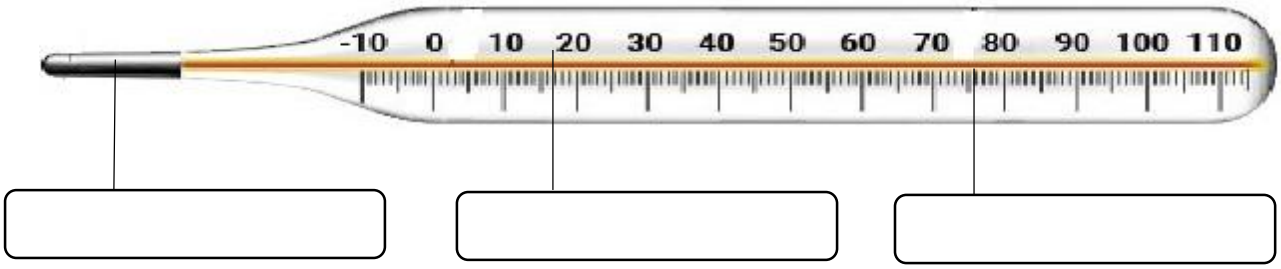
ii. Objects which have high temperature are cold objects.

iii. Mercury is a white colored metal.

iv. All matter is made up of tiny particles called molecules.

Question B

Label the parts of a thermometer. **/3**



A Thermometer

Question C

Answer the questions. **/3**

1. What is a thermometer?

Answer: _____

2. Define temperature.

Answer: _____

3. What would happen if you place a thermometer in a bowl of the warm water?

Answer: _____

Unit 10 Sound

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/3**

i. When a body vibrates _____, it produces a high sound. (slow, fast)

ii. The volume of a sound is measured in _____ units. (decimal, decibel)

iii. The _____ of a sound means how high or low the sound is. (vibration, pitch)

Question B

Tick ✓ for the correct answer and ✗ for the wrong answer. **/4**

i. A vacuum is a space where there is no air. _____

ii. Sound can be heard in Space. _____

iii. A sound can travel through walls and doors. _____

iv. An object that vibrates fast makes low sound. _____

Question C

Answer the questions. **/3**

1. What does a sound need to travel?

Answer: _____

2. What is meant by the pitch of a sound?

Answer: _____

3. How is sound produced?

Answer: _____

Unit-11 Forces on Earth

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Fill in the blanks with correct words. **/4**

i. Any substance which helps to reduce friction is called _____.
a) lubricant b) gravity

ii. We cannot walk on the ground without the force of _____.
d) friction b) gravity

iii. A _____ can change the shape, size and direction of an object when applied.

iv. friction b) force

v. The force of attraction of the Earth is called _____.
a) gravity b) resistance

Question B

Write 'Pull' or 'Push' below each picture. **/4**

_____
_____
_____

_____
_____
_____

_____
_____
_____

_____
_____
_____

Question C

Answer the questions. **/2**

a) Define friction?

Answer: _____

b) What is gravity?

Answer: _____

Unit-12 Electricity and Simple Electric Circuit

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

i. _____ is a form of energy.

a) circuit b) electricity

ii. _____ converts electrical energy into light energy.

a) a radio b) an electrical energy

iii. A simple electric circuit consists of _____ parts.

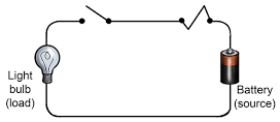
b. two b) three

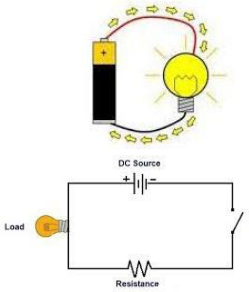
iv. In a _____ circuit, light bulbs are connected one after another.

