My Science, Health and Physical Education

Grade 4

Government of Nepal
Ministry of Education
Curriculum Development Centre

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Preface

With the intention of making school level education more purposeful, behavioural and contextual, a process of continuous revision and reform is adopted by the Curriculum Development Centre (CDC). It is obvious that the curriculum is the core part of teaching learning process, and the textbooks are major means of implementing school curricula at grassroot level. In accordance with the school curricula, the textbooks keep on changing with a view to addressing societal needs, demands of learners and modern technology in the field of teaching and learning, especially to foster knowledge, skills and positive attitudes in the students so that we can produce skillful, moral, obedient and globally competent citizens. To accomplish this purpose, an attempt is made to bring this book in the present form.

One of the most important characteristics of this book is that the contents of My Science, Health and Physical Education are presented and kept separately. Various pictures, activities are included to make this textbook more activity based and student centered. Similary, teaching instructions are also given to facilitate teachers in their teaching . This book (Nepali version) was originally written by Ms. Durga Regmi in 2052 BS. In accordance with the revised curriculum of primary level, the portion of Science was revised by Mr. Chitra Prasad Devkota, Mr. Ram Prasad Subedi, Mr. Dambar Dhwoj Angdambe, Ms. Achala Thapa, Mr. Nanda Kaji Shrestha, Shankar Paudel, Mr. Balkrishna Chapagai and Ms. Nanu Dawadi. However, in case of the revision of Health and Physical Education, Ms. Binti Shrestha, Shailesh Acharya, Mr. Bigyan Khanal, Mr. Balaram Nepali, and Ms. Suna Sharma were involved. Art editing and layout concept of this book was done by Shreehari Shrestha by making it four colour. CDC would like to thank all those who contributed in developing this book.

Finally, a textbook is a vital tool of effective teaching learning process in the schools. However, both experienced teachers and inquisitive students can use a number of reference materials and various other resources available in the market to teach and learn a variety of subject matters respectively. Due to lack of different types of reference materials in all schools throughout the country, most of the teaching learning activities highly depend on the textbooks. In this context, it is expected that the experienced teachers are capable enough to design additional activities as per the demands that usually emerge in the classroom. Moreover, an attempt is made to make this book child friendly by including several motivating teaching-learning activities. Despite our sincere efforts, there may be some mistakes and errors in terms of subject matter, language, presentation style and graphics. In this regard, we definitely expect the constructive suggestions from the teachers, students, parents, readers and other concerned stakeholders to improve the book in its future editions.

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Table of Content

1 Vertebrate and Invertebrate Animals

Have you experienced a hard bone while touching back part of your body in the centre? A long bone, linked from neck to waist of some animals and human beings in the centre of the back, is a vertebra. This is also called backbone. Have you seen animals with backbones in your surroundings?

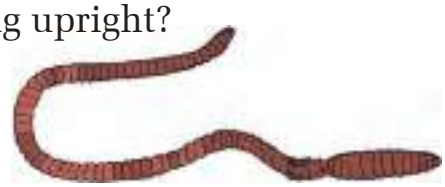
Animals are of different types. One type of animals differs from others in terms of measurement, shape, size and structure. There are mainly two types of animals around us. Some are with backbone and some are without it. For example; cow, buffalo, chicken, dog, fish, snake, frog, pigeon, etc. are animals with back bone. However, slug, earthworm, butterfly, grasshopper, spider, etc are animals without back bone.

The vertebrates have bones inside their body. Therefore, their body is strong. The invertebrates do not have bones. So, their body is soft. A group of all bones of the body of animals is called skeleton.

Also, you might have seen animals without bones around your home or school. For instance, flies, mosquitoes, slugs, earthworms, etc are animals without back bones. There are also many more animals without back bones in the surroundings of your home, school and neighbourhood. Some animals without bones have hard covers for their security. They are snail, clam, crab, etc. The crab, scorpion, snail, earthworm, etc and micro organisms including Bacteria that we cannot see with our open eyes come under the group of invertebrates. Thus, animals are divided into vertebrates and invertebrates in accordance with having bones and without bones respectively.

Bone supports the body

How can we stand upright? Have you ever thought of it? Bones of legs help us in standing and backbone of our body supports to be upright. The invertebrates cannot stand upright like vertebrates. Have you seen a slug or an earthworm standing upright?



Bones shape the body

Why some men are tall and dwarf in terms of height. Bones not only support the body but they also shape the body to make it bigger or small. Bones determine the height and size of the body. What will be the height of a man with long backbone and leg bones? People with long bones are tall and with short ones are dwarf. Why do dogs and men differ in terms of size? Even the face of a man differs from one another because of different size of bones.

Teaching instructions:

Some insects such as snail, dung beetle, etc have hard outer coverings. However, inform students about the fact that they are not backbones.

Activity

1 Observe different types of animals found in your surroundings, and discuss about differences that you find between vertebrates and invertebrates.

2 Make a list of five vertebrate and invertebrate animals that you find around your school or home.

Exercise

1. Tick (√) right statements and cross (x) wrong ones:

(a) Bone on the back between head to waist is called backbone

(b) Vertebrates have fixed shapes.

(c) Bones make the body soft and strong.

(d) Invertebrates have hard bodies.

2. Fill in the blanks with appropriate words:

(a) A hard part in the centre of the back of our body is called…….

(b) The bones of leg help us in standing, and backbone supports to be…….

(c) Size of bones of different animals is……

(d) The vertebrate animals have ……I.inside the body.

3. Answer the following questions:

(a) Write down any two differences between vertebrates and invertebrates.

(b) Write down any two functions of bones.

(c) How do men differ from each other due to bones?

(d) What is a skeleton?

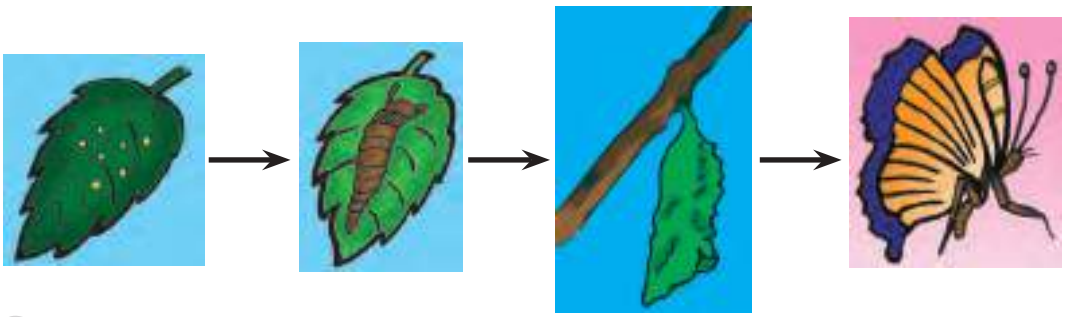
2 Oviparous and Viviparous Animals

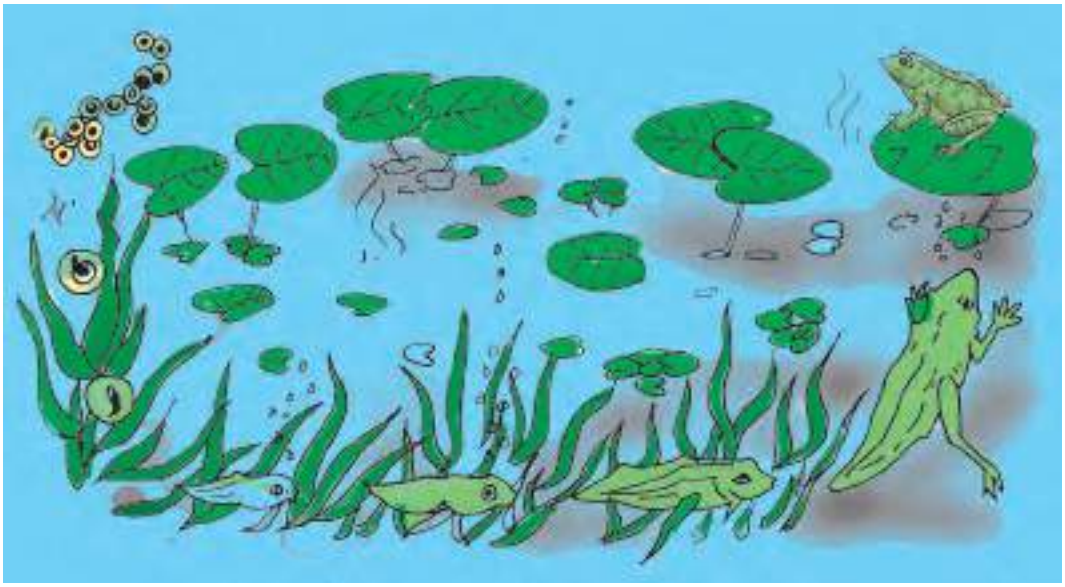
Have you seen a chick coming out of an egg? Do the dogs and cats found around your home or neighborhood lay eggs or give birth to young ones? Have you ever considered it? All living things reproduce organisms like them. It is called reproduction. What would happen if living things do not reproduce?





Reproduction is one of the major characteristics of living things. The animals either give birth to young ones or lay eggs to reproduce organisms like them. There would be no existence of animals if they did not reproduce.





Life cycle of a frog

Which of the animals have you seen laying eggs? Egg laying animals hatch young ones from eggs. You might have seen that some of the animals that lay eggs cover them to keep warm. The birds usually sit over the eggs by stretching their wings to make them warm. When mother bird keeps the eggs warm to hatch, it is called incubation. In this case, mother bird keeps the eggs under her wings with the help of legs or beak. When a hen sits over the eggs to cover, they get heated with the warmth of its body. A chick will not develop if it does not get heated. Therefore, it always sits over the eggs to cover. A chick is hatched in about 21 days of incubation. Like us, the animals also look after and protect their young ones.

Where will fishes or frogs lay eggs? Can you say? The fishes and frogs lay eggs in water. The insects lay eggs on the leaves of plants. The eggs of these insects need less heat and the energy obtained from the sun and is adequate to keep them warm. The fishes, frogs, snakes, insects, etc do not look after their eggs or young ones.

Viviparous animals

Which of the animals' young ones have you seen? Are they reproduced as young ones or eggs? Can you say? Some animals hatch the eggs and some others give birth to young ones. The animals like dogs and cats do not lay eggs. They give birth to young ones that develop in their womb. Have you seen a female buffalo licking her calf? Viviparous animals look after their young ones and bring them up by suckling their breast. They keep their young ones clean, and protect them from enemies. You might have seen a bitch suckling her puppies. You might have also noticed that she will get angry or bark while touching their puppies. The animals like cow, woman, bitch, shrew, rat, bat, whale, etc give birth to young ones. They are called viviparous animals. They rear their babies suckling their breast. In this way, different animals reproduce their young ones in different ways.

Teaching instructions:

If possible, collect the eggs of the frogs during their breeding time and show the students how tadpole and frog develop from these eggs.

Activity

1. Make a list of five oviparous animals found around your home.
2. Make a list of five viviparous animals found around your school or home.
3. Classify the following animals in a category that looks after their young ones and in a category that do not look after their young ones:

   Whale, house lizard, crow, man, fish, cat, snake, pigeon, dog, frog.

Investigate

What types of the nests of the birds have you seen? Make a picture of the nests on the basis of your investigation.

Exercise

1. Tick (√) right statements and cross (x) wrong ones:

(a) A cow gives birth to young ones. ( )

(b) A frog lays eggs on a leaf. ( )

(c) A fish lays eggs, but does not look after them. ( )

(d) Generally, viviparous animals suckle their young ones. ( )

2. Match the following:

(a)	Rat	( )	lays eggs in water
(b)	Pigeon	( )	gives birth to baby.
(c)	Fish	( )	lays eggs on the leaf of a plant.
(d)	Butterfly	( )	lays eggs in water land looks after.
		( )	lays eggs in the nest land looks after.

3. Classify the following organisms as oviparous or viviparous

Lophophorus, rhinoceros, goat, bat, duck, pigeon, cow, horse, tiger, sheep

4. Observe the figures and arrange them in a sequence:

5. (a) Like hens, which of the animals lay eggs found around you ? Ask and write down their names .

(b) In your surrounding, which animals give birth to young ones and suckle them like a dog? Write their names.

6. (a) How do viviparous animals rear their young ones?

(b) How do birds look after their eggs to hatch?

(c) Write the names of any four animals, which do not look after their eggs? They do not have to look after their eggs like birds. Why?

Search

Find out the following information from the poultry farm.

(a) what age does a hen start laying eggs?

(b) In how many days of crouching over the eggs, a hen hatches the eggs?

(c) Generally, how many eggs are laid by a hen in one incubation period?

(d) Are all the eggs hatched or not?

(e) What can be the reasons that some eggs will not be hatched?

3 Terrestrial Animals and their Characteristics

Cow, buffalo, tiger, horse, etc are terrestrial animals. Among these animals, some are domesticated. Animals kept at home are called domestic animals. Dog, cow, buffalo, etc are domestic animals. The animals living in the jungle are called wild animals. Tiger, leopard, lion, etc are wild animals.

Cow, buffalo, sheep, chyangra, etc are herbivorous animals. These animals have a pair of horns and two hoofs. They also have strong snout. They can easily make pieces of grass, and can chew it due to strong, flat and sharp teeth.

There is only one hoof in each foot of horse, zebra, etc. They can run faster due to this.

Camel is an animal found in dry and hot place. Its neck is long and hoofs are thick and flat.The skin of its body is thick. It has special capacity to store water in the body. Due to this, it can survive for long even without drinking water.

The skin of the body of yak, snow leopard, etc is thick. The body of these animals are covered with thick and long hairs. Such a

structure of their body protects them from cold.

Animals like tiger, lion, cat, etc have sharp teeth, strong paws, pointed nails and strong legs. These animals are carnivorous.

Monkey, squirrel, etc are aroboreal animals. The forelegs of these animals are adapted in such a way that they can easily catch the branches of a tree. The chest muscles are strong. The tail is long. Due to this, they can hang and jump on the branches of a tree. There are adhesive pads in the feet of animals like house lizard, etc. These animals can easily climb on the walls.

Pigeon, sparrow, chicken, etc eat grains. So, they are called grain eating animals. The beaks of these animals are short, strong and pointed. The body is covered with feathers. They have wings to fly.

The body of mosquitoes, flies, ants, etc are divided into head, thorax and abdomen. They have jointed legs and wings to fly.

Teaching instructions

If possible, make students visit zoo or animal shed so that they can observe the animals there. Similarly, make them take notes about the physical characteristics of these animals.

Activity

1. Fill in the given table with the name of ten terrestrial animals and their characteristics:

S. No.	Name of animal	Characteristics				
		No. of legs	Types of hoofs	Horns	Food	Nails

Collect the figures of the following animals from old books and group and paste them on your copy according to their similar characteristics as given in the table below:

Tiger, sheep, buffalo, ant, cow, donkey, eagle, fly, cat, pigeon, parrot, lion, goat, mosquito.

With sharp teeth and nails	With hoofs	Have legs	Have feathers

Exercise

1. Match the following:

(a)	Cow	( )	flat and thick hoof
(b)	Ant	( )	sharp teeth and strong paws
(c)	Camel	( )	thick and long hairs
(d)	Lion	( )	cutting and chewing teeth
(e)	Yak	( )	hard and curved beak
		( )	has head, thorax and abdomen.

2. Tick (√) for correct and cross (x) for wrong sentences:

(a) Yak has thick and long hairs.

(b) House lizard has adhesive pad in the limbs.

(c) Horse has two hoofs.

(d) Tiger has sharp teeth and strong paws.

3. Answer the following questions:

(a) Write any two differences between yak and camel on the basis of the structure of body.

(b) Write any three physical characteristics of a buffalo.

(c) Write any three physical characteristics of a tiger.

4 Aquatic Animals and their Characteristics

Animals like fish, crab, dolphin, octopus, etc live in water. They are called aquatic animals. The body structures of these animals are adaptable to water. The body of these animals is always streamlined. It reduces the friction of water. Fish has gills on either side of head and they take oxygen dissolved in water. The skin of the body of fish is thin and its whole body is covered with scales. It can swim in water with the help of fins and tail. Though animals like crocodile, whale, dolphin, etc live in water, they take oxygen from air.

Beak of a duck is flat and wide. Its body is covered with feathers. It has webbed feet to swim in water. Frogs can live both on land and in water. The skin of them is moist and soft. They breathe in through lungs on land and through skin in water. They can easily swim in water due to webbed feet on the back.

Teaching instructions:

If possible, tell the students to prepare a list of aquatic animals showing them charts of different animals.

Activity

1. Observe lake, pond, river, etc found around your sorrounding, and prepare a list of aquatic animals.
2. Observe and note down external physical characteristics of a fish.

Exercise

1. Match the following:

(a) Duck	( )	skin is soft and moist.
(b) Fish	( )	beak is pointed.
(c) Dolphin	( )	breathe in through gills.
(d) Frog	( )	takes oxygen from air
	( )	has flat beak and webbed feet

2. Identify the aquatic animals from the following animals:

3. (a) Draw a neat and clean diagram of a fish.

(b) Write any two physical characteristics of a duck.

(c) Differentiate between fish and frog on any two points on the basis of physical characteristics.

5 Life Process





There are different types of things around us. Of these things, some are living and some are non-living. Animals and plants are living things. Stone, soil, air, etc. are non-living things. Living things, whether they are animals or plants, do not survive for ever. Have you seen dead animals or plants? Living things become non-living after their death. A living thing should process different activities in order to survive. For example, animals show movement when they want to get food and travel a place that they like most. They get food from plants or other animals. The green plants prepare their food from water, carbondioxide and the light of the sun and use it accordingly. This process is called photosynthesis.

There is transportation process to bring food to different parts of the body and to digest food eaten by living things.The continuous respiration process is there to get energy from food.

Animals and plants throw wastes out of their bodies through the excretion process. The living things demonstrate different

reactions, which is called irritability. They reproduce offsprings like themselves to continue their generations. These living things grow slowly and become adult. All these processes should take place in their body so that they can survive. Such activities that occur in their body is called life process. Life process is important for growth and development of living things. Energy should be made available continuously to sustain life. Photosynthesis is such a process that converts the solar energy into food. All living things, directly or indirectly, depend on this process.

Teaching instructions:

What happens if there is no life process in living things? Make students discuss by giving an example of a particular living thing.

Activity

1. Write any five names of animals which you like most. How long these animals survive in general? Identify it by asking adult people. What kind of conclusion can you draw from their ages.? Write down.
2. According to the given lesson, make a list of life processes that occur in your body.
3. A mustard plant gives fruits when it flowers. There are seeds inside these fruits. What kind of life process is it? What happens if there is no such process ? Discuss with your teacher.
4. Put a plant in a pot. Cover and tie it with thick black plastic making air tight. What changes do occur in the plant? Observe it for 5/7 days. What could be the causes of change in the plants? Discuss with your teacher.

Exercise

1. Answer the following questions:

(a) What do you mean by life process?

(b) What are three life processes that take place in organism?

(c) From where do organisms get energy?

(d) What is the importance of life process for organism?

Investigate:

Observe flowers or vegetable plants carefully. You can see leaves of plants. They may be eaten by insects. Look at the back of the leaves of those plants.There may be eggs of insects in some leaves. Collect those leaves and put in a bottle. If you do not find leaves with eggs, find some caterpillars from those plants. Put 2-3 caterpillers with some leaves in the bottle. Tie the mouth of bottle with a piece of thin cloth. Now, observe the changes that occur daily and answer the following questions:

(a) Did you see leaf eaten by a caterpiller?

(b) Did you see any material thrown out from the body of the caterpillers?

(c) How does a caterpiller move?

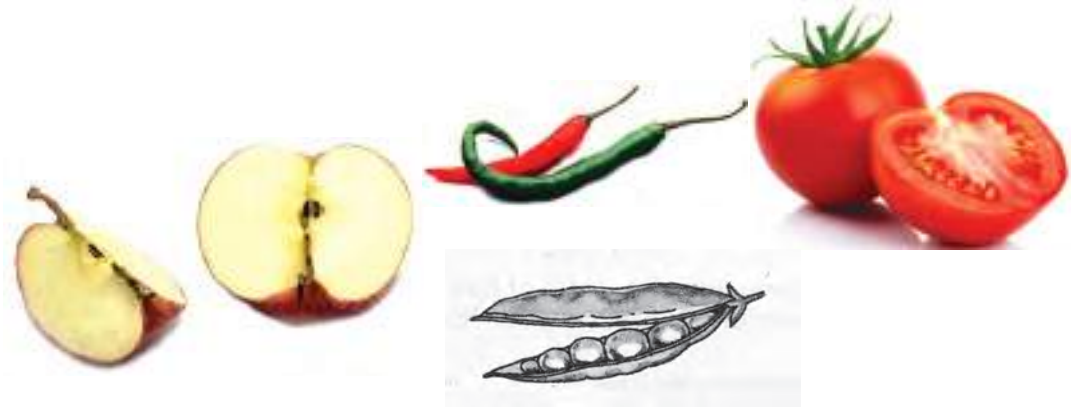
(d) What changes did occur in the caterpiller?

(e) How does a caterpiller change into a butterfly?

