Physical Education and Health
[For Class VIII]

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Preface

New textbooks at Junior Secondary and Secondary Levels were introduced in the early 80's in the light of the recommendations of the National Curriculum and Syllabus Committee formed in 1975. Although more than a decade has elapsed, no major attempts were made to modify and revise the curriculum and develop new textbooks to meet the changing socio-economic needs of the country and to incorporate advanced scientific and technological knowledge of the contemporary world.

In this context, the Government took a comprehensive programme to modify and reform the time-old curriculum and syllabus of Junior Secondary, Secondary and higher secondary stages of education in 1994-95. The broad aims and objectives of the modified curriculum are to raise the standard of our education upto international level, to enable the students to acquire newer knowledge, to inculcate in them religious moral and social values, and equip them with such skills that help them in self-employment.

New textbooks for classes VI to X were developed in accordance with the modification and renewed curriculum and syllabus. These books were first introduced in classes VI and IX in 1996 and those for classes VII and VIII were introduced in 1997. As usual these textbooks are written in Bangla.

In compliance with the Government decision of allowing the students to study in English medium also, National Curriculum and Textbook Board, for the first time in its history, Undertook the task of preparing English version of the existing textbooks of different subjects for classes VI to X.

This book Physical Education and health for class VIII is the English version of the original textbook entitled "Sharirik Sikkha" written in Bangla.

The work of translating, editing and printing were done rather in haste so as to make the book available to the students in time. Inspite of sincere efforts some inadvertent errors and omissions may be found in the book. As curriculum development is a continuous process, our efforts will continue to make the book free from these errors and improve accordingly in the next edition. In this respect positive advice and constructive suggestions from any quarter will be highly appreciated.

My sincere thanks and gratitudes are due to those who were, involved in translating, editing printing the book. All efforts will be deemed fruitful if the teachers and students are benefited by the book.

Professor Md. Mostafa Kamaluddin
Chairman
National Curriculum and Textbook Board, Dhaka.
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Introduction

What is physical education?

Generally, education related with body or physique is called physical education. But the education through which the knowledge about body i.e. its harmonious development, natural growth and method of sustenance is acquired, can be termed as physical education. In physical education, social qualities, sense of discipline, control of emotion, quality of leadership can be earned. General education remains incomplete without physical education. It is complementary to general education. Through sports and games and different kinds of physical activities, the above mentioned physical and mental qualities can be attained and it will be termed as the contribution of physical education.

Need for physical education

1. **Development of limbs and organs**: Regular and correct movement of limbs increases the growth of the limbs and organs and the working capability of the body. The movement of the body in different games and sports like running, jumping, throwing events etc. help developing the functions of limbs and organs. The mind becomes cheerful through these activities and the body gets plenty of exercises. So it is very essential for the children and the youths to learn the activities of sports and games as well as physical education.

2. **Co-ordination of nerves and muscles**: In the childhood, the limbs of the body develop very fast. It may so happen that sometimes the development of mental faculties can not keep pace with the fast growth of the body. As a result, nerves and muscles lack co-ordination. In order to make them work correctly the movement of limbs in a systematic manner and sports and games are necessary.

3. **Avoiding monotony in study**: While studying in the classroom at a stretch, monotony may occur. If there are physical activities and games and sports in school curriculum then the children can remove their monotony in the classrooms and they can get back freshness of mind and learn the lesson well.
4. **Social virtues**: The students develop social qualities as members of the group by playing together, following the rules, obeying the orders of the teachers or the leaders, giving leadership to the students in victory or in defeat, controlling the temper, maintaining the unity and discipline of the group, abiding by the instructions and getting the emotions controlled. So, in order to develop these character building qualities physical education is necessary.

5. **Understanding among fellow students, development of analytical power and judgment**: The boys and girls by taking part in sports and games gradually understand the rules, develop the skills and its application and can judge which one is right or wrong. So, for the development of mental faculties, physical education with proper direction is essentially required along with the general education of the students.

**Educational gymnastics**
The word gymnastics has been derived from the ancient Greek word "gymnesion." The meaning of "gymnesion" is the place where exercise without having any clothes on body is performed. What we call physical education now-a-days, it was called gymnastics in ancient times. Different kinds of exercises, sports and games, dancing and singing etc. were included in these activities. In modern gymnastics, there are no activities of games and sports or dance. But the freehand exercise and rhythmic activities are also included in gymnastics. Gymnastics are of three kinds:

1. Educational Gymnastics
2. Olympic Gymnastics
3. Medical or Remedial Gymnastics

P.H. Ling of Sweden, Puttsmuth of Germany and Nastegal of Denmark are the founders of educational gymnastics. The aim of this gymnastics is to do free hand exercise of different parts of the body. These exercises include different rolls, somersault on a thick mat, climbing rope, exercises on vaulting box, high and low beams, parallel bars etc. The students can take part in these activities without any hardship.
i. Floor or Ground activities (for boys)

a. Front roll or forward roll: Bend both the knees, sit on the toes and make a balance by putting two palms on the mat. Now lift the hip by stretching the legs and put the neck and head in between the hands and roll off on the mat. As soon as the feet touch the floor, stand up. 

But remember that while rolling, the head should not touch the mat or floor. [F. 1]

b. Back roll or Backward roll: The direction in which you will make a roll will be behind your neck. Stand beside the mat, then bring your body down gradually and at the moment your hip touches the mat or ground Put your two palms on both sides over your shoulder and roll your body backward.

When the feet touch the ground, then for lifting the upper part of the body. push the floor with the palms and stand up. [F. 1.2]

c. Side roll

Take your position on one end of the mat and set your body like the start of forward roll. Bend the full body on one side by putting weight on shoulder and then turn the body. At the time of turning the body or roll put one hand on the mat and bring the knees close to your head so that you can not get hurt. Now roll on your shoulder and stand up. [F. 1.3]
D. Dive roll

First practise it on a 1.5 feet or 2 feet high wooden bench. This dive roll can be practised by using two sections of the vaulting box or a partner in kneel down position or even by the use of a skipping rope held by two fellow classmates.

![Dive Roll Image]

Take a very short run and make a take off with both feet and thumb at the same time; both the hands are to be raised up to the height of your ear. As one dives in the water, jump up with hands forward and folded elbows. The weight of the body will be on the palms of the hands. The neck will pass in between the hands and you will roll on the mat and then stand on both feet with a straight body. [F. 1.4]

e. Hand stand:

By keeping both the arms straight, put your palms firmly on the floor along with the shoulder. The feet will be kept apart and one will be placed a little forward than the other. Kick upward in the air with the back foot and at the same time the other foot will also be lifted: The two feet will be closed together. Try to keep the knees along with hip and the feet straight above the head. Under no circumstances, the elbows will be bent. If it is needed, at first

Games Played with and without Equipment 5 take a helper or practise it with the help of a wall. Try to practise it gradually without any help. [F. 1.5]
f. **Head stand:**
Place your forehead on the floor and your palms behind the position of your head. The palms and the forehead will make a triangle on the mat. Now draw your waist forward and raise your feet upward along with the waist. Keep your toes together in a pointed manner. Keep equal weight on your hands and forehead. [F. 1.6]

![Fig-1-6 Head stand](image1)

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g. **Leg Circle:** Place both the palms on the floor. Fold your hips and drag both the legs close to the body. Now according to your advantage put any of your legs under two hands in a circular movement continuously. While bringing the leg under the other leg and hands for a while, this leg and the hands will be lifted a little from ground. After doing these activities for some time, the leg may be changed and the exercise will continue.

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h. **Cart wheel:** It is nothing but the rolling down of the body by making balance on two hands and two legs. The continuous movement of this activity will make wheel of a bullock cart. Those who will place their right hand first on the ground, will place their right shoulder in the front and lifting up the hands high, will put it on the floor. The body from above your hips will be bent and it will bring right hand shoulder downward quickly, thus placing right hand 1.5 feet forward or away from the right foot. Now put left hand in the same line with the right hand at shoulder height and place it on the floor. Lift your waist straight and bring it down on left leg and keep your body straight. Never bend your hands and legs and go on straight in one line, IF. 1.7]

![Fig-1.7 Cart Wheel](image2)
For girls _____
Forward roll _____ same like the boys.
Backward roll _____ same like the boys.
Head stand _____ same like the boys.

**Head stand and split:**

With a position of the head stand, both the knees are to be kept straight. The toes will be pointed and closed together and then split the legs. wheel – same like the boys [F. 1.8]

**Round Off:**

While doing a cart wheel, both the hands are put on the ground and at that time, instead of taking the body forward, push the ground hard with both hands and turn the body on the opposite direction. Then bring both the legs on the ground at the same time and stand straight [F. 1.9]

**Single leg front turn over:**

(Turning forward with one leg) Stand and look forward with both hands erected vertically up in the air. Then raise the right leg in the front, parallel to the ground. While doing this, keep a balance on the left foot. The foot will remain straight. As soon as the right foot touches the ground the left leg will come tip and both the hands will touch the ground simultaneously. The body is to be lifted up by pushing the ground with the right leg.
Then the right leg will touch the ground first and body will come to a straight line with the push made by the hands on the ground. Finally, the body will stand erect with both legs together. [Fig., 1.10]

**Back turn over**: Stand facing the opposite side of the mat and keep both the hands' in an upright position. Then lift up the right leg, bend the body backward and touch the ground with both hands and at the same time, the leg will go up. The right leg will touch the ground first and by pushing the ground with both hands, the body will come to a straight position. Before starting the exercise, both the legs will be kept apart. [F. 1.11]

![Fig.1.11 Back turn over]

2. Vaulting Box (Jumping apparatus)- For boys and girls

**a. Front vault**: Place the vaulting box at hip level in a transverse position and practise jumping on it. Take a short run up and with a take off by both the feet mount the vaulting box with a small jump. Sit on it on your toes and make a balance with your palms. Now push off with the help of hands and feet at a time and jump forward, then dismount on the ground with both feet together. After landing on the mat, the body will remain straight. [F. 1.12]
a. **Side Vault:**
Take an approach run with an angle of 40°-30° towards the transversely placed vaulting box. After coming to the nearest edge of the box, put both the palms behind your body on the top of the box and see that the palms and shoulders are in one vertical line. Then the takeoff will be made by the nearest foot of the box. Remember, the putting of palms and the takeoff will be done simultaneously.

Now, after the take-off the two feet will be closed, toes pointed and Will cross the box. The palms will push the box with slightly bending elbow and the whole of the body will now cross the box and after landing, stand erect with face forward.

b. **Star vault:**
Place the vaulting box transversely at waist high position. Now take a short approach run with a takeoff by both the feet together.

Mount the vaulting box and sit on it with toes and palms. Now take a jump upward by pushing the hands and legs. While in the air, both legs and hands will be kept apart and make a figure like a star. Come down, from this position, on your feet and stand erect.

c. **Wolf vault:**
Take a short run towards the transversely placed vaulting box and mount on it with a double leg takeoff. Extend, one leg at one side and fold the knee of the other leg and place it in between your two hands.

Now sit in the position off a wolf. From this position, push off your hands and feet at the same time and go up and forward. Afterwards land on both feet and stand straight.
d. Thief vault:  
Make a straight approach run towards the transversely placed vaulting box. The take off will be done by one foot and thrust forward the other foot and cross the box. While crossing the box, close the other foot together. At the same time, put the palms on the box in order to give a support. Then push the vaulting box with a little jerk by the hands so that you can stand erect on your feet.

e. Through vault:  
In this vault, the box will also be placed transversely at waist height. Now make a straight approach run towards the box and then in a crossed position take off is to be done by both feet. After the take-off put both the palms flat on the box and cross the box by passing the legs through the hands. Now land on both feet by flexing the knees slightly. While the legs and body will go through the hands push the palms against the box for making a balance. This vault is also called "between vault" because the body can be passed through the hands.

f. Stride vault:  
Run straight to the transversely placed vaulting box. Make a take off with two feet and put your weight lightly on the palms placed at the middle of the vaulting box. Keep both of your legs forward, straight and extended. The legs will cross the vaulting box from outside of the hands and land on both feet and stand up.  

[g. Cat spring and front roll:  
Run upto the edge of a longitudinally placed vaulting box. Take off with both feet and sit on it by placing palms of both hands. While doing so, press the ground with both feet. From this position a jump is to be taken on the box like a cat. Now push with both hands and feet, jump like a cat and place your both hands at the end of the vaulting box and then take both the feet off from the vaulting box. Land on the mat. Just after landing make a forward roll on the mat by bending the body and placing the hands forward.

Forma – 2 : Physical Education & Health (class 8)
3. High beam: (for boys)

Hold the beam with the inner side of the palms and hang in the beam. Then make a swing from backward to forward and land. Stand under the beam by keeping two feet together and hands at the side of your body. Bend the knees a little and make a jump upward by pressing the feet on the ground and then hold the beam. The palms will be attached with the beam. Then swing your body repeatedly so that you can gain speed and it will help to land either forward or backward. While landing, you can bend your body a little forward or backward and both the feet will remain together. In order to maintain balance of the body, the knees may be bent a little. Take care to keep this balance. [F. 1.16]

a. Touching beam with the chin (Chin up):

Hold the beam with the inner side of your palms. Keep the knees straight and the toes are to be pointed towards ground. Now by the strength of your arms pull the body up to the upper edge of the beam and come 'back to the staring position. Do this exercise for several times. [F. 1.17]

b. Monkey walking: Grasp the beam with both hands and feet and hang like a monkey. From this position move forward and backward and it will look like a monkey walking.

c) Peacock balance: Hold the beam with the palms of the hand inwardly and pull up the body as was done in chin up position. Bring the feet above the beam and turn your body upward. Now hold the beam by keeping the balance of the body on the upper part of the waist and hold the beams by turning the palms of the hands. Straight up the body from the tip of the toes to the head and maintain your balance.
obliquely that is, slantingly on the beam. This position will look something like a peacock. Turn the body again and land on both feet. [Fig. 1.18]

4. Parallel Bars: (For boys):

Mounting the parallel bars in different styles:

To climb up on the parallel bars is called mounting. Mounting can be done from a standing position on the ground or with a short run. After mounting on the parallel bars, the body can be set on sitting or resting position by maintaining a balance. If you want to mount parallel bars from a standing position, then stand on one end of parallel bars and swing your arms forward and upward so that it reaches the equal height of the bars. The hands will be extended up to the width of your grasped and the-bars will be grasped usually by the hands.
There are many methods of mounting, some of which are given below.

A. Mounting with a jump

Mounting the parallel bars can be done with a short run or from a standing position. After each mounting action there is a close link with the next activities. A picture with regard to such action of mounting is given on the right (F. 1.19). The technique of such type of mounting is to be practised after careful observation of the picture.

B. Straddle mount or double leg cut-off mount. To perform this mount, get hold of the front part of the bars. Press gently on the ground with the feet try to go forward and upward. When the extended legs cross the bars outwardly, take off your hands from the bars, and at that moment grasp the bars again and come to a cross rest position (F. 1.20)

C. Singe leg cut off mount

This mounting system is like the double leg cut off mount. Only difference is this that while crossing the bars, one leg is to be brought in between the bars and the other leg will be brought from outside the bars (F-1.2).

Coming down from a bar or dismounting: The dismount action though not very hard to perform yet if it is not done flawlessly there is every, chance of getting hurt, and in any competition, good score cannot be obtained. Dismounting has also different styles like mounting. Some of the easy styles are described below:
A. **Forward dismount**: The forward dismount can be done from a rest position or from a hang and a swinging position. At the first stage of dismount that is the very moment the feet touch the ground, the knees should be bent a little and when the body will be a little forward from the parallel bars, the knees are to be kept straight (F.1.22).

![Fig 1.22 Backward dismount](image1)

B. **Backward dismount**: The backward dismount can be performed from any position. One has to dismount from the bars at his back side either on the mat or on, the ground. Firstly the knees will remain slightly bent and afterwards, these will be kept straight. (Fig. 1.23)

![Fig 1.23 Backward dismount](image2)
C. Dismount with a Jump

Direct dismount on the ground or on the mat can be done from the positions of cross seat, hand balance, shoulder balance etc. During dismount from a hand and shoulder balance position, the body is required to be turned. In the primary stage, assistance of a helper is needed. Observe the picture (Fig. 1.24) and try through constant practice.

D. Forward straddle dismount: Just like the straddle mount, the straddle dismount is to be done. At the end of swing, when legs cross the hands and at the same time with a push, the hands will be released and dismount is to be done a huge distance from the bar. As soon as feet touch the ground, the knees will be bent slightly and will be kept straight a little afterwards. At the initial stage, helper should be kept close to the performer (Fig.- 1.25).

Birds' nest: Mount the parallel bars by using any kind of mounting method. Tie your waist and place your hands and feet on the bars. Now clinging your hands and feet with the bars and hang the body downwards like a bird's nest.

Shoulder Balance:

Get up on the bars; place your hands and feet on the bar side by side. Now hold the bars very firmly and by raising your elbow, place your
shoulder on any one of the bars. Draw both feet and body up towards you and lift your legs with the help of the strength of your hands and shoulder. Keep your hip, knees and toes straight bringing both the feet together. Change the shoulder and bars according to your capability. (F.1.26)

**Front and back roll on parallel bars**: Mount the parallel bars with the help of one kind of mounting method and come in the middle of the bars and sit in a straddle position with legs stretched side ways over the bars. The hands holding the bars and the knees will remain in close distance. Now fold your elbows and spread them inside the bars and put your balance on elbows and roll on and come back to the starting position. This is front roll. Again from a straddle sitting position, roll backward and this will be a back roll. While practicing both the rolls, take the help of a skilled helper. The helper will put his hands under the bars and will help the performer so that he does not fall down and help him to roll on the bars. [Fig. 1.27 (a) & (b)]

![Fig. 1.29 (a) Front roll](image)

![Fig. 1.29 (b) Back roll](image)

**Keeping the body straight and putting the weight of the body on hands, the body is to be moved up and down (Dips)**

Stand in between the two bars. Hold the two bars and push the floor with legs or with a small jump, lift the body up and put the body and hands straight.
Now bring the body down by bending the elbows, again keep the elbows straight and lift the body up. In all the time, the body will remain straight (F.I.28)

**Arm bend marching (walking with bent arm):** Stand at one end of the bars and grasp the bars with two hands. Bend your elbows and lift your two legs up and in this position push the bars with two hand and march forward.

6. **Uneven parallel bars (for girls):**

Hanging by holding the upper bar and swinging side ways. According to convenience, hold the bar by putting the palms out with a shoulder width, space between two hands. Hold the upper bar and hang with two knees holding them up. Sometimes the folded knees are to be brought near the chest, by keeping the toes and knees straight so that lifting of the legs in $\hat{Q}\hat{O}$position can be made. Hold this position of sometime [F-1.29(a)]
Again, in the position of holding the bar, the legs are to be kept straight with the swinging of the body to the left and to the right. [Fig-1.30 (b)].

![Fig-1.30 (b)](image)

Chin up by holding the top bar and resting of the legs on the lower bar:

Hold the bar by turning the palms inward and make a space of shoulder width between the palms. Rest the legs on the lower bar with knees in straight position. Now keep your elbows straight and lower down your body, and fold up your elbows and lift up the body again with the chin almost touching the top bar. Continue this action as many times as possible (F-1.31)

![Fig. 1.31](image)

To lie on the lower bar by catching hold of the upper bar:

Try to sit in different styles on the lower bar by holding, the upper bar with one or two hands. Hold the upper bar with one hand and lie down on the lower bar with face upward, downward, side way position.

Maintaining balance by holding the top bar with one hand and keeping the leg on the lower bar.

Hold the upper bar with one hand and stand on the bar with other hand. Now put the free hand and leg forward, backward, upward or side ways and try to maintain balance. By folding the knees in the same style, you may try to maintain balance.
7. Beam (For girls):
Walking forward and backward by raising hands at the side of the body.
Mount the beam and stand straight on it. Now look forward and with knees straight, first try to walk forward and afterwards backward. Try to walk by holding the hand of the Helper if necessary. [Fig-1.32]

Walking with completely folded knees.
After mounting, the beam keep your knees folded and put your hands on the waist or pread them at your sides to keep them in natural position and then walk forward. While walking take natural stepping and the right foot will follow the left alternately. After acquiring the skill of walking forward, try to walk backward.

Walking with high knees:
Walk on the beam and with each step, the knees will be lifted at waist height and the eyes will look forward. According to your convenience, keep your hand at the side, waist or in natural position (F-1.13)

Walking side by side
Walk side by side taking steps sideward instead of forward stepping in, normal walking. Look forward. You can also practise it by raising our hands in the front or placing them on the waist (F. 1.14).
Walking and kneel down on the beam:
Just like natural walking, keep going by putting your right and left feet alternately. The body will remain straight at taking steps, but with each stepping the front knee will be bent and the foot will lie on the beam and the rear knee will be folded again and rest on the beam. The back foot will remain at the back in upward position.

For taking the next step, the body will come to a straight position and the rear leg will come forward and will take step in the similar manner. [Fig-1.35

Walking on single foot:
As the beam is not very wide, so small steps or small jumps should be taken for walking. For maintaining the balance of the body, the hands should be kept at the side or in natural position according to your convenience.

Maintaining balance forward, backward and sideward by standing on single leg:
Standing on one leg, maintain your body balance. This may be done by taking the other leg and two hands in different positions. By raising two hands and one leg forward or backward or stretching two hands on the two sides of the body and one foot forward or backward the balance is to be maintained. Besides shifting the position of hands and legs at different sides, the practice of balance can be done [F-1.36]
**Front roll on balance beam:**
Mount at one end of the beam facing the other end. Now bend forward and hold the two sides of the beam firmly and drag your feet towards your body so that you can roll on. While rolling, instead of placing the head on the beam, place your shoulder and back very slowly on the beam. In the primary stage, take help from a helper and in order to avoid any accident, a mat can be placed under the balanced beam (F.-1.38).

![Fig-1.37 Front roll on balance beam](image)

**ORGANISED NATIONAL, INTERNATIONAL GAMES AND INDIGENOUS GAME**

**Football.**

**History of football**
There are various opinions about the origin of the game of football. Nobody is sure about its place of origin. According to some, football was played first in China. But it is also said that the game was first introduced in Greece and Rome. Again the opinion of the majority is that the game of football was originated in Great Britain. In the past, or previously this game was not played as we play now. There was no laws, rules and regulations at that time. So the game looked just like a fighting in the playground. So, after gradual modifications, the game of football has come to this modern form.

At present, the game of football is considered as one of the most popular games of the world. So, a need was felt to frame laws, rules and regulation which were to be followed by all the football playing countries of the world. In view of that, Federation International Football Association (FIFA) was formed as the controlling authority. Almost all the countries of the world including Bangladesh have become the members of FIFA. So, Bangladesh national football team can participate in all international football competitions. In Bangladesh, competitions are held from national to club level. There are many famous football clubs in Dhaka. Amongst those, Mohamadan Sporting Club, Abahoni Krira Chakra, Brother's Union Club, Mukty Youdha Sangsad, Wari Club, Azad Sporting Club, Victoria Club Dhaka, Wanderers Club etc. are well-known.
A diagram of an International football field, its goal post, corner flag etc. are shown in the page: [F. 1.38]

**Laws of the game:**
At present, you are the students of class VIII. You are now in between 13 or 14 years old. You may not use the international playground and follow the laws of the game fully. After making some modifications of the International rules, some are given below-which will be applicable to you.

a. **The playground:** The playground shall be 73 metres (80 yards) long and 36.5 metres (40 yards) wide.

b. Equipments; Ball No-3 in size may be used. Goal post and goal bar will be 1.8 metre high and 5.42 metre long respectively and there will be corner flags and goal nets.