c) parallel b) series

Question B

Draw a line to match correct types of circuit. **/3**





Closed circuit

Open circuit

Question C

Answer the questions. **/3**

1. Define electrical energy?

Answer: _____

2. What is the difference between a closed and an open circuit?

Answer: _____

3. How many parts does an electric circuit have?

Answer: _____

Unit-13 Weather

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/4**

1. Basic source of heat and light on the Earth is the _____.
   a) Moon b) Sun
2. When the wind blows gently, it is called _____.
   a) storm b) breeze
3. The _____ plays an important role in clouds formation.
   d) Moon b) Sun
4. Long-term average pattern of weather in a particular area is _____.
   a) climate b) weather

Question B

Match the drinks we use in Cold or Hot weather. **/3**



Cold weather

Hot weather



Question C

Answer the questions. **/3**

1. What are the factors that affect the weather?

Answer: _____

2. Define weather.

Answer: _____

3. How do clouds change the weather?

Answer: _____

Unit 14 Our Earth and Its Resources

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Write 'T' for true and 'F' for a false statement. **/4**

1. Minerals are useful substances that are found naturally in rocks & Earth's crust.
2. The inner layer of Earth's crust comprises soil.
3. 77% of the Earth is covered with water.
4. Deforestation is the planting of trees.

Question B

Write three points on 'Renewable Resources. **/3**

i. _____

_____

ii. _____

_____

iii. _____

_____

Question C

Answer the questions. **/3**

1. What are the natural resources?

Answer: _____

2. Discuss the importance of water.

Answer: _____

3. How do human activities affect the natural resources?

Answer: _____

Unit 15 Our Earth in Space

Time: 10 Minutes	**Total Marks:** /10

Name: _____ **Roll No:** _____ **Date:** _____

Question A

Fill in the blanks with correct words. **/3**

1. The Earth rotates around its own _____. (orbit, axis)
2. The Earth's revolution around the Sun and its tilt on its own axis create _____. (year, seasons)
3. The movement of the Earth around its own axis is called the _____ (revolution, rotation)

Question B

Tick ✓ for the correct answer and ✗ for the wrong answer. **/4**

i. The Earth completes its one revolution around the Sun in 365.25 days. _____
ii. The Earth takes about twenty-eight hours to complete one rotation. _____
iii. The Earth is always in a state of motion. _____
iv. Our Earth is divided into two equal parts, and each part is called a hemisphere. _____

Question C

Answer the questions. **/3**

1. Define Orbit?

Answer: _____

2. How do seasons occur?

Answer: _____

3. Why is the equator always hot?

Answer: _____

Terminal Assessment Paper

First Term

1st Term Assessment	Time: 60 Minutes
Spectrum Enlightening Generations	SCIENCE 4

Name: _____ **Roll No:** _____ **Date:** _____

Section	Section-I	Section-II	Total
Maximum Marks	**50**	**10**	**60**
Obtained Marks			

Section-I

Question 1

Fill in the blanks with correct word. **/07**

i. System to transport water, minerals and food to different parts of eh plants is known as _____. (transport system, vascular system)

ii. Chimpanzee and monkey are considered as _____animals. (lazy, intelligent)

iii. Conifers are _____ plants which belong to a group known as gymnosperms. (Flowering Plants, Non-flowering Plants)

iv. _____ is another reason for non-communicable diseases. (healthy lifestyle, unhealthy lifestyle)

v. Communicable diseases are also called _____ (contagious, non-contagious)

vi. _____ is the safest and the most reliable way to purify water. (cooling, boiling)

vii. A _____ is a group of tissues that combine to perform a specific function. (cell, organ

Question 2

Write 'T' for true and 'F' for false statement. **/08**

i. Cells make tissues, tissues make organs and organs make body parts or organ system.

ii. Muscles are tough, elastic tissues in the human body.

iii. A part of human body that has a particular function is tissue.

iv. The human body consists of 306 bones.

v. Joints helps us move and bend body parts.

vi. Food is the basic necessity of life.
vii. Nutrients or substances are also called components of a balanced diet.
viii. Plants are divided into four groups on the basis of their body structure.