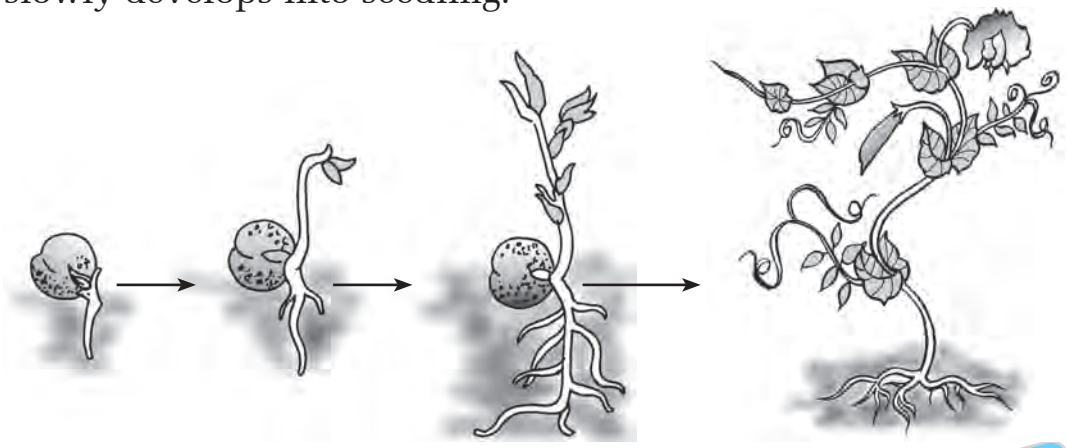
(f) What are the life processes seen in the above observation?

6 Stages of Development of Plants

You might have seen different kinds of plants in the surroundings of your home or school. Of these plants, some are flowering and some are non-flowering. Flowering plants bear fruits. Fruits are of different colours and shapes like flowers.

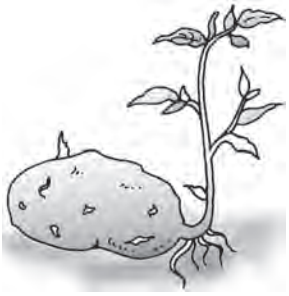


Fruits consist of seeds. Have you seen germination of seeds of rice, wheat, maize, gram, ground-nut, bean, etc. The seeds germinate when they get favourable climate. Thus, the process of sprouting of new plants from seed is called germination. This new plant slowly develops into seedling.

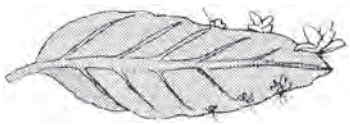


Different parts of seedlings develop and change into adult plants. The adult plant again bear buds, flowers and fruits. In this way, seeds present in fruit again germinate into new plants

Similarly, have you seen new plants sprouted from other parts of plants except seeds? How are potato, and sugercane planted? We have already read in class three that potato, yam and ginger are used as food. To cultivate potato, sprouted potato tuber is planted. In the same way, rigomes of yam is planted to cultivate it, and ginger is planted to cultivate ginger. Cuttings of a stem of rose are used to grow new plants.



Cuttings of cane with buds are planted to cuttivate sugarcane. A cut cane is put in the soil slauted. After some days, new plants are sprouted from buds of nodes. Some plants germinate from leaves also. Have you seen plants developing from a leaf of bryophyllum?



Activity

Take a can or any vessel to plant.

At the bottom of the can, make five six holes.

Fill the can with fertile soil. Before filling the can, put pieces of bricks or pebbles at the holes from inside.

Water the soil. Now, plant two or three seeds of bean or pea or gram.

Paste a piece of a paper on the can with date of sowing seeds.

Keep the vessel in the sun.

Water every day and watch what changes occur in the seeds.

Now, answer the following questions based on the above observation:

1 After how many days of sowing, did the seeds sprout?

2 In the beginning, how many leaves came out?

3 After, what changes occurred occur in the number of leaves?

4 What changes occurred in the height of a plant? (To measure the height of a plant, fix a stick with plant and mark, the height of a plant on the stick).

5 What changes occurred in the thickness of stem? (Thickness of stem can be measured with thread.)

Fill in the table below with details relating to the growth of a plant till one month. To do this, observe it each week.

Week	Height of plant (in cm)	Thickness of stem (in cm)	Number of leaves
1st			
2nd			
3rd			
4th			

Activity

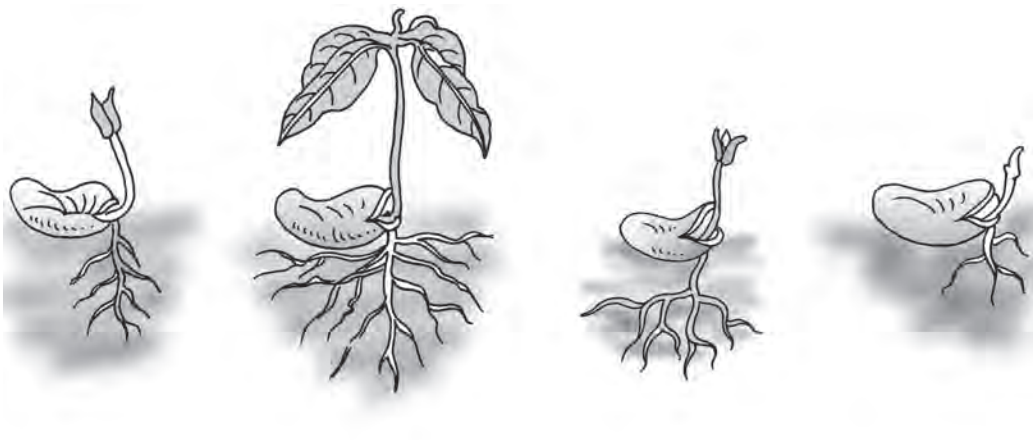
To cultivate potato, maize and sugarcane, sprouted tubers, maize grains, and cuttings of sugarcane are used. Prepare a table of the names of any five plants, other than these, found in your surroundings and write how they are planted.

Activity

Observe a flower or vegetable plant that you have recently planted at your home or school. Describe the changes that occur in those plants that you have observed such as growth, buds, flower, leaf, and number of branches, etc.

Exercise

1. Figures of developmental stages of a bean plant are given below. Write the stages in a proper sequence:



(a) (b) (c) (d)

2. Match:

(a)	Sugarcane	( )	grain
(b)	Maize	( )	plant
(c)	Yam	( )	branch
(d)	Rose	( )	cane
		( )	rhizome.

7 Terrestrial Plants and their Characteristics

Plants are found everywhere around us. There are different types of plants in the either sides of farm, field, hill, plain and paths. Observe the plants that you find around your home. You will see many different types of plants. The plants found on land are called Terrestrial plants. There are different types of plants in terms of shapes, size and structure. The shapes, size and structure usually depend on the environment.The plants that are found in dry, shady and damp places or germinating in water are different in many respects. Similarly, the plants of mountain, hill, Terai and desert also differ.

Ferns and mushrooms grow in the damp and shady places. They do not need more water and sun. Pinus and Thiya are only found in the cold climate.

The leaves of these plants are needle like instead of broader ones.

The plants and trees of mango, peepal, bar, etc are tall and have many branches. The leaves of these trees fall in winter.

The stems of the plants of dry and hot places are small and thick. However, cactus changes its leaves into thorns. It saves other plants using less water.

You have already read in grade two that there are three types of plants according to their structure. They are herbs, shrubs and trees. Of these plants, some are flowering and some are non-flowering plants. Can you name some flowering and non-flowering plants?

Herbs

Herbs are usually small plants. The stems of these plants are soft. These stems can be broken easily. The roots of these plants are

garden dubo

mustard

pea

just beneath the land. So, they are weak. These plants can more often survive till the end of a season. The plants which we eat like rice, maize, wheat, vegetables, small flower plants, grass, etc fall under the category of the herbs.

Shrubs

Shrubs are bigger than herbs. The stems of these plants are stronger than the herbs. They have many more small branches. So, these plants are hedge and bush like. The stems are not so thick and not stronger like trees.

cotton

rose

pomegranate

The roots of these plants are a little bit beneath the surface of the land. These plants can survive more than a year. The plants of cotton, hibiscus, rose, etc. are the shrubs.

Trees

Bigger plants with hard stems are called trees. Its stem is hard and strong. It has many branches, and they spread more. Its roots reach deeper the surface. As a result, they can stand firmly. The trees can survive for many years. Plants like jackfruit, Banyan, Peepal, Mango, etc are trees.

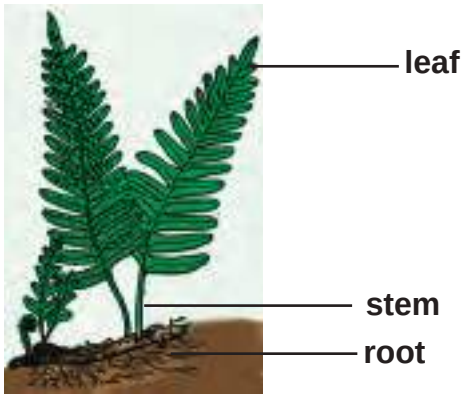
jack fruit

Bar

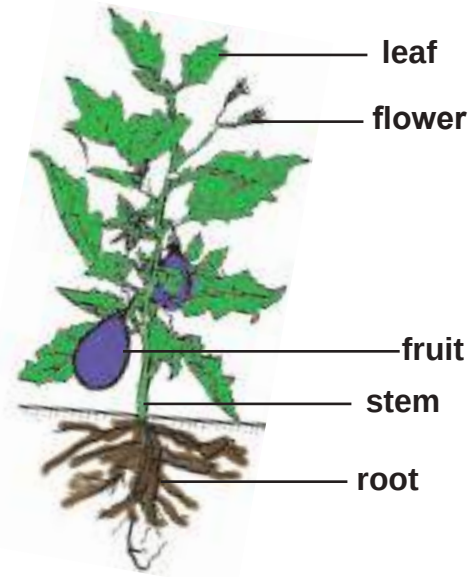
Pine tree

Different parts of a plant

Non-flowering plants are simpler than flowering plants. Have you seen fern plants? Root, stem and leaf of some non-flowering plants cannot be distinguished clearly.



The flowering plants have developed root, stem and leaf. The flower, fruits and seeds are developed later. New plants germinate from seeds. The roots help in standing the plants firmly and absorbing nutrients. The stem helps in transporting and absorbing materials from the roots to different parts of a plant. There are leaves, branches and fruits in the stem.



Teaching instructions :

While teaching this lesson, take the students out of classroom for direct observation of different plants. For different parts of plants, bring different specimens of plants and allow them to observe carefully. On the back of leaves of a fern plant there are sori (brown spot) which contain spores. Tell the students that new plants germinate from these spores

Activity

1 Observe the plants found around you, and make a list of them by asking other people. Classify them as herbs, shrubs and trees.

Activity

2. A game to identify leaves

(a) Arrange your friends in two groups.

(b) Each group has to take equal (at least 10/10) number of leaves of plants (herb, shrub or tree)

(c) One group has to show a leaf and the other has to identify it .

(d) The group which identifies more leaves will be the winner.

3. What types of plants you have seen in shady and damp places. Make a list of them.

4. Pluck a leaf of herb, shrub and tree

Put those leaves carefully in old newspaper or inside the page of a copy separately.

Put a heavy book or anything on that for 5-6 days.

Paste those leaves when dried well in your copy and name the plant.

Exercise

1. Mark (√) for correct and (x) for wrong sentences.

(a) A tomato plant lives for many years.

(b) Shrubs are smaller than trees.

(c) Fern is a flowering plant.

(d) A large plant with hard stem in called a tree.

2. Fill in the blanks with herb, shrub or tree:

(a) Small plants with soft stems are called ……..

(b) Large plants with hard and strong stems are called ……..

(c) Small plants with short roots from the surface are called ……..

(d) Bushy plants with many branches are called …….

(e) A bit large plants with a bit deep penetrating roots from surface are called ……..

(f) Long lived plants with long roots are called ……..

(g) Seasonal plants which survive for a season only are called…….

(h) Plants that live for some years and have not so much strong stems are called ……..

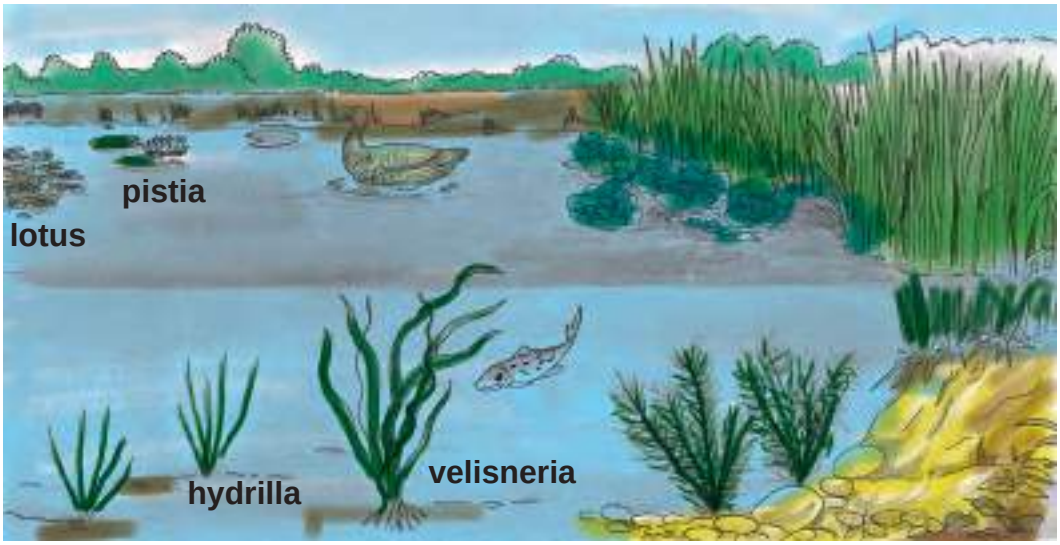
3. Copy the given table and complete it:

Details	Herb	Shrub	Tree
Root	A bit deeper from surface		
Stem	Very week and can be broken		
Life span			Many years
Example		Hibiscus	

4. Draw a figure of a flowering plant, which you like and label different parts of it.

8 Aquatic Plants

Several types of plants are found around us. Most of these plants are found on land and some in water. Plants found in water are called aquatic plants. You might have seen river, pond, lake, etc. Go with your seniors and observe water of pond, lake or stagnant water in the farm carefully. You will see different types of plants there. Of these plants, some float on the surface of water. The leaves and flowers of some plants are seen outside the water. However, the roots of these plants are fixed. Moreover, some plants are completely inside the water.



The plants like water Hyacinth and pistia float in water. Have you seen the flowers of Lotus on the pond? Its roots are fixed in the soil and stem is inside the water. But flowers and broad leaves are seen floating on the surface of water.

All parts of plants like Hydrilla and Velisneria are inside the water. They breathe inside water, get sunlight and survive there.

Almost all aquatic plants are soft. The roots of these plants are small and less developed. The stems of these plants are flexible and the roots are weak. The stems of them are hollow and light. They have waxy stems and leaves. Due to this feature, they are not decayed even if they are inside the water.

Aquatic plants have different body parts like terrestrial plants. They also have root, stem, leaf, flower and fruits. Some aquatic plants are non-flowering such as algae and lichen. However, the water hyacinth, lotus, etc. are flowering plants.

Teaching instructions:

While teaching this lesson,if possible, make students visit nearby lake, river, pond, rivulet as an educational tour. Introduce names and characteristics of leaves, stems and roots through observation of aquatic plants.

Activity

1. Which plants are found in the river, pond, lake, etc that are around your home and school? Make a list of them observing yourself or asking others.
2. Of different aquatic plants, draw figures of each plant that float in the water, only leaves and flowers appear outside the water and remains in the water. Write the name of those plants.
3. Observe an aquatic plant and recognize its different parts.
4. Collect some aquatic plants with the help of teachers or your seniors if there are river, pond, etc around your home or school. How are the leaves, stems and roots collected so far? Write two characteristics of them.

S.No.	Name of plants	Leaf	Stem	Root
1.				
2.				
3.				

Activity

5. Look for some plants having following characteristics in nearby pond or river around your home or school and name them too.

(a) Plant germinated at damp bank of pond or river.

(b) Plants with roots inside the water and other parts are outside the water.

(c) Plants floating in the water including roots.

(d) Plant completely germinated inside the water.

Exercise

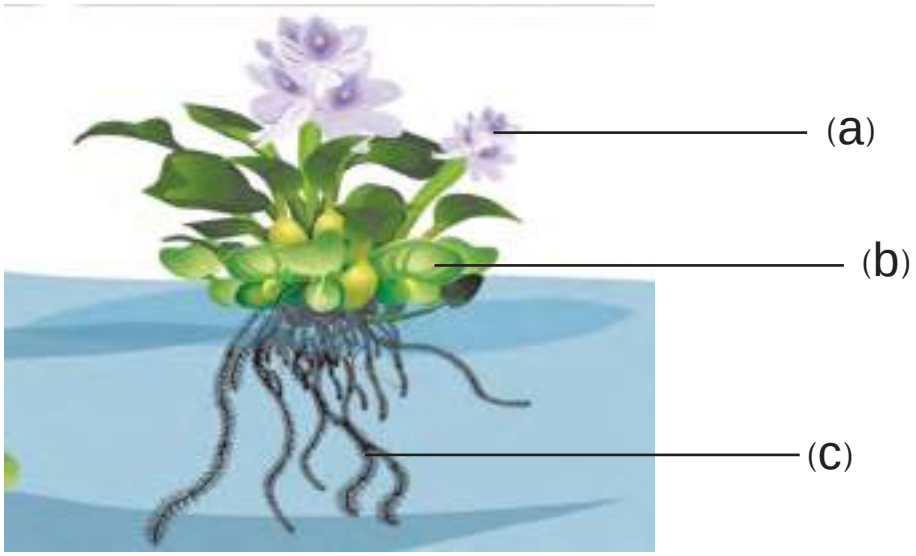
1 Separte aquatic plants from the following plants:

Fern,	Cynodon,	Cactus,	Waterhyacinth,
Algae,	Turmeric,	Tulasi,	Lotus,
Amala,	Lichen,	Garlic,	Hydrilla,
Yucca sps. (Ketuki),		Mushroom.	

2. Match the following:

(a)	Broad round leaf	Hydrilla
(b)	Small leaf under water	Velisneria
(c)	Swellen stem with leaf	Lotus
(d)	Plant completely inside water	Algae
	with thick root	Water Hyacinth

3. Draw the given figure of water hyacinth in your exercise book and label the parts a, b, and c.



9 Interrelationship between Living Things and Environment

The environment consists of both non-living things like soil, stone, air, water, etc and living things such as animals and plants that we find around us. All living things get food, air, water, shelter, etc. from the environment. The plants and animals found in the environment are dependent on each other for food.





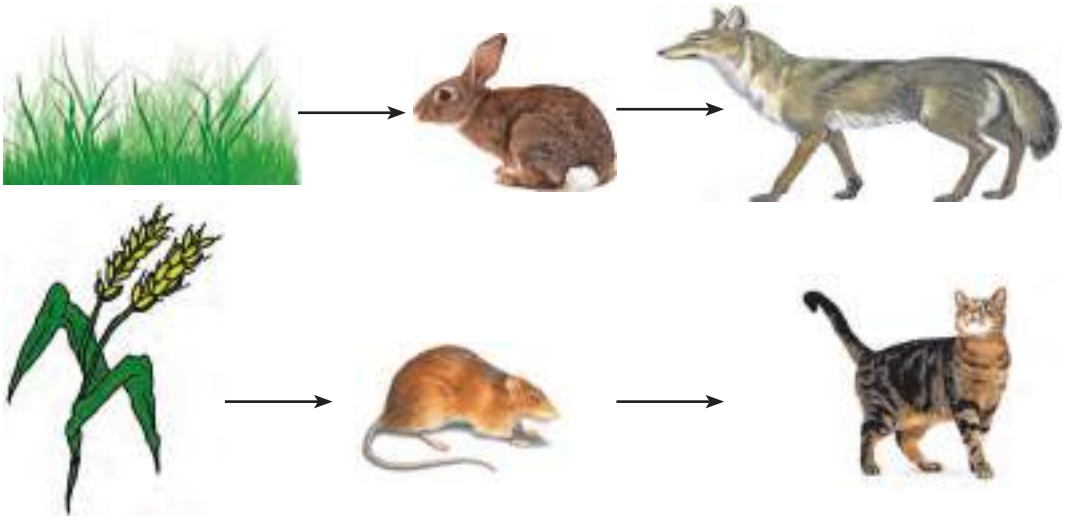
Have you seen only animals or plants around you? Whether it is land or water, pond or river, damp land or dry land, Terai or hill, animals and plants are found together everywhere. The plants and animals need energy to survive. No animals and plants can survive without food. So, plants and animals are dependant on each other for survival. What will be the sources of food you take daily? Different types of foods that we eat are generally acquired from plants. We get our daily foods like rice, bread, pulses, etc from the plants found in our environment. You might have seen crops grown like rice, maize, etc.

Animals not only get food from plants but also shelter.

Animals cannot prepare their own food by themselves.But plants

can prepare the food because they have chlorophyll . Therefore, all animals including human beings are dependent on the plants for food. Herbivorous animals survive eating plants or fruits and carnivorous animals eat other animals for food. Human beings as Omnivorous depend on both plants and animals for food. They eat meat of goat, buffalo, pig ,etc. What would these animals eat? Thus, animals directly or indirectly depend on plants. Living things eat food to produce energy in their body. One living thing gets energy from other living things in the form of food. In this way, eating a living thing by another living thing is called food chain. There are many more food chains in the environment.

Wild animals like monkey, squirrel, etc live on tree and elephants, deer, rhino, etc. live in the shade of tree. People



use wood, bamboo,grass, etc. from the plants and stone, soil, etc. found in the environment to build their house. We also get firewood from the plants to cook food.