![Diagram of football field, goal post, corner flag.](image-url)
c. **Number of players**: A match shall be played between two teams consisting of not more than 11 players in each, one of whom shall be the goal keeper. Substitute-players may be 3/4 for each team.

d. **Duration of the game**: Duration of the game shall be of two equal periods of 45 minutes. At half time, the interval shall not exceed 5 minutes.

e. **Game conducting officials**: One Referee, two Associate Referees and popularly known as one fourth referee shall be appointed to conduct the game.

f. **The start of play**: At the beginning of the game, choice of ends or the kickoff shall be decided by the toss of a coin. The team winning the toss shall have the option of choice for ends or the Kick-off.

g. **Fouls**: It will be a foul; when a player intentionally commits any one of the following nine offences
   1. Kicks or attempts to kick an opponent.
   2. Jumps on an opponent.
   3. Trips an opponent.
   4. Charges an opponent in a violent or dangerous manner.
   5. Charges an opponent from behind unless the latter is obstructing.
   6. Strikes or attempts to strike an opponent or spit at him.
   7. Holds an opponent.
   8. Pushes an opponent.
   9. Handles the ball, i.e. carries, strikes, or propels the ball with his hand or runs.
   (This does not apply to the goal keeper within the penalty area). For all these fouls, the team shall be penalised by the award of a direct free kick which shall score a goal. This kick shall be taken from the place where the infringement of law occurred. At the time of free kick, all the opposing players shall be at least 9.15 metres (10 yards) away from the ball.
h. Penalty kick:

Should a player of the defending team intentionally commit one of above nine offences within the penalty area, he shall be penalised by awarding penalty kick. Penalty kick can be taken from the penalty mark. Nobody shall remain within the penalty area except the kicker and the opposing goal keeper at the time of taking of penalty kick.

I. Corner kick:

When the ball passes over the goal line, either in the air or on the ground having been played by any, players of the defending team, a member of the attacking team shall take a corner kick. It shall be kicked from that particular position and at the side of that goal post, the ball goes out of play. A goal may be scored direct from such a kick.

j. Goal kick:

When the ball passes over the goal line having been played or touched by one of the attacking team, it shall be a goal kick. It is taken from within the goal area.

k. Throw-in:

When the ball passes over a touch line, either on the ground or in the air, it shall be thrown-in from the point where it crossed the line in any direction by a player of the team opposite to that of the player who last touched it. It should be thrown by both hands.

1. Off-side:

A player is in an off-side position if he is nearer to his opponent's goal line than the ball, unless (I) He is in his own half of the play field or (II) There are at least two of his opponents nearer to their own goal line than he is.

If a player is declared off-side, the referee shall award an Indirect Free Kick which shall be taken by a player of the opposing team from the place where the infringement occurred. From an indirect free-kick a goal can not be scored unless the ball has been played or touched by a player other than the kicker before passing through the goal.

Technique:

A.

1. Kicking:

By taking straight approach for low hard kick or powerful kick, swing the kicking leg back as high as possible and take an action of follow through after kicking.
This kick can also be taken from an angular approach as well as straight approach. The approach run of a player is approximately 6-7 yards away from the ball. The non-kicking foot is placed parallel to the ball approximately 7-8 inches away. The knee of the non-kicking foot is slightly bent and the trunk is bent forward over the ball. The ball will be kicked from behind and at the middle by the inner part of the foot. The kicking foot and the ankle will be kept tight and will make a follow through towards to target. This kick is called instep kick. [Fig-1.39].

To send the ball high enough, take a diagonal approach and hit the lower part of the ball. The tips of the toe will be kept in an angular way without bringing it fully downwards.

2. Volley kick:
To kick the ball before it drops or bounces i.e. when it will be in the air. This kick is executed for sending the ball far away. [F. 1.40].

3. Half volley kick:
The ball is kicked when it just bounces on the ground. This kick is called Half Volley Kick. Half Volley Kick is very powerful.

4. Chip shot:
The technique of sending the ball from a high position to the mate standing at a short distance is called chip shot. This technique is used to lift the ball over the head of an opponent to pass it to his team mate when it is not possible to give ground pass. From Games Played with and without Equipment
a standing position or coming from one or two steps away, the ball should be kicked at its lower part by inner side of the foot.

B. Trapping : Trapping means to control the ball.

1. Sole tap
To control the ball with the sole is called sole tap. It is done by raising heel of kicking foot 9/10 cm. (3/4 inches) above the ground, toe slightly upward which will look like English letter V. It is easy to control the ball by using this technique. [F. 1.41.]

2. Shin tap :
To control the ball by the lower part of the knee is called shin tap. When the ball is about to drop, flex your knee and ankle and bend your body over the ball for control. Flexing ankle and knee will look like the English letter V. [F. 1.42]

3. Thigh tap :
Thigh tap is used for the ball coming from a height of 75% - 80%. When the ball contacts with thigh, then and there bring the knee back with the ball. [F.I. 43.]

4. Head tap :
The ball which comes obliquely, try to slow down its motion by touching it slowly with the head and as far as possible try to drop it on the ground near you. [F. 144.]

C) Heading :
At the time of heading, always remember the followings :
1. Always keep your eyes on the ball (Eyes will never be a closed)
2. The ball will touch the front part of the head i.e. the meeting point of the forehead and hair.
3. The ball will be hit with a tense neck.
4. When the ball comes in contact, you will move your neck to change the direction of the ball. [F. 1.47]

5. Head the ball after seeing the opponent's position. Heading can be done from standing position or with a jump.

6. At the time of heading backward draw your head fully back. Heading is to be done by your forehead.

1. Goal keeping:

Goal keeping is very important in the game of football. Most of the time, the goalkeeper has to catch the ball with his hands. Sometimes he has to use his leg to kick or to defend. So, he has to learn the techniques both for kicking and catching. (He is the only player of a team who can handle the ball within his penalty area.)

Catching techniques of different types of incoming ball

1. Catching the low ball:
The goalkeeper will be in such a position from where he can prevent the ball or can catch it. Always keep eye on the ball, keep the body behind the ball for catching low ball. And keeping the knee straight by bending the body forward, catch the ball with both hands and bring it near the chest. [F -1.47 and 1.48]

2. Catching the ball at waist height: The ball is caught at waist height by standing behind the ball. You have to bend forward immediately after catching the ball so that the ball can not rebound. [F 1.49]
3. Catching the ball chest or head height:
Keep your hands raised up or forward. Catch the ball with the palms and fingers of both the hands and bring it close to the chest.[F1.50]

4. Punching the high ball: When catching the ball will be difficult, then punch it with fists to clear.

**E) Ball Tackling:** Tackling is an important defensive technique in the game of football. Tackling may be from front, side way or from behind. You have to keep your eyes on the ball at the time of tackling. Tackle the ball when the opponent to pass or loose the balance of his body. Dangerous tackling will always be avoided [F. 1.51]

**Volleyball History:**
The game of volleyball originated in Holy-yolk, Massachussets, U.S.A. In 1895, William J.Morgan invented and introduced the game of volleyball. At first, the name of the volleyball was Mintonet. At that time, it was played with rubber bladders. The game gave some ideas about the art of Volleyball. So, after a long time, the Physical Education Teacher of the Spring Field College named this game as Volleyball. In 1947, International Volleyball Federation. (FIV) was formed in Paris by the members from 13 countries. During 19491950, the World Cup. Volleyball championship was started for both men and women. In 1964, Volleyball for men and women was introduced in the Olympic games held in Tokeyo as one of the competitive events.

The game is also very popular in Bangladesh. It is played in schools, colleges, even villages of our country. livery year Volleyball competitions for men and women
are arranged from district to national level. Bangladesh Volleyball Federation is implementing different types of activities for the development of this game. A diagram of Volleyball court with measurement is given below.

**General rules:**

1. The playing field of Volleyball is called court. The court shall be 18 metres (20 yards) long and 9 metres (10 yards) wide. All lines shall be marked by 5 cm. in width and it shall be treated as part of the court.

2. The court shall be free from all obstructions. At least 2.7 metres from the nearest obstructed materials.

3. In each half of the court, a line of 3 metres parallel to the centre line, is to be drawn and then 3 metres away from the centre line with width of 5 cm, another line will be drawn which will be called attack area. The attack area is marked out by the centre line.

4. The net is 1 metre wide and 9.50 metre long. The height of the net from the ground is 2.43 metres for men and 2.24 metres for women. The two ends of the net must be at the same height from the ground, and must not exceed 2 cm from the stipulated height in the centre. Two white bands, 5 cm wide and 1 m long, are fastened vertically along the net and placed above each side line. Two antennas are fastened at the outer edge of each side band and placed on opposite sides of the net. An antenna is a flexible rod, 1.80 m. long and 10 mm. in diameter. It is made of fiber glass or of similar material. Each antenna is extend upto 80 cm. above the net and is 'marked' With 10 cm. Stripes of contrasting colours, preferably red and white. The antennas are considered as part of the net. The posts supporting the net must be rounded and smooth with a height of 2.55 metres. They must be fixed to the ground at a distance of 0.50-1 metre from each side line.
5. The ball shall be spherical. Its colour is uniform and light. The circumference and weight of the ball shall be 65 to 67 cm. and 260 to 280 grams respectively.

6. Each team shall consist of 12 players. There must always be 6 players per team engaged in play. Maximum 6 players are allowed to substitute per set.

7. At the time the ball is served, the players of the two teams must be placed in their own court, in two lines of three players each. The three players being near the net are the front line players and the three others forming the back one are back line players. This position shall not be changed during the set. When the receiving teams will gain the right to serve, its players must rotate clockwise.

8. The service is the act of putting the ball into play by the player at the sight back corner who hits the ball with his hand or any part of arm, to send it over the net, into the opponent's court. The ball shall be hit after being tossed in the air. The player, after serving the ball can enter the court. The service will be considered as a correct one when the ball passes over the net without touching it and between the two poles of the net. A service is defective, when the ball touches the net, passes under the net, touches a player of his own side, falls outside the limits of the courts.

9. In the International competitions the teams winning three sets out of five and two out of three sets will be declared as winner.

10. Each team may take 2 time-outs per sets for rest. The length of time-out for rest will be 30 seconds.

11. Each team will be entitled to a maximum of three touches for returning the ball to the opponent's court. Block contact will be considered as a touch only.

12. Contacted with any part of the body above the waist by the receiver, if the ball rebounds or remains in his court, will be considered correct.

13. To touch the ball over the net into the opponents' court is a fault. But the hand may cross at the time of blocking.

14. If any player, touches the opponent's court or player under the net is a fault.

15. Back court players can not take part in blocking or return the ball from the attack area into the opponent's court higher than superior edge of net.
16. A set is won by the team that first scores 15 points with a minimum lead of 2 points. Incase of a 14-14 points tie, play is continued until two points lead is reached. But a set point limit is 17. After a 16-16 tie, the team scoring the 17th point wins the set.

17. Whenever a team fails to serve or to return the ball or commits any other fault, the opponent team wins with one of the following consequences:
   a. If the opponent team serves, it scores a point and continues to serve.
   b. If the opponent team receives the service, it gains the right to serve without scoring a point (side-out).

18. In the deciding set, points shall be counted like the points counting of the game of Table-Tennis. Such as: The serving team scores a point and continues to serve while the opponent team gains the right to serve and scores a point.

**Technique:**

**Service:** Generally service is executed in two ways:

1. Under arm service.
2. Tennis or over arm service.

1. **Under arm service:**
   This service is very easy to perform. Everybody can learn this technique very quickly. Generally the players like it.

**Method.**
A. A player will have to stand outside the court within the service area with, shoulder parallel to net and one foot in front and the other in back.
B. The weight of the body will be on the rear leg which will be bent or flexed.
C. The hitting hand will go from behind parallel to shoulder and the palm of the hitting hand will take shape of the ball. The ball will remain on the palm of non-hitting hand just below the chest and above the waist.
D. The ball will be tossed upward at the height of maximum 6 inches and string the ball with the hitting hand.
E. After hitting, follow through of hitting hand will be in the direction of the ball and the weight of the body will be shifted on the front foot [F.-1.53]
2. Tennis service

A. Diagonal stance with shoulder parallel to net, body weight is equally divided on both feet outside the court within the service area.

B. The hitting hand will go behind the neck near the ear taking one step forward. The weight of the body will be on the rear foot.

C. The ball is tossed by the non-hitting hand. At that time both knees will be bent slightly.

D. The ball is struck by the palm of the hitting hand when it vertically comes down.

H. In keeping the balance of the body, the weight will be shifted from the rear to the front foot [F1.54]

Passing:

Pass : Generally there are two types of passes

1. Upper hand forward pass.
2. Under arm pass.

Method:

1. **Upper hand forward pass** :

A. The ball is to be touched with the fingers in all the time keeping the fingers facing upward.
B. The elbows of both hands will be raising parallel to shoulder and the ball will be played in front of forehead.

C. You have to stand keeping the body weight on both feet with diagonal stance and the body will be inclined a little forward.

D. Push the ball diagonally forward to hit the bottom and hind. After pushing, the hand will be extended upward.

**2. Under Arms Pass: Method:**

A. One palm is held by the fingers of the other hand except, the thumb. Keep the thumbs together on the fingers [F. 1.56]

B. Both the elbows shall have to be placed in such a way that the fore arms will be a flat surface together.

C. Flexion of knee joints by bending the trunk will go under and behind the ball.

D. Use your wrist to lift the ball [F.I.57].

**Smash:**

It is very difficult to send the ball to the opponent's court by smashing and it is an important technique of the game. Agility, power, sharp sight, and sense of timing are required to acquire this technique.

**Method.**

A. The approach run for a smash will have 3-4 steps only. Jump up in such a way that the body will be behind the ball.

B. At the beginning of a jump both the knees will slightly be bent and bring the arms swinging back quickly.
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C. Jump up and hit the top of the ball with the hard part of the palms [Fig. 1.59]
D. After hitting, landing must be always on the toes of both feet [Fig-1.58]
K. Sometimes, using the wrist, the ball instead of smashing.

Blocking
Generally front line players try to block the smash keeping their hand straight up. One to three players can take part side by side in blocking.

Method:
A. Jump up for blocking at the time, when the opponent will jump high for smash.
B. Jump up vertically using both feet together if it is not done, there may be some difficulties for the team mates. Jump in such a way that the hand will not touch the net.
C. When jump will be taken in the air, keep your hands tight, raising up side by side just like making a wall.
D. Jump up all at a time when more than one players will take part in a block. [Fig. 1.59]

Cricket 1.

History:
It is not known when, where and how the game of cricket was started first. But it seems that cricket was first started in England in 13th century. Wicket was introduced since 1700AD. The Merilybone Cricket Club (M.C.C.) was formed in England in 1787. First test match in cricket between England and Australia was held in the field of Melbourne, Australia in 1877. That was the first test match in the history of cricket of the world.
At present, cricket is being played in a good number of countries all over the world. Among all these countries, England, Australia, West Indies, South Africa, Newzealand, India, Pakistan, Shrilaanka and Zymbabuya Bangladesh have acquired the test status. They can take part in the regular test matches between themselves.

At present the popularity of cricket has been increased world wide due to the introduction of World Cup Cricket Competition. It has immense popularity in Bangladesh too. It is played in rural areas besides towns and cities. In order to popularise and develop this game, Bangladesh Cricket Control Board. (BCCB) has been established. Now B.C.C.B is drawing programmes and is trying to implement those programmes earnestly.

2. Rules of cricket.

A. A match is played between two teams. Each team consists of eleven players. One team will be in battings and the other in fielding. The team which will be in battings or fielding first, will be decided by toss the Umpire does the tossing of coin before the start of the game.

B. Cricket field is oval shaped. From the centre, a circle is laid out having a radius of 59.43 metre (65 yards) in order to prepare the play ground of cricket. It is the minimum size of a Cricket field.

C. In the centre of the field the place which is 20 metres (22 yards) in length and 2.50 metres (8'-8") in width, is called pitch. The wicket shall be fixed in the pitch opposite and parallel to each other at a distance of 20 metres, Each wicket shall be of 9 inches in width and consists of three stumps with two bails on the top of it.

D. Two umpires will be appointed. They will conduct the game from each of the ends. A scorer is also lo be appointed who will receive the signals and instructions from the umpires and to record it accordingly in the scoresheet.

H. Generally an over is made when a bowler alternately bowls 6 balls from each wicket. At the end of the Over’ the bowler will change the ends.

F. When the ball strikes and crosses the boundary limit shall normally be 4 runs. And it will be 6 runs for all the hits which crosses over and clear off the boundary line. When the ball passes the striker without touching his bat and the striker take a run, it will be called a bye-run. The Umpire shall call or signal Bye to the scorer.
G. **Wide ball**: If a bowler bowls the ball so high over or so wide of the wicket that in the opinion of the umpire, it passes out of reach of the striker standing in a normal guard position, the umpire shall call and signal "wide ball", a penalty of one run for a "wide ball" shall be scored and the wide ball shall not be counted in an over.

H. **No ball**: For a fair delivery the ball must be bowled properly but it must not be thrown. If the umpire is not entirely satisfied with the absolute fairness of a delivery in this respect, he shall call and signal "no ball". Again if the bowler’s back foot has landed within and not touching the return crease or some part of front foot whether grounded or raised was behind the popping crease it will be a "no ball". A penalty of one run for a no ball shall be scored and the no-ball shall not be counted in a over.

I) **Batsman out**: A batsman is out for the following ten causes which are mentioned below:

1. **Bowled out**: The striker is out if the wicket be bowled down, even if the ball is first touched by his bat or person.

2. **Timed out**: An incoming batsman shall be called "timed out" if he is willfully takes more than two minutes of time to come in the field.

3. **Hit wicket-**: The striker is out if in playing at the ball, he hits down his wicket with his bat or any part of his body.

4. **Run out**: Batsman shall be 'run out' if in running between the cricket when the ball is in play, his wicket is put down by a player of the opponent team.

5. **Caught out**: The striker shall be out if the ball touches his bat or if it touches below the wrist of his hand or gloves, holding the bat and is subsequently held by a fieldsman, before it touches the ground.

6. **Stumped out**: The striker shall be out in effort to strike the ball he is out of his ground while attempting a run and the wicket is put down by the cricket keeper without the intervention of any other fieldsman.

7. **L.B.W. (leg before wicket)**: The striker shall be out "L.B.W." if he first intercepts with any part of his person, dress or opponent while a fair ball could have hit the wicket and which has not previously been touched by his bat or a hand holding the bat.
8. **Hit the ball twice**: The striker, on an appeal from the opponent shall be out 'hit the ball twice if, after the ball is stricken or is stopped by any part of his body he willfully strikes it again with his bat or person.

9. **Obstructing the field**: Either batsman, on an appeal from the opponent shall be out obstructing the field if he willfully obstructs the opposite side by word or action.

10. **Handled the ball**: Either batsman, on an appeal from the opponent shall be out for handling the ball if he willfully touches the ball, while in play, with the hand not holding the bat, unless he does not do it with the consent of the opposing side.

J. **Match**: Generally there are two types of matches in the game of cricket-1. Test match, and 2. One day match.

1. **Test match**: A test match to be played into two innings, taken alternately. But if the difference of score of a team is much more than the other, then there will be no need of playing for second innings.

2. **One day match**: In one day match, a team will play only one inning limited by a number of overs. Each team can bat and bowl only once.

3. **Equipments**: The equipments of the game of cricket is very much costly. 2 bats, 6 wickets; 4 bails, 2 balls. 2 pairs of batting pads, one pair of wicket keeping pad, one pair of wicket keeping gloves, 2 pairs of batting gloves are the minimum equipments required for the game of cricket.

4. **Technique**: The fundamental techniques of the game of cricket are divided into four parts, namely a, Batting, b, Bowling c, Fielding, d, Wicket Keeping.

A. **Batting**: Stance with bat, bat lifting, different types of strokes shall have to be learnt first for batting.

1. **Gripping**: The handle of the bat will have to be hald just like an axe. Two “V” made by

[Fig.-1.61] [Fig. 1.62]
the fingers of both hands and the \( \hat{V} \) of the bat shall remain in a parallel line. Both hands will be kept together.

3. **Stance**: Both legs will be kept at both sides of popping crease parallel to each other. The weight of the body will be on both the legs equally. Eyes and left shoulder will be towards the ball [F. 1.62].

3. **Bat lifting**: Lifting of bat is very important. When the bat will be lifted behind, eyes, and left shoulder and elbow of left hand will be towards the ball. Bat will have to be lifted behind and above the wicket [F 1.63, 1.64 & 1.65]

4. **Stroke**: A batsman may use different types of strokes according to the nature of incoming ball. The strokes used may be sometimes defensive and sometimes offensive. Taking one or two steps forward when a batsman uses a defensive stroke, is called the forward defensive stroke. In this left stroke foot will go ahead and will make a ‘V’ with the bat and playing field.

On the other hand when a batsman uses a defensive stroke taking one step back is called backward defensive stroke. When the ball has to stop with a bat by taking one step back on his right foot, batsman's head will be a little down at that time [F. 1.6].
5. **Drive or taking, offensive stroke**: When a batsman goes one step forward from popping crease for taking hard stroke to send the ball far away is called forward drive [F.- 1.67].

6. **Backward drive**: On the other hand when a batsman comes one step back and takes the same stroke is called backward drive [F.- 1.68].

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**B. Bowling**: In order to acquire the knowledge of distance and target for bowling some fundamental techniques shall have to be learnt properly for bowling. Then it will be easy to bowl according to length and time. The techniques of bowling are as follows:

**I. Holding the ball**: At the time of bowling, the ball will be held by the tips of the fingers. The ball will never touch the palm of the hand. Different kinds of bowling depends on different types of holding the ball [F. 1.69].
2. **Approach run of bowling**: The distance of approach run will be according to different types of bowling. When running with the ball, the balance of the body will be slightly forward and head will be stationary.

3. **Releasing the ball**: Jumping on left foot, and moving the body aside, immediately a step will be taken by the right foot. Right hand will be near the face, left hand will be straight way upward and eyes on the batsman are to be kept [F. 1.70]

4. **Stepping to release the ball**: Just at the time of releasing the ball the front foot will be placed parallel to the popping crease. Left shoulder will be towards the batsman. The back of the body will be slightly curved. Right hand with the ball will be upward [F. 1.71]

4. **Follow through**: Right shoulder will be towards the batsman. Right hand will be drawn back by the side of left foot. After releasing the ball, the eyes will be on the ball.

**Different types of Bowling**: Bowling may be done in various ways. Some easy methods of Bowling are explained below:

1. **Fast bowling**: The bowler has to run fast by taking 10-15 steps or more as approach run for a fast bowling. Because enough strength is needed for fast bowling. It will be called a good length ball when it will be pitched on the popping crease, i.e. 1.21 to 1.82 metres away in front of a batsman. In this way, the batsman may confine his pitching of ball in the wicket.

2. **Off break**: In this type of bowling, the ball will move inside the wicket alter being pitching off side of the wicket. The ball is to pitch by twisting the finger so that it can turn after falling in the wicket. After releasing the ball the palm of the hand will be upward [F. 1.74].
3. **Leg break**: In this type of bowling, the ball will move towards the off stump after pitching left leg side off a batsman. After releasing the ball, palm of the hand will be downward. [F.1.74] Besides these, a bowler may bowl the ball as insewing, outsewing, gaugly and yorker etc. these techniques may be learnt in the higher classes.