Question 3

Enlist the names of Simple Plants and Higher Plants. **/05**

1. _____ 3. _____ 5. _____

2. _____ 4. _____

Question 3

Match the column A with column B. **/10**

Column A		Column B
gymnosperm		*non-flowering plants*
ferns		*having a root-like structure*
angiosperm		*unicellular and multicellular plants*
mosses		*fronds*
algae		*flowering-plants*
tiger		*amphibian*
salamander		*mammal*
humming bird		*largest bird*
blue whale		*smallest bird*
ostrich		*largest mammal*

Question 4

Write the names of five mammals and five reptiles. **/05**

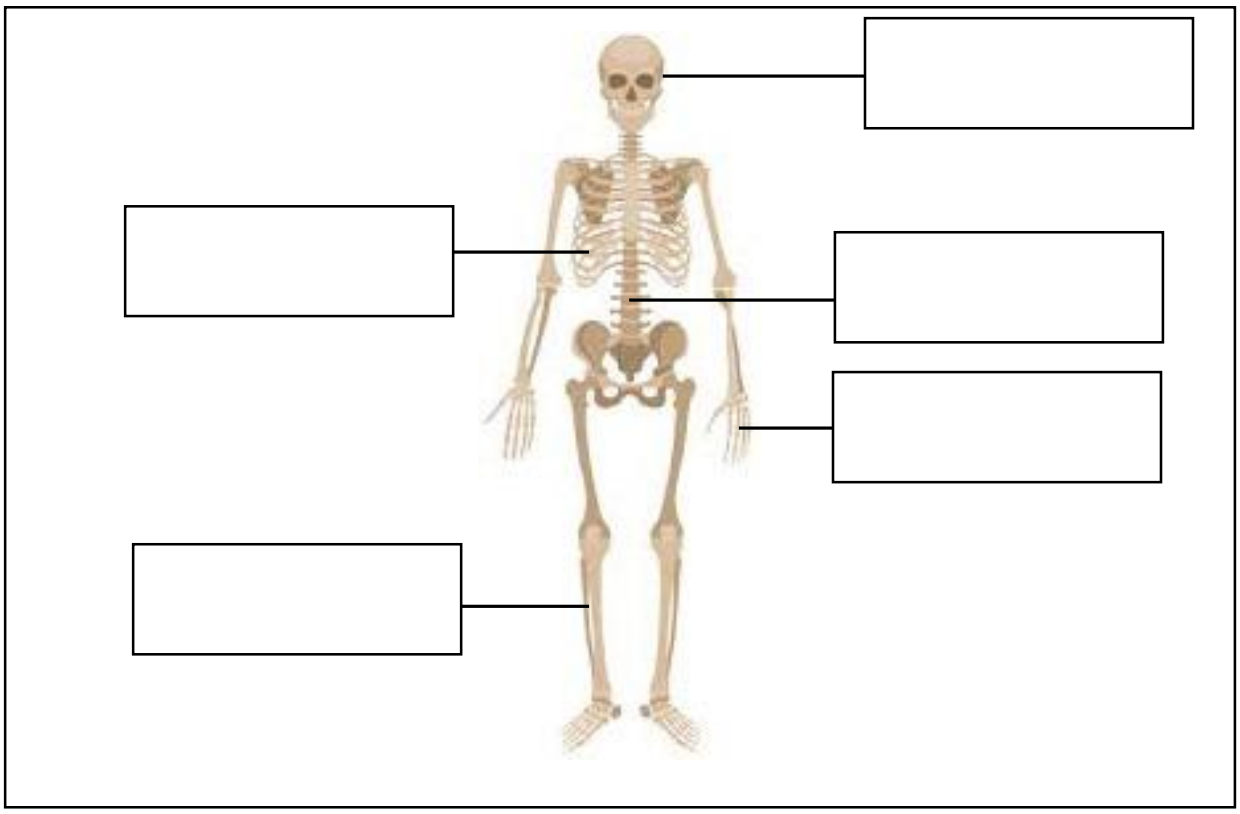
- _____
- _____

- _____
- _____
- _____
- _____

- _____
- _____
- _____
- _____

Question 5 **/05**

Label the given diagram:



Question 6

Write a short note on any one of the following:

i. **Benefits of Sunnah Foods**
ii. **Importance of Halal Meat**

Question 7

Write five characteristics of Mammals: **/05**

Answer:

_____
_____
_____
_____
_____
_____

Section-II

Question 7
Answer the questions. **/10**

1. **What is meant by animal kingdom?**

Answer:

_____
_____

2. **How should we treat animals?**
   Answer:

   _____
   _____

3. **Define germs. Also, give examples.**
   Answer:

   _____
   _____

4. **How can we maintain good health?**
   Answer:

   _____
   _____

5. **What are the food nutrients?**

Answer:

_____
_____

6. **Write three functions of the human skeleton.**

Answer:

_____
_____

7. **What is food pyramid?**

Answer:

_____
_____

8. How do muscles and bones work together?

Answer:

_____
_____

9. What are the key differences between simple and higher plants?

Answer:

_____
_____

10. Who was Al-Dinawari? And what was his work?

Answer:

_____
_____

Answer:

Terminal Assessment Paper

Second Term

2nd Term Assessment **Time: 60 Minutes**

SCIENCE 4

Name: _____ **Roll No:** _____ **Date:** _____

Section	Section-I	Section-II	Practical Activities	Viva	Total
Maximum Marks	**40**	**10**	**05**	**05**	**60**
Obtained Marks					

Section-I

Question 1

Fill in the blanks with correct word. **/07**

viii. Animals, humans, plants and other living things are _____. (abiotic, biotic)

ix. The _____ shows how energy is transferred from one living thing to another in the form of food. (food web, food chain)

x. Matter is made up of very tiny particles called _____. (molecules, mass)

xi. _____ have a definite shape. (gas, solid)

xii. A _____ is an example of reflection of light. It is an arch of different colours. (rainbow, shadow)

xiii. Temperature is measured in _____ different sales. (two, three)

xiv. _____ is a material or substance through which sound can travel. (vacuum, medium)

Question 2

Write 'T' for true and 'F' for false statement. **/08**

ix. Sound cannot travel through solids, liquids or gases.
x. The faster the molecules move, the higher the temperature gets.
xi. The boiling point of water is 312 °F.
xii. Firefly is a non-luminous insect.
xiii. The biggest natural source of light is the Moon.
xiv. The Moon is a luminous object.
xv. Every living thing consumes food to get energy.
xvi. Green plants are called producers.

Question 3

Enlist the names of five luminous objects. **/05**

6. _____ 8. _____ 10. _____

7. _____ 9. _____

Question 3

Match the predator on the left with its prey on the right. /10

PREDATORS	PREY
Fox	Fly
Lion	Rat
Shark	Rabbit
Spider	Small Fish
Snake	Zebra
Bear	Leaf
Rabbit	Carrot

Grasshopper	**Berry**
Rabbit	**Lettuce**

Question 4

Write the names of five cold objects and five hot objects. **/05**

- _____
- _____
- _____
- _____
- _____

- _____
- _____
- _____
- _____
- _____

Question 5 **/05**

Match the sounds with the respective pictures.