Moreover, people acquire clothes from the plants. They prepare cotton cloth from thread of cotton. They make rope from yucca sps. (ketuki); namlo and sacks from jute. Paper is made from bamboo, straw, hay, Elusine and daphne (lokta), etc. From these paper, books and exercise copies are made. Some plants are used for decoration. Some flower plants like rose, marigold,

Chrysanthemum, Gomphrenai,etc. are grown at home for beauty. Thus, animals take many advantages from the plants.

Do only animals depend on plants? The plants also take advantages from animals like animals from plants.

The excreta (dung etc) thrown out by animals is very good manure for plants because it makes the soil fertile. Plants grow well if people supply manure and water to them, and understand the importance of the plants. Have you seen the manure supplied

yucca sps

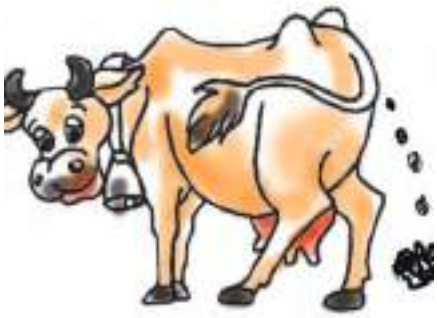
cotton

jute

to plants prepared from cow dung? You might have seen the dead animals buried near the roots of the plants? Why would they be buried in that way? Guess about it. Decayed excreta and dead bodies mix up in the soil. Plants absorb necessary nutrients from soil and animals help plants in pollinating and spreading the seeds.

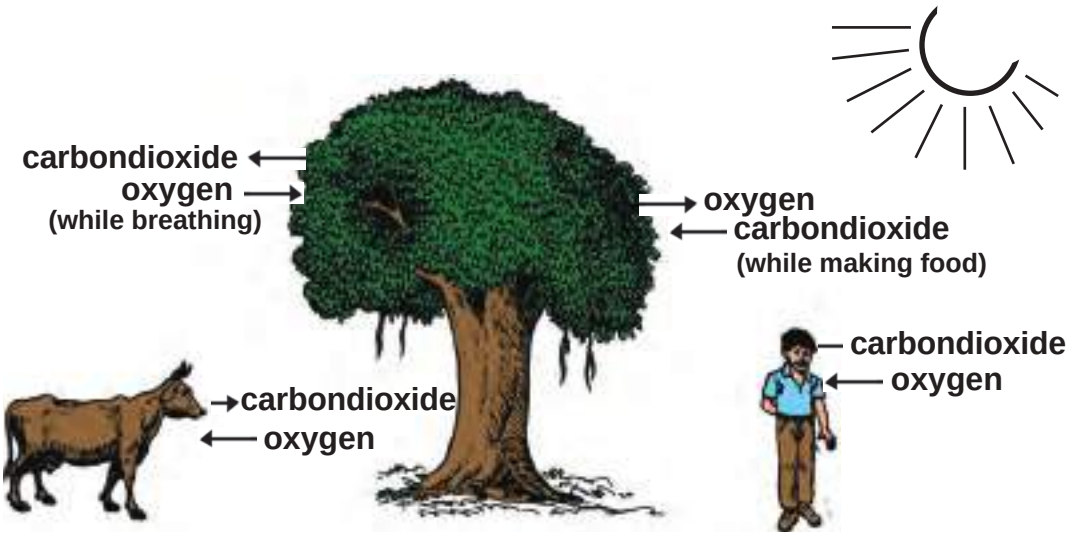
Exchange of oxygen and carbon dioxide between plants and animals.

Can plants eat food like animals? The plants also need food because they are living things. However, the plants cannot eat food like animals. The leaves of the plants are green because of chlorophyll. The green plants prepare their food absorbing water and minerals through the roots from soil. Similarly, they take carbon dioxide found in the air and prepare food in the presence of sunlight. Such food is stored in fruits, leaves and roots. The



plants throw out oxygen in the air when they make food and the oxygen is used by both the plants and animals.

Why should animals and plants breathe? Do you know about it? How do you feel when you stop breathing for a moment? Oxygen taken in reacts with the stored food in the body to produce energy and throws out the carbondioxide gas. So, energy is not produced when the breathing is stopped or it is not to breathe in and we feel difficulty. Thus, non-living things of environment like air, water, soil, stone, etc and living things such as plants and animals are closely interrelated.



Teaching instructions:

Help students to observe 'food chain' around your school or at any proper place.

Activity

1. What do you eat from morning to evening? What are their sources? Keep records for a week.
2. Draw a figure of food chain found around your house.
3. Observe any two houses in your neighborhood and discuss what parts of plants are used to make those houses.

Exercise

1. Tick (√) the correct sentences and cross (x) the wrong sentences:

(a) Animals directly or indirectly depend on plants.

(b) Non-living things are only called environment.

(c) Plants take oxygen while preparing good.

(d) Plants and animals throw out carbon dioxide while breathing.

(e) Green plants prepare food in the presence of sunlight.

(f) Plants absorb carbondioxide through the roots while preparing food.

2. Fill in the blanks:

(a) Green plants take in …… gas while preparing food.

(b) Living things breathe in ..... which reacts with food to produce energy.

(c) Green plants prepare food from absorbed water through the roots and ..... gas through leaves in the presence of sunlight.

(d) Animals and plants throw out ..... in breathing.

(e) Environment consists of living things like animals and plants including..... like stone, soil, air, water, etc.

3. Answer the following questions:

(a) Why is breathing necessary for living things?

(b) What do the green plants need to make food?

(c) How are animals dependant on plants except for food?

(d) What effects would be on animals in the absence of the plants?

(e) Why can animals not prepare their own food?

4. Arrange the following living things according to the food chain.

(a) Eagle, grain, rat.

(b) Goat, man, grass.

(c) Chicken, jackal, grain.

(d) Spider, fly, wall lizard.

(e) Maize, rat, cat.

5. Which one does not fit in the following food chain? Separate it.

(a) Goat, tiger, grass, cat.

(b) Eagle, grass, snake, chick

(c) Hare, wall lizard, spider, fly

(d) Owl, rhinoceros, snake, frog

(e) Butterfly, sparrow, flower, rat.

Investigate

(a) Look for leaves eaten by insects in garden/kitchen garden

(b) Observe what insects are there on leaves or nearby leaves.

(c) Find out what types of insects eat leaves.

(d) Use hand lens to observe structures of insects if they are small.

(e) Find out the name of insects asking with the senior people.

(f) Find out what animals eat those insects.

(g) Make a table like below and fill in:

Name of Insect which eat plant	Figure	Name of Plants	Animal that eat the insect
Caterpillar		Leaf of rose	sparrow.

10

Natural Disaster

Have you ever seen or heard the incidents of sweeping homes away due to flood, submerging of home and farm because of landslide or catching fire? Different types of destructive incidents in the nature like flood, landslide, fire, storm, earthquake, etc. are called natural disasters. Such incidents of natural disasters definitely cause huge loss of living beings and property. Have you ever seen or heard about such natural disasters in the newspapers?

Floods

You might have heard about the incidents of floods not only in your country but also in the neighborhood countries from time to time? In the rainy season, the river flows over the surface due to excess water. This is called flood. The flood sweeps away the bridges, land, human beings, animals, trees, etc. which it finds around it. In this way, there is huge loss of both human beings and property due to flood.The flood should be controlled because it causes huge loss. In spite of calling it natural disaster, people

also play vital roles for happening this event. So,human beings should prevent these incidents themselves. We can reduce the incidents of floods by planting the trees. The roots of plants hold the soil and also absorb the water when it rains. As a result, less water reaches in the river and it prevents the incidents of floods. Even, it controls the current of the river. So,we have to plant trees on the either side of the river. We should not cut down trees unnecessarily. Embarnkments should be built to control the over flow of water of river and streams on either side of them. Similarly, the sand and stones should not be taken out from the river and stream carelessly.

Landslides

Usually in the rainy season, the rain water makes the soil wet and this in turn becomes heavier, and falls downward. This is called landslide. When there is landslides, the rocks and soil fall down. When the landslides occur, it may bury houses, farm, people and even animals that are found on its way. The soil that falls in the stream may block it and sometime it may cause the floods. We can prevent the landslides like floods. To prevent

landslides, we have to plant trees on the bare hills. If the land of hills is bare, the wind can blow soil easily and it may cause the landslides. When trees are planted in the bare land, the roots of plants hold the soil and that controls the landslides. We should not graze animals in the same place for a long period. If so, the grass of that place is destroyed and the soil becomes loose causing landslides. So, we should cultivate crops in sloppy land by making terrace. Do you know how you can prevent the landslides by making the terrace?

Fire

Due to fire, sometimes the houses are burnt causing huge loss of human beings their property and animal as well sometimes the fire in the jungle destructs both plants and animals. How does a house catch fire? How would the jungle catch fire? Sometimes we do our tasks carelessly leaving the fire everywhere. When there is air, the things at home catch its spark causing fire in the house. Keeping fire sensitive materials like kerosene, petrol, etc nearby the fire; leaving the lighted candle in the room and improper care of electricity may also cause the fire in the house. Similarly, people who walk around the jungle for hunting, cutting wood or anyone else who can throw the buts of cigarette or lighted match stick in the jungle cause the fire in the jungle. When a house catches fire, there is loss of human beings, domestic animals and the property. The fire in the jungle, it destroys both plants and wild animals. The destruction of jungle causes the landslides and the environment gets imbalanced. To save us from the fire, we should extinguish it after the completion of the tasks at home. We should not leave the burnt match sticks or any other materials carelessly. Do not keep kerosene and petrol nearby the fire. If electrical appliances are used in the house, the capacity of such appliances should not exceed than the capacity of wire used in electrical circuit. If so, the electric wire will burn causing the fire in the house.We should not let children play with the fire and fire cracker.

Teaching instructions:

It possible, take your student to visit the places where the natural disasters took place nearby your school.

Activity

1. Make a list of natural disasters, which you have ever seen.
2. Collect flood related figures and posters and make your scrab book.

3. In rainy season, visit the places with your guardians where flood and landslides are taking place. Write the possible reasons that have caused the flood and landslides in those areas.

4. Draw a figure that may reflect a kind of natural disaster.

Exercise

1. Put (√) mark if the sentences are correct and (x) mark if the sentences are incorrect.

(a) Planting trees is one of the major preventive measure of natural disaster.

(b) Grazing animals in the same place for long period may cause the event of landslide.

(c) Large amount of life and property is lost when landslide takes place.

(d) Embarnkment and spur should be made on either sides of river and stream to control the flood and landslide.

(e) The lighted match stick should not be thrown in the Jungle.

(f) Cutting trees promotes the possibility of flood and landslide.

2. Fill in the blanks with appropriate words.

(a) To control the landslide in sloppy land, cultivation should be done by making .....

(b) ..... is the best way of the prevention of natural disasters like flood and landslides.

(c) Flood, landslide, storm, fire, etc. are .....

(d) To control flooding ..... should be made on either sides of rivers and streams.

(e)The fire should ..... properly after finishing its use.

(f) Root of plants ..... the rain water.

3. Answer the following questions:

(a) What is flood? Write any two effects of it.

(b) Write any two ways of controlling flood.

(c) Write two effects of landslide.

(d) How can a tree prevent the occurrence of landslide? Explain it.

(e) How can a house be safe from fire? Mention any two preventive measures of it.

(f) What are the effects of fire in the jungle?

11 Matter

Many objects such as bricks, chair, table, glass, water, kerosene, milk, etc are generally found around us. Are all these objects similar? Which objects are light and heavy while lifting them? One of the characteristics of a matter is weight. Each matter has its own weight.

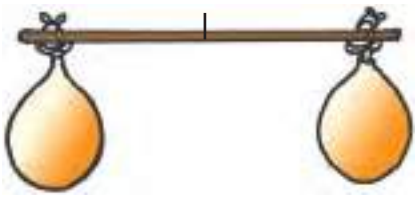
Activity 1

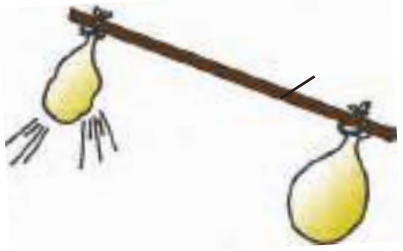
Look at different things available at your home or kitchen, and lift them. Which of them are light and heavy? Make a list of them. The object with more weight is heavy and with less weight is light.

Activity 2

Take two balloons of the same size. Fill up the balloon with air blowing through your mouth. Close the opening of balloon with thread. Hang two balloons on an either end of the stick at equal

distance from the centre. What happens when you tie a piece of thread on the centre? What do you see when a balloon is punctured with a needle? The stick seems balanced when there is air. If there is no air in one of these balloons, it is imbalanced. The balloon with air is heavier than the punctured one.





Any objects occupy some space. The space occupied by an object is equal to its volume. A big object occupies more space and a small object occupies a little space. Water, milk, kerosene take shapes according to the shape of a pot.

Activity 3

Put a brick, match box, paper carton, nail, etc on the table. Which object does occupy more space? Make a list putting them in order. The space occupied by these objects differs in accordance with their shapes. The space occupied by a matter is called volume. The object that has its own weight and volume is called matter.

There are three types of matters: solid, liquid and gas.

Solid

Table, brick, coin, nail, ice, etc are solid matters. They are hard and brittle. They have their own shape and fixed volume.The matters that have fixed shape and volume is called solid.

Liquid

You might have seen water, milk, petrol, kerosene, etc. We can pour these matters.They do not have fixed shape. The shapes of pots determine their shapes.

Activity 4

Take a big glass and fill it with water. Pour the water of glass in a bowl. Then, pour it into the bottle. What differences did you see while pouring water into different pots? The shapes of pots determine the shapes of water. A matter with fixed volume but with out fixed shape is called liquid. For example, milk, water, oil etc.

Gas

Gas does not have its own definite shape and size. We can pump air into football and tyre of a cycle. Air is an example of gas. Like liquid, gas has its shape according to the shapes of pots. Gas can spread.

Activity 5

Take a balloon. Ask your friend to blow it. How was the shape of balloon that you saw? What is there inside the balloon?

Activity 6

Take some sticks of inscent and light them to stand on a soft object. Keep those inscent sticks on the corner of the room. Does the scent of inscent sticks spread all over the room. Why would it happen? It spreads all over the room due to air in the room.

The objects that do not have fixed shape and volume are called gas. For example, air, smoke and steam of water, etc.

Exercise

1. Tick (√) the correct sentences and cross (x) the incorrect sentences.

(a) Matter does not have weight and volume. ( )

(b) The space occupied by an object is called volume. ( )

(c) Diesel is a solid matter. ( )

(d) Liquid can flow. ( )

(e) Air can spread. ( )

2. Fill in the following gaps.

(a) Stone has its own ..... and .....

(b) Water has fixed ..... but not .....

(c) Solid matter has fixed shape and .....

(d) Gas does not have ..... and .....

(e) Air is a type of .....

3. Give short answers :

(a) What is matter ?

(b) Write any ten name of matters that are found in your surrounding.

(c) What are the three states of matter?

(d) Why is a stone called a solid matter?

(e) Write any three names of solid and liquid matters.

12 Energy

Energy

Energy is the capacity of doing work. You might have felt weak when you did not eat food. We felt it because of lack of energy. There are different types of energy. For example, mechanical energy, light energy, heat energy, electric energy, chemical energy and nuclear energy. These energies are created from different sources.

Heat energy and its effects

Heat is a kind of energy. The Sun is the main source of heat. We can do different tasks with the help of heat energy. In which tasks do we use heat energy? The heat energy is used to cook food, keep our body warm and run vehicles and machine. There are different types of effects of heat energy on matters. If we heat matters, the volume of matters increases. If they become cool, the volume reduces.

Activity 1

Take one meter long thin copper wire (without the insulator cover).

Tie a stone to one end of the wire.

Tie the other end of the wire in a rigid support in such a way that the stone should be just above the ground surface.

Now, heat the wire at the middle with the help of a candle and observe it.

What do you understand by this activity?

Activity 2

Take a bottle with its lid. Fill it up with colour water.

Make a small hole in the centre of the lid.

Insert small glass tube through the hole. Now, fit the lid with the glass tube at mouth.

Then, make air tight with the help of candle.

Mark the level of the colour water in the glass tube.

Now, put the bottle in a bowl of hot water like in the picture.

Observe whether the level of water changes or not.

Explain, what do you understand from this activity?

Activity 3

Take a bottle.

Fit the balloon on the mouth of bottle as shown in the figure.

Now hold the bottle with your two hands for about 5 minutes. What change do you see in the balloon?

Now, put hot water in a bowl.

Immerse the bottom of the bottle in the hot water.

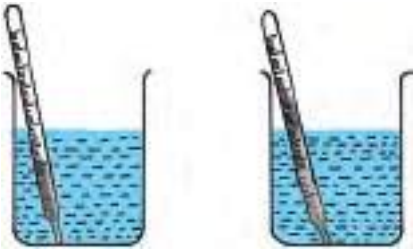
What change do you see in the bolloon?

What do you understand by this activity? Write down.

What differences did you notice in the balloon when held by hands and put in hot water? Why?

Heat changes the temperature of matter.

Activity 4

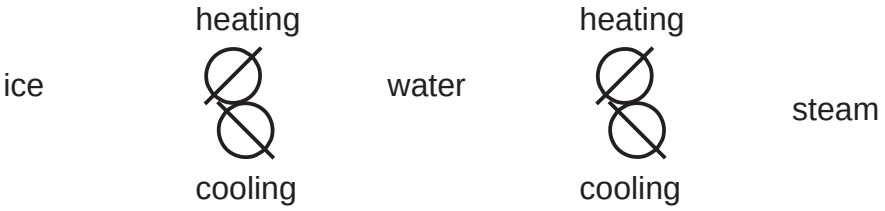


hot water cold water

Take some amount of water in a pot or beaker. Measure the temperature of water with the help of thermometer. Heat the water for five minutes and again measure the temperature of hot water. Is the temperature of water same in both the conditions? When water is heated, water gets hot and its temperature is increased. The temperature of matter is increased or decreased due to to the cause of heat.

Heat changes the condition of matter.

There are three conditions of matter. They are solid, liquid and gas. The ice is the condition of solid of water, water is the condition of liquid and steam is the condition of gas. These three conditions change from one to another when we heat or cool water. When we heat ice, it changes into water. When we heat water, it changes into gas and when we cool gas, it changes into water again.



Activity 5

Light a candle and observe it. Is the thread of candle burning? Did you see candle melting? Why would it melt? Why did the melted part of candle fall down? What happened when candle fell down? What kind of conclusion did you draw from this activity? Write in brief.

Activity 6

Dry wet clothes on the sunlight. Observe the cloth. What did you see when the cloth became hot? Where did the water of wet cloth go? How did wet clothes dry? What conclusion did you draw from this activity?

Use of the effects of heat in daily life

Do all animals and plants need energy? Living things can not survive without energy. What do we need energy for? Can you tell?

(a) To cook rice

We use stove, heater, gas and oven for cooking our food. Kerosene, fire wood, gas, etc. give energy when they are burnt.

(b) To keep body warm and alive. All living beings need heat. Heat keeps our body warm and helps in keeping the cells of our body alive.

(c) To drive vehicles

Fuel like petrol, diesel, etc. are needed to drive the vehicles. When fuel is burnt, the heat energy runs the engine.

(d) To dry clothes

Wet the clothes in the water. Of these clothes, dry some in the sunlight and dry some other clothes in the room. Find out which one dries sooner. The clothes dried in the sunlight dry sooner. The heat of the sun evaporates the water soaked in the clothes and the vapour of water goes into the air. So, the clothes kept in the sunlight dry soon.

(e) To run machines in the industry.

Heat energy is essential for running machines. A machine gets energy from burning fuel due to which it can run. The heat energy can also be obtained from the electricity. What is the source of

energy to run the brick furnace? Coal is used as a source of heat energy to run the furnace.

Ways of utilizing and saving energy

We cannot do work without energy. We should not waste such an energy. We should use several ways not waste it. The following are some ways:

(a) Use fire-wood, coal, kerosene, petrol, gases, etc in limited amount.Use bio-gas as far as possible

(b) Use pressure cooker while cooking foods to save energy.

(c) Use those electric bulbs, which consume less electric energy. Switch off the light when it is not in use.

(d) Wear warm clothes in winter season instead of the use of electric heater.

(e) Do not use vechicles unnecessarily.

(f) Use solar cooker and heater as possible.

(g) Plant more trees for the firewood.

(h) Extinguish the fire and lamp after using them.

Exercise

1. Tick (√) the correct sentences and cross (x) the incorrect sentences .

(a) Volume of copper wire does not increase when we heat it. ( )

(b) Volume of water increases when it is heated. ( )

(c) Volume of gas does not increase by heating. ( )

(d) Heat energy is used for cooking rice. ( )

(e) Light is a kind of energy. ( )

2. Answer the following questions in short.

(a) What are the effects of heat?

(b) Heat expands the volume of an object. Explain it with a diagram.

(c) Write any two effects of heat that is used in our daily life.

(d) What are the ways of saving energy? Mention any three of them.

13 Weather

Different types of events take place in the nature regularly. Have you ever thought of these events attentively? We feel cool in the morning. It gets hotter when the Sun rises up.

Sometimes, the cloud covers the Sun immediately and starts raining. The snow falls at higher altitude instead of raining. And sometimes, it rains along with storm. Thus,the conditions of the Sun, cloud, rain, water and air change from time to time. Such

events are called the change in weather. What do you mean by weather? Can you say? The condition of a particular place and time in terms of Sun, water and air is called weather. So, weather differs according to place and time. Have you ever seen the condition of sunny weather at one place and cloudy weather at another place at the same time? Why does so happen? Consider it.