![Fig-1.74, 1.74 Offbrea, Leg Break](image)

C. **Fielding**: Fielding may be performed in different ways in the field. It is divided into three types:

1. **Defensive fielding.** Stopping the ball in any way is a defensive fielding. The ball has to be stopped. So that the batsman may not get run the ball may not cross the boundary line. Learn how to stop the rolling ball from the picture [F.1.75]

   To catch the high ball, you are to notice its speed and flight. Keeping the palm of both hands upward, go under the ball and after catching bring it near the chest. So that you will not feel any pain or the ball may not rebound [F-1.76].

2. **Offensive fielding** : You have to learn this technique to send the ball to the wicket keeper immediately any stopping or to any other fielder. For this type of fielding you have to know the techniques of throwing. Learn from the picture how to throw the ball in a short distance and send the ball to a long distance. [F.- 1.76]
3. **Catching**: To hold or to catch the ball is a very important part of fielding. Eyes will be always on the ball and keep both hands parallel to eyes and the fingers will be spread. The elbow will come in front from the side, when the ball will come into the hand, close your fingers and bring it near the chest. [F. - 1.76]

**B. Wicket keeping**: It depends on the ability of a wicket keeper whether the team will win or lose. The wicket keeper will stay behind the wicket, keeping the body weight on both the legs. Eyes will be on the wicket by bending the body. Left foot will be parallel to the middle slump. Both hands will be together keeping the fingers downwards, Eyes will be always on the ball [F- 1.78].

**Bowling position**: When a bowler will deliver the ball he shall have to remember that the front foot will never cross the line of popping crease or the backfoot will not touch the return crease. If it is not properly done the Umpire shall call No-ball. The position of fair ball and no-ball are shown below in the picture [F. 1.79]
Basketball

The game of Basketball was first introduced in Massachusetts, USA in 1881. But the competitive game started since 1892. Dr. James Nicesmith was the father of this game. He was the Director of Physical Education in Y.M.C.A college, Springfield, U.S.A. Previously ten to fifteen players used to play the game in each side. Afterwards, in 1894, 5 players a side was introduced in this game. Basketball was included first as a competitive, game in Berline Olympics in 1936. Basketball is a national game of America. Now a days, Basketball has become popular in many countries of the world. Dr, John Henry came forward to start the game of Basketball first at Y.M.C.A. College, Calcutta. That was the first Basketball game played in this sub-continent. Then another Y.M.C.A. college was established in Madras in 1920. After that this game was spread in different places of the country by the sincere effort of the department of physical education of that college. The game of Basketball was first started in the Christian Missionary schools of Bangladesh. St. Gregory's school and St. Johshep's school of Dhaka, St. Placid school of Chittagong, Padry Shibpur school of Barisal, Baptist Mission's school and other" Missionary schools have also started this game in their institutes at the same time. These schools are still organising this game. The popularity of Basketball is increasing gradually in Bangladesh too. At present Inter School, Inter University, Inter-Cadet College competitions and even National Championship are being held in our country.

2. General rules of playing the game.

A. Team: The game of Basketball is played between two teams. Each team shall consist of 12 players. But only 5 players from each team shall, participate during playing a game. The purpose of each team is to throw the ball to the opponent's basket and to score following the rules of the game.

B. Time: The game is played in two halves of 20 minutes each with normally an interval of 10 minutes between the halves. If the score is a tie at the end of the 2nd half, play shall be continued for an extra period of 5 minutes or as may be decided before hand. Duration of the game may be decreased for the juniors. It may be 15 minutes for each half for the junior boys and girls.
C. Court: The dimension of the court shall be 28 metres in length and 16 metres in width. The diagram of the playing court, backboard, basket are mentioned below [A. 1.80]
D. **Basketball**: (its weight and size): The weight of the ball shall be not less than 600 grams and not more than 650 grams. The circumference shall not be less than 75 cm. and not more than 78 cm. But the court may be smaller in size for the juniors:

K. **Acquiring points**: A goal is made when a live ball enters into the basket from above and remains within or passes through. A goal from the field without violating any rule counts 2 points unless attempted from beyond the 3 point line when it counts from 3 points, a goal from a free throw counts 1 point.

F. **The start of game**: The game shall be started by the referee who shall toss the ball up from the centre circle between the two opponents. Choice of ends shall be decided by the referee with toss of a coin. The team winning the toss have the option to the choice of ends.

G. **Violation-Violation is called when**:
   1. a player touches; the side or end line during his playing the ball;
   2. a player takes more than two steps without dribbling the ball;
   3. a player uses his both hands at the time of dribbling;
   4. a player remains in the 3 seconds area of the opponents court with or without the ball at the time of attacking;
   5. a player keeps the ball more than 5 seconds, without passing or dribbling;
   6. a player dribbles second time-after stopping once.

**Note**: If any player violates the above rules, the opponent will get a free throw from the side line parallel to the place of violation.

H. **Personal foul**: It will be a personal foul when a player comes in physical contact with an opponent whether the ball is in play, alive or dead. A player shall neither block, hold, push, charge, trip, impede the progress of an opponent by extending his arm, shoulder, hip, knee or by bending his body other than normal position, nor use any rough tactics.

It will be called an infringement and a personal foul shall be charged against the offender and the opponent will get one free throw from the side line.
A player who has committed five fouls either personal or technical will automatically leave the game. But a substitute player can play instead of him.

At the time of shooting if any opponent commits any personal or other foul for which the player fails to score then two free throws shall be awarded to that player. He will get chance to throw ball to the basket from the free throw line. At the time of free throw, all the players of both the teams shall remain outside the free throw area. It is to be remembered that from this free throw, one point in each throw will be scored if the ball drops in the basket once.

I. Technical foul: If any player of a team misbehaves with any opponent player, manager, captain and use slang languages or does not obey the decision of the Umpire or organiser, he shall be penalised with a technical foul and the opponent will be awarded with two free throws. The captain shall designate the free throw shooter.

J. If any team commits seven personal fouls in each half, the opponent will be awarded one free throw for every next foul.

3. Technique: A basket ball player has to earn strength, promptness, and scoring ability into opponent's basket. The following fundamental techniques shall have to be learnt by the basketball players.

A. Stance: Stance may be parallel or diagonal. Both legs are placed apart. Body weight will be equally on both feet. Both hands are to be kept near the chest with flexion of ankle, knee and hip joints and the upper body will be with forward inclination. Both the elbows will be downwards. [F. 1.81]

B. Catching the ball: At the time of catching the ball, keep the fingers in such a way that the ball is kept under control, lingers will be placed in both sides of the ball and both the thumbs will be behind the ball parallel to each other. [F.1.82]
C. **Passing**: Passing the ball with each other among themselves is very important. Wrist and elbow of the hand act more effectively than the other parts of the body at the time of passing. So the following passing techniques are applied very often during the game.

1. **Chest pass**: Chest Pass is very easy and effective too. This pass is done to send the ball quickly to a partner in a short distance. The ball is to be held by both the hands and during this pass, both the elbows will be kept inside by spreading the fingers. The ball will have to be pushed forward from chest level. The palm of the hand will go outside immediately after the pushing action is over and at the same time, one foot will go forward. Passing shall be executed at the chest or shoulder level of the 'receiver' [F.- 1.83].

![Fig. 1.83][Fig. 1.84]

2. **Low pass**: Generally this method is used to pass the ball quickly to the team mate in a short distance. Hold the ball with both hands in between the two thighs, bring the ball a little backwards and push it to a particular player of his own team with the force of the wrist [F. 1.84].

![Fig. 1.84]

3. **Over head pass**: Generally this pass is executed to send the ball to a player who is far from him. On having a stance hold the ball in both hands, raise it over the head and then push hard to send it far away with the help of the wrists and elbows [F- 1.85].

![Fig. 1.85 : over head pass][Fig. 1.86 : Bonunce pass]

4. **Bounce pass**: The technique of bounce pass is same as chest pass. The ball will be reached his team mate with a bounce in between them. This pass is generally used by a short player to his team mate over a opposing tall player. [F. 1.86]
D. Dribbling: Dribbling has to be done to change the place or to move forward. A dribble is made, when a player gives impetus to a ball by dropping on the floor. This action done by one hand or both the hands alternately is called dribbling. The fingers shall have to be used for dribbling.

Never hit the ball with the palms. If it is done so, the ball will go beyond control. If the ball is dribbled hard, it a will bounce high. You will try to learn dribble by observing the opponent's action. Picture - 1.88.

E. Pivoting: A pivot takes place when a player holding the ball moves his one fool in any direction and the other foot being kept at its point of contact with the floor is called the pivot foot. By applying this technique, a player can feint his opponent easily and can find out his learn mate for giving him a pass [Fig-1.87].

F. Shooting: Any player may shoot straight to the basket. A score can be made even with the help of the back board. The techniques of different types of shooting are stated below.

1. Set shot: When a shot is taken by standing, on the spot is called set shot. This is to be done by one or both hands. The shooting hand will be from behind and the other hand will be at the side of the ball during a set shot with one hand. The ball is to be pushed by the shooting hand and at that time, the other hand will be off from the ball. Again both the hands will remain behind the ball during a set shot with both hands and the ball will be pushed by both the hands. Generally a set shot is taken from a distance of 4 to 8 metres. [F. 1.88 & 1.89]
2. **Lay up shot**: Normally a lay up shot is taken to score from a short distance. A player moves forward with a fast dribbling and he jumps up on his foot from the ground and tries to take a lay-up shot direct to the basket or with the help of backboard. At this time, the shooting hand will be straight way upward. [Fig. 1.90]

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**Softball**

1. **History:**

Soft ball is basically an American game. Since 1887, this game is being played in different names in America. In 1930, Walter Hakanson of Denver named this game as Softball. In 1933 this game was organised on the basis of a National Championship in U.S.A. The rules regulations of the game of Softball are like those of the Base ball. The game is very interesting and enjoyable. It can be arranged in a small place with a very little cost. Though it is similar to, that of the game of Cricket, yet it is not so expensive like Cricket. The trainees of the Colleges of Physical Education in Bangladesh learn this' game and many students of other schools and colleges also play this game.
2. Equipments:

A. **Bat**: The bat is 82 cm (2 feet 9 inches) long and 5 cm (2 inches) in diameter. It is round shaped and made of wood.

B. **Ball**: The soft ball shall be covered with leather and smoothly seamed. The stitch is concealed within the ball. It is not more than 25.4 cm (10 inches) in circumference and shall weigh not more than 155 grams (52 ounces).

C. **Base**: There are three bases namely home base, home plate and pitcher's plate.

D. **Court**: Soft ball court will be just like a diamond of playing cards. The court snail have 19 metres (60 feet) long for each base line with a pitching distance of 13.10 metres (40 feet) for women and 14 metres (46 feet) for men, And 51 metrs (170 feet) long field is needed for the fielders. The diagram of the field and a bat are shown below [F.- 1.91].

![Diagram of Soft Ball Court and Bat](image)

3. Rules and regulations in brief.

A. Each team shall consist of 9 players and they will take their positions according to the place shown in the picture.

B. A game shall consist of 5 innings. An innings will be ended if 3 players of the batting team are out. After the end of an innings, the fielding side will come to batting and the batting side will go for fielding,
C. If the match is drawn, both the teams will have to play an extra 3 innings each.

D. Batter will take his position in the batter's box; and home base will remain in front of him, and the pitcher will throw the ball to the batter from the pitcher's plate.

E. Pitcher will throw the ball towards the home base at the height in between knee and shoulder-of bat's man. If it is thrown correctly, it will be called fair ball, and if it is not done correctly, it will be called "no ball".

F. Batsman will get a free base in every 4 "No balls" from the pitcher.

G. Ball is dead or out of play when:
   1. The ball is returned to the pitcher's hand, or
   2. The ball goes into the foul area after being hit by the bailer.

H. After a fair stroke, if the base runner can reach the home base by touching first, second and third base in a correct way then one run is scored.

I. A batter can not cross the other batsman on the base to reach the home base for a run though he might be a fast runner.

J. A strike is counted against the batter if:
   1. He fails to strike;
   2. He can not strike properly;
   3. He strikes a No-ball1.

K. The batter is out under the following circumstances:
   1. After third strike;
   2. If a fielder can catch the ball which is struck by the batter;
   3. If any fielder can touch the batter or the base with the ball before the batsman reaches the base.

4. Technique:

A. Grip and stance: The bat has to be held with both hands in such a way that it can move freely. The bat will be kept on the shoulder in such a way that the bat's man can easily swim and strike the incoming ball. The batter will take his position in
his box and place his feet apart and parallel to his own convenience. Eyes will be on the ball till a strike is made. [F.-92]

![Fig-1.92 : Grip and stance]

**B. Base running:** A batter becomes a base runner after a strike and immediately starts running towards the first base leaving his bat. On the other hand, the base runner waits by keeping one foot in his base and another foot forward like sprinter so that he can run fast as soon as he gets a chance.

![Fig-1.93, Pitching]

**C. Pitching:** The pitcher shall bowl by an under hand throw. All the fingers will remain under the ball. He will stand facing towards the batsman. The ball has to be bowled with a step forward and by swinging his hand from behind. The ball will be kept within both hands at least one second before pitching [F. 1.93].

![Fig-1.93, Pitching]
D. **Throwing** : Throwing shall be made in two ways: 1. Under hand and 2. Over hand

1. **Under hand throw** : This method is used for sending the ball in a short distance. The ball has to be held well with the fingers and the ball has to be thrown at the height parallel to waist by swinging the arm. Palm of the hand will remain in supine position at the time of throwing the ball.

2. **Over hand throw** : This method is executed to send the ball in a far distance when, the ball has to be thrown by swinging his hand over the head. Left foot will be in front when throwing will be made by the right hand.

E. **Catching** : Eyes will be on the flight of the ball so that it can be caught properly. Keeping both the palms of the hand together in open position, it will be taken towards the ball just before it drops. And the ball will be caught by relaxed hands with its palms. After catching, the hands will be brought near the chest by bending the elbows [F.1.94]

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**Table Tennis**

In the opinion of some historians, the game of table tennis has started first in England in 1890. In the beginning, this game was started playing in the name of A Gosima and later on it was named as ‘Ping Pong’. At present, this game is well known to everybody as Table Tennis. It is now being played in many of the countries of the world. But this game is very popular amongst the eastern countries like China, Japan, Malaysia, Korea etc. This game is also played in Bangladesh and it is spreading out day by day in the nook and corner of the country. Coaching and training on table tennis are being imparted to the youths of Bangladesh and the foreign coaches are very often being engaged in the coaching programmes. There by the standard of this game is gradually improving.
General rules:
1. Table: The table shall be, in surface, rectangular measuring 2.74 metres (9 feet) in length and 1.52 metres (5 feet) in width and 76 cm (2 feet - 6 inches) high above the floor [F.- 1.95].

2. Net: The net is 1.83 metres long and 15.25 cms. high above is playing surface of the table. It shall remain fixed in the middle of the table [F.- 1.95].

3. Bat: The surfaces of Table Tennis bat shall be made of wood and it will be of even thickness and flat. The blade of both sides is covered with 2mm thick rubber. The colour of both sides of the blade will be alike. The bat will have a small handle. The player will hold the handle just like a pen or as per his convenience.

4. Ball: The ball shall be spherical, made of light and white synthetic materials, with a diameter of 37.5 mm and 2.5 grams in weight.

5. Service: Service is to be delivered from either end of the table. At the time of service the ball will be kept on the palm of the free hand and it will be tossed in the air. The player will strike the ball with his bat when it comes down. The ball will be striken in such a way that it will make a bounce in his server's court first and will go over the net directly to the opponent's court. If the ball while passing over, touches the net, then it shall be called as ‘let’ and the server will serve again. If the ball crosses the end of the table without
touching the surface of his own or opponents table, then it will be a fault and the opponent will get a point. When the ball passes over by touching the net during rally except in service, there will be no fault. The opponent will get chance to serve after completing the consecutive 5 services except deuce.

6. During rally, the ball have to, be passed directly over the net to the opponent's court except at the time of service. If the ball touches his own court during rally, the opponent will get a point.

7. **A point : A player loses a point if-**
   
a. he fails to make a good service.
   
b. he fails to make a good return.
   
c. the playing ball touches the playing surface twice in his own court before passing over the net.
   
d. his free hand touches the playing surface while the ball is in play.
   
e. anything that he' wears or carries, becomes the cause to move the playing surface or touches while the ball is in play.
   
f. in doubles games he strikes the ball out of proper sequence or the ball shall not touch the receiver's right half court at the time of service.

8. Method of scoring : A game shall be won by a player or a pair first scoring 21 points. When both the players or pairs shall score 20-20 points, in that case the player or pairs who will lead two points first-such as 22-20, 25-23 etc. wins the game. This equality of points is called deuce. After one game, there will be a change of ends by the player.

**Technique :**

1. Gripping table tennis bat is of two types-
   
a. Shake hand grip-Try to learn this grip from the picture given in the next page [F. 1.96]
   
b. Pen hand grip.-Try to learn this grip from the following-[F. 1.96.]
2. **Stance** : Stance will be in the middle end of the table with flexion of knees and both feet apart which is shown in the [F.1.98]

3. **Stroke** : Stroke may be done in two ways
   a. Forehand stroke.
   b. Back hand Drive.

   The side of the bat which is towards the opponent will be made by holding the shake hand grip. When he will stand facing the opponent it will be called fore hand side and the opposite of this is called back hand side. Try to acquire these techniques by observing the picture.

   Besides these, there are many other tactics to apply- for making strikes such as 1, Push. 2, Chop 3, Drive 4, Spin etc. All these strokes may be fore handed and back handed. It will be learnt and applied through constant practice [F. - 1.98. & 1.99].
4. Service: Service may be executed in different ways such as-
   a. fast or top spine,
   b. slow or back spine, and
   c. side spine

All the services can be made from both the sides—either from right or left.

Generally three techniques are applied to make a good return of service. These are drive, drop and block.

You have to learn the above techniques properly from your teacher.

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**Badminton**

1. Short history:

   It is known to us that the game of Badminton was originated in India in 1870. Some English soldiers introduced this game at Poona in India and played it among their friends. Badminton was then named as "Poona". Afterwards the Duke of Bewfort arranged this game- in a party at his home as an exhibition game. He lived in Badminton of Gluchestershire. Since then, this game is being known as Badminton. At present it is found that this game has been introduced in almost all the countries of the world. International and world champion ships of this game are also being held under different names. The countries in the eastern part of the globe are dominating in the world championships of badminton. These countries are Indonesia, Malayasia, China, Koria, Japan etc. It is also popular in Bangladesh. Young and old alike start playing Badminton as soon as they get a racket and a shuttle cock.

2. Laws of the game

   A. Badminton is played in singles and in doubles. In the case of a singles game it is played by one player a side i.e. two players in total and in the case of a doubles games two players a side total four players in total are engaged in the competition.

   B. Measurement of badminton court: For singles game, the court shall be 13.40 metres (44 feet) long and 5.18 metres (17 feet) wide and for doubles play it will be 13.40 metres (44 feet) long and 6.10 metres (20 feet) wide [Picture- 1.101].
C. The net and the post: The net is 76.2 cm (2 feet 6 inches) in width and 5.18 metres (17 feet) in length for the singles court. The top of the net shall be 1.52 metres (5 feet) in height from the floor at the centre and 1.55 metres (5 feet 1 inches) at the post. The post shall be 1.55 metres (5 feet 1 inches) high from the floor.
D. **The officials:** There shall be one Referee, one Umpire, one Scorer and 2 to 4 Line Judges and if possible 1 to 2 Service Judge are to be engaged for conducting the game.

E. **Start of play:** The game shall begin by a toss done by the Referee. The team winning the toss shall have the option to choose side or service.

F. **Result of the game:** The doubles and men's single game are held at 15 or 21 points as per previous arrangement provided that in a game of 15 points, when the score is 13-13 the side which first reaches 13 has the option of "setting" the game to 5 and when the score is 14-14-the side which first reaches 14 has the option of setting the game to 3. Again in a game of 21 points; same method of scoring is to be adopted. The ladies singles game consists of "points, provided that when the score is 9-9, the player who first reached 9, has the option of "setting" the game to 3 and when the score is 10-10 the player-who first reaches-10 has the option of setting the game to 2. The team shall win the match if a team wins two games out of three. Unless otherwise agreed upon.

G. **Service:** A service shall be Made from the right hand court to the diagonally opposite, at the beginning of all games and after side out in double game. The receiver will stand on his own position. The server shall not serve till his opponent is ready. The respective partners in doubles game may take any position in the court after a service.

H. **Side out:** At the end of each game, the players will change their sides and the winner or a player of the winning team will serve first. In the third game, the player shall change ends when the leading score reaches 6 in a game of 11 points and 8 in a game of 15 points.

I. **Faults:** If any fault is made by a serving team, there will be a side out and if there is any fault on the part of the receiver, the serving team will get a point. It will be a fault if:

1. during service, the shuttle at the instant of being struck, be higher than the server's waist.

2. during service of the opponent, the shuttle falls into the wrong service court of the opponent which is not diagonally opposite to the server.
3. the server's and receiver's feet are not in the serving and receiving court respectively.

4. either in service or play, the shuttle falls out side the boundaries of the court or passes through or under the net or fails to pass the net or touches the roof or side walls or the person or dress of a player.

5. when the shuttle is in play- a player touches the net or its supports with racket, person or dress.

6. the shuttle be hit twice in succession by the same player with two strokes.

7. during the delivery of the service the server or any player makes preliminary feints.

8. the server and the player are not within their respective courts-and some pan of both feet of these players are not in contact with the ground until the service is delivered.

3. **Technique**: General technique of Badminton are as follows (A) Grip, (B) Service (C) Stroke (D) Smash.

   A) **Grip**: There are two kinds of grip (1) Fore hand Grip (2) Back hand grip.

   1. **Fore hand grip**: It will be a Fore hand grip when all the shots are made by a right handed player from his right side and it will be a back handed grip when all the shots are made from his left side.

      Lay the Racket handle flat on the palm of right hand, then grip with thumb and the fore finger forming a "V". Grasp the lower end of handle by placing the thumb flat on handle and then closing the fingers and the thumb to go round the handle [Picture- 1.101].

   2. **Back hand grips**: Those strokes which are executed by a right hand player from his left side are all done by using back hand grips.

      From the position of right hand grip the hand shall twist a bit left side in such a way that the thumb will remain diagonally behind the racket. The butt of the racket will be within the palm.

   B) **Service**: Generally a good player has to know three types of technique of service and these are :
1, nigh-deep-service 2, Short low service 3, Drive service.

1. High-deep

service: When a service is made by sending the shuttle very high i.e. about 6 metres or above and drop near the baseline, is called high-deep service. Generally this service is made by using forehand grip in singles matches.

2. Short-low service: When a shuttle is sent very low just above the net to the opponent's service court at the corner of the opponent's service area which is joined with short service line is called short low-service. In this technique service is made by using forehand grip.
3. **Drive Service**: Drive service may be executed in both singles and doubles game. Usually a skilled player delivers this type of service. When the shuttle is sent forcefully above the net or towards the right chest of the receiver is called drive service.

[Fig – 1.103] Fordehand stroke


1. **For hand stroke**: Left foot and left shoulder will be towards the net and the shuttle will be struck from the right side of the body. The body weight will be on the right foot when the racket is drawn back. The weight of the body will be shifted from right to left foot immediately after the stroke. The palm of the striking hand will face forward [F. 1.104].