Loud Sound	**Soft Sound**

Sound of railway engine

Sound of a cat's meow

Sound of a lion's roar

Sound of a violin

Sound of a thunder

Section-II

Question 6
Answer the questions. /10

11. What are the biotic and abiotic components of an ecosystem?

Answer:

_____
_____

12. How are decomposers useful for plants and soil?

Answer:

_____
_____

13. Write the properties of liquids with examples.

Answer:

_____
_____

14. Define matter.

Answer:

_____
_____

15. How is a shadow formed?

Answer:

_____
_____

16. Why does light reflect? State examples of reflection from everyday life.

Answer:

_____
_____

17. Define temperature scale.

Answer:

_____
_____

18. Discuss the two scales of measuring temperatures.

Answer:

_____
_____

19. What is meant by the pitch of a sound?

Answer:

_____
_____

20. How is sound produced?

Answer:

_____
_____

Question 7
Discuss the Ayah number 95 of Surah Al-An'am of the Holy Qur'an with reference to the concept of a food chain: /05

Answer:

_____
_____
_____
_____
_____
_____
_____
_____

Question 8 /05

Complete the following food chains.

PRIMARY SOURCE OF ENERGY	PRODUCER	PRIMARY CONSUMER		
	Plants			
	Producer	Primary Consumer	Secondary Consumer	
		Insects	Frog	
	Producer	Primary Consumer	Secondary Consumer	Tertiary Consumer
			Frog	Eagle

Terminal Assessment Paper

Third Term

3rd Term Assessment **Time: 60 Minutes**

SCIENCE 5

Name: _____ **Roll No:** _____ **Date:** _____

Section	Section-I	Section-II	Total
Maximum Marks	**50**	**10**	**60**
Obtained Marks			

Section-I

Question 1

Fill in the blanks with correct word. **/07**

i. The force that slows down the motion of any object is called _____. (gravity, friction)

ii. The flow of electric charge is called an _____. (electric circuit, electric current)

iii. Incomplete circuit is also called _____. (closed circuit, open circuit)

iv. Different atmospheric conditions of a particular area at a particular time are known as _____. (climate, weather)

v. When the wind blows gently, it is called _____. (breeze, storm)

vi. The outer layer of Earth's crust comprises _____. (soil, minerals)

vii. The imaginary line which divide our Earth into two equal parts is known as _____. (hemisphere, equator)

Question 2

Write 'T' for true and 'F' for false statement. **/08**

I. Our planet orbits around the Sun.

II. Soil provides raw materials to manufacture the medicine.

III. All changes in the weather take place because of the Sun.

IV. Too much rain can cause storm.

V. An electric bulb converts electrical energy into light energy.
VI. Planting has been encouraged in Islam.
VII. In parallel circuits, all bulbs share the energy.
VIII. Gravity is a pulling force.

Question 3

Enlist the names of five items which use/consume electricity. /05

1. _____ 4. _____
2. _____ 5. _____
3. _____

Question 3

Tick ✓ the items which uses electricity and ⊗ for which does not. /10

 _____  _____  _____  _____  _____

 _____  _____  _____  _____  _____

Question 4

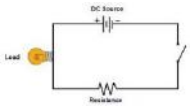
Write the names of five drinks we use in cold weather and five drinks we use in hot weather. /05

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Question 5 **/05**

Identify the closed and open circuit.






_____ _____ _____ _____ _____

Question 6

In the month of January, Pakistan has winter while Australia has summer. Why? **/05**

Answer:

_____
_____
_____
_____
_____
_____
_____
_____

Question 7 **/05**

Differentiate between renewable and non-renewable natural resources.

Renewable Resources	Non-renewable Resources

Section-II

Question 8

Answer the questions. **/10**

i. How is a series circuit different from a parallel circuit?

Answer:

_____

_____

ii. What are the factors that affect the weather? Also, explain any two of them.

Answer:

_____

_____

iii. What happen with the crops when the weather changes suddenly?

Answer:

_____

_____

iv. Describe the ways we can protect natural resources.

Answer:

_____

_____

v. How do seasons occur?

Answer:

_____

_____

vi. Why is the equator always hot?

Answer:

_____

_____

vii. Define friction. Why is friction important to us?

Answer:

_____

_____

viii. What role does gravity play in our daily life?

Answer:

_____

_____

ix. How many parts does an electric circuit have? Explain.

Answer:

_____

_____

x. How do clouds and rain change the weather?

Answer:

_____

_____