Types of weather

Weather is of different types. It may change in a short span of time. What types of weather have you experienced? Can you say? The sunny, cloudy, rainy, windy, cold, wet, stormy days are types of weather. There will be sunny day when the sky is clear. We feel hot in this condition. The water of pond, well, lake, river, ocean, etc changes into steam. Then, the cloud is formed by composing the water particles (vapours). When the cloud covers the Sun, it is called cloudy day. You might have seen the surface of the Earth covered by cloud. What do we call the cloud in this particular condition? When the cloud reaches

in height, it cools and transforms into big droplets of water with the help of small particles of water. These droplets of water are heavy and they cannot stand in the air. As a result, they fall in the form of rain. If it rains continuously for a long time, it is called incessant rain. Sometimes hail and rain fall together during raining season. In high altitude, the layer of atmosphere is so cold that small particles of water vapour get frozen and form the crytals of ice before they are converted into the drops of rain. Such ice crystals are called snow. Particles of snow cannot stay in the air, and snow starts falling. Thus,it is felt that the change in temperature of the Earth causes the change in weather of a particular place and time.

Teaching instructions:

Make students observe the condition of weather outside the classroom. Why would this condition happen? Would it remain forever? Ask such questions to give the concept of weather.

Activity

1. Observe the weather of a place where you study for one week and record details of weather as given in the following table:

Date	Time	Types of weather
2065/12/29	6:00 am	cloudy

2. In winter season, early in the morning, walk around your home and look at the leaves of trees. You will see the droplets of water on the leaves though there may be no raining. What will be the reasons behind it? Try to find out yourself.

Exercise

1. a. Weather is ..... from place to place.

   b. The Sun heat converts water into .....

   c. Clouds centain particles of .....

   d. The water vapour is mixed in .....

   e. For snow fall, the ..... of air should very low.

2. **Give the short answer to the following questions:**

   (a) What is weather?

   (b) Why does change occur in weather?

   (c) What are the types of weather?

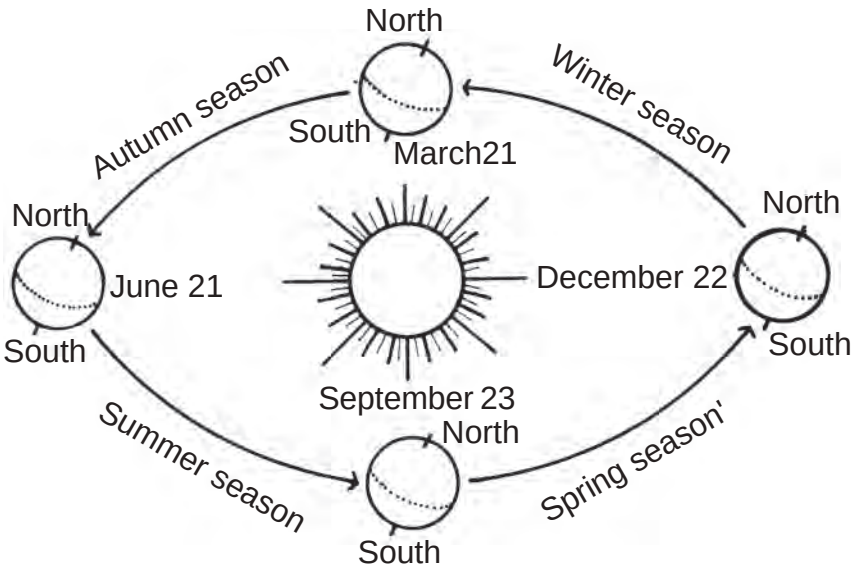
   (d) At what condition does the snowfall take place?

3. **Find out the kind of weather looking at the following pictures:**

14 Seasons

Have you experienced different seasons while planting crops and reaping them? In our country, there is hot season during the months of Jestha and Asar. In this period, it rains heavily. Farmers cultivate the crops. The entire jungle is green. We can see different animals everywhere. After some months, it becomes hot gradually. After that, the raining stops and crops ripe. The leaves, fruits and flowers of plants change gradually. The hot season disappears and summer season starts. After some months, the winter season begins.The leaves of plants fall in this season. The herb plants start dying. The animals appeared before start disappearing. Thus, the weather gets changed gradually with the span of time. The same condition of weather staying for a long period is called season. The change in weather causes the change in seasons. We experience four types of seasons in a year. This cycle is continuously rotated.

Types of season



In previous lesson, you knew that there are four seasons. Here, you will know about types of seasons and their characteristics. The Earth is round. One imaginary line has been drawn in its centre. This line is called the equator, which divides the Earth into north and south hemispheres. Earth revolves the sun in a elliptical path with tilting some angle. In this process, the rays of the sun sometimes fall on the Earth in a straight way and sometimes in a slant way. Thus, the place where the rays of the Sun fall in a straight way, it is hot and the place where the rays fall in slant way, it is cold. In this way, there is change in the seasons while the Earth moves round the Sun. In our country, there are four seasons like winter, spring, summer and autumn. They are changed in every three months. There are not the same seasons in all parts of the world.

In our country, the winter season lasts from the month of Mangsir to Magh. In this season, the rays of the Sun fall in the north hemisphere slantly. So, the heat and light that comes from the Sun is less. Similarly, the Sun rays are only for a short period.

Winter Season

As a result of this, we experience shorter days and longer nights. Because of this, there is cold in the northern hemisphere in winter season. December 22 (paush 7-8 approximately) is the shortest day and the logest night of this season. Because of this, we feel very cold on this day. However, opposite is the case in the south hemisphere of the Earth. It becomes cold in winter season and there is no rain and due to this herbs trees die. The leaves of trees become grey and fall on the ground. A few insects, birds and animals are seen. The body of animals in the hills and mountains is covered with fur.

In northern hemisphere, spring season comes just after the winter season. With the start of this season, the days become longer and the nights shorter. On March 21, both days and nights become equal. In our country, this season lasts from the month of Phalgun to Baisakh. New plants appear with the start of spring season. Many insects, birds and animals are seen everywhere. The entire nature seems enjoyable in this season.

Spring Season

Summer season starts with the end of spring in the northern hemisphere. In our country, this season lasts from the month of Jestha to Shrawan. In this season, most of the parts of the northern hemisphere recieve direct rays of the Sun for a longer period of time. So, there is very hot. During this season, the days are longer and the nights are shorter. June 21 (Ashad -6-7) is the longest day and the shortest night of the year. Therefore, we feel this day the hottest one. There is a lot of rain in this season. As a result of this, the trees are covered with the leaves. The flowers bloom. All the plants are seen green. The farmers

Summer Season

in Nepal start planting paddy and maize in this season. Due to extreme hot, the animals found inside the Earth come out of it. Therefore, we can see many animals and insects in this season.

Autumn Season

Just after summer season, autumn season begins in the northern hemisphere. In our country, this season starts from the month of Bhadra to Kartik. In this season both hemispheres receive the Sun rays equally. So, though season may differ, both hamispheres will have an equal duration of both day and night. On the day of september 23, the northern hemisphere will have equal duration of day and night. In this season, the rainfall decreases. We feel cool with the reduction of hot. The leaves of plants look yellow and brown. After all this, the leaves start falling. The riped fruits fall on the ground. The crops look like yellow after they ripe. The birds are seen less gradually. On the completion of this season, again winter season starts. The seasons change continuously in a cycle.

Teaching instructions:

While teaching this lesson, demonstrate the globe and ask in which hemisphere lies our country. Make students find out our country and discuss about the seasons of our country.

Activity

1. Different crops are planted in different seasons. Find the name of crops and their planting season by asking your father/mother.
2. Write the changes seen on plants in autumn season by observing them.
3. In which season do snake, frog, tortoise and butter flies appear abudantly? Look and observe our surrounding and find it.
4. Prepare a record of sunrise and sunset time up to 15 days by looking at newspapers, watching TV and listening to the radio.
5. Find the name of the month in which birds make their nest. In which season does this month fall?

Exercise

1. Tick (√) the correct sentences and cross (x) the incorrect sentences.

(a) Change in season occurs together with the change in weather. ( )

(b) Spring season comes after summer. ( )

(c) The duration of each season is of three months. ( )

(d) Plenty of insects are seen in winter season. ( )

(e) Forest is seen green in summer season. ( )

2. Answer the following questions:

(a) What is season?

(b) What do trees look like in summer season?

(c) Why do only few birds appear in winter season?

(d) Write the name of seasons with their features.

(e) Prepare a chart of change in seasons.

(f) Write the effects of change in season in our daily life.

15

The Earth

The Earth is our common house inhabited by all types of organisms.It is predicted that it was originated about 450 milions ago. Was the life of living things originated together with the origin of the Earth?

The Earth has been moving around the Sun since its origin. It looks round from the space. However, it is not perfectly round in shape because its east-west parts are slightlyy flat. Its diameter across east-west is about 12,756 km and north-south diameter is 12,713 km. The Earth is the only planet in which men, animals and plants live. Why would living things originate on the Earth? Can you say about it?

The Earth is divided into three parts such as lithosphere, hydrosphere and atmosphere. We explain about them here in brief.

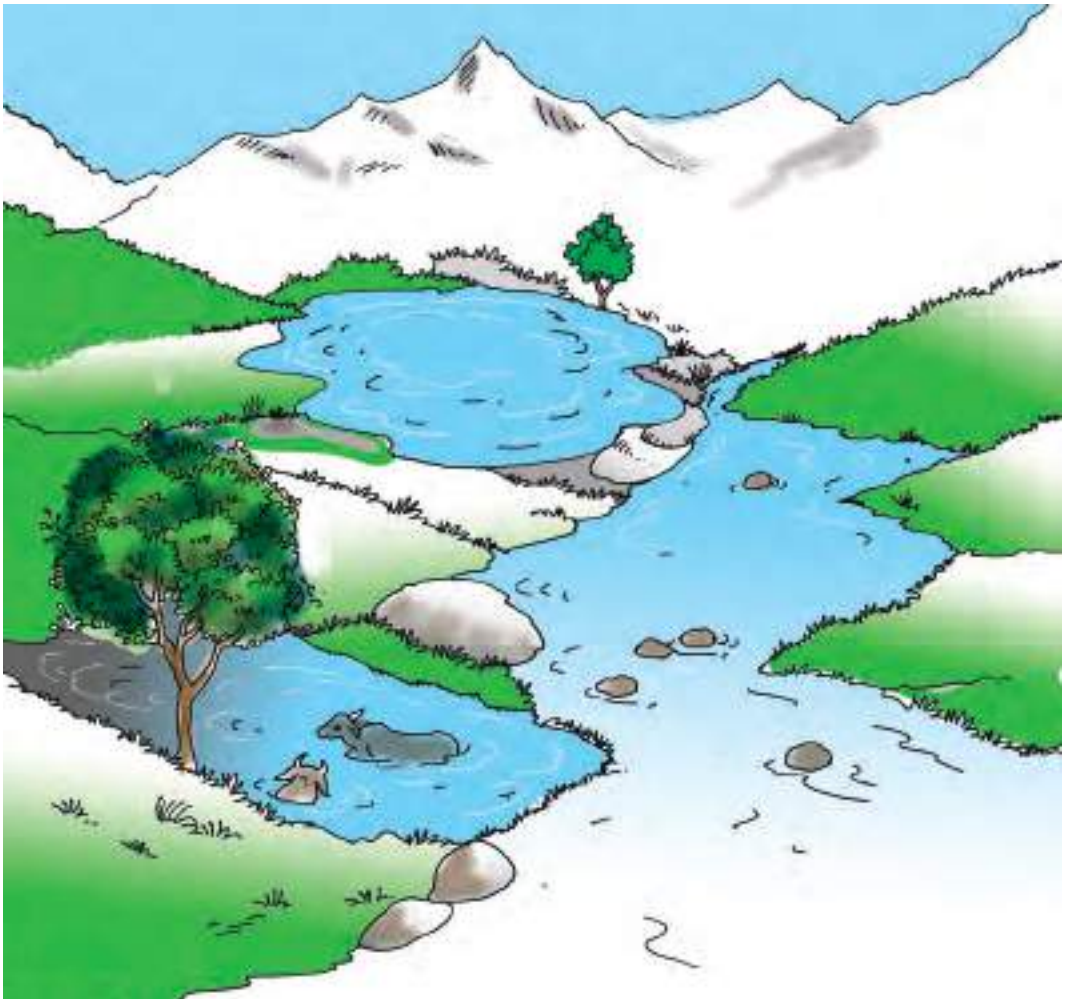
Lithosphere

If you look at the globe the surface of the Earth is separated as land and water. The three parts of the Earth's surface has water, whereas only one part of the Earth's surface consists of land. The part of land is called lithosphere and the part of water is called hydrosphere. The structure of lithosphere is not the same everywhere. In accordance with the structure of land, the lithosphere can be divided into plain, hill and valley. The flat land of the Earth is called plain. The Terai territory comes under this category. The place with considerable height is called mountain. The mountains are of different heights. The place with snow is called Himalaya.Similarly, a place surrounded by mountains is called valley. Kathmandu is one of the examples of valley. There are somewhere plain areas and somewhere else there are big mountains and Himalayas.The places surrounded by mountains are called valleys. Have you seen the valleys that we find in our country?

Hydrosphere

The part of water on the Earth is called Hydrosphere. It consists

of river, lake, pond, watershed, ocean, etc. These are the sources of water on the surface. Similarly, there is too cold in Himalaya and a large part of water is frozen there. Because of the heat of the Sun, the water of lake, ocean, well, pond, etc is converted into steam and it in turn is mixed up in the air. The water, snow and water vapour are different forms of water. Of these various forms of water, snow and vapour are called the water above the ground. But ocean, river, pond, etc are called the water of surface. Likewise, the water of spring and well is called the underground water. Thus, water is spread everywhere on the Earth.



Atmosphere

The surface ot the Earth is surrounded by the layer of air which is called atmosphere. Air contains different types of gases, water vapour, smoke, dust particles, etc. The major gases present in the atmosphere are nitrogen, carbondioxide and oxygen. What impacts will be on living beings if there are no gases? Think of it. Atmosphere extends more than 1600 km from the Earth sufrace. It becomes less dense as the height is increased.

Activity

1. Observe and make the figure of the Earth surface on which your house/school is situated.
2. Find out the places where there are pond, river, etc by looking at the map of Nepal.
3. Observe the sun rays that enter into the room in the morning time. What do you see? What are the things which you see in the rays? Where do they come from? could you see these things when the rays of the Sun enter into the room in day time? Try to investigate.

1. Tick (√) the corect sentences and cross (x) the incorrect sentences.

(a) Earth was .... 450 millions years ago. ( )

(b) The structure of the Earth is divided into two parts. ( )

(c) Atmosphere can be seen through our eyes. ( )

(d) Hydrosphere covers three fourth part of the Earth's surface. ( )

(e) Vapour is also a part of hydrosphere of the Earth. ( )

(f) Apart from the Earth, the lives also exist in other planets. ( )

2. Answer the following questions:

(a) In how many parts is the Earth divided?

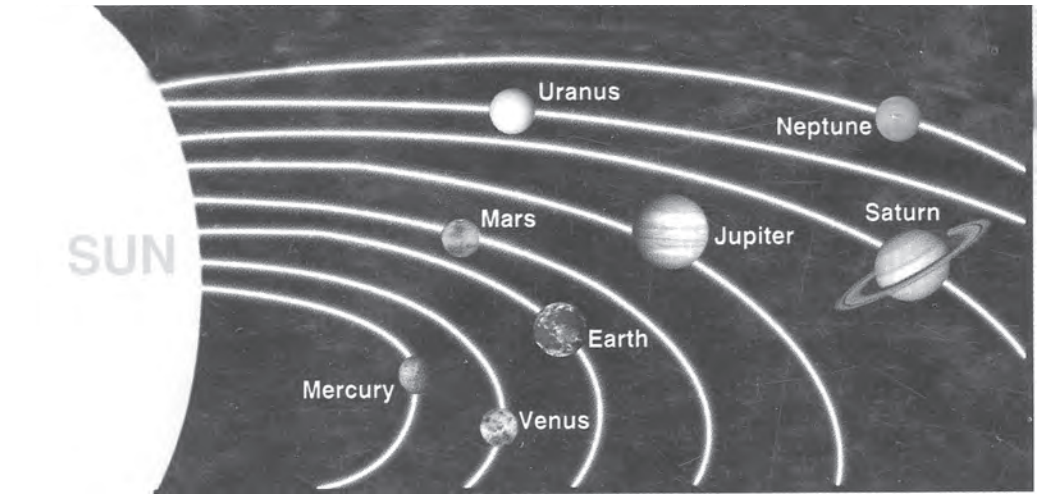
(b) What is the hydrosphere made of?

(c) What is atmosphere?

(d) What types of land are called mountain and valley?

3. Make a model of the globe.

16 Solar System



Look at the clean sky at night.You will see innumerable celestial bodies there. Some blink and some frinkle. The frinkling specks of light are called stars. Stars have their own light. The blinking wandering specks of light are called planets. Planets do not have their own light. They receive light from the Sun and reflect it back into the space. So, the planets only blink.

The sun is also one of the stars. There are eight planets that move round the Sun in their own orbit. The Earth where we live in is also a planet. Apart from the Earth, rest of the planets are mercury, venus, mars, jupiter, saturn, uranus and neptune. Pluto was accepted as the ninth planet before. But since 2006 onwards, the international astronomy union has decided to remove the pluto from the position of planet. Mercury is the nearest planet to the sun, whereas the neptune is the farthest one from the Sun. The blinking objects which move round the

planets are natural sattelites. Some planets have their satellite and some may not have. The moon is the satellite of the Earth. Like planets and satellites, comets also move round the Sun. Thus, planets, satellites and comets together constitute the solar system.

Activity

1. Look at the clean sky at night. What types of celestial objects do you see? observe them.
2. Venus planet can be seen in the sky sometimes in the morning and sometimes in the evening. Try to identify it consulting your teacher or an expert.
3. Look at the figure of solar system and find the position of the Earth on that figure.

Exercise

1. Answer the following questions:

(a) What is solar system?

(b) What types of celestial objects are called planets and stars?

(c) What is satellite? Write the name of satellite of the Earth.

(d) Write the name of stars which are the nearest and the farthest from the sun.

2 Draw a figure of the solar system and label it.

17 Means of Communication and their Importance

Have you read the books? We read books to know something. Some books are written in certain topics and some other books cover many topics. This book is written only on certain topics like science, health and physical education. General knowledge books consist of information relating to different areas. Therefore, the books are the sources of information.

You also read newspapers. These newspapers collect and publish the news of different events happening in the world. Puplishing the news means collecting the information in the form of newspapers. So, the newspapers are also the sources of information.

Do you have library in your school? If yes, what do you do going there? Certainly, you go there to read newspapers and books.

The books and newspapers published once will work as a source

of information even in the future. Therefore, we should protect such sources of information. Such information remain in library as collected resources. For example, you may be interested in getting information relating to the earthquake of 1990 BS or peoples movement 2062/063 BS. All people may not have such information collected. In such a time, we may get information from newspapers, books, etc collected in the library. Some libraries have the books related to novels, songs and histories. School or college libraries have a collection of reference books helpful for their course books. Therefore, the library is also a source of information.

Have you ever seen different posters and hoarding boards pasted and hanging on the road side? You might have also listened to or heard about different advertisements broadcasted from radio or television. Companies use advertisements to make their products popular and sell them well in the market. Diferent organizations and individuals use advertisement to provide informations to people. Therefore, advertisements are also the sources of information. In this way, where the information are collected, there are the sources of information.

Means of communication

Have you ever written a letter? Why would people write letters? People write letters, when they are far away with their family to inform others about the facts like they have passed examination or they are fine with their family. How does a letter reach from one place to another? Do you know about it? After writing the letter, it is put in an envelope with name and address of the sender and receiver. Then, it is put in post box with stamp. The letter put in a mail box is collected and distributed to the related address by the post office. In this way, letter is also a means of information.

Can you imagine how can we send an information to the mass

at a time? of course, we use newspapers, radio and television for this purpose. The news and information published in the newspapers reach worldwide at a time. We can get informed about the different events happening in the world by using radio and television. Television is also being used as a means of information. We can hear and see about events from television. Therefore, radio, newspapers and televisions are known as mass media.

As described above, radio, newspapers, television and letter transmit information in one way. It means theytransmit information from source to receiver. So, such type of communication is known as one-way communication system.

It is necessary not only to send the information but also receive the receivers' reaction immediately. At this situation, we use telephone, mobile phone,internet, etc. Such type of communication system is known as two-way communication system.

Importance of communication

It is worth to have collection of information at a place. Importance of the information can be seen when we receive and send it. Therefore, communication is equally important as information. What would happen if there would be no communication media? Can you imagine? For example, when there is epidemic of disease at any place, the government broadcasts the precautionary measures from radio. The information broadcast at this time helps people to be cautious and saves many lives and property. Realizing this importance of information technology, modern and fast working communication media are being invented and used. Now a days enternet becomes the widely accepted sources of information. Web site social media are the example of this .

Teaching instructions:

At the beginning of the lesson, discuss the message we get from the bell rung at school such as begining times, 1st period, 2nd period, tiffion time, etc. Conclude that since our school bell gives us information about different school bell gives us information about different things. We can say that it is also a source of information.

Activity

1. Pictures of different means of communication are given in the lesson.What are these means of communication? Write down the names of them looking at the pictures.

2. Write a letter to your uncle or your friend who is studying at another school. Write the address of sender and receiver as shown below:

Sender's	receiver's
name	name
address:	Address:

3. You might have been watching TV or listening to the radio. Make a list of five programmes that you like most.

Radio programme	Television programme
1	1
2	2
3	3
4	4

4. Write down the name of any two means of communication and draw their pictures.

Exercise

1. Fill in the blanks with the suitable words.

(a) .....is used to listen to the news.