2. **Back hand shot**: The strike will be made by the left side of the body. For this, the right foot and right shoulder will be towards the net. The palm of the striking hand will face back. [F. 1.105]

3. **Over hand shot**: At first the weight of the body will be kept on right foot keeping left foot in front. When the strike is made, the body will be arched back and the strike will be made from over and behind the head [F-1.106]

4. **Drop shot**: The technique of this shot is that, the shuttle will pass little over the net and drops immediately after crossing the net and touches the opponent's court.
(5) Under hand drop-shot: At the time of service and immediately after contacting the shuttle with the swinging racket, the force of the racket will be checked. There will be no follow through either by the body or by the racket. The main object of this shot will be to send the shuttle slowly little over the net to the opponent's court [F. 1.107]

D) Smash: It requires to take the position of foot like forehand drive. The striking hand will come from behind as a forehand stroke. From the high swinging position, when the head of the racket will be going to be contacted a quick hard hit will be made using the wrist bringing it down towards the shuttle [F. 1.108]

Kho-Kho

1. Origin and development:
So far our knowledge goes, this Kho-Kho game was first started in India. First of all, this game used to be played at the villages of Gujrat, Madhya Prades (central province) and Mharashtra and it was very popular in those areas. In 1994 this game was played in Poona with the govt. patronage. It was in 1960 the first National Championship was held in Aundhra Pradesh. In 1971; the first orientation course was opened in Netiaee Shuhhas National Institute of Sports of Patiala in West Panjab. In 1976, the Diploma course on Kho-Kho and Kabadi game were started first at N.S.N.I.S centre in Bangalore, India. In every year, trainees are being sent to these centres from Bangladesh for undergoing training there. At present there are some expart coaches of Kabadi and Kho-Kho, who have taken training in these sport centres. Very recently, the Kho-Kho Federation had been formed in Bangladesh. Now, the students of the colleges of Physical Education, Bangladesh are being imparted training on the knowledge and technique of Kho-Kho. Then, they become able to teach the students in different schools and colleges of the country.
Infact, no big space or apparatus is necessary for playing this game. But, the game is very competitive, interesting and enjoyable. You learn first the rules, regulations and techniques of this game properly. Then you can take part in the competitions between the classes and houses.

This game provides physical fitness and agility as well as mental alertness. At present, the competitions of the Kho-Kho game are being organised widely in our neighboring country India. The game is held among the students from primary schools to universities. They participate in this competition with every interest. If this game can be organised at school level then there will no doubt about it that the Kho-Kho game will be very attractive and enjoyable.

2. General rules.
   A. Kho-Kho court:

   The kho-kho court is a rectangular one measuring 27 metres long and 15 metres wide: There will be 3 metres open space around the court. Neutral zone is 2.70 metres wide and the width of the first square will be 2.25 metres with the post. The width of another seven squares is 2.10 metres each. There are eight small squares measuring 30 cm. x 30 cm on the lane. The height of the post will be 1.21 metre above the ground and the circumference shall be of 30 cm to 40 cm. There shall have a fixed place out side the court for the players where they will sit. The length of this place is 3 metres and width is 2 metres [F. 1.109]
'Kho-Kho is played by two teams of nine players each side. A team is called Chaser and another is Runner. The chasers will sit within those 8 squares, facing opposite each other and one will be with the post. The player who will stand with the post is called Active Chaser. Three players of runner team will stand inside the court.

As soon as the Referee blows whistle, the game shall begin. By adopting some zigzag running techniques, the runners shall try to save themselves without being touched by the opponents. Chaser team shall not change the direction at the time of attack. Active chaser will attack first. The player of sitting position will try to touch the runner. When the active Chaser will say 'kho' by touching his back. At that time, the active chaser will sit in the blank square. Active chaser, can not change the direction. The sitting player will get up and shall run towards the first stepping direction. At the beginning of a turn, 3 runners shall stay inside the court, Immediately after these three are out, the next three shall enter into the court. In this way, the play will be continued up to seven minutes. After time is over, the runner team will be the chaser and the chaser team will be the runner. They will also play seven minutes. In this way, two innings will be played. The team who will be able to touch more opponents, they shall be the winner.

3. Technique:
The techniques of the game of Kho-Kho are mainly divided into two.
A. The technique of Chasing
B. The technique of Running.

A) Technique of chasers

1. Sit: The aim of all the sitting players will be to run fast immediately after getting kho from the active chaser. The runner shall have to run like a 100 metre sprinter. Sitting position can be taken in two ways- The finger of both the feet keeping in a straight line is called parallel toe method, or the fingers of rear and front leg keeping diagonally is called bounce or bullet toe method. [F. 1.111.]

The weight of the body will have to be kept on toes of both feet and on both, hands. The fingers of both the hands will remain like an English letter. 'V
2. **To give Kho**: To give Ḍho perfectly, an active chaser should utter the word ‘kho’ loudly as soon as he touches the sitting chaser from behind. He can touch only but not push hard. Because he is always on the starting position. He can fall down if the hard push is given. To know the proper way of kho is very important [F.-1.112 & 1.113]

![Fig-1.112 & 1.113]

**Pole drive**: When a chaser, suddenly try to touch the runner holding the pole is called pole drive. It can be touched from both the sides, right or left. [F.1.1114]

**B) Technique of Runner:**

1. **Chain play**: When the runner moves around two feet away from the chaser to save himself from the touch of the sitting chaser is called chain play. Chain play may be of single, double or multiple chain [F.-1.115].

![Fig-1.114]  ![Fig-1.115]

2. **Ring play**: When the runner moves around 3 or 4 chasers like a 'ring is called ring play. This ring may, be small, medium and big in size [Fig. 1.134].

![Fig-1.115]

3. To hold and moving around the pole: The runner may save himself [Fig-1.114] from the chaser's touch by moving around the pole or by holding the pole with both of his hands.

**Athletics**

In the world of sports and games running, jumping and throwing events one called in one word as athletics or track and field events. In your class, you are to learn two sprints, one relay race, long jump, high jump, and hop step and jump. For the convenience of, learning these events, these are described below along with the pictures.

**100 metres sprint:**

100 metres run is a kind of short run. The short runs are called sprints. Sprint means running in full-speed right from the beginning to the finish one should keep it in mind that this run increases the speed. The technique for finishing 100 metres sprints within shortest possible time is given below.

A. With the command of "on your mark" the sprinter will come to the starting line and put his front foot behind it and his back will 20 to 25 centimeters behind the front foot.

B. Keeping normal he will fold his knees and sit by making a balance with two hands. In this stage, hands are to be kept behind the starting line. [F. 1.116]

C. With the command of "set" the back foot should be straight and the weight of the body will be on the hands. The sprinter will be, in readiness to hear the sound of gun or of any other thing within 2/3 seconds.

D. After hearing the sound he will instead of standing up, start running immediately forward and the body will be bent forward.

E. At the time of running, the sprinter will use the feet and toes.

F. He will never look back or look at the other competitors. He will breath naturally. There is no need to lift the hands over head.

G. During the finish of the sprint, he will not slow down the speed rather he will run
further 10 metres in the same speed. The body will leave forward and the chest will be up to touch the finishing tape with chest. While finishing, the sprinter will neither stip nor leap forward.

**200 metres run**

Generally races upto 200 metres are called short distance run or sprint. While starting short distance run, the sequence of the start shown in the picture should be followed (F. 1.139). You are to remember that in sprint the entire strength of the body is to be 'spent at a time. The starting and finishing of 200 metres run will be the same as given in 100 metres run [F.117]

![Fig-1.118]

**Middle distance run:** Generally 400 metres and 800 metres run are called middle distance run. You will remember that in middle distance run, the energy of the body is not to" be spent fully at a time. The energy of the body is to be distributed according to the distance of the race. If the energy of the body is spent for covering half or one third of the distance, then it will not be possible to reach the finishing line.

The distribution of energy for the total distance is. very important. For example, in a 400 metres run the difference timing between the first 200 metres run and the second 200 metres should not be more than 2 to 5 seconds. The start of the 400 metres run should be at par with the sprint or short distance run and starting speed will be a little less than the top speed of the entire run. At the time [Fig-1.118] of running the last lap, you should not keep the distance from your opponent more than 2 to 3 metres. In the middle distance run the steps will be bigger than the steps used in sprint.
With the help of the first picture, the difference of body position between sprint and long distance run, can easily be understood. In the second picture, the lifting of knees in middle and long distance run can be compared [F-I. 118].

**4 x 100 relay:**

In this event, each team consists of four athletes and each one is to run 100 metres. Thus the team covers the whole distance of 400 metres. The starting technique is the same as that of 100 metres sprint but there are certain additional activities in this race. These are

- a. At the time of the baton the hand is to be extended forward.
- b. The baton which is to be exchanged, must reach the extended hand of the receiver. Who will make a pocket with the help of the thumb and fingers [F. 1. 119].
- c. The baton should be caught instantly as it touches the hand and transferred it to his left hand [F-1.120]

- d. The running speed of both the batton carrier and the batton receiver will be as it is at the time of changing the batton.
- e. It should be kept in mind that in no case, the batton should be dropped on the ground.

**The long jump:** Those who are good in sprint, usually do good in long jump. The technique of long jump can be divided into four parts, (i) The run up, (ii) Take off (iii) Sailing in the air iv. Landing/The athlete will be take a run up of 25 to 38 metres (50 to 86). The last 5/6 steps of his run up will be of high
speed. To put his take off foot at the take off board correctly, a check mark should be fixed at a distance of 15 to 25 feet from the take off board. If this mark is correctly followed, than the take off foot will not land either beyond the take off board or any other place.

As soon as the take off foot stamps against the take off board (F-1.143) the athlete will try to shift up his body by folding his knees. Waist will be bent backward like a bow (F-1.121). In this position, it will be tried to keep the body, hanging in the air. At the time of landing, the legs should be stretched as far as possible before it touches the ground. The heels will first touch the ground and sole of the feet will follow.

![Fig-1.12](image)

**High jump:** In English, Jumping for height is called high jump: The technique of high jump depends how to pass over the cross bar under different methods. The methods are (1) Eastern scissors cut. (2) Western roll (3) Straddle or belly roll. (4) Fosbury flop.

For your learning, the method of belly roll has been stated below:

The approach run towards the bar will be an angle of 45°. 7 or 8 big steps will constitute the run. The last three steps will be speeder than others. The leg on which the body will be fitted up is called the take off foot and this foot will be placed on ground one foot away from the cross bar. The other leg will kick hard to go upward. Until the hip comes up over the cross bar, the body will not be turned. The body will stay parallel to the cross bar. At the time of turning, the body will be very near to the bar. The landing will be made on the opposite leg of the take off foot and on the two hands [F-1.122. A. B.C].
The Hop, Step and Jump: Hop, Step and Jump is also called the triple jump. Those who are proficient in long jump, generally shows better results in this jump. The technique of triple jump is somewhat like long jump. The difference between these two jumps is that in long jump the take off foot is required to be very strong. While in triple jump, both the foot are supposed to be strong equally. Because, both the feet are used as take off foot.

The rules of triple jump: In triple jump, the take off foot will take the hop and land on the ground on the take off foot and take another step on the same take off foot and land the opposite foot on which will take the final jump. That is, if any body takes a take off by the left foot first than for the second jump he must use the same left foot. For the third jump, he will use his right foot. As it is, the jump like a walking step it is called the step and jump. After hitting the take-off board, three jumps are taken consecutively hence it is called the tipple jump. In order to learn the jumping technique, the following method should be followed.

1. If you hit the take off board with your left foot then say left-left-right-jump.
2. And if you hit the take off board with your right foot then say right- right-left-jump.

At the time of take off, if the take off foot crosses the line or any fault accord, then the jump will be disqualified.

Technique: For triple jump, the technique of run-up and take off is the same as is
used in long jump. But in the first hop, all energy should not be spent or the jump should not be too-high. Because before taking the final jump, two other actions are yet to be performed and these are taking a hop and a step. While taking two step maximum energy will be applied and while going for the jump try to go high as much as possible. Only then it is possible to cover the maximum distance [F- 1.145].

[Fig-1.123]

Throwing
(For boys and girls)
The throwing events in athletics are generally three types. These are 1. Throwing the Shot (2) Throwing the Discus: (3) Throwing the Javelin.

Shot put:
In English, throwing the shot is known as putting the shot or shot put. In ancient times the throwing of stone was in practice. Later on it was replaced by iron ball. It is said that putting the shot has come from cannon-ball firing. The weight of the shot varies from 8 pound to 16 pound according to age and capability. Since you are school student you will be fit to throw a 12 pound shot. The shot is thrown from a circle of 2.28 metres (7'-6") diameter to a 40° degree sector. The competitors get three to six throws each in a competition.

Techniques of throwing :
For the convenience of learning the techniques of shot put are stated below :
1. **Holding the shot:**

A. Instead of holding it with, palm of the hand, the shot should be held with fingers from bottom to the end of the head of the fringes.

B. The thumb and the little finger will be placed on the two sides of the shot. So that, the shot does not roll off the hand.

2. **Placing of the shot on the shoulder:**

A. The shot will stay in between the neck and the shoulder joint, so that, the weight of the shot can be kept with ease.

B. The elbow -of the right hand on the right side will remain in a little higher position [F-I. 124].

3. **The starting position of the thrower:**

A. The thrower will stand facing opposite to the direction where the shot will be thrown to.

B. The right leg is to be kept forward and the sole of the left foot will be taken back behind and near the right heel.

4. **Changing of place:**

A. Body and hip of upper portion will be bent forward and the left leg will go back and up with a swing.

B. With the help of right heel, a push will be given and the whole body is to be pushed backward.

C. In this position, no jump should be taken.

5. **The throwing position:**

A. The left knee will not be unfolded and it will be kept as a piller.

B. The right knee will be folded and upper portion of the body over the waist will make a turn backward.
C. The eyes will view backward.
D. The right leg is to be stretched, hip will rotate forward and the shot will be pushed in the air [F-1.147].

6. The style of pushing the shot
A. While pushing the shot in the air, the right elbow will never come down.
B. The shot is to be pushed outwardly by the fingers with all strength. (F-1.125)

7. Controlling the speed;
[Fig-1.126]
A. After throwing the shot, it is required to control the forward movement of the body. The right leg should be brought forward and the balance of the body will be maintained by bending the knees. (Fig. 1.126)

Throwing the Discus

The discus is thrown from a circle, the diametre of which is 2.50 metre. The discus must be thrown inside the 40° degree sector. During the throw, if it touches any portion outside the ring, the throw will be disqualified. The weight of the discus for the boys and girls is 2 killogram and 1 killogram respectively.

The technique of throwing the discus:

Holding the discus

A. The fingers of the hand will have to be placed on the discus in such a way that all the fingers except the thumb rest on the edge of discus. It is the joint which will be around the edge of discus.
B. With the help of the thumb the staying of the discus in the hand- will be maintained. (F-1.127)
The circle of the Discus:
A. The discus will be given a circular movement with the help of the index finger.
B. The forefinger is to be brought in the inner side in order to spin the discus clockwise.

The turning:
A. By keeping both the feet side by side in the circle, stand facing the opposite direction where the discus will be thrown to

B. The right leg is to be turned first over the left leg and is to be kept in one line.
C. At the same time the left leg will be placed before the right foot after giving a turn (Fig-1.128).

Releasing of discus:
A. With the touch of left leg on the ground, the discus will be released.
B. The power of throwing the discus is to be generated from the waist.
C. The throwing hand will remain straight.
D. The discus should be thrown by leaving the chest forward.

Throwing the Javelin

The length and weight of the Javelin is 2.59 metre (8'-6") and 1.7 pounds respectively. For throwing the javelin 19.81,metres to 30. 48 metres (65 to 100 feet) long runway is required. The javelin must enter the surface of the round. If the thrower goes out of the area from where the javelin is thrown or if after it is thrown it goes out of the sector then the throw will be disqualified.
The technique of throwing the Javelin:

Holding the Javelin:
The sharp point of the javelin should be held downward with the right thumb and with the tip of the middle finger, a ring is to be made around the end part of the rope. This will be held in such a way so that, the part of finger tightly stays with the end part of the rope (F-1.130).

Carrying the Javelin:
The javelin carried in three styles.
A. The sharp point of the javelin will be placed on the shoulder.
B. The javelin may be carried under the arms
C. It may be carried in front of the body, by keeping sharp point downward. (F-1.131).

Pitching the Javelin into the ground:
After holding the javelin with a twist from the wrist and bending the knees a little, the javelin should be thrown and it should be pitched in the ground. The practice of throwing the javelin should be done first from a standing position. Then with a walk and after that with a short run, it should be practiced.

Throwing the Javeline:
A. The javelin should be thrown with a powerful hand by bending the elbow and bringing the hand from behind.
B. The javelin should be brought in line with the shoulder and then released from the hand.
C. At the time of throw the right shoulder will remain a little lower from the left shoulder. [Fig-1.154]
d. The right knee should be bent and the left knee is to be kept straight (F-1.132).
Maintaining balance
After the throw is done, the thrower is to turn opposite to cluck his speed so that he does not get out of the throwing area. In order to control the need, throwing the javelin the right knee is to bent a little.

EXERCISE

1) Put true or false against each of the following questions.
   a. For taking a theif vault take off is to be taken with both feet.
   b. In a half volley kick the ball moves forward along the ground.
   c. Goal cannot be scored with an indirect free kick.
   d. In -the volley ball, the rotation of the players is done clockwise
   e. If there is a tie in discus throw a fresh throw is given .
   f. Goal is scored directly from a corner kick
   g. In the game of volley ball, the player cannot enter the court unless the ball passes over the net.
   h. six run is-scored for a lost ball.

2. Perform the following exercises or show the techniques.
   a. Dive roll (Gymnastics)
   b. Jump shot (Basket ball)
   c. Over-hand pass (Volley ball)
   d. Chip shot (Foot ball)
   e. Start of 100 metres sprint (Athletics)
   f. Shoulder balance (Parallel bars)
   g. Back lift (Cricket)
   h. Back hand stroke (Badminton).
i. Forward defence (Cricket)
j. Head stand (Gymnastics)
k. Thigh trapping (Foot ball)
l. Lay up shot (Basket ball)
m. Long service (Badminton)
n. Smashing (Volley ball)
o. Over hand service (Volley ball)

3. Answer the question given below:
A. Why is physical education necessary?
B. What is educational gymnastics? What kinds of exercises are included in it? Write down the name included in it? Write down the name of one exercise after naming them.
C. Name four exercises of parallel bars and uneven parallel bar and describe any one of them.
D. What is the difference between a stride vault and through vault? Which one is easier to do and why?
E. What is the difference between a direct free kick and a penalty kick in foot ball? What are the causes for which a penalty kick is awarded?
F. Write down the rules of service in Volley ball.
G. Where are the origins of these games- Basket ball, Foot ball, Cricket.
H. Describe the technique of crossing a long distance in long jump.
I. How many fouls are there in basket ball and what are those?
J. How many players are there in the games given below?
a. Football
b. Volleyball
c. Badminton
d. Cricket
e. Basketball.
CHAPTER TWO

Swimming, Diving and life saving

Swimming:
The type of present day swimming was first introduced by the English. In 1837 the first competitive swimming was held in London. Though the International Swimming Federation was formed in 1908, yet the swimming competitions are being held in Olympic games since 1896 for men and 1912 for women. The Bangladesh Swimming Federation was set up in 1972. The name of the International Swimming Federation is "FINA"- The full name is "Federation International de Natation Amateur "and Bangladesh Swimming Federation is now a general member of FINA.

Swimming competitions are held in the different styles and distances which are given below:

A. Free style: Men- 50, 100, 200, 400 and 1500 metres.
   Women- 50, 100, 200, 400 and 800. metres.
B. Butterfly- 100 and 200 metre (men and women)
C. Back stroke -100 and 200 metre - (men and women).
D. Breast stroke-100 and 200, metres (men and women).
E. Individual medley-200 and 400 metres.
F. Team medley- 4 x 100 metres.

Techniques:

Free style: This style of swimming is also called front crawl or crawl stroke. One can swim fast in this stroke.

A. Position of body: The body is to be kept in prone position parallel to water. The position of the head can be changed from time to time, by raising it above the water and bending the neck in it. Generally the swimming of short distance raise their head a little high above the water. But the swimmers of long and middle distance keep their head a little bit low.

B. Action of the hands:
   1. The hand is to be drawn forward vertically.
   2. The hand is to be drawn forward by the sides of the body keeping it parallel to the water.
3. The very moment the hand will touch the water in front of the head at the same time hand will start functioning inside the water.
4. The hand after entering into the water will draw water and will push it behind. The action of the hand will go on alternately (F 2.1)

**Action:**
1. The work of the legs start from the waist of the body. The movements of the legs will be up and down alternately and go forward.
2. The legs should be folded slightly near the knee and the feet will remain straight.
3. The heels of the feet will not go above the water. When the flat surface of the feet will press the water, will go at best (18") eighteen inches deep from the surface.
4. It should be kept in mind that when the action of two hands will be completed, the leg movements will be completed from 6 to 12 times.

**Breathing:**
At the time of swimming, breathing is done by mouth turning the head above the water. When the hand will be above the water, the head then will be turned in that side for breathing. The air will be taken in by mouth and it will be released when the head goes under the water. Look at the picture below and try to practise breathing with this process (F.2.1).

![Fig-2.1 Breathing : swimming]
Back stroke:

Position of body:

The body is to be kept in the lying position on the water. Generally the head is kept a little inside water. This position makes the whole body parallel to water as if the head is laid on a pillow. The position of the eyes will be on the heels of the legs.

Action of hand:

The hands will go into the water straight way near the head when the hands will enter the water immediately it will start pressing downward and the elbow will be folding. (F. 2.2)

Action of leg

The action of the legs are like that of the free style swimming. Usually the action of leg is like kicking a football lying on back.

Breathing

Breathing should be done naturally.

Breast stroke:

Position of body:

At the time of swimming in breast stroke style the body is to be kept almost parallel to water. But the back side stays parallel to water and remains 10 degree downward.

[Fig. 2.2]
**Action of hand:**
Both the hand will go into water at the same time the palms of the hand will be kept straight way downward and outward. The elbows are bond to press water downward with the hand and after the hand coming towards chest, it should be taken forward quickly. The movement of the hand is somewhat like the figure of the heart. During turning and finishing the wall is to be touched with both hands.

**Action of legs**
With two legs slightly folded all knees the swimming is to kick like a frog. The blade, of the feet should remain outwardly. (F-2.3)

**Breathing**
Breathing as, done by mouth while raising the head slightly upward and forward the air is inhaled and it will be released under the water.

**Butterfly swimming: Position of body:**
[Fig-2,3]
The body will remain, parallel to the water in a prone position.

**Action of hands:**
Both the hands will act together. Generally the body will go forward by pressing the water below with the hands at a time and the elbows will remain slightly bent at this time. When the hands will come above the water in the air, it will look a butterfly wings. (F.2.4)

**Action of legs:**
With the single action of the hands, the leg action of pressing water will be done twice. Both the legs will be brought forward with bented knees and pressed downward and backward. The legs will remain together.
Breathing:
With one full hand circling, the head is to be lifted for breathing (F. 2.4)

[Fig-2.4]

Medley swimming:
The medley swimming is of two types- (1) Individual medley (2) Team medley.

In individual medley, one swimmer has to swim the distance in four styles. The names of the styles are given below serially
a. Butterfly swimming
b. Backstroke swimming
c. Breast stroke swimming
d. Free style swimming

In group medley there are four swimmers in particular distance. The names of the systems are given below serially-

a. Backstroke swimming
b. Breast stroke swimming
c. Butterfly swimming
d. Free style swimming.