(b) From television, we can hear and ..... the news.

(c) We can talk with the person living in another corner of the world by using .....

(d) We read ..... to know daily incidents.

(e) Letters, newspapers and radio are ..... types of communication means.

2. Answer the following questions.

(a) Name any three means of communication.

(b) How does a letter travel from one place to another?

(c) What is the main difference between radio and television?

(d) What is the difference between one-way and two way communication system?

(e) Name any three sources of information.

(f) How does the library work as a source of information?

3. What would happen if there were no means of communication given below?

(a) Letter (b) Radio

(c) Television (d) Newspapers

(e) Telephone (f) Advertisement.

18 Some of our Local Technologies

Different types of local technologies have been developed and used since ancient times. The main purpose is to facilitate, simplify and equip our life. What are those technologies? Can you say about them? Of these different technologies, we are going to discuss about Watermill, Turbine and Pumpset in this lesson.

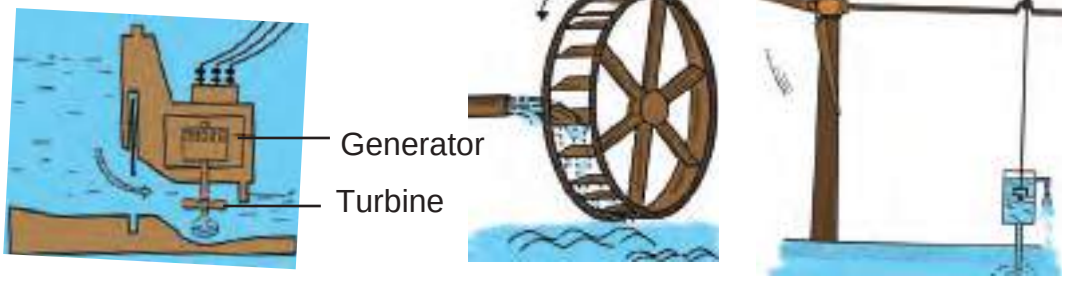
Watermill (Panighatta) :

We grow and eat different types of cereals like rice, wheat, maize, etc in our farm. We make flour from these cereals in order to make various food items. How do we make flour from these cereals? Do you know about it?

Watermill (Panighatta) is a very old technology being used in our villages. The flour, grinding the productions of the villages, is made with the help of this technology. This technology is made by using skills and art of our ancestors because it is simple and economical. It is run with the help of water. So, it is called watermill.

This is based on the principle that moving water brings motion to an object at rest. There is a large wooden wheel called Madani made of wood. A large stone disk is attched with upper end of the axle. When water hits the wheel forcely, the wheel moves. When the upper stone disc moves round, the cercals put in between the stone discs get grinded and the flour comes out. In this way, watermill grinds the cereals to make the flour. Have you seen such technology in and around your village?

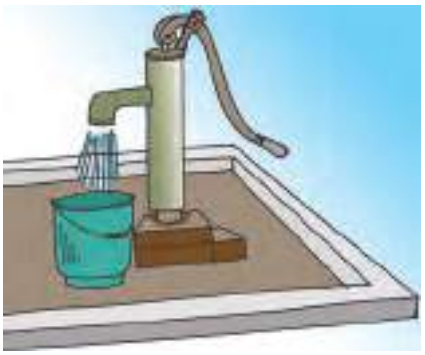
Turbine:



Turbine is the improved form of watermill (Panighatta). Have you ever visited the hydroelectric station? Just as wooden wheel in watermill, a machine is joined to the place where water force turns it. This machine is called a turbine. When water force hits the wheel, the turbine moves and electriccity is produced. The electricity produced in a power–house is transmitted to our houses with the help of electric wire.

Nowadays, not only water turbines are developed but also there are turbines that run with the help of air or other means of energy. Different tasks are being done by using them except generation of electricity.

Pumpset



A pumpset is used to pull underground water up. In Terai region, it is the main source of drinking water. How water is pulled by using a pumpset? Do you know?

While making a pumpset a long iron pipe is pushed to the ground so that it can reach the underground water level. On the uppermost end of the pipe, a pumpset machine with valve is joined. When the handle of this machine is moved up and down, the underground water comes up through the iron pipe and flows out from the spout of the pumpset. It is the most useful machine.

Teaching instructions:

Make or collect the large pictures of water mill, turbine and a pumpset and explain how these machines work. If there are water mill, turbine and pumpset around your school, take your students to a short visit to show them. Also explain their working principle. If there are students who already know about watermill, turbine and pumpset, let them to explain their experiences to the class. Make students aware that these machines are low cost comparing to electric or diesel machines. Diesel machines make pollution whereas these machines do not produce any pollution. So, these are environment friendly.

Activity

1. To show how water produces motion to an object, try the following experiment:

   Take a cardboard paper.

   Cut it circular.

   Make two lines so that the circle divides into four equal parts. Cut on this line with scissors through the centre.

   Fold these four edges to the centre. A paper fan is made.

   Put a nail piercing at the centre of this fan.

Flow water slowly at one end of the paper fan. See what happens.

2. If there is a watermill in your village, go and observe. Find out how the mill is constructed and how cereals are grinded to make flour. Observe and prepare a report.

3. What are the ordinary technologies being used in your village? collect their names.

4. With the help of the figure in the book or your teacher, make clear pictures of watermill, turbine and pumpset.

5. Take an ink pulling machine.How does it work while pulling and filling ink in it? Discuss in the classroom.

Exercise

1. Fill in the blanks:

(a) Watermill works with the help of .....

(b) Watermill is the machine made of local .....

(c) ..... is used to pull the underground wader.

(d) We can produce ..... from turbine.

(e) Turbine is the improved .....

2. Answer the following questions:

(a) How does watermill work?

(b) How does a turbine work?

(c) How is a pumpset made ?

(d) How does a pumpset pull water?

(e) What are the advantages of a turbine?

Health and Physical Education

Health

1

PERSONAL HYGIENE

Our Body

In general sense, personal hygiene means to wear clean clothes and adopt healthy habits. Our body should always be clean and healthy. So, we have to take bath to keep our body clean and healthy. We have to wash our clothes regularly. If our body is not clean many diseases may seen, Similary itching and soreness will be observed in the body. We may suffer from different kinds of diseases. If we clean all parts of our body it helps to keep whole body clean and healthy.

There are different organs in our body. Among them, nose, mouth, eye, ear, etc. are the organs of our face. The organs of the face, head and above the neck are the organs of head. Cleaning up these organs makes us attractive and beautiful.

Chest, abdomen and backbone are taken as the main body. We have many excretary organs in our body. Things that are unnecessary for our body are excreteted through these organs in the form of urine and feces. We should always use latrine for excretion. We have to clean anus with soap after excretion. Cleaning of our head, legs and nails helps us to be healthy and our clothes should be clean as well. Besides keeping all these organs clean, improvement in our attitude and behaviour is also taken under personal hygiene.

Activity

1. Discuss the advantages of keeping organs of the body clean and write in the following table:

Name of organ:	Advantages
1	
2	

2. Make a list of activity of cleaning your body in the morning as well as in the evening. Present it into your class and make a list of daily activities together with your friends.

Exercise

1. Tick (√) the correct and cross (X) the incorrect sentences:

a. Dirty water is also used for cleaning our body. ( )

b. If the hair is dirty lice are grown. ( )

c. Excreting urine0and stool in the toilet is not a good habit. ( )

d. We should let the nail grow long. ( )

2. Answer the following questions:

a. What is personal hygiene?

b. What happens if our body becomes dirty?

c. What are the external organs in our head?

d. Write any four advantages of regular cleaning of our body.

Teaching instructions:

Teach this lesson centralizing your teaching on the importance of cleaning of nine vents like: eyes, nose, ears, mouth, teeth, anus and reproductive organs.

Health message

Let us excrete urine and stools in the toilet only,
Be aware of personal hygiene.

2 Cleaning Body Parts

Our body can be divided into three parts. The uppermost part is called head. The middle part is called a body and the rest of the parts are hands and legs. All these parts together compose our body. There are different organs in these parts.

Cleaning head

Eyes, nose, mouth, ears and hair are external organs in head. These organs frequently come into contact with open environment. We have to clean these organs daily to keep them safe. We should not use any objects to remove waste from eyes, nose and ears.

Cleaning body

The body is the part below neck and above the legs. This is the largest part of the body. For the protection of our body, we have to take bath regularly with soap and clean water. We have to wipe out our body with clean and soft towel after bath. There are excretery organs in our body. An excretery organ which excrets undigested solid things is called anus. Similarly, the excretary organ that excretes urine is called urinary

organ . After excretion of feces, we should not rub anus with stone, soil or other hard objects but have to clean with soap and water.

Cleaning hands and legs

Mostly movable organs of our body are hands and legs. Legs are used for walking. We use our hand for taking food and doing other things. Hands become dirty when we do work. If we take our food with dirty hands, germs enter into the body with foods. From this, different diseases may attack us . If nail of our hands and legs are long,dirt is collected in it. So, we have to cut nails of our hands and legs regularly and clean with soap and water.

Activity

1 Look at the following pictures. Which organs of the body are being cleaned in these figures? How do you clean other organs of your body? Draw a figure and stick it in the classroom.




2. Which parts of your body did you clean this morning? Write and tell it to your class.

Teaching instructions:

Observe the health condition of students and inform to their parents. Centralize your teaching on the problems that arises from dirty body. Apply practical method to teach cleaning of teeth and other organs .

Exercise

1 Fill in the gaps with the appropriate words from the brackets.

(a) We have to use water and .....in bathing. (soap, ash, soil)

(b) Teeth ..... the foods. (mix, chew, swallow).

(c) Skin is the ..... organ of the body. (external, middle, internal)

(d) We have to keep our body .....regularly. (dirty, clean, bright)

(e) We have to brush our teeth everytime. .....
(after meal, before meal, whenever we like).

2. Tick (√) for true and (X) for false statements.

(a) We have to rub our eye when dust enters into it.

(b) We have to go health centres when grains or insects enter into our ears.

(c) We have to cut nails of both hands and legs regularly.

(d) It is a good habit to scratch our ears.

(e) Lice are grown if a person becomes dirty.

3. Answer the following questions.

(a) Make a list of five advantages of cleanliness of our body.

(b) Write four advantages of cleaning teeth.

(c) What should we do to keep our skin clean?

(d) What would be if we keep our eyes clean ?

(e) Write any five advantages of personal hygiene.

3

Environmental sanitation

Environment

There are different things like stone, soil, water, air, plants, birds, animals, human beings, etc around us. Among them some are living things and others are non-living things. These two things together make the environment. Our environmet gets dirty due to our activities. When we throw pieces of paper, pencil dust, etc. everywhere, it makes our classroom and schoool environment dirty. Environment gets polluted when we throw house hold things like, ash, dirty water, urine and faeces everywhere. Our sorrounding environment gets polluted when we throw fruit peels, packets of readymade food, plastic bags on the ground, or road. Environment also gets polluted from waste things,leaves, dust, pieces of wood firewood, etc. Due to the polluted environment we may suffer from different diesases.

Activity

1. Organize a speech program on 'Clean School Environment'.
2. Make a list of advantages of clean environment and disadvantages of polluted environment and present it to the class.

Exercise

1. Fill in the blanks with the suitable words.

(a) To make our environment clean, we should keep things .....(by showing, by arranging, in a cupboard)

(b) The household wastes should be put ..... (in pit, in the corner of house, outside the house).

(c) Students should be careful to make ..... environment clean. (classroom, road, temple).

(d) We may suffer from diseases due to ..... environment (healthy, polluted, clean).

2 . Match the followings.

A	B
Stone	should not throw
Human	should keep clean
Wastes everywhere	non-living things
Classroom	should do in the toilet.
Urine and faeces	living things
	may cause diseases

3. Answer the following questions.

(a) What sort of things are found around us?

(b) Write the name of any five solid wastes.

(c) Make a list of the wastes produced at your home.

(d) How does the school environment become dirty? Write four causes.

(e) Why should our environment be clean? Give reasons:

Health message

Clean and safe environment, healthy and longer life span.

Teaching instructions

Make students aware that human activities are the main causes of environmental pollution. Centralize your teaching on the various measures of garbage management. Develop life skills on the students to keep their home, school and community environment clean.

4 Safe Environment and Healthy Life

degradable things non degradable things

If we throw wastes everywhere it spoils our environment. So, we should collect garbage, dust etc. in a certain place. Waste things are of two types namely,degradable and non-degradable. They should be collected in separate places. Degradable wastes like garbage produced in kitchen, pieces of paper and other trashes etc. should be collected in one place. Whereas non-degradable wastes like, iron pieces , metal pieces, plastic, glass pieces, bottle etc. should be collected separately. We can put degradable wastes into the pit and make compost manure. Non-degradable wastes can be used for other purposes. In the same way, we get such waste things while cleaning our rooms, house, courtyard as well in classrooms and playground. Environment gets polluted when waste things degrade.Water becomes polluted when faeces are excreted everywhere. It badly affects our health. If we keep our environment clean, sorrounding will not be dirty, polluted and unpleasant. From the clean and safe environment our life becomes healthy.

Activity

1. Collect the garbage around your school and separate them into two groups as degradable and non-degradable. Also, prepare their list.
2. Form different groups of your friends to clean your classroom.

Exercise

1. Fill in the blanks with suitable words.

(a) Stone, ..., air are non-living things. (soil, tree, dog)

(b) Birds are ..... things. (living, non-living, both)

(c) Our environment should be clean and ..... (safe, polluted, dirty)

(d) Fruit peels are ..... things. (degradable, non-degradable, hard).

2. Tick (√) the correct and cross (x) the wrong sentences.

(a) Stone, soil, air and water are living things.

(b) Plastic is a degradable thing.

(c) Garbage should be collected in a basket.

(d) Degradable and non-degradable wastes should be put at the same place.

3. Answer the following questions:

(a) Write the name of any five degradable things.

(b) Write the name of any five non- degradable things found in the environment.

(c) How does the environment get polluted?

(d) Write down any three measures to keep the environment clean.

(e) Write three advantages and disadvantages of degradable and non-degradable things.

Teaching instructions

Clarify about the difference between biotic and abiotic things. Centralize your teaching on the impacts of environment pollution on our health. Make students aware of degradable and non-degradable types of garbage. Teach them to categorize garbage found around their home, school, village, etc. and to make compost manure.

5 Our Food

Rice, maize, wheat, barley, potato, buckwheat, etc. are our main foods. Similarly, we also eat egg, meat, milk, curd, pulses, green vegetables, fruits, etc. As different crops are grown in different places, people's food habit also differs from place to place. In Himalayan region, potato, millet, barley, buckwheat are taken as the main food. Whereas in hilly regions mostly rice and wheat, maize, millet, potato are taken as food. And in the Terai region rice, wheat are used as the main food. However, we should eat

other nutrients with the main food. In addition, foodstuffs should always be clean, fresh and safe.

Nowadays, people like to have readymade packed foods like biscuits, noodles etc. These foods are also made from the main food stuffs. Different types of chemicals are mixed in such foods to make tasty and to store for a long time.These chemicals are not good for our health. Such foods contain much spices, fat and salt, that may harm our health.

Some amount of iodine is also required for our body. We use iodized salt in lentil and curry to get iodine. We have to keep salt in an air tight container to preserve iodine.

Activity

What sort of food did you eat last week? Make a list and tell it into the class.

Exercise

1. Fill in the blanks with the suitable words.

(a) The main food of himalayan region is ..... (rice, potato, maize)

(b) We should always eat ..... food. (nutritious, sweet, hot)

(c) Iodine required for our body can be obtained from ..... (rice, maize, salt)

(d) Chemicals used in foods ..... our body. (harm, help to grow, taste better)

2. Tick (√) the right and (x) the wrong sentences.

(a) Food provides energy for our body.

(b) All kinds of packed foodstuffs are good for health.

(c) We should not eat rotten foods.

(d) Readymade foods found in the market should not be used.

3. Answer the following questions.

(a) Write the name of any five foods that we get in our villlage.

(b) What are the energy giving foods?

(c) How do we keep the iodized salt safe?

(d) What sort of things are mixed in the foods found in market to make them tasty?

(e) Make a list of main foods found in Himalayan, Hilly and the Terai region.

Teaching instructions:

Tell students the diferences between nutrition and nutrient. Centralize your teaching on the foods found in the community, neighbourhood and in the nearest market. Teach your students focusing on the fact that we can prevent us from the infection of diseases if we improve our food habits.

6

Nutritious food

Nutrition and food

Nutritious Nutritious foods are available in our community. Such foods are grains, cereals, green vegetables, fruits, fish, meat, milk, curd, etc. These foods contain nutritive elements. Therefore, we have to eat these foods daily. The nutritious foods provide energy, help in the growth and protect our body. Thus, the foods which give energy, build body and protect from diseases are called nutritious foods. It is always essential to our body.

There are following groups of food on the basis of their function:

Energy giving foods: Rice, maize, wheat, millets, potato, buckwheat, etc.

Body building foods: Pulses, fish, meat, milk, curd, etc.

Protecting from diseases: Green vegetables, fruits, etc.

Activity

Pack different foods available in your home into three packages like, energy giving, body building and protecting from diseases.Bring them into the classroom and demonstrate.

Exercise

1. Tick (√) the correct and cross (X) the wrong statement.

(a) We have to eat balanced diet daily.

(b) We become strong by eating more rice.

(c) We always have to eat clean foodstuffs.

(d) We have to eat the same kind of food regularly.

(e) We have to wash fruits before eating.

2. Answer the following questions.

(a) What do you mean by nutritious food?

(b) What are energy giving foods?

(c) What happens if we eat dirty and decayed foods?

(d) What are the things that are to be considered while eating food? Write any four.

(e) Segregate rice, wheat, green vegetables, fruits, grains, meat into groups on the basis of their function.

Teaching instructions :

Focus your teaching on the foods available in the community.Divide students into three groups. Let them separate different foods into groups on the basis of their function and manage the display of their work.

7

DISEASES

We suffer from different diseases. There are two types of diseases . These are communicable and non-communicable diseases. A disease that transmits from one person to another is called communicable disease. It is transmitted through the consumption of stale and decayed food, polluted air and contaminated water. A disease that does not transmit from one person to another is called non-communicable disease. Dysentery, measles, commmon cold, chicken pox, cholera, tuberculosis, diphtheria, polio, leprosy and tetanus are communicable diseases. On the other hand, cancer, diabetes, heart diseases and asthama are non-communicable diseases.

Anyone may suffer from diseases. Proper care and help should be provided to the ill person. Diseases should be treated on time. We have to love them. The patient should be taken to hospital or health centres instead of taking to the faith healer. Proper attention must be paid on their feeding and rest.

Activity

1. How do you help a family member who suffer from disease? Write and present to the class.
2. Write introduction, symptoms, ways of transmission and preventive measures of one of the diseases like, dysentery, measles, cholera, chicken pox, common cold, and polio by asking with others.

Exercise

1. Tick (√) for the right and (x) for the wrong statements.

(a) We should not hate a person suffered from leprosy.

(b) We have to go to the faith healer for treatment.

(c) We should not use the materials of an ill person.

(d) The dirty person suffers from diseases.

(e) Good habit prevents us from diseases.

2. Answer the following questions.

(a) What do you mean by communicable disease? How does it transmit?

(b) What kind of help can be given to the patient?

(c) Write five examples of each communicable and non-communicable diseases.

Teaching instructions

Teaching should be done by giving an example of a person suffering from communicable disease, causes of disease and support given to a patient in a village.

8 Communicable Diseases

A disease that transmits from one person to another person is called communicable disease.

Dysentery

This disease is caused by amoeba and bacteria. There may be amoeba and bacteria in dirty water and food. The use of dirty water and contaminated food causes dysentery. The symptoms of dysentery are: stool is mixed with mucous and blood, stomach ache and passing of loose stool frequently.

Measles

Virus causes measles. Symptoms of measles are high fever, small pink coloured rashes appear inside the mouth and on the skin.

Tuberculosis

Tuberculosis is also a communicable disease caused by bacteria. This disease can be in lungs, intestines, bones and skin etc.

Tuberculosis attacks the lungs. It starts with coughing, after sometimes, the patient feels pain in the chest, loss of appetite and blood also comes out with sputum. This disease transmits through air. Therefore, if the articles used by a patient are used without washing it may transmit to another person. To prevent others, patient has to cover his mouth with a handkerchief while coughing. A patient has to take medicine regularly advised by a doctor. We have to give B. C. G vaccine for the children to prevent this disease.

Diphtheria

Diphtheria is caused by a bacteria. This disease is also caused because of polluted environment, dense settlements etc. The symptoms of this disease are swelling of neck, difficult to breath , to swallow food and water. To prevent us from this disease, we have to stay apart from the contact of the patient. In the same way, cough and snout of patient should not be thrown everywhere. DPT vaccine should be given to the newly born child from 6 weeks, 10 weeks and 14 weeks and booster doses.

Pneumonia

Pneumonia is a lung disease. It is caused by bacteria and virus. If this disease is not cured in time, it may cause arthritis, heart disease and paralysis. The symptoms of pneumonia are, fever, difficulty in respiration, headache, etc. A kind of sound is produced from thorat during respiration. In the same way, patient present with caugh and sputum. To prevent from this disease, we have to be safe from cold and dust. We have to wear warm clothes. We should not drink alcohol. We should properly wash the things used by the patient.To prevent from this disease, we have to eat nutritious diet and do physical exercise.

Trachoma

Trachoma is an eye disease. This disease is caused by bacteria.

The symptoms of this disease are; eyes becoming red, itching, and swelling of eyelids. The eyelid curl inward causing the eyelashes to scratch the cornea. To prevent from this disease, we have to clean our face as well as eyes at least twice a day. We have to use latrines for excretion of urine and faeces. We should prevent flies around our house. We should wash the clothes used by a patient properly.

Polio

Polio is caused by virus. It affects nerve of the body. It causes difficulty to move hands and legs. Organs of the body do not function and finally may cause paralysis.We have to provide polio drop to our child to prevent from this disease.

Activity

List the communicable and non-communicable diseases and their causes and show them in the table.

Communicable disease	Cause	Non communicable disease	Cause

Exercise

1. Tick (√) for the correct and cross (x) for the wrong statements.

(a) A disease that transmits from one person to another is called communiable disease.

(b) Measles is a non-communicable disease.

(c) The weight of T.B. patient decreases.

(d) The use of articles of a patient transmits disease.

(e) We should help to the patient.

2. Fill in the blanks with the suitable words given below.

(virus, non-communicable, communicable, diphtheria, nerve)

(a) Tuberculosis is a .....disease.

(b) Measles is caused by .....

(c) Polio affects ..... of the body.

(d) A kind of net formed at neck is called .....disease.

(e) Dysentery is a .....disease.

3. Match the following.

diptheria	eye disease
pneumonia	preventive measures
vaccine	chicken pox
trachoma	lung
measles	bacteria
	virus

4. Answer the following questions.

(a) Write three causes of Tuberculosis.

(b) What happen when we get in chicken pox?

(c) Write the symptoms of pneumonia.

(d) How do we know about trachoma?

(d) What are five preventive measures of disease?

(e) What should we do if anyone is suffered from disease? Discuss with your friend and write in your exercise book.

Teaching instructions

Centralize your teaching on bacteria and virus causing commanicable disease and heredity, personal behaviour and life style causing non-communicable disease and also give examples of preventive measures.Develop the concept that we have to go to the hospital or health centres instead of faith healer for treatment.

9 Non- communicable Diseases

Cancer, diabetes, heart diseases, etc. are non-communicable diseases. These diseases do not transmit from one person to another.

Causes of non-communicable diseases

Use of alcohol, cigarette, khaini, hashish, etc.

Use of unhealthy foods.

Mental tension because of quarrel and disputes in the family

Personal behaviour, food habit, etc.

Some non-communicable diseases are discussed below.

Cancer

Cancer is also called arbuda–disease in Nepali. Mostly cancer appears in lungs, skin, uterus, lips, intestine, etc. In this disease, unnecessary tissue grows in the body. Different cancer have different symptoms. General symptoms of cance are: loss of weight, loss of appetite. To prevent this we must avoid unhealthy habit like consumption of ciggratte, tobacco, alchol, spicy and fatty foods. We should apply sun screen and long sleeks clothes to prevent from exlessiveexposure of sunlight.

Diabetes

Diabetes is also called sugar disease. Diabetes appears when the amount of sugar increases in the body. The symptoms of this disease are frequent urination and excessive thirst, hunger and consequent increased fluid intake. Ants huddle in the urine excreted place. Patient feels tired, and lethargy. To prevent this disease, we should do physical exercise regularly. We have to eat

green vegetables and fruits. We should not eat high carbohydrate containing food.

Heart disease

There is a heart between two lungs in our chest. Heart circulates blood to different parts of the body. Mostly people of above 45 years suffer from heart disease. But nowadays people of all age groups are suffering from heart disease. The symptoms of heart disease are patient feels headache chest pain and weakness. Patient may faint. The pulse rate and heart beat of the patient may increase or decrease. To prevent this disease, we should not eat hot, spicy, and fatty foods. In the same way, we should be away from mental tension.

Activity

1. List down the causes of non-communicable diseases, and present into the classroom.
2. What would you do if your family members got suffered from heart disease? Write and present it to the class.

Teaching instructions :

Centralize your teaching on causes of diseases and care of the patient. And also give the examples of patient suffered from communicable and non-communicable diseases.

Exercise

1. Tick (√) the right and (x) the wrong sentences.

a) Cancer is a non-communicable disease.

b) The habit of using Jand, alcohol, cigarette is good.

c) Diabetes appears when our body cannot digest sugar.

d) Personal habit does not cause non-communicable disease.

2. Fill in the blanks with the suitable words.

a) Cancer is also called ..... (sugar, arbuda, kharse)

b) Diabetes appears when our body cannot digest . ..... (protein, vitamin, sugar)

c) There is .....heart in our body. (one, two, three)

d) To prevent non-communicable diseases we have to do ..... (rest, physical exercises, quarrel)

3. Answer the following questions:

a) What is non-communicable disease?

b) Write three causes of non-communicable disease.

c) What are the symptoms of diabetes?

d) What are the causes of heart disease?

Everyday, we must work carefully. We should not use things

Health message

Let's do regular physical exercise along with improving personal habits to prevent us from diseases

10

SAFETY AND FIRST AID

Safety against Accident

carelessley. Sometime unpleasent events take place due to our carelessness and mischief of friends. This is called an accident. We should not work in a hurry, that may lead to an accident. An accident may occur in different places in different ways.

An accident might occur while climbing up and down the ladder, touching naked electric wire, playing in the ground and classroom, crossing road, walking at night, etc.if we do not became careful. We should not enter in stream, pool and pond without having knowledge of swimming. Some examples of accident are drowning, burn, animal bite, electric shock, frost bite, etc. We have to give suggestions of safety against accident to our friends.

Teaching instructions:

Teach your students focusing on various places and objects that cause accidents. Also, inform them about causes and preventing measures related to accidents

Activity

1. Share an accident that you have observed or met with the class.

Exercise

1. Write safety measures of the following accidents.

(a) Fire burn

(b) Falling from height

(c) Dog bite

(d) Electric shock

2. Match the followings.

(a)	Frost bite	injury
(b)	Drowning	fire
(c)	Bleeding	stream-pond
(d)	Electric shock	forst bite
(e)	Burn	naked electric wire
		carelessness

3. Answer the following questions.

(a) How does an accident take place?

(b) Where do an accident may occur?

(c) What should be done to be safe from an accident ?

(d) What should be done to protect us from a snake bite?

11 FIRST AID

The immmediate treatment for a sick or injured casaulty on the site is called first aid. It is essential for an injured person. This service is necessary on the spot before the arrival of a doctor or taking her/him to the hospital. It helps to protect from further worsening the condition of an injured person .

Cuts and wounds may take place in an accident. We should not paste dust, soil or cowdung on the bleeding spot or wound. It may cause infection of wound and the condition of injured person becomes more serious. If there is bleeding, wounded part should be raised slightly up. The wound should be cleaned

to remove the dirt and dust from it. To stop the bleeding fasten a piece of cloth above the wound and make it tight. If the victim is unconscious provide artificial respiration. Send victim immediately to the health post or hospital.

Activity

1. How will you help your friend whose leg is injured while playing on the ground? Write.
2. Consult a doctor of a health post nearby your house and write how the first aid is provided in an injury and illness.
3. Write the name of the materials that are kept in a first aid kit and present to the class.

Exercise

1. Tick (√) the right and (x) the wrong statement.

(a) We have to go the hospital for first aid.

(b) First aid does not help us to save the sick or injured person.

(c) Soil stops bleeding.

(d) We have to be careful to be safe from an accident.

(e) We should help to the victim.

2. Fill in the blanks with the suitable words.

(a) The treatment performed in an accident is called..... (first aid, complex, general)

(b) First aid is performed on.....(hospital, accident spot, nursing home)

(c) The wound should be cleaned with .....(clean pieces of cloth, soil, dust)

(d) Victim should be taken to the.....(school. hospital, home)

(e) Soil and dung .....wounds. (infect, cure, big)

3. Answer the following questions.

(a) What is first aid?

(b) What has to be done while it is bleeding?

(c) How does the wound get infected?

(d) How is the first aid done for wound?

(e) Where should the first aid be given?

Teaching instructions:

Teach focusing on the importance of first aid, artificial respiration, infection of wound and use of clean bandage. Prepare other things related to it before going to the classroom

Health message

Clean the wound, apply medicine, do not use dust, dirt and cowdung, save from the infection of wound and tetanus.

12 Health service and Facilities

(Teacher and students are discussing in a classroom)

Teacher : Shyam, why didn't you come to school yesterday?

Shyam : Sir, I had fever yesterday. So I couldnot come to school.

Teacher : How are you, today? (Putting hand on head)

Shyam : Sir, I am well today.

Teacher : What did you do when you suffered from fever?

Shyam : I went to health post of our community to check up, took medicine and became well.

Teacher : Good, when we become sick we have to go to health post or hospital to check up and to take medicine. Let's study about health service and facilities today.

Student : Ok. Sir, What does health service mean?

Teacher : Health service means the service taken before being ill or at the time to make our health good. It includes vaccines as well as treatment of serious diseases.

Student : Where are these services available, Sir?

Teacher : These services are provided by the sub-health post, health post, primary health centre and mobile clinic in village while big hospital and nurshing home provide health services in the urban areas.

Student : Who provides this service?

Teacher : Doctor, nurse and other health workers provide this service.

Student : Do we have to go to health centre when we become ill ?

Teacher : Yes, we have to request other neighbours as well. We have to go to treat illness. Doctor, nurse and health workers look after the patient and treat them. Patient must go health post or hospital. Simple diseases

are treated in health post while serious diseases are treated in big hospitals. We have to apply various methods to take patient to the hospital.

Student : What type of method. Sir?

Teacher : Ambulance carries patient to the hospital in city while doko (a basket made up of bamboo) is used to carry patient in the village. We have to help patient as far as possible. Such help is called health service.

Student : How can you help be offered?

Teacher : We can help by informing elders and requesting them to take the patient to health centres or hospitals .

Activity

1. Make a list of health service stations and health workers available in your comunity and present in the classroom.
2. Conduct an elocution programme in your class on "It is better to go hospital rather than to the faith healer."

Exercise

1. Fill in the blanks.

(a) The service taken at the time of illness is called ..... service. (health, education, social).

(b) ..... carries the patient to the hospital in the city. (ambulance, doko, stretcher)

(c) ..... provides health service in the village. (nurse, health worker, faith healer)

(d) The person who provides health service is called ..... (teacher, engineer, doctor).

(e) Illness should be treated from ..... (faith healer, health worker, religious monk).

2. Tick (√) the right and (x) the wrong statements.

(a) We should go to the faith healer for treatment.

(b) Medicine should be taken as prescribed by the doctor.

(c) We should not go to hospital or health post when we become ill.

(d) We should help others to take health services.

(e) Vaccination comes under health service.

3. Answer the following questions.

(a) What is health service?

(b) Who provides health service?

(c) Where is health service available? Write the name of any five places.

(d) Mention the name of four organisations that provide health service in your community.

(e) Did any member of your family go to health post this month? If yes, write the reasons.

Teaching instructions :

Tell about the health services available in the village as well as urban areas and equally emphasize the importance of Ayurvedic and natural medicine. Tell students act out in the content and discuss in the group. Teachers have to play the role of facilitator.

13 SMOKING, ALCOHOL AND DRUGS

Smoking

Smoking is the use of tobacco products. Bidi, cigaratte, tobacco, hubble bubble, etc. are tobacco. Tobacco contains a toxic chemical named nicotine. It affects our health. Therefore smoking is a slow poison. Smoking affects respiratory tract and lungs. It causes bad breath, asthama, staining of skin and waste of money.

Alcohol

Use of wine, beer, vodka and rum is called alcoholism. Alcoholism contains a chemical substance named alcohol. It harms in all physical, mental and social aspects. It affects our liver, heart and brain. Moreover, it causes social crime such as robbery, theft, quarrel, loot, etc.

Drugs

The element that affects the brain and disturbs normal body function is called drug. Cannabis, hashish, opium, smack, heroin, cocoine, etc. are drugs. Drug harms all physical, mental and social aspects.

Children start smoking, using alcohol and taking drugs by imitating their elders and friends. We should not use such things that harm our body. And also we have to suggest other people not to take such things.

Activity

1. Write five examples of each smoking, alcohol and drugs in the table given below.

Smoking	Alcohol	Drugs

2. Prepare a report about the effects of smoking, alcohol and drugs in a body after a discussion among the friends.

Teaching instructions

Teach children focusing on causes, effects and preventive measures of smoking, alcoholism and drugs and encourage not to use them. Conduct the activity to develop awareness in a community.

Exercise

1. Tick (√) the right and (x) the wrong statements.

(a) Cigarette and bidi are tobacco products.

(b) Smoking affects our liver.

(c) Use of alcohol is alcoholism.

(d) Cannabis is not a drug.

(e) Cigarette, alcohol are harmful substances.

2. Answer the following questions.

(a) Write any four effects of smoking in our body.

(b) Write any four effects of drugs on our health.

(c) Write two causes of adopting bad habit of smoking, alcohol and drugs.

(d) What are the preventive measures of smoking, alcohol and drugs?

Health message

Save you and help others be safe from smoking, alcohol and drugs.

1

Basic skills

Locomotor skills

We do different kinds of activities in our school, house, play ground etc. While doing these activities we move different parts of our body. Different kinds of activities like walking, running, jumping etc. help to make our body healthy as well as active and energetic. The regular practise of such activities helps in the development of our physical, mental, social and emotional aspects.

Different types of walking

We practise for walking properly. Improper walking disturbs the balance of our body. Walking also develops the skill of running.

Activity 1

Walking:

Look at the following three types of walking. Lets recognize which one is easy.Practise to walk properly.

Conjusted walking

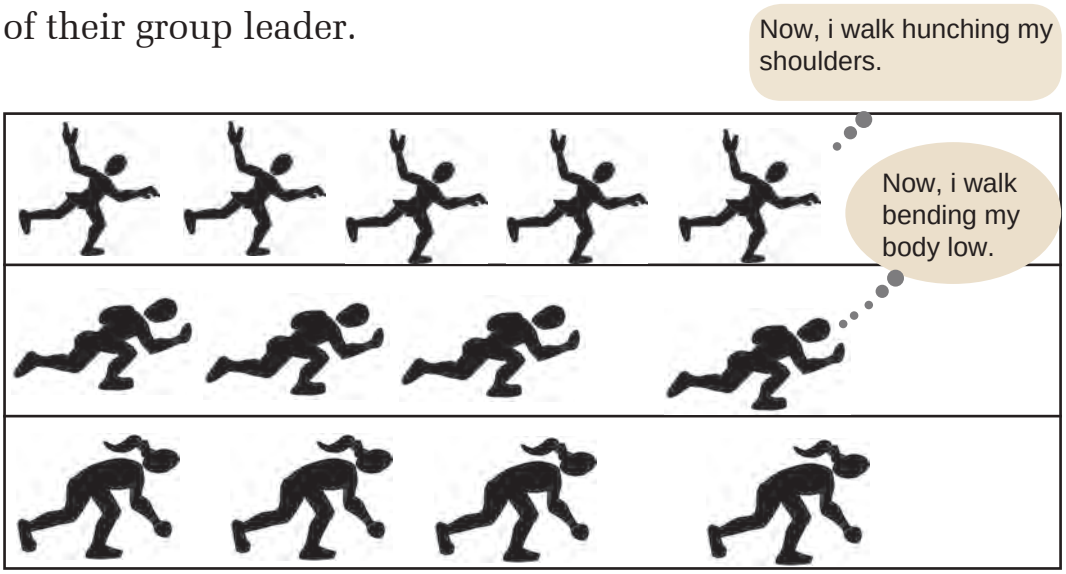
Proper walking

Improper walking

Activity 2

Walking by imitating

It becomes very interesting when the group follows the walking of their group leader.



Activity 2

Pair walk

Practise walking with equal movement of legs.

Teaching Instruction.

While practising walking activities, teacher has to show first then students will follow the teacher . It helps to develop appropriate walking skills.

2 Running

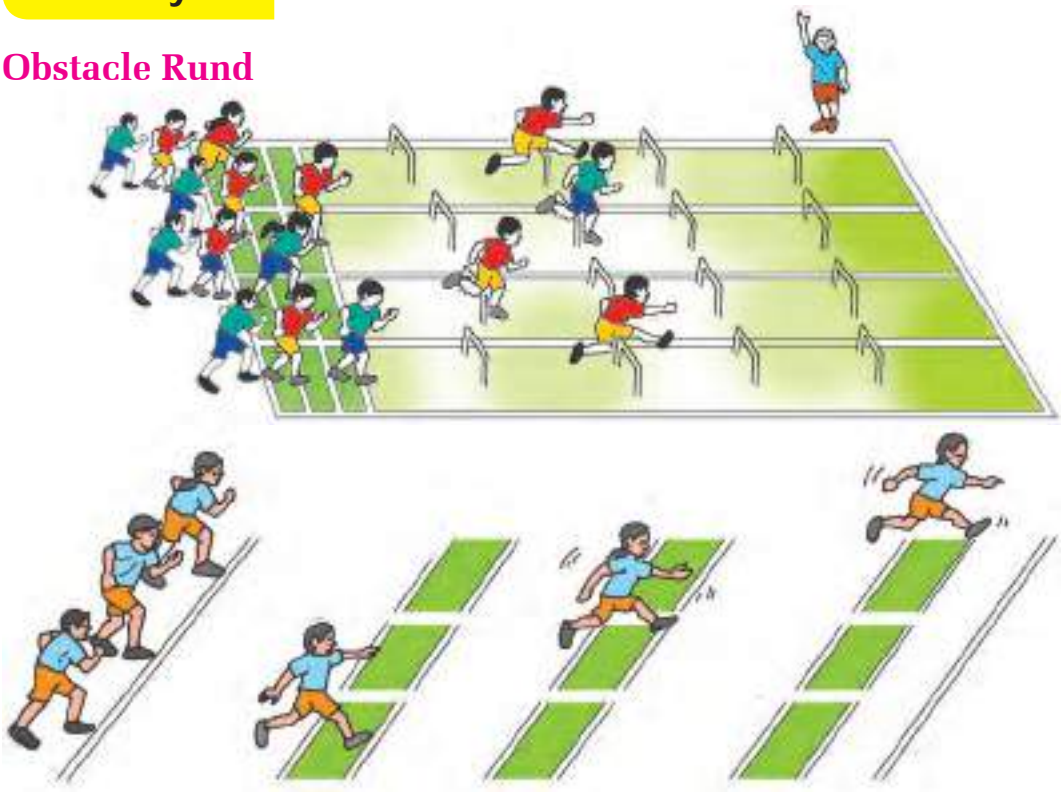
We can reach to our diestination earlier by running rather than walking. Running helps to make our body healthy. It is fundamental skill of all games.

Variety of running :

There are different types of running. We can practise running through different ways like fast, slow, zigzag relay etc.

Activity 1

Obstacle Rund



It is better to practise running by keeping obstacles in the distance of 5 to 7 meter. But it depends on the size of the ground. This game can be practised as relay.

Activity 2

Zigzag Running/ Relay

We start running after command. We move around the flag and return back. We touch friend in front of us in group and stand in the back.

Activity 3

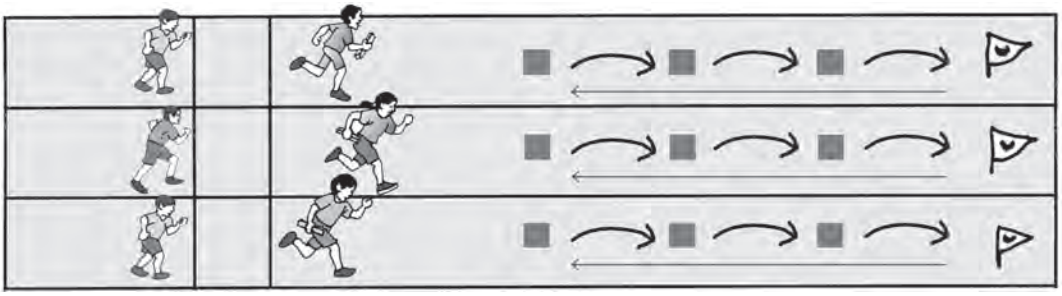
Simple jogging

Sometimes we do simple jogging. We slowly run in doing jogging. In jogging, it is very interesting to move around the school through a short track . Teacher shows the track for jogging.

Activity 4

Object shifting Running/Relay

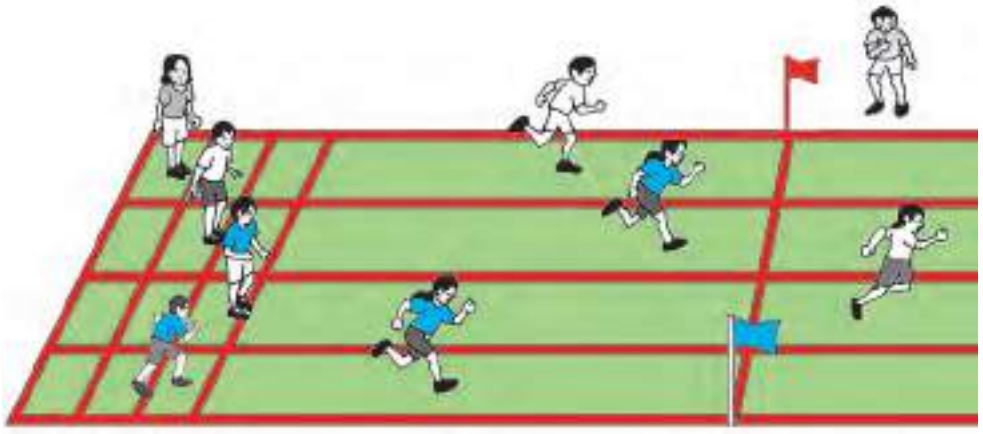
We keep the object of our hand in the first position. And we pick up the existing object from first place and keep it in the second place. In the similar way, we pick up the object of the last position and move around the flags and give this object to our friend. All the friends replace the object in similar ways.