Note: To become proficient in different style of swimming both boys and girls are to remember the following points:

1. In each style of swimming, the movement of hand and feet, breathing and the coordination of these must be practised thoroughly.

2. In each style practice of the action of hands or legs should be done in order to increase the strength of the hands and legs and skill is to be acquired accordingly.
3. The swimming which needs turning, must be practised for acquiring the skill.

4. Practice should be done not only at the time of swimming competition but also throughout the year.

5. After every few days competition with others and take your own timing for the same distance. Regular practice will help acquiring less time gradually covering the same distance.

**Diving:**

In the primary stage, the diving technique is necessary for competitive swimming. Therefore while learning to swim the easy skills of diving is also to be learned. Some of the easy techniques for the primary learners are given below:

**Diving like seal fish:**

1. In shoulder deep water, keep the body float and hands and feet should, be kept vertically straight.

2. From this position, two legs are to be lifted above water with a snap hands and head are to be taken under the water.

3. With some result under the water is to made in order to bring the body in its original position.

**Diving in a sitting position:**

1. Sit beside the swimming pool with both knees half bent and face down keeping the eyes on water.

2. The toes will be firmly fixed at the edge of the ponds.

3. Put both the hands extended beside the two ears and towards the water.

4. From this position go down at the bottom of the pond with a roll straight way.

5. At the time of going into water, the fingers of the hands will first enter the water.

**Diving in a kneeling position**

1. Sit beside the edge of the pond with the right knee half bent and with the thumb of the feet firmly hold the edge of the pond.
2. The Left knee will lie in a parallel position on the floor of the pond.
3. Bend the body and bring it parallel to the right knee and lower down the neck with eyes on water.
4. The hands will be extended beside the two ears and come to a sitting position with folded knees. [Fig-2.6]

5. From this position roll off to dive in the water. But the upper part of the fingers will enter the water first [F-2.6].

**Standing dive:**
1. Stand at the edge of the pond with toes firmly fixed and stand upright.
2. The hand will be beside the two ears extended and upright.
3. The body is to be bent while looking at the water and stand upright.
4. In this position the body (upper part from waist up) will bend eforward and the tips of the fingers will enter water first. (F- 2.7)
5. After acquiring this skill take a little jump upward and try to dive.

**Life saving**

**Releasing the boys and girls from different kinds of obstacles:**
A drowning person tries his utmost to save his life by catching whatever he gets nearby. One who goes to save the life a drowning person, catches him to save his life. The rescuer catches hand, head, neck, trunk, leg etc. of the drowning person whatever he gets, he grabs it instantly. As a result, it is sometimes hard for the rescuer to save himself. So, the life saver should save himself from this kind of entangling from the drowned person. If head, shoulder, hair, neck has been caught then pushing hard with his hand or leg, one can release himself. If the body along with the body of the victim is caught then two elbows ought to be extended side ways and putting the rescuer's head down and afterwards
pushing with hands the life saver should release himself. If his one leg is caught then neck should be given with the other leg and if two legs are caught then release should be made by using the hands.

**Carrying a drowned person in different methods:**

**Carrying by holding the hair:** If the drowned person is stronger or unconscious and has no energy of his own or if his hair is long enough then hold his hairs with one hand and swim side ways with another hand and feet so that the victim can be carried out.

**Carrying by the chin:** If the drowned person is strong and unconscious and his hair is not long enough then put the palm of one hand under his chin bring him to the shore by using one hand and two legs with a sider stroke swimming. Victim can thus be carried out.

**Carrying by holding chest and chin:** If you are to carry two persons then put your one hand on the chest of the victim and other hand under the chin of another victim then use breast stroke style of swimming.

If the drowned victim is strong, conscious and has strength in this case he should be placed face up and will be asked to put his two hands on rescuers two shoulders and the rescuer will bring him safely by the side of the pond. He will use the brest stroke style of swimming. (Fig- 2.8)
EXERCISE

1. **Put a tick (√) against the right and cross (x) against the incorrect ones below:**
   a. Diving back stroke swimming, breathing is done under the water.
   b. Usually the swimming competitions are held on five swimming styles.
   c. In butterfly stroke, the hands can not be raised above the water.
   d. In medley relay, there are five items.
   e. The free style swimming is also called front crawl stroke. Diving from standing position is called plain dive.

2. **Show the following skills by yourself**
   a. The action of hand and breathing of front crawl
   b. Knee dive
   c. Action of hand in breast stroke swimming.
   d. Action of leg in butterfly swimming.
   e. The starting method of back stroke swimming.

3. **Answer the questions given below :**
   a. Write down the styles in which swimming competitions are held.
   b. Describe the difference between butterfly stroke and breast stroke swimming.
   c. Describe many types of diving you have known. Write down one of these dives.
   d. What do you understand by FINA?
   e. How is the finishing turning of breast stroke swimming done?
   f. Describe the breathing technique of breast crawl style of swimming.
   g. Write how chin carry in life saving is done.
   h. Describe any one of the release methods in life saving.
CHAPTER THREE
Squad drill and various kinds of Exercises

Squad drill Line:
If some boys or girls stands side by side by joining their shoulders then a line is formed. The line looks beautiful when it is formed by 15 to 20 persons.

File:
When some boys or girls stand behind one another and their shoulders remain in one parallel line, then it is called a file. In the case of file, the distances between the boys or girls will be set by raising one hand forward and it will touch the back of the other.

Rank:
Boys or girls after standing side by side and joining their shoulders form a line, in the same manner, if another line is made behind the first line then it is called a rank. Ranks can be of two or three in numbers. The front line is called front rank and similarly the middle and rear lines are called the middle rank and the rear rank respectively.

Turning right:
At the time of turning right, the heel of the right foot and ball of the left foot will turn to the right direction simultaneously? During this turning the weight of the body will rest on the right leg. When the turn is completed, the right leg will remain fixed and straight on the ground. The hands will stay close at each side the body. The left foot will be raised to the height of six inches from the ground and will be brought quickly to the line of right foot and then will stand in an attention position.

Turning left:
The left turn will be done in the same method as of the right turn. But the weight of the body will be kept on the left-heel and it will turn left. The right foot will then and there come forward and will join the left foot in one line and they will come to an attention position.

About Turn:
Putting weight on the ball of the left foot and heel of the right foot, the turning is to be made by the right side. The hands will remain closed with each side of the body. The
two legs will be placed like a scissors, the balance of the body will be maintained. The left leg will be lifted and brought in parallel to the right leg and then it will come to an attention position. While making an about turn, the turning will be made from the right side.

**Mark time:**

[Fig. 3.1 Mark time]
The thigh of the left leg is to be raised and will be kept parallel to the ground and the knee will be lifted in such a way that a 90 degree angle is made and the ball of the feet remains towards the ground. With the command of left, the left leg will come down on the ground and at the same time the right foot will go up like left foot. The balance of the body will be on the left foot. With the command of right the right foot will come down on the ground and the left foot will go up. The hands will remain attached to each side of the body. During this activity the body will not swing. (F-3.1)

**Marching forward:**

At the command of March forward', like mark time, the left foot will come forward with the command of 'left' and with the command of "right" the right foot will go forward and thus the marching will go on. When the right foot will go forward then the left hand will go with it and when the left foot will go forward similarly the right hand will be moved forward up to shoulder height. (F-3.2)

**Changing of line file in marching:**

During forward marching the boys or girls will move forward one behind another. When the command is given to turn left, at this time instead of moving forward one behind another, they will change the position and march side by side. In this way the marching can be done by turning to the right also.

**Rifle:**

The rifle has four main parts: (1) Butt (2) Body (3) Barrel (4) Trigger. rests on shoulder at the time of firing is called the butt. The part, in which but-let is kept is called the body and the pipe through which the bullet goes out is called the barrel. The part which is pressed to release the bullet is called the trigger. (F-3.3)
**Shoulder Arms:**

With the command of "shoulder arms", the right hand with a jerk will be lifted a little and the hand will go in the trigger guard, the left hand will come in the near front of the chest and hold the barrel of the rifle. After the left hand is brought in its own position it is kept close to the side of the body. In this position, one can move forward.

**Order Arms:**

At the command of 'order arms' from the shoulder arm position, only palm of the left hand will come on1 the barrel of the rifle which has been kept at the right side. The fingers will be released from the trigger guard and the rifle. The butt of the rifle will be at the side of right foot and the hand will be stretched.

**DANCE (For the boys)**

**Stick Dance:**

The noted pioneer in folk dance in Bangladesh is Guru Sadoy Dutt. Through different kinds of folk dances he tried to evoke national consciousness among the people of the country. The folk dances that he created is known as Broto chari dance. With the performance of this dance the boys and girls sing patriotic type of songs. As a result people get recreation out of this dance and on the other hand the youths can develop their health. The stick dance is one of the famous Brotochari dances. The description of stick dance is given below:

Stick dance has three parts namely:

1. Techniques
2. Instrumental music
3. Folk songs.
With the blowing of the first whistle, the students will hold the sticks with both hands near their waist, with the second whistle, the sticks will be raised to the chest height and with the rhythmical sound of music, they will lift the left foot and their right foot. With the third whistle, they will move forward rhythmically. It should be kept in mind that number of students of second file will be two and a half time move than the number of the students of third file will be the double of the second file. The number of student in all the file will be even. The numbers should be counted before hand. For example

If the number of one group of students is eight, the second group will have a number of twenty (two and half time of the first group) students and the third group will consist of forty students (double of the second group). In the same way, number of student, according to our desire, can be increased or decreased. According to the number of, students a circle is to be drawn earlier and there will be another circle out side. Circle at distance of one and a half yard from the first one in the same distance from the second one. The third circle will be from outside the second circle. At the time of drawing the circle, if the students stand in a circle then the formation of a circle can be done with ease.

**Drawing of circle**

With the third signal the students will go in three files towards the circles and after reaching the circle they will run anticlock wise with the rhythm of the music around it keeping the circle at their left. With the fourth signal, they will take their stand in their own circle facing inside of the circle and do mark time in their own place rhythmically. With the Fifth signal, the sticks are to be taken in left hand and one will stretch the sticks towards follow players and will take necessary space. With the sixth signal, they will stop and the musical instruments will also stop. The students will point the sticks downward in front of them. With the seventh signal; two sticks will be held crosswise. With the eighth signal and with the sound and rhythm of "drum" the sticks will be taken by the two sides of the body and will be kept in a crosswise position and they will lift the right leg backward with the crossing of sticks the feet are to be stamped on the' round which make a single sound. In every beat, hip will go down and knees will bend a little. In this way, after seven beats, the player bearing the number one will hit the sticks of number two player with his right hand stick. The number two player with his stick will turn his' body to the right and will touch the stick of number one
player. After that number two player will turn his body right and will hit the stick of number one player in the same way number one player will hit back with his stick. In this way, the game will go on in a standing position. It should be remembered that while turning left the player will hit with his stick of his right hand player and when turning right he is to beat back his left hand stick. At the time of hitting, the right leg will go in front of the left leg and at the time of beating back left leg, he will go over the right leg. On the ninth signal, the game will continue on the marching movement. On the tenth signal, the number one group will kneel down and continue the action. On the eleventh signal, the number three group will play in their own circle in a kneel down position facing the inside of their circle as before on the twelfth signal, the number two group will keep playing in the same way and on the thirteenth signal, the group number one will play in marching movement and the group number three will be on the ground and on their back and they will keep on playing the activity. On the fourteenth signal, the group number two will go on playing in a standing position. The fifteenth signal will indicate that the group number three will continue in playing in a sitting and kneel down position. On the sixteenth signal, the group number three will stand up and will start marching with others who are playing the activity. With the seventeenth signal, all the players will march forward in a bending position of the body. On the eighteenth signal, all groups will stand up and will march in the circle and they will keep on playing as before.

On the nineteenth signal, the leader of the third group will start leaving the ground in the same way as entered the ground and others will follow him one by one. In the similar way the group number one and two will leave the group after following the third group and all groups will reach their original places from where they come in. Then the director will blow the twentieth whistle the beating of the drum will be changed and all the players will stop playing the stick dance. But they will leave the ground with double march by keeping count with the rhythm of the music. After their leaving the director will blow his last whistle and the beating of drum will come to a stop.

The Rhythm of madal or drum

Dhating .......ta ....... Dhating ....... ta

Dhating ....... ta ....... Dhating .......ta

Taak....... Ta....... Dhating....... Dhathang.......ta.
Dance song.
We are young heroes, We are young heroes.
Fluttering in sky our crescent flag.
We are free we are valiant
awakened mind, head high.
Let come all danger.
Don't care storm and typhoon.
We are young heroes, we are young heroes.
Fluttering in sky over crescent flag.
Lets march—march—march-march.

THE JHUMOOR DANCE (for boys)

Description of the dance :
Two rows-or lines-  In the first row, there will be more students than the second row. The boys will stand in these two rows. The small row will stand at the left side of the big row.
First signal- With a small jump, they will stand in the fixed places.
Second signal - The two rows together will turn-right and will form two circles. They will keep moving. The smaller group will make the small circle and the bigger group will make the bigger circle.
Third signal- Facing the inner side of the circles they will start marking time by standing on their own place. They will do "left and right" following the rhythm of the drum.
Fourth signal- They will stop marking time and the hands will go to the two sides of the body.

Fifth signal With a jump, they will put hands on hips and will turn right.

Sixth signal- By putting the hands on hip they will take one to seven steps at the left side of the circle, with the count of three both hands will come down in their front. This action will be done twice.

Seventh signal- The left hand will come round the left side of the head and will take one to seven steps and at the count of three they will bring the hand down.

Eighth signal- The right hand will come round the right side of the head and will take one to seven steps. At the count of three at each time the hand will come down.

Ninth signal- Both the hands will come on the head and one to seven steps will be taken.

Tenth signal- With a small jump, the right hand will come down on the left knee and afterwards the left hand will come down on the right knee (Counting : After saying one, a pause will be given i.e. giving a bit off). At the count of two, both the hands will come down.

Eleventh signal- The hands will be released at the first step inside the circle.

Twelfth signal- With a jump on one leg, clapping over head will be done and after that clapping behind and down, seven steps will be taken.

Thirteenth signal- Each step is to be put once.
THE ROWING DANCE

Equipment:
For each boy a 10 inches diameter shield and a 3 feet long stick, a drum (Dhol) for the whole class.

Preparation
The boys will be divided into four groups and in four files, They will stand at one side of the field. Each of them will carry a stick and a shield in their left hand. With the signal, the music will start and with the rhythm of the music, every one staying in his own file will make double march forward and come back to his fixed place.

Dance:
At the first whistle, the right hand will hold the upper part of the stick and with a quick turning of the stick from the right side of the body, it will be placed on the back. The pressure of the stick will raise the chest forward. At the same time, the left knee will be bent and will go forward and the right leg will go backward. The weight of the body will be kept on the left foot and body will be leaned forward. With the second whistle, the drummer will beat the drum rhythmically and performer will put the right foot forward and at the time his left foot will go back. In this way, the legs will be putting forward and backward with the rhythm of music. At the third whistle, both the groups will move fast. When the groups will reach the fixed line drawn inside the field, they will come back to their starting line and keep on dancing as before. At the fourth whistle, the music and the dance will be stopped and the players will be in a stand still position. At the fifth whistle, they will pull the stick with force and will hold by the left hand and then they will stand straight. Now with the sixth whistle, they will double march rhythmically and will leave the field.

NB. The above mentioned dances are only some sort of primary dances. The dancers can enjoy it and they get physical exercise with these rhythmical activities. Besides, there are many similar dances and along with the use rhythm there are also stick dances which can be performed by a good number of students. The students can learn some attacking and defensive techniques through this dance.
**SUCK DANCE (lori dance)**

The game of stick is traditionally a Bangladeshi folk activity. It gives physical exercise as well as joy and happiness. It is very popular in rural Bangladesh. With the performance of this dance, the limbs of the body are developed and it brings mental pleasure. On the other hand the techniques of self defence, the art of overpowering the enemies etc. can be learnt.

**PAI TARA DANCE**

a) The shield and the stick will be taken in the left hand and the boys will do double march rhythmically in the first and second files.

b) The students will stand in two files in even numbers, The first whistle will be blown and the drummer will start playing, his drum. The boys will hold the head of the stick by the right hand and after putting it out from the left side, they will hold it by two hand and will keep it upon his theigh. On the second whistle, the first group will raise the left hand with the stick and will stretch it upward and will look on it. Then, they will put right foot on the left foot across. At the same time, the second group will raise their sticks at right the inside and again on the put side. In this way, the activity will be done in the standing position and the third whistle will be blown. With the sound of the third whistle, both groups start swiftly for forward march. After they reach the boundary line of the field, first group will turn right and the second group will have to the left and return to their place of start. When they reach the starting place, the first group will turn to the right and the second group will turn to the left again. In this way, the dance will be performed for a couple of time and the fourth whistle will be blown. After the fourth whistle both groups will continue the activity in a standing position. On the fifth whistle the dance will be stopped. As per the sixth whistle the sticks are to be taken in the left hand and will keep it to the previous position. The groups will leave the ground by marching with Music.

**Musical rhythm.**

Jha- jha- jha.

Jha- tha- tha.
Group exercises

Introductory or worth exercises.

1. **Jumping with high knees and with hands on hips**- Stand upright with hands on hips. Now with the starting signal, lift the left knee up to your chest and after that your right knee will follow and will do the same action. In order to maintain the rhythm it is better to utter the command of left, right and then following the rhythm, do this exercise for 16 to 20 times  (F-3.4).

2. **Jumping high with two hands on the side of the body**- The hands will not be placed on the hips but will be spread side ways and stand. Then do the previous exercise for 16 to 20 times.

6. **Jumping on the spot**- Jump from the same position and the legs will be lifted up, side ways, or forward. This exercise will be done for 16 to 20 times.

**Exercise of hands & shoulder**

1. **By standing with legs apart and then clapping over head with open Palms**- Stand with legs apart. With the starting signal, raise your hands over, your head and, clap and bring your hands down afterwards. At the first starting one when you start clapping and two when you hung your hands down. Afterwards do the exercise rhythmically for 16 to 20 times (F 3.5)

2. **Clapping by turns with right and left hand up and down**- Stand with two legs stretched and straighten two hands overhead. With the signal for start, say 'one' and drop your left hands and clap with your though and at the count of "two", lift your hands over head and clap in the same way. Accordingly on the count of "three and four" clap on the right side. Do the exercise for 16, 20 or 24 times.
3. **Swinging bath hands at a time in front, up and down**- Stand with legs. With the starting signal of count of ‘one’ raise your hands in front of you. At the count of ‘two’ bring them down, at the count of three raise them over head and at the count of "four" bring them down. In this way, do the exercises for 16, 20 or 24 times.

**Exercises of legs :**

1. **Jumping with stretched legs and by putting hands on hips** : Keep the legs together and stand with hand on hips. With the starting signal, of count one and then jump with stretched legs and at the count of two bring the leg together. Do this exercise with rhythm for 16 to 20 times.

2. **Jumping with legs sideward, backward and forward** : Stand up right. With the starting signal and at the count of ‘one’ bring the legs together and jump to your left, and at the count of ‘two’ come back to your starting position. At the count of three jump at your right and at the count of four come back to your starting position. At the count of ‘five’ jump forward and at the count of ‘six’ come back to your starting position. At the count of ‘seven’ jump backward and at the count of eight come back to your starting position. In this way, the exercise can be done two or three rounds that is for 16 or 24 times.

3. **Swinging of one leg and jumping on other by turn**- Stand with hands on hips. With the starting signal, lift your left leg with a jump and swing and give a ‘bit’ with your right foot and with it after the left leg returns to its place, lift your right leg side ways and swing and then give a ‘bit’ with the right foot. In this way swing your legs by turns keeping the jumping by swinging right and left foot. If you keep the count by saying left, left and right, right then it will be easy to keep the rhythm. Do the exercise for 16 to 20 times (F- 3.6)
Co-ordination Exercises

1. **Jumping with rhythm by stretching hands and two legs side ways**—Stand up right. With the starting signal stretch your two hands and feet with a jump and with the next jump, bring them together. At the time of stretching, count "one" after while bringing it together count 瑄wo瑄may be said: When the rhythm is under control, do it for 20 to 24 times [F-3.7]

2. **Clapping below the knees and over the head by turns**

Stand straight. With the starting signal, lift the left knee up to the height of hips at the count of ‘one’ and clap under it. At the count of ‘two’ clap over your head and at the count of three raise the right knee and claps. This exercise is to be done by turn. In this way the exercise should be done for 20 to 24 times.

3. **Jumping with rhythm by swinging hands, sideward, upward and downward**—Stand straight with feet together. With the starting signal of the count of ‘one’ stretch two legs and extend two arms side ways. And with the count of two, bring the hands down and feet together. At the count of "three" extend your-hands forward and stretch the legs. At the count of 璠our瑄bring the hand down and leg together. At the count of 璠ve瑄raise the hand over your head and stretch your legs. At the. count of 璠x瑄bring the hand down and legs together. At the count of 璠ven瑄stretch your legs and bring your hands at your back and at the count of 'eight'; bring the feet together and hands at the side of your body. The whole exercise will be done rhythmically for 16 to 25 times.
Daily assembly.

Everyday the students of the institution, before the starting of the classes will assemble themselves, in the open space of the school. They will stand in a disciplined way and will be present house wise or classwise. The headmaster, the house captains will also stand in their respective.
As far as possible, the students will stand according to their height that is, the students of smaller height will stand in the front and the taller boys will stand at the back. The class teachers and the captains will help the students to stand in their proper places. In the assembly, the following functions are to be done serially.

1. **Reading from the holy book.**

One student- welcome infront of the assembly and read from the holy book and all other will listen to him. The Muslim students will read sura Fatiha and its meaning and the students of other-religion will read some portion from their own religious book and its meaning.

2. **Hoisting of National Flag.**

During the hoisting of flag, all will remain in attention position. No body will do any kind of movement. The school captain or some other student will hoist the flag.

3. **Saluting the National Flag.**

All will come to the attention position and by raising their hand they will salute it and then put their hands down. The physical education teacher or some other senior students will give command to perform the different activities in the assembly.

**Command:**

Salute the national flag" "one-two" or "up-down\" will be the command. With the count of "one" all will raise their right hand and with the count of "two" or "down" the hand will come down.

**The Oath :** One of the house captains or any class captain of higher class will come in front of all students and will raise his hand and will ask all the students to raise their hands.

**The Oath:**

Ready for the oath, will be the command for taking oath. The Oath : I do hereby take the oath to the effect that, I will keep myself engaged in the service of mankind. I shall be loyal to my country. I shall remain ever ready for the solidarity and unity of my country. Oh Allah! give me strengths, so that, I can save Bangladesh and can build Bangladesh as a strong state.

5. **Light exercises.**

Description of some free hand exercises suitable in the daily assembly,
Exercises of hands,
a. Stand with legs stretched and put hands crosswise. Swing your hands side way and upward by turn. [F-3.9]
b. Stand with legs stretched swing the arms forward and backward by turn. This action is like the milkmans butter churning action IF-3.101

c. Stand with legs stretched and circle the *arms sideways [F-3.111

Exercises of the legs
a. Stand with hands on waist, jump and stretch your legs and bring it together.

b. Stand with hands on waist, jump and stretch your legs and at the time with a fourth jump, bend your knees halfway and again stretch it.
c. Stand with hand on waist and feet together-Now keep the balance of the body on one foot and swing the other foot side ways.

**Exercises for-trunk.**

1. Stand with stretched leg. On the count of one, lower your hands to your front and bend the body. With the count of ‘two’ lift your hands up and stand straight (like the washermans cleaning the cloth). Do the exercise for 10 times [F-314].

2. Stand with stretched leg and arms extended side wise. With the count of One bend forward, and at the count of Two be straight and at the count of Three bend, backward. At the count of Four be straight. Do this exercise for four rounds that is 16 times [F-3.5.]

**Side exercises of the body.**

1. Stand with stretched legs by keeping the hand on head. On the count of One bend the body to the left side and on the count of Two straight up the body. On the count of Three bend it on the right side and on- the count of Four straight up the body. Do this exercise for four rounds that is total 16 times [F-3.16]

2. Stand with stretched legs keeping hands on waist. With the count of ‘one’ the body is to be twisted on the left and try to look back as far as possible and at the count of Four turn to forward position. Do the exercise for four rounds that is 16 times.
Co-ordination exercises:
1. Stand straight with the count of 'One' stretch your legs and hands sideways. With the count of ‘two’ stand straight. At the count of ‘three’
stretch your legs with a jump and clap over your head and at the count of ‘four’ stand straight with a jump. [F- 3.17, 3. 18]

2. Just like the above exercise do the exercises with small jumps in the front, side, above and at the back. Swing both hands and do it with a turning. : [F-3.19, 3. 20, 3.21]

6. Address By Head of The Institute :

7. National Anthem : (English translation)

My Bengal of Gold, I love you

Forever your skies, your air set my heart in tune as if it were a flute.

In spring, oh mother mine, the fragrance from your mango-groves makes me wild with joy—

Ah, what a thrill! In Autumn, oh mother mine In the full blossomed paddy fields, I have seen spread all over- sweet smiles ! Ah, what a beauty, what shades, what an affection and what -a tenderness! What a quilt have you spread at the-feat of banyan trees and along the banks of rivers! Oh mother mine, words from your lips are like Nectar to my ears! Ah, what a thrill! If sadness, oh mother mine, casts a gloom on your face, my eyes are filled with tears!

8. Ending of Assembly : Assembly will be enoled by the order of the physical teacher. and student will enter to their own class room serially.

INDOOR GAMES (Boys and girls)

Chess- see the 5th chapter, page 126,

Throwing the dart:

Throwing the dart is an indoor recreational game. In English, this game is generally known as "dirty board" game. A dart is 5" to 6" long and the head of the dart is sharp as the head of a ball point pen. The back of the dart is 3/4" inches in length and 1/2" inches, in width. Two thin iron plates are fixed across. There is a thick board which is 10-12 inches in diameter and round in shape. A thick board is used for this game. This board is made of soft jute particle or of such other material of same kind. When the art is thrown at it, it pierces across easily. A circle is
EXERCISE

1. Put 'right' or 'wrong' against each of the following
a. In daily assembly, the national flag is hoisted after national anthem.
b. Stretching two legs apart and extending hands at the two sides are called a co-ordinated exercise.
c. Chess is a brain exercising game.
d. At the time of right turn from attention position, the heel of right foot stays on the ground.
e. At the time of mark turn, the right foot will come up first.
f. When one stands at the back of other it is called a line.

2. Demonstrate the exercise written below:
   a. To keep rhythm in legs:
   b. Shoulder arms.
   c. Two exercise of leg.
   d. Two exercises of hand.
   e. One co-ordination exercise.

3. Answer the following questions correctly.
   a. What is the difference between line and file?
   b. State the names of the main parts of a rifle.
   c. Describe two co-ordination exercises.
   d. Describe the activities of daily assembly chronologically.
Girl guiding:
The history of girl guiding movement:

The founder of guide and scout movement was Lord Baden Powel who was born in England in 1875. By race he was an English man and by profession a soldier. He wrote a book named "Scout for boys" in 1907. This book played a leading part in making the scout movement popular. As a result, the girls became encouraged to take part in scouting.

In the year 1909 a scout rally was held at Cristal palace in London. The girls showed interest to join the rally. Baden Powel responded to this eagerness positively and organised separate programmes for the girls. Lord Powel engaged his sister Miss Agenes with the responsibility of going ahead with this movement. With the support and cooperation from Baden Powel, Agenes led this guiding movement ahead and was able to popularise it. The first book on girl guiding was published in 1912. The meaning of the title of the book was ‘How girls can help to build up the empire’. The girl guide was first registered in the year 1910. The year was termed as official year of the girl guides: In 1912 Baden Powel was married to Olave Baden Powel. Olave played the leading role in popularising the girl guide movement. In order to make this movement effective this gracious lady made an invaluable contribution. She travelled many countries of the world for the extension of this movement. In the year 1930, she was appointed as chief guide of the world girl guide: She was given a hearty welcome from the world guide for this appointment. In the year 1960, she paid a visit to the then East Pakistan (now Bangladesh).

After the independence of Bangladesh, the National Assembly of Bangladesh passed an act to recognise the Bangladesh Girl Guide Association as a national organisation for the guides. In 1973, this organisation got the full membership of the World Girl Guide Association. As the society of Bangladesh in comparison to western countries, is conservative, this movement of girl guiding has been limited to the educational institution' only. The first rally of the Bangladesh girl guides was held in Dhaka in 1978. The Bangladesh Girl Guides Association is engaged in extending the activities and popularising the girl guide movement in Bangladesh.
Hoisting of Girl Guide Flag:
Bangladesh Girl Guide Association has its own flag like world guide flag. The flag is hoisted in various functions of the Association or hoisting the flag three girls are selected. They are called "colour party". Amongst the three girls one acts as leader. One guide is selected from the company to recite from the holy Quran. Generally there are two flags in guides' functions; one is the national flag while the other is the guide's world flag.

Procedure of hoisting flag.
The guide will stand at the right side of the flag pole. With the command of the guide, all the guides of the company will stand at two sides and steps away from the flag pole. The two girls of the colour party will stand at the right side of the national flag and stand at the left side of the world guide flag. The guide flag will be hoisted at a height a little lower than the national flag. The flag will remain unfurled and tied at the top of the pole.
Then with the command of the guide, all girls except the leaders will stand in two lines behind the two leaders. The left line turning to left and the right line turning right, will make a horse shoe position and will stand face to face. After the recitation from the holy Quran, one girl of the colour party will pull the loose rope of the flag and will unfurl it. She will then tie the rope with the flag pole firmly. With the next command she will salute the flag with three finger together. They will then sing the national anthem and girl guide songs. When the anthem is over all of them will leave with the command from the guide.

The oath, laws and its significance.
There are three branches of girls guide they are (1) Yellow birds (2) Guide, and (3) Ranger.
1. The oath of the Yellow Birds.
Promise that I will do my best to do my duty to the Creator and my country to help other people at all times and specially the people at home.

The rules of the Yellow Birds.
   Yellow birds obey the superiors.
   Yellow Birds do not act on her own.
Yellow Birds' guiding principle is to help.
2. **Oath of the guides**:

With honour I promise that I will do my best to do my duty to the Creator and my country to help other people at all times to obey the guide laws.

**The Guide Laws:**

A guide's honour is to be trusted  
A guide is loyal to her country, her guiders.  
A guide's duty is to be useful and to help others.  
A guide is a friend to all and a sister to all guides  
A guide is courteous.  
A guide is a friend to animals.  
A guide obeys orders of her parents and guiders.  
A guide smiles and sings under all difficulties.  
A guide is thrifty.  
A guide is clean in'thought, word and deed.

**Ranger's promises:**

On my honour I promise that I will do my best  
To do my duty to the Creator and my country.  
To help other people at all times  
To obey the Guide laws

**Ranger's duty:**

To carry the promises of the Rangers to the outside world through service, to' the community.

**Ranger's motto:** Social service.

**Ranger's laws:**

The Guide laws are applicable to the Rangers.

**Characteristics of girl guides**

The main characteristics of girl guides are social service and to do good to others. As a yellow bird is taught, how she will help in the house hold works, so the guides will also help the neighbours. The girl guiding provides unique training to the girls in this way that the rangers and the aged members of the organisation will decide in what way they will render services to the cause of the country. Without any prejudice to class, religion and sect girl guiding builds them as a good citizen of the country.
As the guide's oath is always help others to the utmost, so in order to do good to the others, Bangladesh Girl Guides Association renders various kinds of training to the girls. After having been inspired to take up holy work like that of social service, the natural calamities like tornado, tidal bore, pestilence and any small or big national emergencies. The Association also provides training to the girls folk as to how to drive away illiteracy, tree planting activities, to keep the home in a healthful living and to use own skill for self sufficiency.

The guiding helps the girls in the following:

a. It helps to develop the personality traits.
b. It increases sense of social consciousness.
c. It teaches to become responsible citizen,
d. It teaches to help the community in different kind of social activities.
e. It helps to make friendship with the world youth community of different countries.

**Eight points programme of girl guides:**

1. Character building
2. Knowledge about self
3. Developing creative ability
4. Understanding each other
5. Reading to serve
6. Proficiency in house hold work.
7. Derivation of happiness from outside world
8. Acquiring physical fitness.

Through these eight points programmes, the guides receives training for social service and discipline and build themselves as good citizens of the country. These traits make them good mothers of good citizens and reverend to the Creator. Besides, it arouses in them attitude of sacrificing self interest for the benefit of others.

**The sub-group system of girl guide:**

Lord Baden Powel introduced first the sub-group or patrol system in India. At first, he
taught scouting to the young soldiers. Then this system was introduced to all scout groups of the world.

The main objective of the patrol system is to make the girls aware of their own responsibility. Through this system each of the girls can realise that for the improvement of her group, she has a special responsibility. Through patrol system, every guide can give her opinion at the company level and according to their own convenience they can set the plans and programmes of the patrol for bringing it to reality. Each guide becomes self reliant responsible for her own family and society through this system.

There is a company in guiding. This company consists of 12 to 36 girls. Each company has 2 to 4 patrols and there are 5 to 9 guides in one patrol. The patrol guides elect the patrol leader. They also elect the executive members of the patrol. Patrol second is selected by the patrol leader. All are elected for one year term.

**Girl guide hiking and camping**

Camping or living in the camp is an open air programme. The discipline of camp life helps learn the quality of self reliance and building the girls to become good citizens in life through all practical work with a view to building the nation, serving the humanity, leading the nation as a self reliant one, the guides are trained with strong belief. In the camp fire activities, the dorman capabilities of the young girls are expressed in various ways. The camp life is best one for around development of physical, mental and spiritual qualities.

Though short in time, the camp life is pleasant to all and it is full of life. The camp life inspires the camp dwelling guides to work jointly in a disciplined manner. The main theme of the camp life is ‘we are for all’ It helps them to accommodate themselves with any kind of situation in life. The guides through camp activities gather themselves in different places and try to understand one another. This gathering helps them develop world brotherhood, liberal attitude desire for travelling, etc. Under the guidance of a good teacher, the guides not only become good citizens of the country but also where the guide movements are very strong can expect its future well being and it is of course very much desirable.
**Youth songs**

We shall win  
We shall win  
We shall win one day.  
Oh, in the depth of heart  
We have known  
We shall win one day.  
We have no fear (2)  
We have no fear any day  
Oh, in the depth of heart  
We have known we have no fear any day  
We are not alone (2)  
We are not alone today.  
Oh, in the bottom of heart  
We have known  
We are not alone today.

**Boat Rowing**

Go go, let's go by rowing the boat  
full brink the black water, pleasant no doubt  
Go let's go ..........  

**Simon Hedka**

Simon Hedka Rafī  umpa  
Arfī wet ka-Ray  
umpa Arfī wet ka-Ray  
Now Dekka lina dekka lina dek.  
Now Dekka lina dekka lina dek  
Dek Dek Dek
Guide lamp
This is my guide lamp
I want to lit it up
Lit it, lit it for ever
No, no, no, don't put it off
I want to lit it up
Lit it lit it for ever
When moving to and fro don’t put it off
I want to lit it up
Lit it up lit it up for ever
Don't put it off when hiding
I want to lit it up
Lit it up for ever lit it up.

Golden Bangladesh.
Bengal is our golden Bangladesh.
Bengal is our golden Bangladesh
We will hold up the face of the country
By lilting up the lamp of our heart
We all shall sing victory victory victory.

Girl guiding
In my girl guiding
Come on and learn
There is life in learning
Go on for life building
Come on and learn.

Scouting
The history of scout movement in Bangladesh.
Scouting builds up self reliance and good life for boys. This feeling has spread throughout
the world very fast. In the undivided India scouting group was first formed
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in 1910. At that time scouting was limited. Only to the English boys who were resident in India. The boys of this country can go against the English administration by learning scouting. So, it was forbidden for them to learn scouting. But some greatmen considered the ideal of scout movement as beneficial to the people of this country. Then they, in spite of the disapproval of the English govt. started spreading the scout movement throughout the country. The scout movement became popular in course of time. The local and provincial govt. supported this movement. The people also accepted it easily in 1919. So being compelled the English government withdrew the ban on scout movement in 1919. In the year 1938, the Scout Association got the affiliation of World Scout Association.

In 1916 the scout programme was first started in Bangladesh by Dr. S. A. Mullick. In 1920 it received recognition of the government. Indian sub continent achieved independence in the year 1947 from the English. The Pakistan-Boy Scout Association was formed in December 1941, The first Bengali scout leader A. M. Shalimullah Fahme formed the East Bengal Scout Association in 1948.

After the independence of Bangladesh, the scout movement took new turn. On 9th April 1972 the scout leaders of the country in a general meeting in Dhaka formed Bangladesh Boy Scout Association. Mr. Piar Aii Nazir was elected as its first national commissioner.

In the 5th general council meeting held on 18th June, 1978, the name of the Bangladesh Scout Association was changed and renamed Bangladesh Scouts. The head office of this Association is situated in Kakrail, Dhaka the capital of Bangladesh. The national training centre of the scout is set up at Mouchak which is situated at the side of Dhaka, Tangail road near the district town of Gazipur. National and International Jumburies are held in this centre. In Rajshahi, Khulna, Chittagong and Barisal, its regional training centres have been established. It has become possible to organise and guide the scout programme throughout the country through these regional centres.

**Lashing**

With view to tie two or three pieces of bamboo or wood together as special kind of knot is required. This is called lashing. Generally lashing is used in making a bridge, house, ladder or gadget and making a support for a tree.
Though there are many kinds of lashing, at the primary stage only four kinds of lashing are taught to the scouts.

a. Square lashing.

b. Diagonal lashing

c. Sheer lashing

d. Figure of eight lashing.

**i. Square lashing**

When two bamboos or sticks are put one over another crosswise or put at a right angle for the purpose of tying firmly, it is called the square lashing. Put a bamboo or pole on ground vertically. Then place a pole or bamboo on the ground over the pole or bamboo in a crosswise position. The pole or bamboo which has been kept on the ground in a straight position is called the pole and the bamboo which has been placed crosswise is called the bar (4.1)

Now put a clove hitch at the lower part of the pole where the pole and the bar has met. The long end of the rope will go over the bar and will come up from behind the pole. The rope will again move around the pole and will come back over the bar after making a round. In this way the rope will move around the pole and bar for [Fig-4.1 about 8-10 times. During tangling the pole, the rope should be under the pole and

where as on the upper two tangling was given, the tangling done after shall have to be kept in between the two so that the gap between the pole part is covered. As per above description, when the pole and the bar has been tangled by 8 to 10 times the moving part of the rope at the gap portion between pole and the bar should be tangled strongly at least 3/4 times. Tangling of this part with the moving rope is called frapping. The stronger the frapping the lashing will also be strong and hard.
After the frapping is over by the moving part of the rope put a clove hitch or fish hook knot and finish the lashing. This is the way how a square lashing is done. Square lashing is used for the bamboos kept in a straight position on the ground and another bamboo placed crosswise on it. In the picture from A to E tangling to be noticed very carefully and then it will be helpful to understand and learn the tangling.

2. Diagonal lashing.

Place a pole on another pole in a diagonal position. It will look like a multiplication sign (x). After putting it in this way, bring the bamboo piece together and put a timber hitch or log pulling knot. Now change the direction of the moving part of the rope. Change its direction that is taking the moving part out side, place the two bamboo pieces together and tangle four or five times. After this action from the side from which you have tangled first and from the opposite side of this tieing together two poles and follow the same procedure as before after putting 5/7 tangles on it.

In this way when tangling is over the rope which is now at the middle of the pole, should be tangled with the moving part of the rope at least 3/4 times. When two pieces of the pole are tangled in the middle with the rope, it is called frapping. The harder the frapping, the stronger will be the lashing.

After the frapping is over on any one of the pole with the moving part of the rope, tie a clove hitch and finish lashing. This is the way how to tie a diagonal lashing.

By placing a pole in an angular position on another pole, diagonal lashing is used (F-4.2)

Sheer lashing:

Pole and sheer lashing is sometimes called sheer lashing. In order to make sheer leg, pole and sheer lashing is used.

Pole and sheer lashing:

This kind of lashing is used in tieing two pieces of bamboo or poles. Tieing two poles together to used as a leg or if one bamboo or pole is tied with
another to increase its length then lashing is used, when the bamboo pieces or poles are
tied at its one end together for using it as a leg then this is called as sheer leg lashing. And
when one bamboo or pole is tied with another one to increase the length then it is called a
pole. In fact same lashing is used in making sheer leg and pole, the difference between
these two is that frapping is used for the sheer leg, whereas in pole making no frapping is
required.

**Sheer leg making :**

By keeping the two ends of the bamboo piece parallel and together, two pieces of pole or
bamboo are to be tied with the fixed part of the rope, a clove hitch or fish hook knot is to
be given. After tieing it with a fish hook knot the portion which will remain in excess of
the rope is to be tangled with the loose end of the rope. Now with the loose end of the
rope, two bamboos or poles are to he tangled from the bottom to the upward direction.
Take notice that while you are tangling two pieces of bamboo or pole one rope remains
attached with the other and one rope does not go upon another and space or gap is not left
in tangling. When the tangling is done by 8 to 10 times the rope is left between the two
poles or bamboo that are to be tangled with the loose end of the rope at least three to four
times. The rope between two poles or bamboos when tangled by the moving rope is
called frapping. The harder the frapping, the lashing will be stronger. After the frapping
is over, the bamboo or poles are to be tied with fish hook knot, the lashing was started at
the bamboo or pole opposite to it and it will be tied with a fish hook knot and the lashing.
This is how a sheer leg making pole and sheer lashing is done [F. 4.3 : A, B, C & D].

![Diagram of sheer leg making and lashing](image-url)
4. **Figure of eight lashing.**

By keeping the lower part of three poles or bamboos place the poles each in one side of the other in parallel lines. The bamboos or three poles will be very near to each other. Now amongst the three bamboos or poles, the two sides of the bamboo or poles without the middle one will take any one of the pole or bamboo from the sides of the upper part according to your convenience. Place with the fixed part of the rope and make a clove high knot. After the clove high knot is done the extra part of the fixed rope is to be tied with the moving part of the rope and tangle it. Now the moving part of the rope by skipping a bamboo or pole take the other bamboo or pole and go on tangling from mow to the top. When tangling is finished after completing for 5 to 7 times the clove high which you tied with the bamboo or pole first then that bamboo or poles, side poles or bamboo rope in between is to be tangled three times with the free rope and after that the part of the rope between two poles or bamboo is to be tangled at least three to four times. In this way putting rope over rope tangling is called frapping. The harder the trapping, the lashing will be stronger. After the frapping is over, the bamboo or pole in which the lashing was started with a clove high knot, should be tied with the lashing of the third pole or bamboo [F-4.4 : A, B, C & D].

![Figure 4.4](image)

**Guessing.**

If something is said without measuring, it is called guessing. In scout system of measuring, you are to guess to find out the distance, the height, width and number of things. In practical life, this kind guessing capability comes to a good help.

As a scout you are to know the measurement of your personal belongings' length, breadth and width, weight" and height of your body, measurement of your hand,
fingers stick, pen etc. If you have idea about these it will not be hard to guess the measurement of anything.

**a. Measurement of the width of a river:**

Select a place at the opposite side of a river, and think that A’s standing there. In a straight line to A on the other side of the river place B in a standing position. From B, go to C either to the left or to the right by about 50 yards parallel to C. From there in the same line go further 25 yards away and up to D. Then draw a straight line from A to D. The line should be extended up to E. Measure from D to E and the measurement is to be multiplied by 2 (two) and then the width of the river will be found out. Say for example, it is 150 yards then the width of the river will be 100, yards.

![Diagram](Fig-4.5)

**b. The method of measuring the height (Inch, foot, metre)**

Suppose the height of a tree is to be measured. Put "A" on the top of the tree. Measure 11 times of your scout stick from the root of the tree at any direction according to your convenience and put a 'B1 mark there and fix a stick in the spot of "B". From the point of B go for another stick away and put ‘C’ there. Then lie down at ‘C’ and look at ‘A’. Now draw a straight line from ‘C’ to ‘A’. This line where it touches the fixed up stick is ‘D’. Now the height of ‘D’ from ‘B’ is to be measured in inches: The total number of inches of this height will be converted to the total number of feet and will be the height of the tree.
'That is, each inch will be converted to one foot (fig. 4.6). Suppose the height 'from "B" to "D" is 20 inches then the height of the tree will be 6.10 metres that is 20 feet.

\[ \text{If shadow of the stick is 6 feet, the height of the tree will be } = 3 \text{ ft.} \]

\[ \frac{1 \text{ feet}}{3} = \frac{3}{6} \]

\[ \frac{30 \text{ feet}}{6} = 15 \text{ feet} \]

So, the height of the tree is 4.5 metres which are equal to 15 feet.

c) The shadow method:
Another easy method is the shadow method. It can be measured if there is sun. Say the trees A and B, and C and D will be your stick. Hold your stick vertically on the ground, then measure the shadow of the stick. The stick is three feet long and the shadow of the stick measures six feet, then measure the shadow of the tree. Say the shadow is 30'(thirty feet) now in unitary method the height of-the tree will be.

d) The thumb method:
The distance of a tree is to be measured. The tree is "A" and the place where you are standing is "B". Now extend your right hand with a fist and point your thumb upward. Then close your right eye with your left hand and hold thumb straight way to the tree. Now hold the left eye by your right hand.
You will see that the thumb has moved a little away from the tree. Guess how far it has moved. The distance which have been guessed shall be multiplied by 9 (nine), then the distance of the tree will be calculated. Suppose the thumb has been moved away by 1.52 metres (5 feet) from the tree.

Then the distance of the tree will be 5 x 9.45 feet i.e. 13.72 metres.

**Compass.**

Compass is an equipment for finding out the direction. You know that there are four sides or directions, east, west, north and south. The crew of a ship cannot ascertain the direction when his ship visits a new place or country. At that time, the directions are found out by the help of a compass. There is a needle in the centre of the compass. The head of this needle is called point. The head of the point always shows the north. It is a magnetic needle. The north, south, east and west of the compass are called the cardinal points. These are divided diagonally and these are called sub-cardinal points.

The north direction of a compass is marked 360° or 0° degree, while the east, south and west directions are marked by 90°, 180° and 270° degree respectively. In between these two directions the sub-cardinal points are 45°, 135°, 225°, 315°, the upper part of

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the compass looks like the dial of a watch. On the surface of the dial, N. S. E. W etc. are written and degrees are distributed. The pointed thick needle is black in colour and is always pointed towards the north. If you move the compass in any direction, the needle, will point to the north. In order to get the correct direction, you are to fix the dials and top part of the needle in one line. If it is too close, you may not get the right direction correctly. That is why you should be careful about the use of this instrument.