Activity 5

Straight running

We do warm up exercise before starting a game. We carefully listen to the instructions of the teacher. We form the groups and divide the work. Then we start game.



Teaching instructions:

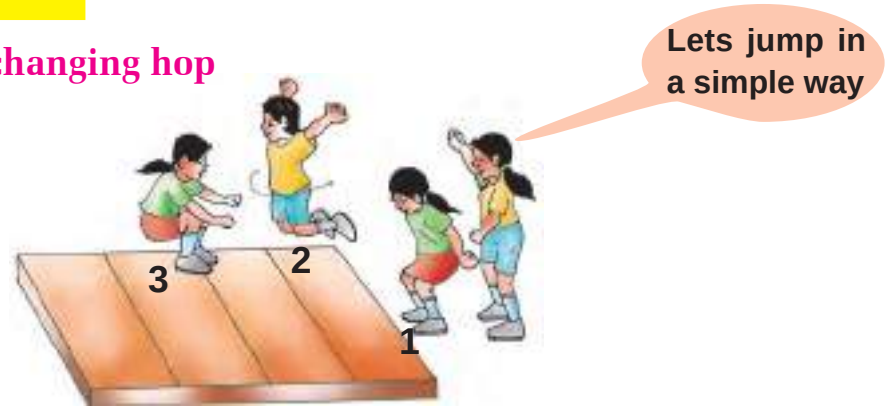
Practise to start running of fixed distance from the crouch position.

3 Different types of Jumping

We have to jump in most of the sports. Sometimes we jump up and sometimes far. Jumping makes our legs and muscles strong.

Activity 1

Direction changing hop



In direction changing hop, we turn to the same place in landing .

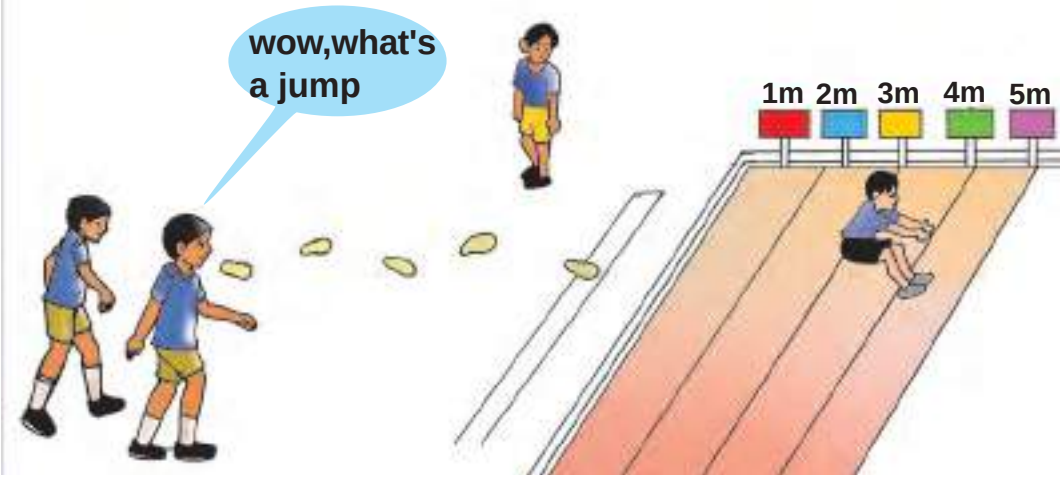
Activity 2

Skipping

We can jump moving a rope in different ways and play. The game played by jumping the rope is called skipping.

Activity 3

Long Jump



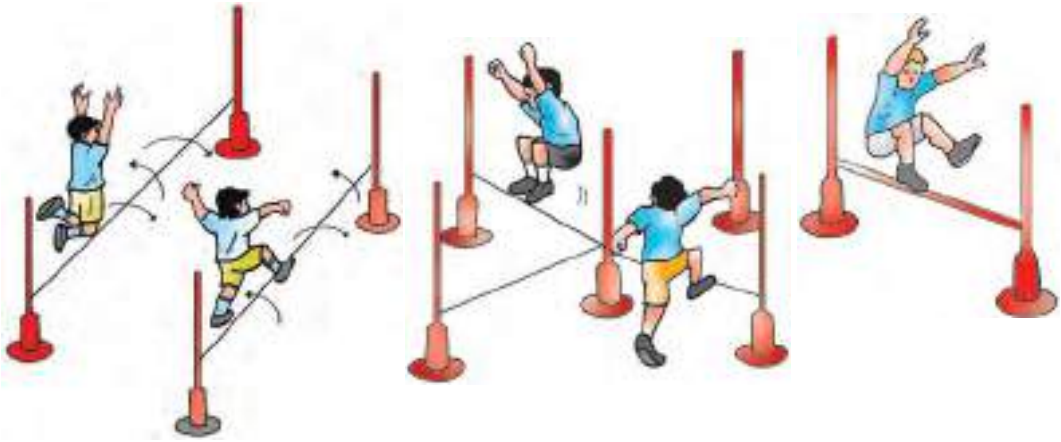
We can jump from 4/5 meters far taking approach and footing on the take off board.

Activity 4

Easy high jump

We can cross bars jumping differently. Let us practise different types of jumping.

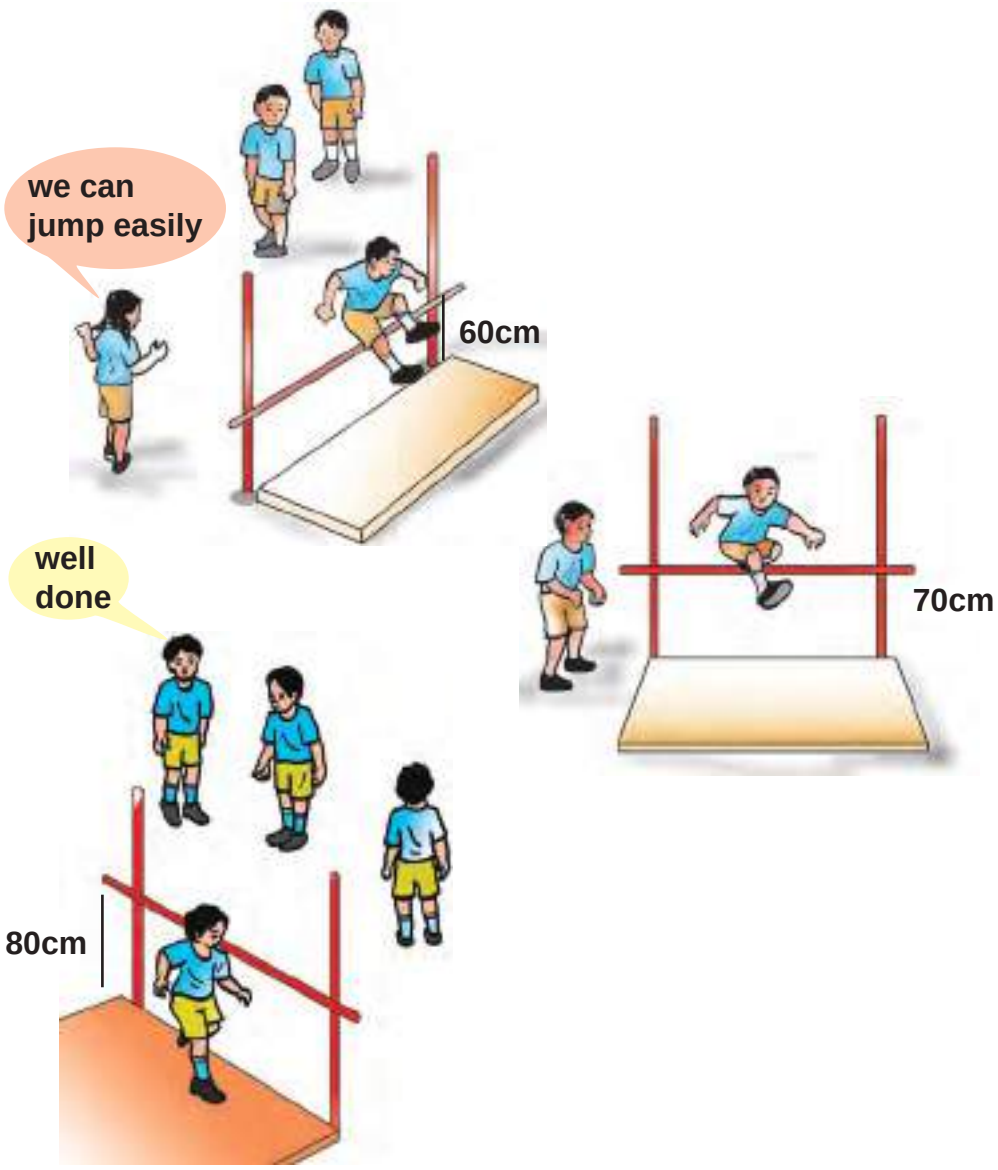
Tantrum high jump Continue high jump Scissor high jump



Activity 5

Height increasing high jump

we can practise high jump in the different heights.



Teaching instructions:

It is better to practise fundamental activities before practising main skills of high jump. Activities should be done according to the capacities of the students. For example: Judge the jumping style, keep the record)

4 Throwing

Hand is used to throw an object. We have to move fingers of the hand and joints of the shoulders before throwing. Throwing is one of the important skills among locomotor skill.

Activity 1

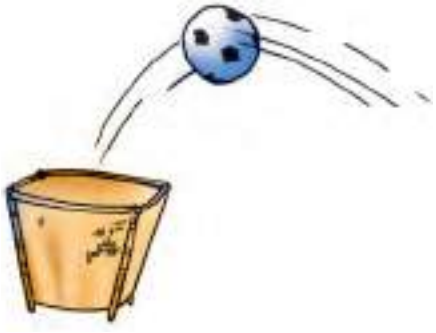
Playing by Throwing balls with hands

It is very interesting to play by htting with a ball. We can play throwing ball game.

Activity 2

Target ball play

We can throw ball in the fixed destination.



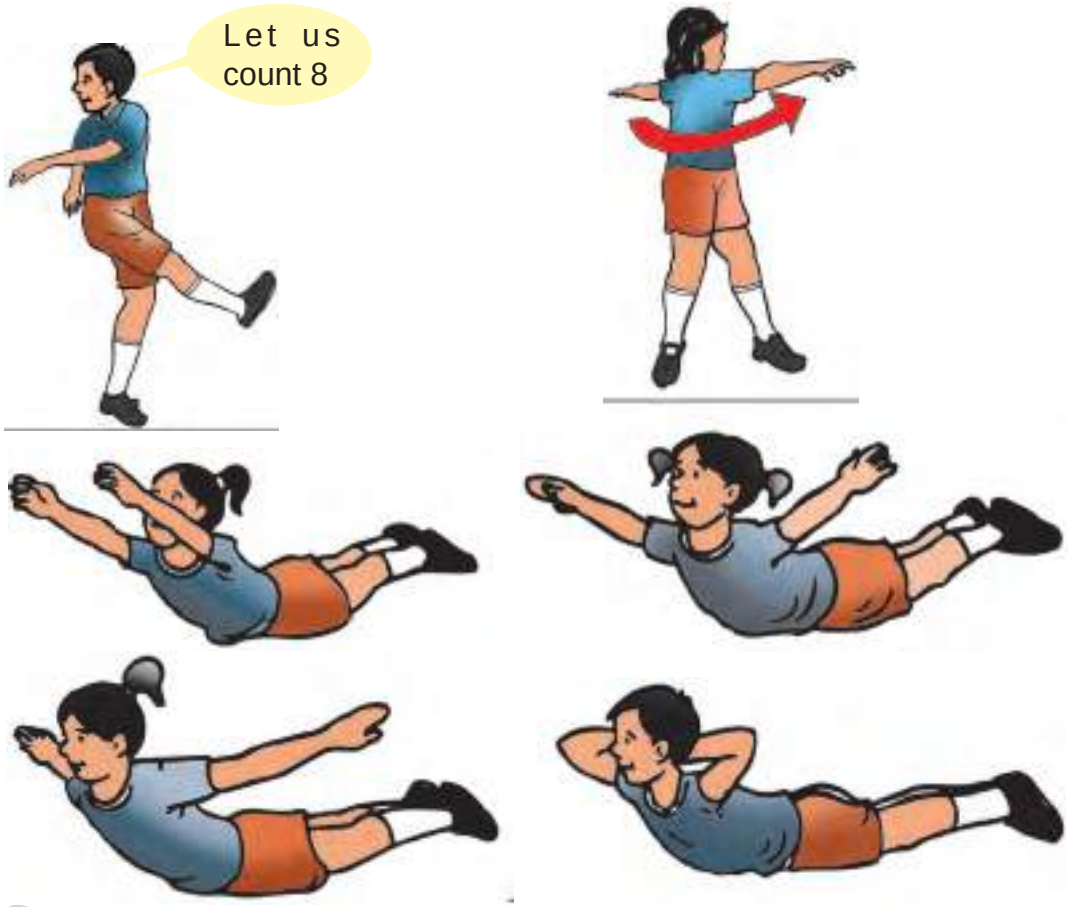
5 Non–Locomotor Skills

Physical exercises that are performed in one place are called non locomotor skills. These exercises can be done by standing, sleeping and sitting. Pulling, pushing, throwing, swing, twisting etc. are non-locomotive activities.

Activity 1

Swinging and twisting

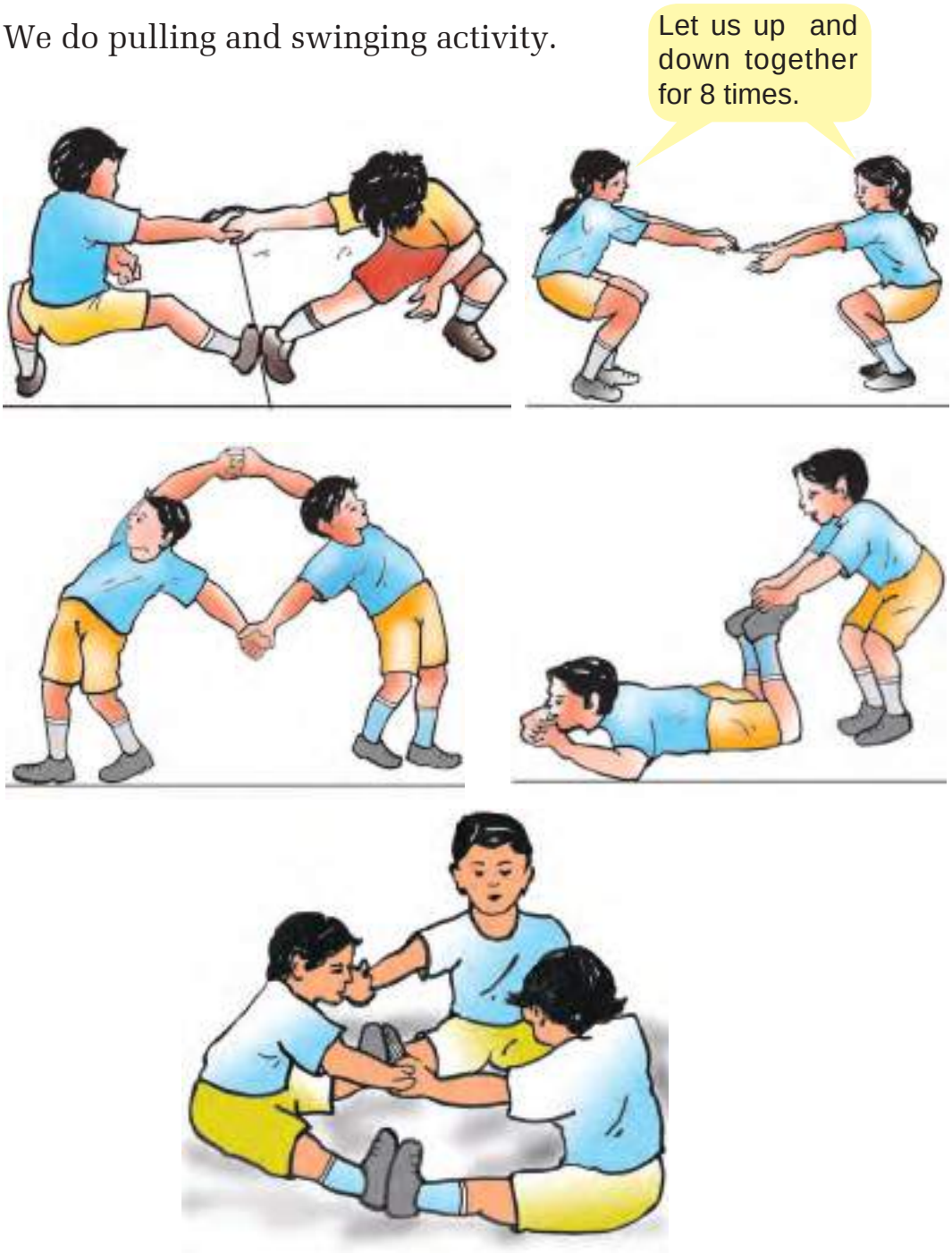
We can do swinging and twisting exercises individually.



Activity 2

Pulling and swinging

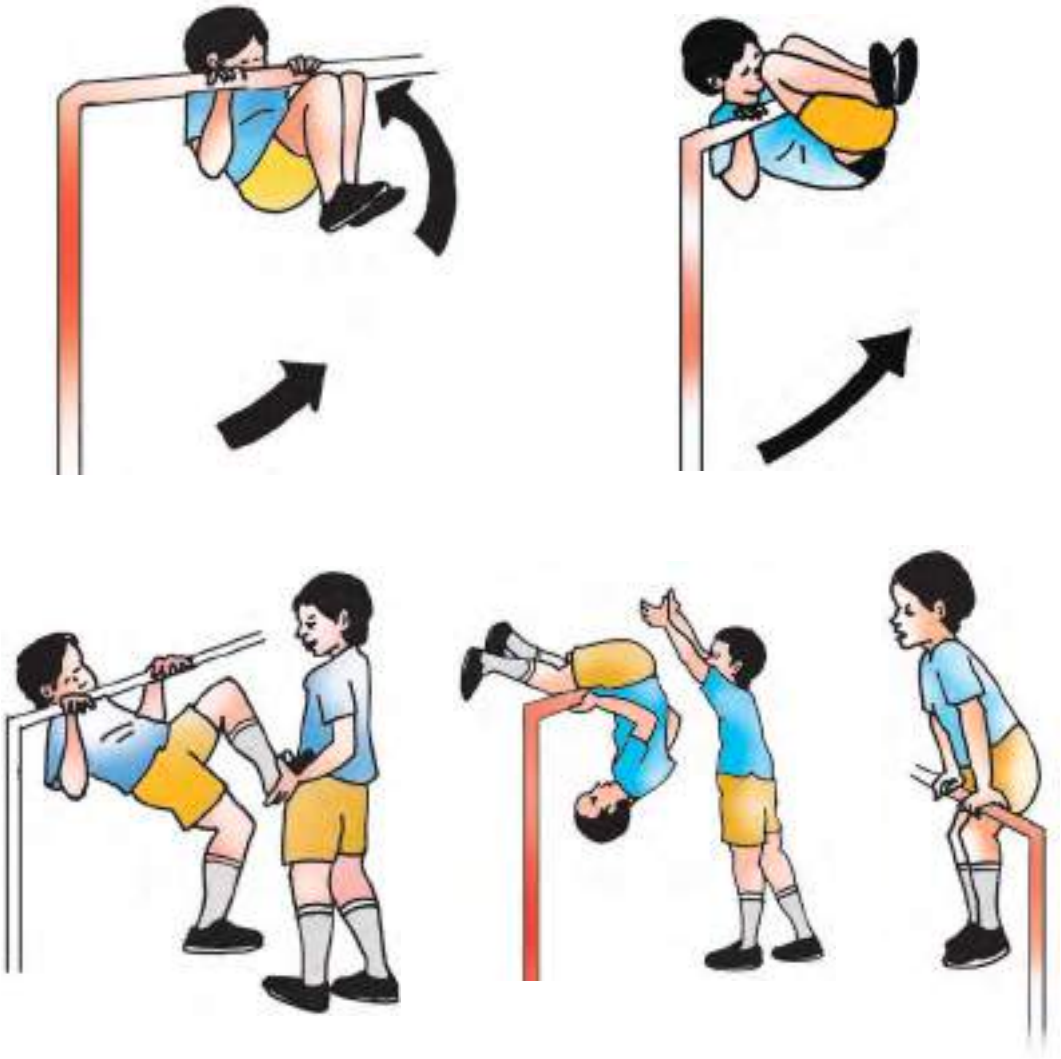
We do pulling and swinging activity.



Activity 3

Hanging and climbing

In the begining, we practise hanging with the help of one friend.



Teaching Instructions:

Practise non-locomotive skills in the presence of the teacher. Otherwise it may happen accident. These skills can be used as specific skill of other games and activities.