Hiking and Camping:

The meaning of the word hiking is travelling with some purpose. The chief purpose of hiking is to apply the knowledge gained on practical subjects and to test it in practical field so that experience on the standard of knowledge thus gained can be judged. The scouts will set on foot to travel to a fixed destination by following present directions. During the travel they will observe the environment and study nature mainly. Generally one or two persons or ever a subgroup can take part in a hiking programme. They can pass a day and a night or more than one day and night in hiking. During hiking they can stop somewhere, Scouting techniques can be taught and practised. Through hiking, particularly the study of nature, drawing maps and its study the following signs, settings of compass and its reading, preparation of the field book, code and cipher, social survey, cooking and other practical as well as applied subjects, techniques of reporting and its practice are possible.

The hiking includes the activities like placing of tent after reaching a particular place, cooking, eating, social survey, camp fire, sleeping and at the time of leaving the camp site, farewell call to the owner of the land and report to the camp after returning from hiking.

Camping:

In an open space, when any programme is organised and any activity is practised under set guidelines it is called camping. It is better to hold camping by pitching a tent outside. The Boyscout and Rover Scouts hold the same type of camping.

Kinds of Camping:

1. One day camping : At the end of a week, camping is held just for one day and a single subject is taken for training. For example tracking, first aid camp etc.
2. Monthly camping : In this types of camping at least one night is required to be passed.
3. **Half-yearly camping**: In this camping, at least two nights are to be spent.

4. **Annual camping**: With the passing of three nights, different subject like attending tests, badge test etc. should be taught there.

In order to increase the standard of the troop, to remove the shyness of the scouts, to test the effectiveness of the sub-group system camping is organised. The boys are to follow the planned activities set before hand and after the camping is over winding up of the tent, inspecting reporting, examining each note book are to be done. They are to pay gratitude to the owner of the land for extending help in organising the camp and to other persons who have given them help. Moreover they will have to keep the accounts of expenditure done for the purpose.

**Planning of camping and hiking.** The standard of camping and hiking is fully dependent on planning. According to the decision of the sub-group, the programmes are to be drawn and while making these programmes the past experiences in this respect are to be taken into account.

**Preparation of programme**: 

According to the decision of the group leader council and on the recommendation of group scout council, the programme of camping or hiking can be drawn. While drawing up such programmes the permission of the thana Scout Commissioner must be taken. If they go to another thana for camping, the permission of the other thana Commissioner is to be required.

In order to make the programme by distribution of the responsibility amongst different members of the troops, the following steps should be considered.

1. **Preparation**: Before the final preparation of the programme, work schedule should be examined and necessary addition and alteration should be made accordingly.

2. **Selection of site**: At the question of site selection, the unit leader should keep in mind these tilings—distances, good road communication, arrangement of water for bath and drinking, the site environment (sunny, shady, dry, free from poisonous insects) nearness to market, medical facilities, suitable natural environment, alternate arrangement, during inclement weather etc. should carefully be considered.
3. **Training schedule** : The unit leader will make the training schedule before hand and procure the training equipments.

4. **Permission** : The permission of the owner of the selected site should be taken and the permission from the guardians should also able take.

5. **Health** : The health of the boys will be examined and the weak ones are to be dropped.

6. **Fixation of date** : A date is to be fixed as to when and what date it will start, how many days it will be continued, when it will come to an end.

7. **Notice to the scouts** : A notice to the scouts is to be served for submitting the permission letter of their guardians, submitting the list of necessary things and procuring them, telling them to know the rate of subscription, date, time and work schedule. These will be included in the notice.

8. **Preparation of the budget** : For implementation of the working schedule, a budget is to be made. In the budget, a policy of thrift should be followed.

9. **Appointment trainer and his assistant** : Required numbers of trainers, quarter masters; first aider, and sanitary man etc. are to be engaged.

10. **Fuel and food** : Dry wood and balanced food are to be procured as per buget.

11. **Arrangement of sanitation** : This should be taken care of earlier.

12. **Subjects for Remarking** : These include street signals, compass reading map drawing and reading, techniques of tent pitching, cooking, swimming, pioneering, first aid, rescue works, guidance of road walking and other scout skills etc.

13. **The technique of walking** : Scout foot steps (20- steps walking and 20 steps running are to be taken and in every two miles or walking a rest for five minutes is to be taken.

**Map and field book.**

If you want to know about map reading you should know, what a map is ? Map means lines draw on a region with the help of scale in a small frame.

What is a scale ? Scale means the ratio of distance between the distance shown in the map in a proportional rate and a region. For example. 1 inch area shown in the map equal to 1.61 kilometre (one mile) or 5 miles are equal to 161 kilometre- or (100 miles)
805 kilometres (500 miles). According to the difference in scale, map is divided into two types
a. Small scale map-In this the map, l(inch) equal to small area of land shown.
b. Large scale map - In this map 1 inch shows a big area of land.

Classification of map:

a. Political map- The map in which a particular area, border of a district, thana, union etc. are shown separately is called a political map. In this map, town, communication system, the site of the mills, factories are also specifically shown.

b. Physical map- The map in which the rivers, canals and marshes, mountains and hills, forests, lakes and deserts, low land of a particular area are shown is called a physical map.

The technique of drawing a map.

There are various rules of drawing a map, such as travers method, chain method, triangular method etc. Amongst these, travers method is suitable for scouts. In this method lanes, streets or long roads can be measured. It is not needed to draw the map by sitting in the field or in the road only the small details can be noted down in the field book. After coming back from the field one can draw the map sitting in a school or at home. Some paper, pencil, rubber, compass and measuring tape or rod are required to draw map.

How to draw a map?

For drawing of a map, a very thin nib is to be used so that when marking is given the marking line should be very thin. The lines once drawn in the map cannot be rubbed off another mark cannot be drawn twice on the sameline. If the line is rubbed for drawing a picture or if a single line is marked twice then the line will be thick, as a result the scale which is given in the map will differ.

At the time of drawing map one should be careful about the four "D" of English letters. The explanation of these "4" D's are given below.

The first "D" : presents direction. We all know that the upper part of a map always direct the north inspite of knowing this fact, the north of the map should be distinctly pointed. If the map does not mark the north clearly then the map cannot be counted as complete. Because the north has not been pointed out and as a result if any body follows the map destination cannot be reached. This system is called the traverse method. Don't forget to point the direction of north and the scale in a map.
The second "D" means distance. The distance of a map is shown with the help of a scale. In a map l(inch) or 1 centimeter, shows how much area it represents in the region. It indicates that sign. If the scale is not given in a map then the map cannot be called a complete one. Because, if the scale is not given then the distance of one area from another cannot be found out.

The third "D" means details or the minute descriptions. The area of which the map is being drawn should be shown with what ever things are present and the details of these things are to be shown in the map. If the details of these things are not shown in the map, a person by seeing that map cannot form an idea of the details of the land. This kind of map cannot be regarded as a complete one. The fourth "D" in a map to show the uneven rugged places, two types of ascertaining lines are used. One is used to show the height of land from seashore and the other is used to show the depth of land from the sea shore. This may be seen in the picture below (F-4.9)

![Diagram of Height and Depth](Fig-4.9)

**Field Book**

At the time of travelling, the book in which the small details are' written, in a note rook, is called the field book. The rules of using a field book are. The mentionable descriptions of the main road are to the kept in the two lines. Thc sides of the road i.e. right or left are to be written in the description part.

Middle part of the two lines will contain the starting place. The place of the next survey stations, position of degree from the starting place. This should be done with the help of the Post compass. If you start from A go to the next station at then adjust your compass at and find out the direction of "B". Say, "A" is 60 degree and write 60 degree in the book. If you want to put anything nearby on the map then start going
Again from ‘B’ you fix the direction of ‘C’. Suppose 0° degree is set for ‘C’ ° and if you go 50 feet to the right, you will find a tree. The distance is 160° degree and write down 160° on the right side of the diagram. If you go further 16.76 metre (55 feet) to your left you will get a post office which will be 5.18 metre (17 feet) further to the left. If you proceed forward by 7.62 metres (25 feet), you will get ‘C’ (Fi4:10).

In this way measure the distance of every thing that you find and enter them in the field book. After that exercise is done return home and draw the map with the help of the field book.

Conventional signs:

In every map, roads and high ways, rail roads, institutions, post office, mosques, cultivatable land and barren land, marsh, cannal, lake, river etc. are shown through certain signs.

Some conventional signs are" given below . By observing these signs it will be easier for you to learn. In hiking, travelling or surveying the village, these signs will be helpful in drawing a map.
1. River & bridge
2. Rail line (narrow gauge)
3. Rail line (Broad gauge single line)
4. Rail line (Broad gauge double line)
5. Metal road
6. Mud built road
7. Footpath
8. Height of land indicator (Contour)
9. Lake
10. Grass
11. Coconut tree
12. Big tree
13. Mosque
14. Church
15. School
EXERCISE

a. Answer the following questions in brief:
1. In which year Bangladesh Girl Guide Association acquired the full membership of the World Girl Guide Association?
2. How many branches are there in girl guides?
3. How many programmes does the girl guide have?
4. Who was appointed as the first National Commissioner in Bangladesh?
5. What is meant by lashing?
6. What do you understand by hiking?
7. What js meant by the conventional signs?

b. Describe the following:
1. Describe the method of hoisting the flag of girl guides.
2. What are the guide promises?
3. What do you understand by camping in girl guiding?

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4. What is the difference between square lashing and diagonal lashing?
5. What do you understand by guessing?
6. Measure the height of a tree by applying the thumb method.
7. What is meant by a field book?

c. The teacher will ask the students to perform the followings.
   1. Make a sheer, lashing.
   2. Measure the height of any thing by using the shadow system.
   3. Measure the width of a river.

d. What do the signs given below represent?

![Diagrams]

e. For drawing a map, 4 "D"s are used and what are the meanings of these signs?
Chapter Five
Recreation, Rest And Sleep

Different aspects of Recreation-

We should learn first what recreation is. It will be called recreation when a person spesuisbis time with joy and merriment spontaneously. Recreation may be of differ™ types. It depends on personal interest and it varies from person to person. Some may, derive it from drawing the picture, reading different kinds of books or traveling places of interest. Again some may choose games and sports or gardening or collecting stamps as their recreational activities.

Now, these recreational activities may be done either individually, in a group and these may be organised or unorganised also. The best form of recreation may be attained from games and sports. Because these are the sources of recreation and these help to develop good health. The recreation has two sections, namely

A. Recreation through games and sports. B. Recreation through education.

A. Recreation through games and sports

Chess:

Chess is considered as an excellent game of intelligence in this modern age. Though it is an old game, yet nobody doubts about its modernity. Most probably, chess is the only game at present where we find a good coordination of science and mathematics. Above all, it is the only game in which the latest and greatest contribution of the modern science i.e. Computer is being used directly.

Boys arid girls of all ages spend their leisure period by playing chess. It is a popular game in most of the countries of the world. It has got popularity in Bangladesh also. It is very often seen that chess is being played under a roadside tree, or even in the shop. Teachers and students of various educational institutions play this game in their common rooms whenever they get time. Even at home, grand father-grand child, brother-sister, father-son sit with the chess board, with a view to spending their leisure time as well as recreation. Thus, we can realise the popularity of this game of chess in our country.
**Chess board:**

The chess board is consisted of sixty four squares of equal measurement. The light coloured squares are known as white while the dark one are called the black squares. These black and white squares are arranged alternately. The board is placed between two oppressing players. So that each player has the white square in his right hand corner. There are eight squares in vertical columns where as the similar number of squares i.e. eight squares are set in the board horizontally. The total number of squares are altogether sixty four of which thirty-two are white squares and rest thirty-two are black squares. The size of the chess board is 45.72 cm x 45.72 cm. (18 inches x 18 inches): All the squares are of 5 to 6 em. in both the sides. Right side of the board is called kings side and left one is for queens. In each file the number of squares is written in English as it is played by different people of different languages. At the beginning of the game each player will have 16 chess map either white or black. In each side there will be a king, a queen, two rooks, two bishops, two knights and eight pawns.

**Move of chessmen:**

When the chessmen change its place from one square to another is called move of the chessmen. At the beginning of the game, choice of white and black chessmen will be decided by the toss of a coin. The player winning the toss will have the option to choose the white or black chessmen. After the toss; the play starts and white moves first. Each player makes one move at a time. The move of the chessmen are of different types. There is no similarity with each other. Some moves vertically or horizontally, some one diagonally and some jumps over other chessmen. Now let us introduced you with the movements of the chessmen.

**King:** 'The king can move in any direction but only in one square at a time. (F. 5.2)

**Queen:** The queen is the most powerful one among all the chessmen in the board. The power of queen is equal to the power of a rook and a bishop. The queen can move in a straight line along the rank and file and can also move diagonally. The queen can take any chessmen which stands in her way and can possess that square. Thus it can move...
move like a rook or a bishop but can not jump over the pieces like knight. The queen can control over twenty seven square. The power of the queen is nine. (F. 5.3).

Rook : The rook moves along the rank or file of which it is placed. Rooks cannot jump over other pieces when moving. But any pieces which stands in front of it can be captured by rook and it occupies that square. The power of rooks'6(F:-5,4).

Bishop : The bishop can move in a straight line to any square along the diagonals of the board. At the time of moving, the bishop cannot jump over the pieces. Bishop can move diagonally and can go to the edge of the board while moving, the bishop can take up the square of an opponent if it stands in his way if the squares are vacant. Black bishop moves along the black diagonal and white bishop moves along the white diagonal. Black bishop is on the back square while the white bishop in the white square. The power of bishop is 3. (F-5.5).

Knight: The movement of knight is peculiar. This is the only piece that does not move in a straight line. It moves in the shape of an english letter "L". The knight moves from the square at one end of the letter "L" to the square at the other end. If it is on a black square, it can move only to a white square and similarly if it is on a white square, it can move only to a black one : Knight can jump over the other pieces. It moves 22 square at a time. Knight is worth of 3 units. (F-5.6)

Pawn: Pawn is the soldier of the king. On its first move, the pawn has the choice of
moving either one or two squares forward along the file on which it stands. After its first move, a pawn can move only one square forward at a time along its file. It can capture a piece diagonally and can occupy the captured square. The pawn can never move back. The pawn is worth of 1 unit. (Fig.5-7)

![Chess Diagrams](image-url)

**Castling** During the advancement of game, it becomes necessary to strengthen the security of the king. The security can be strengthened by exchanging the place either of the rooks on the board with the king. This exchange of places between the rook and the king is called castling.

If the castling is done at the side of the queen, then the rook will cross two squares and the king will cross only one square: When the castling is done at the side of the king then both the king and the rooks will cross only one square each. Castling is allowed only once during the game. Castling is shown with the help of the picture given. (F-5.8)

**Rules of the game**: Each player makes one move at a time, and this move is done alternatively. White moves first. At the very first move, the white pawn can cross one or two squares forward. The knight can also be moved first except pawn. When the pawn reaches the last square on its file, it can be changed into any other piece if its own colour except a king. Usually it is changed into a queen. The game is drawn.
when stalemate is occurred. Stalemate means when the king can not move anywhere but it is not in the position of check. When a king is attacked by the opponent is known as check and the king is unable to get out of that check. Then the king is in checkmate. It is the end of the game. It is always to be remembered that if you touch any piece of chessmen, you are bound to move that piece. After the move, if you remove your hand from the piece, your turn will be over. You have to move the piece within the allocated time.

**The technique of the game**: You have by this time learnt about the, chess board, chessmen and its movements, power, signs etc. about the chess. Now let us see how the game of chess starts. One thing must be remembered before hand that there is gulf of difference between a friendly game at home and a competitive game under international rules. In a friendly game at home, the main objective is to get 'recreation and one can move quickly and even can get-back the piece to its earlier position. But it is very hard to take part in competitions where no wrong move can be given and no move can be changed. So, you have to think deeply before any movement then you will execute ‘move’.

Now, let us come to the chess board. The board is placed between the two opposing players, so that each player has white and black chessmen alternately. There shall be a watch and a score sheet at the side of the chess board. Two opposing players will sit face to face to play at each end of the chess board. They will shake their hands with each other and then the game will start. The player with white chessmen has the choice of moving first. He will move a power either one or two squares forward along the file on which it stands. Each player makes in his turn, one move-at a time. In this way the battle of the chess board is started between the two players. After each move, the player will maintain the time in their watch and will record it in the score sheet.

If any chessmen comes in the way of the opposing chess man, then it can be captured but if his own chessmen come in front of its movement, then it can not cross the barricade. But in such circumstances only knight can cross by jumping over the own or opponent's chessmen. One can capture the opponent's chessmen but not its own piece. A piece of chessmen can be captured only once at a time. The captured chessmen is removed from the board till the end of the game. A player can capture his opponent's chessmen if he likes. As per his strategy of the game, he may not like to capture it.
The player with white chessmen starts an attack first at the beginning of the game. In reply, the opponent with black chessmen arranges his places in such a way that he can make a barricade and can go for counter attack.

This battle of white and black chessmen i.e. the game of chess is divided into three stages:

A. Opening stage,
B. Middle stage and
C. End stage.

Though every stage is equally important in the game, yet the opening of the game is more important than others. Because the direction of the game, the attack and defense etc. are controlled in this opening stage. Middle stage is very much complicated, tough and competitive. And the end stage is somewhat mechanical, and sometimes lively and exciting. In this stage, it is decided as to who will win or lose the game.

Since the white pawn or knight has got the first choices to move, so it gets an opportunity to build an attack. In reply the opponent with black pieces leads his chessmen with every care according to the situation of the move. All the moves and counter moves shall be systematic. When the opponent moves any chessmen, you should think about the counter move and having a good analysis on the opponent's intention, you should go ahead with your move. While doing so you consider the following:

A. Why did he make that move? What was his intention about such move and in which method, did he want to play?
B. Is he trying to move to the kings side so that he can get a chance to check the king or is he trying to capture any chessmen?
C. What are the position of his other chessmen? Are they creating any dangerous situation or is he intending to make an attack on the king? In this way you will think over again and again and try to make an analysis of the opponent's move. Then you will go for counter attack. To do such counter attack, take time and it will cause no harm to you. If you find that the position of your king is in danger i.e. any opponent's chessmen may possibly attack your, king, then your first job will be to save the king and accordingly you are to arrange your move.
You can defend against the opponent's attack by applying the following techniques:

- a. The attacked chessmen may be set in a safe place.

- b. The opponent's chessmen may be captured.

- c. A barricade can be created in the-way of the opponent's move by placing a chessmen.

- d. The attacked chessmen, may be captured by the opponent while similar attack should be made on the opponent's chessmen with equal power.

- e. A counter-attack can be made against the opponent's side so that a danger can be created.

- f. If the attacked piece is in insecured positions, then put another chessmen for strengthening the weak position. If both the sides capture the pieces of similar power, then it will not incur loss to anybody:

Therefore, you should not get nervous by any opportunities attack. Think about the opponent's move then you will be able to make a counter attack. You will always remember that your king must not be kept in an insecure position. You will try to make defense by supporting your chess and keeping a link with each other all the time throughout the game. It will be better to keep your king secured by castling. As a result, rook can move easily.

You will always try to play, with an active plan. Without proper planning, the game of chess can never be played. At the start, both, the players try to occupy the centre place. As a result, a good fight is ensured. So, the pawn and other chessmen are required to be moved towards the centre quickly. From the very beginning, one must try to occupy the centre place. Remember that if your chessmen can occupy, the important positions of the centre, then it will be easy to make a,co-ordinated attack on the opponent's king.

Forma – 18 : Physical Education & Health (class 8)
6. Touch Game:
In a small place, when the children try to touch each other in a joyful manner is called touch game. Examples of some touch games are given below.

**Changing place:**

Number of player will be more than 10. But both the teams will be of equal number. Two lines will be drawn at a distance of 40 yards from each other. Both the teams will stand behind its own line facing each other in a rank/line. There will be a mark in the middle of two teams. Every team will stand in the centre mark. The players of each team will be number from their right side. When the teacher will call a number then the players of the called number of both the teams will exchange their places by running. During this exchange of places, if the player standing in the middle touches any of the running player then he will go to the place of that touched player and the touched player will then stand, in the middle. If the middle player can not touch any one, he will remain in his own place.

**Crocodile's home:**

**Place:** 8-9 metres (10-20 yards) open space

**Number of players:** 10 to 20 players.

**Equipment:** A circle made with line.

The teacher will draw a circle according to the number of players. One will be selected as a crocodile who will be lying down in the circle, as it is sleeping. The other players will enter into the circle and will start dancing with saying "There is
no crocodile in this room. So, let us play and make fun." Suddenly the crocodile will wake up and try to touch the players. The player who will be touched first by the crocodile within the circle, will become a crocodile. In this way, the play will continue for a certain period of time.

The dog and the bone:

Place: 13.50-18 metres (15-20 yards) open space.

Number of players: 10-20 players.

Equipments: Two parallel lines made with lime. Two lines will be drawn in the field with a distance of 30 yards from each other. A small circle with 1\(\frac{1}{2}\) feet diameter is to be drawn in between the two lines. A small pieces of stone or a piece of cloth will be kept in the centre spot of the circle. This stone of piece of cloth will be called as bone. Now two teams of equal numbers will stand on each of the drawn lines. The players will be numbered and the numbering of the players, of one team will be started from one side and the numbering of other team will be from the opposite side. The teacher will call a number and the players of the same number of both
the teams will try to take away the one from the circle. The team will earn a point if any player of that team can touch the opponent player at the time of his coming back with the bone. The team scoring 10 points will be the winner. [Fig-5.1 1 ]

B. Other educative recreational activities:

There are many other recreational activities besides games and sports. As the interest and thought of the people living in our society differ from each other, so it is obvious that the ways and methods of their recreation will also be different. The recreational activities through which we can learn something known as educational recreation. It may be of different kinds. Some recreational activities with educative value are stated below;

1. Reading of educative books: Hither old or young persons can acquire knowledge by going through books. The reading of books may be of various types. It depends on one's personal choice. Some read story books, some like to read religious books, and some love to go through fictions magazines Thus they acquire knowledge or spend their time by reading books.

The aged people try to spend their time by reading religious books. The college and university going students like to read story books, novels, books on games and sports, magazines etc. Generally, the young boys and girls love to read story books on giants and ghosts books, fairy tales etc. Again books on verses and rhymes are also very favourite to the little children.

2. The programmes of Radio and T. V

At present many educational programmes are being broadcast in the Radio and programmes of educative values are shown in the Television. Many people enjoy and spend their time by witnessing and listening to these Television and Radio programmes like magazine programme, debates, and sports etc. Again some spend their time by witnessing the programme of games and sports as well as educational programme of foreign countries through satellite connection like dish antenna.

3. Recitation and music:

Often members of many families have, the tendency to spend their leisure periods by reciting the poems and by singing songs among themselves. It so happens when the educational institutions remain closed, the children, boys, and girds like to pass their holidays by cultivating songs and music. Again some love to learn the arts of recitation from their family members eg. parents, brothers, sisters etc.
4. Travelling:
For travelling purpose, there need some leaves or holidays. Officers have their leave, court going people get their holidays. School children also enjoy their holidays in the month pf December and January after their examination is over. Along with the children, the aged members of the family can also travel to visit some places of interest and thereby they can spend their leisure periods joyfull. Usually the children of rich family visit distant places and even visit their relatives abroad. Thereby, they get the chance to visit interesting and worthseeing places. Thus, they enjoy the sight seeing when they travel.

Children of middle class and lower middle class family travel to see some nearby places. They sometimes choose to visit worth seeing places of the different parts of their own country. By visiting the interesting, well-known and historical places, boys and girls acquire knowledge as well as get recreation too.