6

DRILL AND PHYSICAL TRAINING

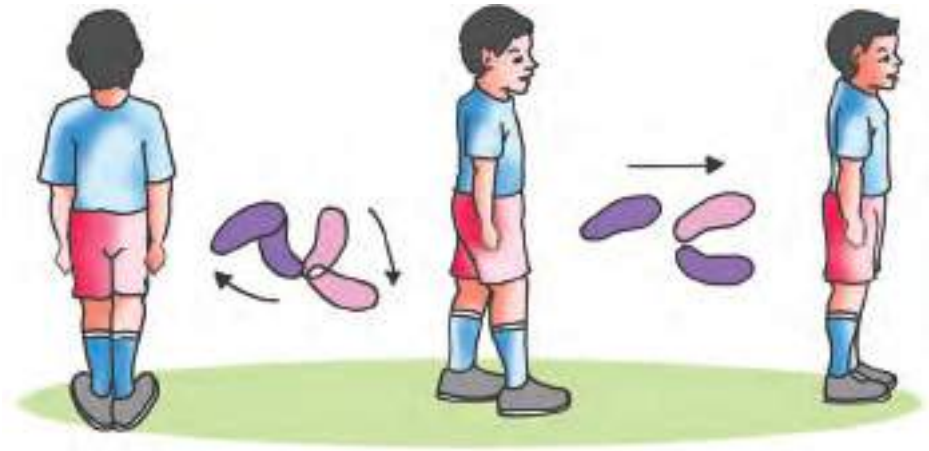
Drill

Drill is the collective exercise performed under the command of a group leader. We can do different activities in drill. All the participants should stay in files and in different rows. We have practised attention, stand in, rest exercises in previous class. Here, we will practise turn right, turn left, turn about, quick march, halt etc.

Activity 1

Turn right

We turn right footing with a right heel and fingers of the left leg after command. Then we join left heel with right heel.



Activity 2

Turn left

We turn left footing with a left heel and fingers of the right leg after command. While turning to the left we move only 90 degree left.

3 2 1

Activity 3

Turn about

After command, as in turn right we turn our body in 180 degree from right. We should balance our body to join the right foot with the left heel.

Activity 4

Quick March/Halt

We start walking from left foot. After command, we place our left foot forward and the same time we move our right hand forward. This is followed by regular steps like 1.....2.....,1 .....2. After command of quick march we increase our speed. But we have to balance our hands and legs in the speed.The group leader commands as in the following ways:

Command
1.Quick
March...

When the group leader stop we also stop by footing with a right leg. It means group leader gives command to stop. Group leader gives command as follows

Command
Halt
.....halt

Activity 5

Right sight

Commander gives these commands when we do march. After getting command, we turn our neck to right sight. This command is given to respect and honour for chief guest. Commander gives command in this way:

Command

1. Turn your sight right
2. Right.....sight

Command of sight

1. Chin should be above shoulder.
2. Sight should be to the audience
3. There should be same movement of hand and foot.

Activity 6

Straight sight (Attention)

Commander commands for straight sight after the completion of right sight. Then, we have to march looking forward. The command of straight sight is given after moving about 20 to 25 steps forward. Commander gives the commands in this way:

Command

1. Group
Straght..... sight

Rules of straight sight

1. Pay attention to the command
2. Wait for completion of command
3. After command, see forward
4. Legs and hands should be moved in the same speed.

Teaching Instructions:

Skills should be demonstrated clearly and simply. Command should be given properly. These skills are very important in the special occasion of the school. It is better to form a group for drill.

7 Physical Training

Physical training is a kind of exercise. It helps to make our body healthy, fit and makes us disciplined. It is very interesting to exercise in group.

We have practised physical training from table No 1 to 10 in grade 3. Now, we will practise all the tables of physical training.

Table No .1:

Body stretching training

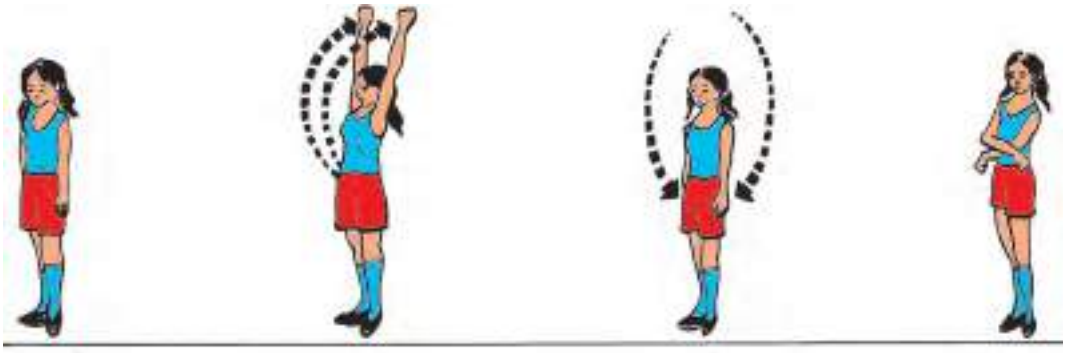


Table No .2 :

Hand's and leg's training

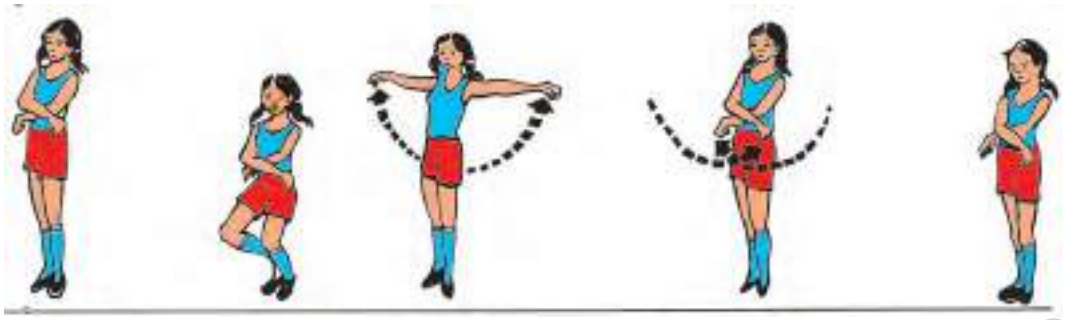


Table No .3 : Shoulder's training

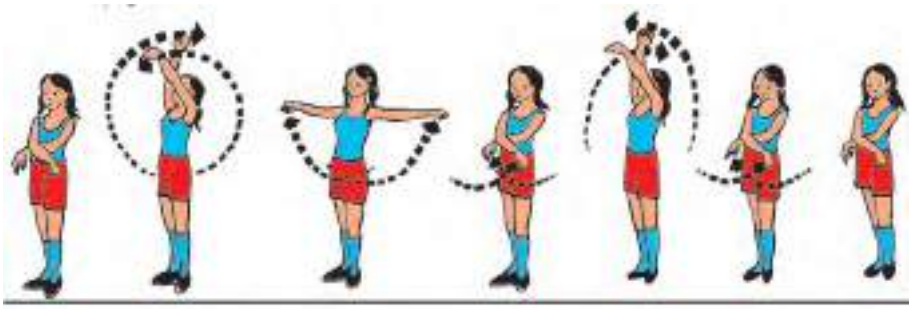


Table No. 4 : Chest stretching training

Table No .5: Hand's and waist's training

Table No .6: Backbone's and waist's training

Table No. 7: Training from the heels

Table No .8 : Strecthing training

Table No. 9 : Bending training

Table No .10 : Round the body training

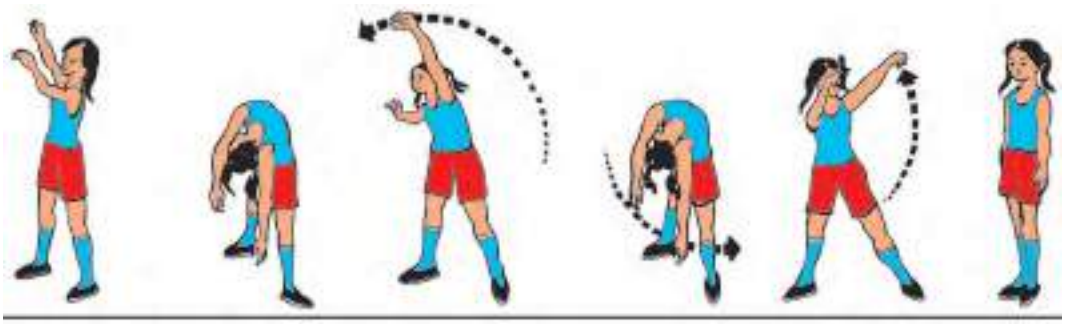


Table No .11 : Body cooling training

Beginning Position: As in the last stage of table No. 10

Count 1,2,3 and 4: In the beginning, jump slightly for four times in a flexible way.

Count 5 and 7: Jump and spread your legs and hands.

Count 6 and 8: Come to the beginning position and lastly cross the hand forward.

Table No: 12 : Respiration and physical training

Beginning position: Ending stage of count No. 11

Count 1: Keep the knee straight until taking air, bending knee and spread both right and left hand.

Count 2: Throw air out and come to beginning position, count upto 10 and lastly put the hands in their sides.

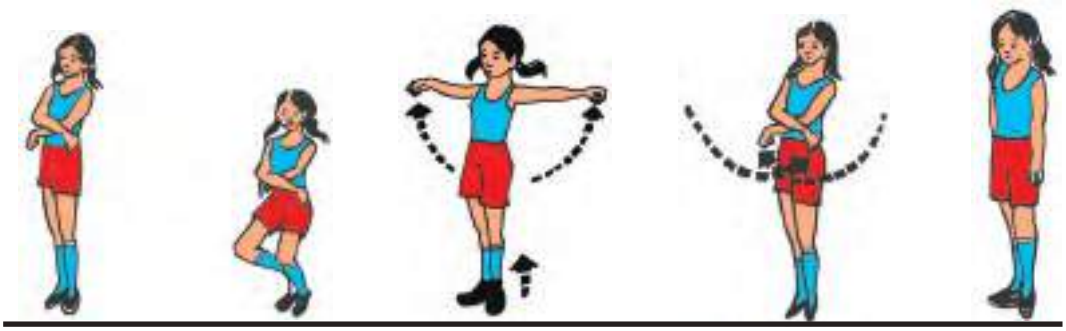


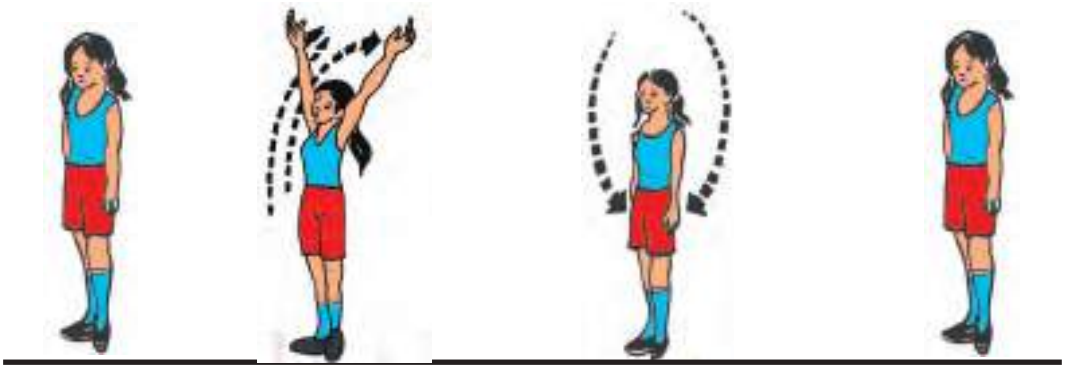
Table no. 13 : Respiration and cooling body training.

(We do this training by taking air and moving hands up and throwing air as well as moving hands downward .)

Beginning Position: Ending stage of table No: 12

Count 1and 2: Take air in and move both hands up

Count 3 and 4: Move your hands down from right and left with throwing air out and simultaneously count upto 16. And then have a rest.



Teaching instructions:

We have already practised upto table no 4, 7 and 10 gradually in grade one, two and three respectively. Therefore, practise table no. 1 to 13 in grade 4.These activities can be done before other activities as warming up activities. We can develop these skills by practising properly.

8

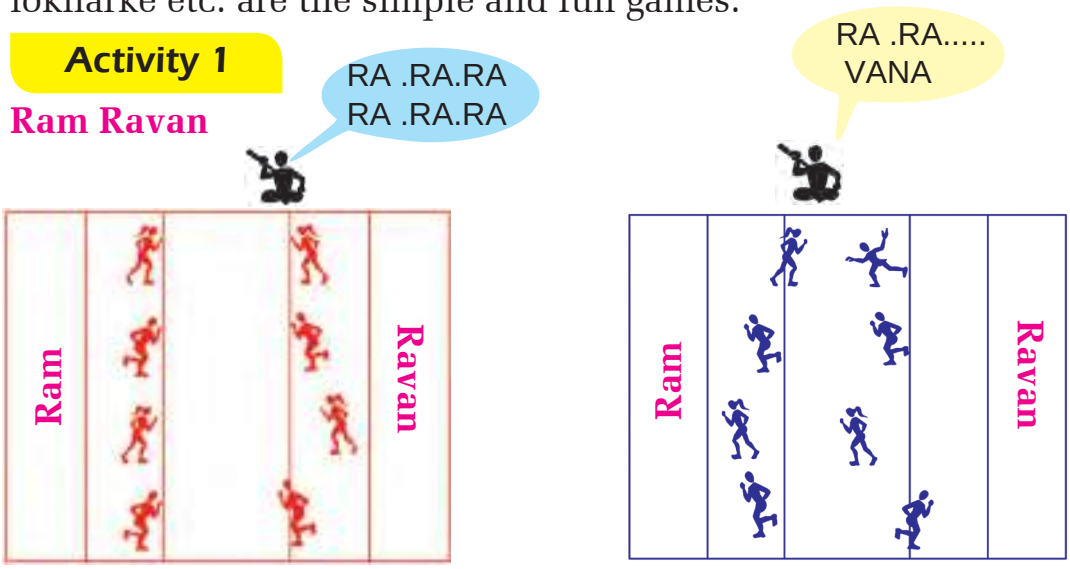
SIMPLE AND LOCAL GAMES

Fun Games

We play simple games in group. We play games chasing many friends by a person whereas we play some games chasing many friends by many persons. Sikri lakhetai, Ram Ravan, Rukhama lokharke etc. are the simple and fun games.

Activity 1

Ram Ravan



Ram Ravan game is very interesting. In this game, if a person's name is called, his team has to chase the other.

Activity 2

Squirrel in tree

Teaching instructions:

Draw clear lines in the ground before practising the simple and local games. Clean drinking water should be managed for students before practising these physical exercises.

9 Our Games

There are many games played for a long years in our community. Dandibiyo is played in many parts of our country. Kabaddi is also played in many places. There are some games which are played in our village and neighbouring villages only. These games are called local games.

Activity 1

Throwing away game.

Activity 2

Strock with a stick (Thyak lagaune)

Teaching instructions:

Have warm up exercise in the beginning and cool down exercises at the end of the activities. Teacher should be aware of possible accidents while playing dandibiyo game.

10

CREATIVE GAMES

Story Based Games

We enjoy listening a story. There are many types of stories. For example, mordern story, ethical story, child story and folk story etc. We make short stories and We also play drama on the basis of the story.

Activity 1

Short story game

We make a story by adding one sentence of each student. Then, we complete the story collecting all these sentences. We can perform the drama from story as well.

Activity 2

Role play games

It is really funny to do role play on the dialogues.

Tiger : Why are you late?

Rabbit : When I was coming, a tiger tried to attack me on the way. I came here hardly.

Tiger : Where is it? I will kill him.

Rabbit : He is in the way.

Tiger : Show me. where is it?

Rabbit : Let's go, I will show you.

(Rabbit goes ahead . When they reached near well, rabbit shows in the well...)

Rabbit : Brother, he was here.

Tiger : Let's see, where is it?

(Tiger sees in the well. Tiger saw his figure in the well and try to attack thinking a tiger for his own shade and fell down into the well.)

Imitation Games

There are many friends in our class. Our favourite things are also different. Some friends like telling a story and some of them like listening to a story. Whereas some friends enjoy singing. Different people like different things. But we all like act out and play.

Activity 3

Different types of laughters

Smiling
Laughing loudly
Laughing with teasing

Activity 4

Different types of weeping

Sorrowful crying
Crying loudly
Rhythmic crying

Teaching instructions:

Make students act out in different stories as well as encourage them to imitiate sounds and activities of different animals and play the roles. Let students practise to act out with miming and gestures.

BALL GAME

11 Trapping and Kicking the Ball

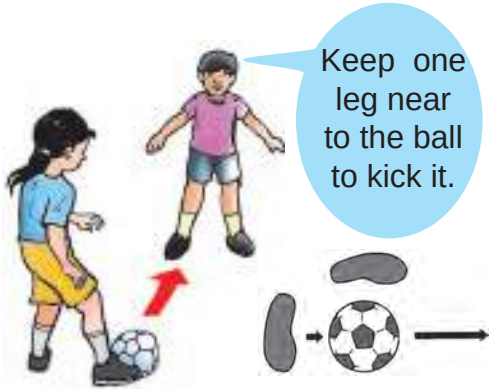
We enjoy playing a ball. We play ball with hands or legs. Passing, receiving pass, dodge and dribbling are some skills of ball game. We play football by kicking a ball with our legs.

Activity 1

Three touch pass

Rules

1. Firstly, stop the ball
2. Secondly, make ball sure
3. Thirdly, pass the ball
4. Finally,Roll the ball while passing.



Activity 2

Three touch in circle

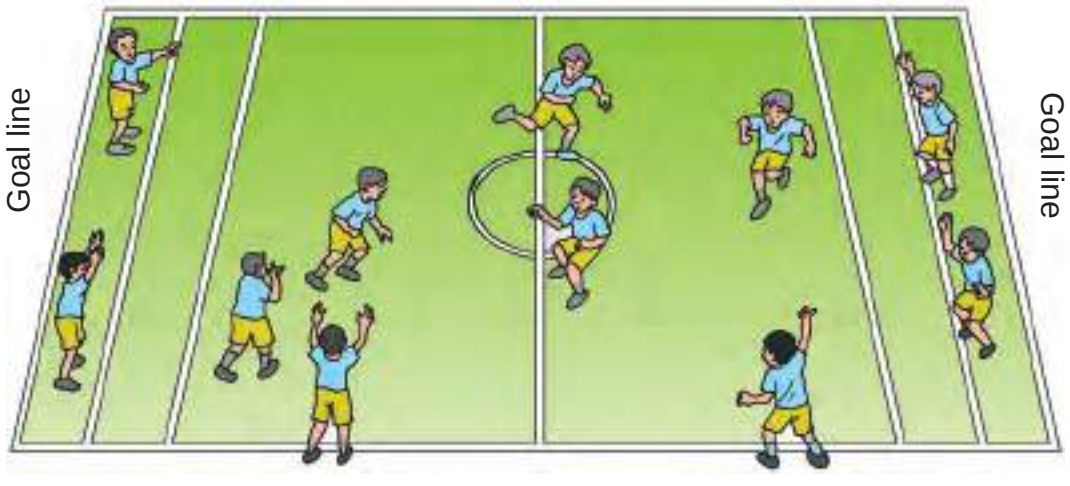
Rules

1. Pass the ball in the rule of three touch.
2. Inner participants should pass the ball in clockwise direction.
3. The person who have not passed within three times has to round the circle.

Activity 3

Line football

There are 5 to 7 players in line football. Let's play a group for 5 minutes. Then next two group will play.



Teaching instructions:

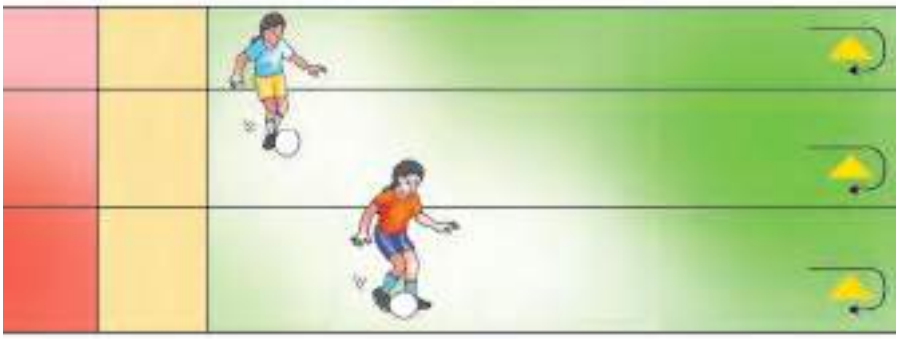
It is better to practise line football or other similar types of games after practising the skillls of exercises 1 and 2.

12 Dribbling Game

Dribbling is a game played by passing a ball forward slowly by kicking with legs .

Activity 1

Dribbling Relay



We turn the signal by dribbling the ball. Then we pass the ball to other friends from 2 meter far and stay in file.

Activity 2

Zigzag Relay

We start dribbling a ball from the left side of the signal.Then we dribble the ball right and left (zigzag and come back from the last signal). We pass ball to the friend from 2 meters far and stay in the back.

13

Jymnastic

Turning upside down

We can lie as a log in different conditions. In the same way, we can lie from the front as well as back. Such activities are turning upside down activities.

Activity 1

Activities for turning upside down.

Activity 2

Activity 3

Teaching instructions:

After doing exercise of activity no 1 and 2, turning upside down exercises can be done. It is better to do warm up exercises and entertainment activities before starting any activities.

14 Balancing

We can stand placing the head in the floor. Balance is a process of keeping our body according to our willing. These activities helps to balance our body.

Activity 1

Activities for balance

Activity 2

Balance of head placing in the floor.

Activity 3

Balance by placing the hand in the floor.

There should be good a co-ordination of hands to do these activities.So, in the beginning, we balance hands and head with the help of our friends.

Teaching instructions:

Practise the exercises of activity 2 after being able to do the exercises of activity 1. Before practising standing with hands by telling friends catch the legs, it is better to practise to stand with hands by keeping the legs in a height.