**Bad effects of excessive recreational activities :**

There should be a limitation of every thing in our life. Too much of anything is bad. As overeating is harmful to health, so excessive recreation also brings, bad effects on us.

It has been proved that excessive viewing of T.V. programmers causes more harm than listening to Radio. Because, children are very much interested to see various programmes on T. V. So they always try to keep themselves aloof from their studies thus they gradually.become bad students. That is why, many parents now a days don't allow their children to see all the television programmes. Even some of them do not.like to keep T. V. at home.

We must take all care in respect of playing games and sports also. Too much playing may hamper the progress of one's studies. More over there is a great risk of breaking hand, foot, or any other parts of the body. So, it is always to be kept in mind that any type of recreation must not be unlimited.

**Rest and sleep :**

Sleep is necessary for giving rest to our body and mind. In our daily life, we work and our body wears off. Thus we become fatigued or tired. So, we heed full rest to make good the loss of energy of our body. Moreover, for the restoration of liveliness and spirits of life, complete rest is essential. After hard work, moderate rest helps to bring back the decayed cells of our body to their original position. It removes tiredness of
the body and fatigue of the mind. One should not do physical labour immediately after
his meal. Because, at that time, the tissues of the body remain engaged in digesting the
food taken in. During sleep, our body and mind get rest to our brain. Yet some parts of
the brain remain active. So we dream. Now we can imagine or think that a dreamless
sleep ensures full rest of the brain. But the spinal cord and the autonomous organs of our
body remain active during sleep also. For a deep sleep, such an atmosphere and
surroundings should be created that our sleep may not be disturbed in any way. Rather for
an uninterrupted sleep', mosquito net is required to protect from mosquito bites.
Moreover, fresh and cool air during hot season and warm cosy bed in cold season are
necessary for a sound and deep sleep.

Sleep is essential for making up the loss of energy of the muscles of human organs
specially for our brain. So during sleep, the cells of body are reformed and growth of all
systems of our body is done.

Duration of sleep required for people of different age groups is shown below:

<table>
<thead>
<tr>
<th>Age group</th>
<th>Usual periods of sleep per day.</th>
</tr>
</thead>
<tbody>
<tr>
<td>New born babies .</td>
<td>from 18 to 20 hours</td>
</tr>
<tr>
<td>Children of 2 years</td>
<td>about 14 hours</td>
</tr>
<tr>
<td>Children of 5 to 7 years (boys and girls)</td>
<td>about 10 to 11 hours.</td>
</tr>
<tr>
<td>Children of 8 to 11 years (boys and girls)</td>
<td>about 9 to 10 hours.</td>
</tr>
<tr>
<td>Boys and girls of 12 to 14 years.</td>
<td>about 8 to 9 hours</td>
</tr>
<tr>
<td>Adults</td>
<td>about 6 to 8 hours</td>
</tr>
<tr>
<td>Adults above 50 years</td>
<td>about 10 hours</td>
</tr>
</tbody>
</table>

**Bad effects of excessive rest and sleep :**

Since adequate rest and sleep are beneficial to health so excessive rest and sleep are also
injurious to health. Generally, in our tropical country, our body feels drowsy after midday
meal. As such, some of us became habituated to take a nap at midday. But sleeping at day
time is harmful or detrimental to good health yet after hard labour, little rest may be
helpful to prevent fatigue of the body.

A long excessive sleep makes a person idle and he loses energy or little energy is left for
him for doing any work. Often pain is felt in hand, leg and even all over the body. One
kind" of secretion of fluid is accumulated in the joint and pain is felt there. An usually
long rest causes less appetite and makes one less attentive in work. During
resting period, the digestion system acts slowly. As a result, the oxygen in-take becomes low and less quantity of oxygen is sent in the body. In other words, tissues of the body receive less amount of oxygen and exert less carbon dioxide. Henceforth, loss of appetites and indigestion occur and different kinds of disease may appear thereby.

**EXERCISE**

1. **Fill in the blanks :**
   b. One should not............. immediately after his meal,
   c. At that time, the ............. of the body remains ..........to digest.
   d. During sleep our body and ............ get rest.

2. **Tick (V) the correct answer at the right side-**
   a. Playing games and sports is the best medium of recreation.
   b. The game of Ludu is played only by the girls.
   c. King is the most powerful chessmen in the game of chess.
   d. Little children read the fairy tales more.
   e. Excessive sleep is not good for health.

3. **Answer in brief:**
   a. What do you mean by recreation ?
   b. What is the measurement of chess board ?
   c. What is castling ?
   d. What is called a touch game ?
   e. Describe the bad effects of excessive sleep.

4. **Descriptive questions- Describe the following :**
   a. Describe the movement of knight in the game of chess.
   b. Describe a touch game in brief.
   c. What are the educative recreational activities ?
   d. Describe the bad effects of excessive recreations.
   e. What should be the duration of sleep per day for different age groups of people ?

5. **Play a Touch game in the field.**
CHAPTER SIX
Health, Personal and Environmental Cleanliness

**Soundness of health**: We may say that those who keep well physically and able to do work properly, are healthy persons. In other words, one who has good health, has soundness of his body. Now let us see what does health mean.

**What is health?**

Health is a state of being well physically without any disease. One with disease, cannot claim to be a healthy person. Health is the full development of physical, mental and spiritual faculties of an individual.

The well-being of mental and spiritual health depends on the soundness of physical health. Our body is the container of our" spirit (soul). When the body becomes weak, the organs inside the body also become insecure without soundness of the body. Then we can not accept the solidness of mind and soul. Thus in short, health is a state well-being of both body and mind.

**What is health education?**

Health education is that education through which one can learn to keep one's body active and free from diseases. It includes the scientific ways and means of leading a healthy life. We are social beings. So only when the knowledge of health on neatness and cleanliness (both personal and surrounding) based on medical science is imparted, then it is called Health Education

**Usefulness of health education**:

If we do not know the ways and means of keeping our body active and healthy, we shall not be able to lead our health in good condition. Health education is necessary in order to develop and lead a good health. If our health is not well, then we can not pay any attention to work. Even we do not-like to do anything at that time. Moreover, ill health decreases our working capability, makes us hot tempered and fretful. On the other hand, good health keeps our mind cheerful, increases efficiency in work and brings encouragement in activities. Also good health makes our appearances lovely. We learn all these aspects about health through the Health Education.
Almost all the parents of our country are neither educated nor much concerned about their health. So you will have to acquire knowledge of health first. You will then try to make your family members conscious of that knowledge. When you will be able to make all the members of your family aware of these then and only then a healthy family free from diseases, can be developed. Then your family will be an example to everybody and even to your neighbours. Thus they will take care about their health and will follow you. Moreover, it is your duty to make your neighbours aware about good health. As long as your own family members and your neighbours will not be made conscious about their health, you cannot form a healthy society. So, all should acquire the knowledge of health and then should make their families as well as neighbours aware of this.

The concept of fresh air, good food and drink:

Fresh air:

We cannot see air but we can feel its existence. This earth is surrounded by air without which no animal or plant can survive. There is oxygen in the air and within the help of this oxygen, food which is taken, in the body is built within the cells. Thus energy and heat are being produced in the body. This produced energy and heat keeps all the organs of our body active and thereby we can live. That is why it is said that we are constantly staying into the deep sea of air. Without air, we cannot survive and even we cannot live more than three minutes without it. Now you can imagine easily that if we do not get fresh air then what will be the consequences in regard to our existence. Therefore, in order to maintain our health, fresh air is essential like other necessary materials or substances. Polluted air may cause various kinds of diseases and even cause death. Again, air in a closed room creates an uncomfortable atmosphere. Because humidity and temperature increase in this motionless air which ultimately cause suffocation. This condition of air hinders the proper functioning of blood circulation of our body and thereby our heart becomes weak.

The followings are the causes of pollution

**Air is polluted:**

1. When the carbon-di-oxide due to the constant expiration of the living bouncy is mixed up with the air.

2. When the bad smell occurred from decomposed organic materials and from different kinds of poisonous gas are mixed up with the air.
3. When the mixture of dirt and dust smoke from the brick fields and vehicles, shoots, jute fibers, germs and other organic and inorganic substances etc. get mixed with the air.

4. When emission of smoke from the mills, factories, workshops, filth, chemical gases, innumerable particles of various organic and inorganic matters are mixed with the air.

**Bad effects of polluted air:**

If the polluted air enters into the lungs, it may cause various kinds of diseases. The smoke from the vehicles, mills and factories etc. harmful gases dirt and dust, thin jute fibers etc. are mixed up with the air and enter into our body. As soon as we inhale this polluted air, we start developing the diseases like sneezing, coughing, cold, influenza etc. Moreover, different kinds of germs, in contact with the air, may easily spread phlegmatic diseases like tuberculosis, hopping cough, diphtheria, chicken pox etc.

There are two ways of keeping the air fresh from pollution e.g.

(i) In a natural way and (ii) in an artificial way

**1. Natural ways of purifying the air**

a. Sun rays: The floating germs of disease in the air are destroyed by the ultra violet rays and heating rays of the-Sun. It helps drying tip the wet or damp materials and protect those from being decomposed.

b. Rain: The gases and the floating materials in the air are washed away by the rain water and thus the freshness of the air is recovered.

c. Flora (vegetables, plants and trees): "The trees, and plants receive carbon dioxide from the air and give up oxygen in return. This oxygen mixes with the air and makes it fresh.

d. Wind: Sometimes the polluted air, having been mixed with the fresh air blows off to the river or sea. Thus the germs are destroyed and the air becomes purified.

e. Air circulation: It is possible to purify the air of a closed room by opening its doors and windows. In rural areas, some open space is kept in front of the room or house for circulation of the fresh air.
2. Artificial ways of purifying the air

a. Electric fan- It may be used to remove air from a closed room and to get fresh air.

b. Exhaust fan- Setting an exhaust fan in one side of the wall and making a hole on the other side, the polluted air may be driven out from inside.

c. Air Condition- Air may also be purified by conditioning of the air. This arrangement controls the heat and the circulation of the air inside the room.

Food:

Whatever we take or eat to live on is called our food. It brings the growth of the body, makes up the decays and produces heat and energy in our body. Thus food keeps our body healthy and active. Proper diet increases the resting power against the diseases. If we do not take any food, our body becomes weak and our working capabilities decrease.

Food has been divided into six groups according to the usefulness ingredients and effectiveness The ingredients of food are as follows-

1. Carbohydrates.
2. Protein
3. Fat
4. Vitamin
5. Mineral salt

Ingredients of food-its sources and functions

1. Carbohydrate:

   Sources- boiled rice, rice, wheat, maize, honey, fruit juice etc.

   Function- Production of energy and increase of ability to work.

2. Protein: Source- Fish, meat, eggs, milk, pulses etc.

   Function- Making up of decays and repairment of wears and tears of the tissues and development of body
3. Fat:
Sources- cooking oil, ghee, fat, dalda, almond, butter etc.
Function- Produces heat and energy in our body.

4. Vitamins:
Sources- Different kind of vegetables, fruits, fish, fish-oil, yolk of an egg etc. Function-
Keeps bone and skin lively, prevents nose from contamination of the diseases and protects from night blindness.

5. Mineral salt:
Sources- Salt and sea water.
Function- controls the formation of bones and internal functions of the body.

6. Water:
Sources- Different kinds of food and drinks.
Functions- Helps in building up the body and co-ordinates with other functions of it.

Water:
In fact, water is not our food but certainly it may be called as the "life" of ' human being as well as animals and plants. We can not think of life without water. So, where there is a life, there will be the necessity of water for its preservation.

Source of water:
The sea is the original source of water. The water of the sea raises up the sky in the form of vapour. This vapour led or conducted by the air travels over the land and then it drops down on the earth as rain, frost, dews, hailstorm etc. Besides, the melting ice of the peak of a mountain comes down on the surface of the earth. Moreover water may be collected from underground through tube-well etc. On the whole there are three kinds of sources of water.

1. Rain water
2. Surface water and
3. Ground water
1. **Rain water**: It becomes available from the rain.

2. **Surface water**: It is available from river, canal, marshy latid, pond, tank, water fall, fountain etc.

3. **Ground water**: It may be collected from underground through deep and shallow tube-wells.

**Usefulness of water:**

It is said that water is our life and we can not save our life without water. When we eat some food staff, the water of saliva helps swallow the food. Then this food becomes liquified with water. Afterwards the food ingredients absorbed in our body and the water sends out the waste products from our body. It is very much necessary to farm the cells of the body. The adult persons need two and half to three litres of water daily for the maintenance of the body. Besides saving the life, water is necessary for running the mills, factories, cooking food stuff, washing clothes etc.

In other words, water is necessary for maintaining all sorts of water neatness and cleanliness.

**1. Water borne diseases:**

1. Drinking water contaminated with decomposed plants and other materials may cause diarrhoea, indigestion and enteritis.

2. Again, the drinking water containing metallic compounds in excess may cause constipation, diarrhoea, enteritis etc.

3. The water which is contaminated with germs becomes very dangerous for health. The germs of contagious diseases like cholera, typhoid, Para typhoid, dysentery etc. are mixed with the water easily and enter or penetrate into our body. Sometimes, the faeces, Urine, vomited matter, clothings, bed sheets etc. of a Patient are washed in the water. Thus the germs of the diseases are mixed up with water and cause infections.

**Methods of keeping water pure:**

It is not possible to keep the water of pond, tank, canal, river etc. pure. The water of these sources shall have, to be purified for drinking purpose. The following methods can be followed to make the water pure.
1. The water of tube-well is pure and safe. There is no scope of its being impure. Now-a days, tube-well water is used in all parts of the rural villages.

2. The heat of the Sun and its ultraviolet rays kill -the germs of the diseases and make the water pure.

3. Water can be purified also by boiling it. But after boiling, this water should be kept in a covered pot. Otherwise, the melted oxygen in the water will be evaporated and it "will make the water detasted.

4. The water, after boiling and through distillation, may be transformed into vapour. Now, this vapour after being cooled down will turn into water again. Thus this will be real and pure water. Distilled water is used in preparing the medicine.

5. Alum when put in water, makes it gradually clean and drinkable.

**Clothing and its neatness and cleanliness :**

**Clothes:**

Every body should wear clean and tidy dress. It is very essential to keep our clothing neat and clean for our health. It is a good habit to keep ones clothes neat and clean. Physical cleanliness requires the cleanliness of clothes also. Clothings are required according to climate, occupation and age. Our clothes became dirty easily with the sweat of the body, dust and dirt of the road, emission of smoke etc. Due to hard labour and exercises, the sweat comes out of our body and makes our wearing clothes dirty soon. If it is possible, one should wash his wearing dress daily and if it is not possible to wash daily, it will be better to dry up in the sun after use. All other kinds of clothes stored in the house, should be dried up in the sun at least once a month. If the wearing dress is not cleaned regularly, the air cannot pass through it properly because the dust particles and the dirt rest on it. That is why our body itches and we get different types of skin diseases. It also brings forth louses in our head, and bugs in our beds. At the time of putting the dress on, we must take notice of that dress, so that it may not harm our skin. During Summer season, light dress is suitable, so that heat may not be felt very much. But in the winter season, we should use warm clothes. No one should wear tight dress. All the clothes should be light, soft and loose.
It is not proper to use that type of clothes which can create burning or painful sensation on the skin.

The children's dress is always desirable to be soft, light and loose. Boys and girls should wash dress by themselves and keep those tidy. The clothes will be sewed immediately after it is torn though, it might be very small. This habit is good and it should developed from the very childhood. It does not waste money and time but it helps the parents also. Moreover, this habit makes one to be self-dependent which will bring success in one's future life.

**Neatness and cleanliness:**

When we say about neatness and cleanliness we mean cleanliness of self as well as of the surroundings. Personal cleanliness covers the whole body i.e. right from head to foot and the cleanliness of surroundings means the cleanliness of the dwelling house as well as its surroundings.

For the development of body and its nutrition, cleanliness plays an important role. The food we take, the water we drink, the air we inhale, must be clean and pure. We live in a tropical country. Light work causes sweat. So, we should always keep our skin clean. Because most of the functions of the lungs and the kidneys are done through the skin. Excretory glands which discharge sweat, remove some dirt through the pores of the skin. So, always the skin must be kept clean. Otherwise, it may cause skin disease like scabies, ring warm etc. Rising from sleep in the morning, we should wash our hand and mouth. Teeth should be cleaned well with the tooth brush or a small branch of 'Neem' tree. We should also brush our teeth before we go to bed. We should always keep the nails trimmed. Otherwise, the dust particles and dirt inside the nail, will mix with our food and when taken" in, this food may cause several diseases of the stomach. Hair must often be washed with the soap and properly combed. No one should use other's comb.

The, surroundings of the dwelling house must be kept clean, so that air and light may enter into the house freely. The dirt of the pond, drains etc. Must be cleaned to stop the growth of mosquitoes. Moreover, the conception of neatness and cleanliness shall be given to the people around, so that, they can also keep themselves as well as their surrounding; neat and clean.
Urinals and latrines - its proper use and maintenance:

Urinals and latrine must remain at a pretty good distance from kitchen and bedroom. Most of the villagers residing in rural areas still use temporary mud-built (kancha) latrins. It is very harmful for health. So whatever direction it may be set up (either in the north or in the west side) from the house, the latrine and urinal should be made in a safer distance. The villagers take their bath in the pond or river. Again they use the water of the same river or pond for their cooking purposes. Therefore a latrine should be made in such a place that there may not be any connection of that latrine with the ditch, pond or river.

Children should not be allowed to make their stools either on varenda or in the courtyard. But it should be done in a fixed place. If it is a mud-built or kancha latrine, the fences should be covered with ashes immediately so that flies can not sit on that. Even, if the children make their stool on courtyard or on varenda, then, it should also be covered with ashes or sand immediately. Afterward it should be removed with the help of a spade. There is no harm if the latrines of urban areas remain nearby. Because there is modern sewerage system to drain out the faeces from that type of latrine. Still the latrine should be kept away from bed room.

If the latrine is a mud-built one, then it must have a hole inside where one can be evacuate his bowl so that the stool and the stool mixed water may not flow down into the ditch, drain; pond and the river. When the hole dug in the ground will be filled up with the stool, then it should be covered with soil and a new hole should be dug again. In the village area, every body should be encouraged to use sanitary latrine. The Public Health Engineering Department of the govt. supplies the construction materials at a low cost. The description of two types of such latrines is given below:

1. At first, a hole in the ground is to be dug from 91 cm. to 106 cm (from 3 to 3.5 feet) and the diameter of the hole will be from 1.82 m. to 3m. (6 feet to 10 feet) in depth. Then the fore part of this hole shall be covered with a concrete slab. There will be a provision of keeping a water pot beside that slab and foot rest for sitting on its top. There will be hole in the slab and diameter of the hole will be more than 30 cm i.e. one foot so that neither any soil can get into nor any bad smell can come out of it. This slab will be fixed in such a height from the ground that any rain water cannot enter into this hole. Then a shade made with C. I. sheet is to be placed in it and thus we get hygienic latrine, (picture 6.1)
2. The second method of sanitary latrine is that the hole will be a concrete one-or it will be made with several concrete rings joined each other with concrete. The fore part of this hole will be covered with a concrete slab. No shade will be built on that hole or pit but the slab of the confined water will be placed on a foundation laid high at any side of the pit. This slab will work as the floor of that latrine and the sitting arrangement will be made on it. An attached pipe of the pan shall be joined with the main pit in a slanting way. Thus the farces will go into the pit easily, (picture 6.2). For discharging the polluted gas formed in the pit, another pipe is to be fixed vertically also on the pit.

At present, the Engineering Department of public health is making some arrangements for supplying the materials of sanitary latrine at low cost.

Understanding about environment:

By environment we mean the surroundings of a person. In broad sense, it is not limited by the four walls. It starts from the birth place of a child up to his home, teacher, school, society and religion etc. i.e. every thing that surrounds the person. Environment means those factors which influences one's behaviour and helps to bring some changes within himself. The behaviour, the mode of living of the family
members and other factors in which a child is brought up, impress upon the mind of that child deeply. In such circumstances, the want of love and affection in the house or the quarrel between father and mother deter the smooth development of physical and mental health of a child. The environment of the educational institution exerts much influence on building character, behaviour and personality of a child. So we should always try to educate our children in a good institution with suitable environment. Further the; literature, culture and art of painting etc. also influence the philosophy of life of the children. It is the environment that controls a child's personality and influences widely in building his character in a healthy social atmosphere. Without a healthy society a suitable environment may not be expected. Again without proper environment, there may not be an allround development of a person.

The natural environment is also responsible for proper development of a child or a person. By nature we mean air, water, soil, plants etc. In fact; we are constantly staying into air. If this air is impure, then will not help developing any life. The water is called the life of living being/Without water we can not survive. We must take proper care of our drinking water so that it can not be polluted. Our personal and social life will be broken down if the water is polluted.

Soil becomes contaminated with the mixing of many chemical substances. The waste material of mills, factories, Chemical, fertilizer and insecticides are also responsible for contamination of soil. This contamination of soil badly affects the environment.

Noisy atmosphere makes our living, unhealthy. The abnormally high sound of the machinery, factories and vehicles are the indicators of air pollution. Again we feel uneasy when many people talk at a time and the sound of such conversation affects us. It makes a detriment effect on the environment.

Lastly, it may be said that only a healthy environment helps making allround development of child or a person.

**EXERCISE**

1. Fill in the blanks:
   
   a. .......... and ..........can not live without air.
   
   b. With the help of.......... food is burnt and thus ..........and...... are produced.
   
   c. Balanced food keeps our body ...... and ........
d. Rising from the .......... in the morning, we should ...... our hand and mouth.

e. The place of faeces and urine must remain at a good distance away from...... and......

2. Select the water-borne and air-borne diseases from the following

1. Cholera - 2. Tuberculosis
3. Typhoid 4. Hooping cough
5. Chicken pox 6. Influenza
7. Warm 8. Dysentry

3. Answer the following questions in brief:

1. What is health?
2. How many components are there in food ?
3. What are the functions of carbohydrates ?
4. What do you understand by clothings ?
5. What does environment mean?

4. Describe the followings

a. Write down the importance of health education.
b. What are the causes of air pollution ?
c. How many sources of water are there and what are those ?
d. Describe the methods of purifying the water.
e. Which place will you select for a latrine and why ?
f. What are the water borne diseases ?

5. Describe about the construction of a sanitary latrine.
Ways of avoiding accidents in daily life

Our life is always full of risks. The accident may occur in our life at any time. It may, be very simple in nature like stumbling or it may be of grave consequences. Accidents may cause from vehicles, from biting of animals. Moreover we may fall in accidents like drowning in water or fire-burn. So, we should be very careful while we work, so that we may not be any victim of an accident. Some ideas about the accidents have been fairly discussed in the textbook of class VII. Accidents in daily life are discussed elaborately in this chapter.

Accidents through transports:

Before discussing it in details, we are to know what is called transport? Normally we move from one place to another through the help of some vehicles. These vehicles are termed broadly as transport e.g. launch, steamer, boat, bus, railway carriages etc.

A. Launch and steamer:

Launch and steamer are the media of transport. Most of the people of southern districts of our country, travel by launch or steamer. Usually these water transports cause accidents due to overloading of passengers and goods. In most of the time, it is found that during Eid vacation or any other big festival, people become crazy to go to their own villages in order to enjoy it with their parents and relatives. Naturally, on rush of passengers make the launch and steamer over loaded. As a result of this overloading accident occurs. So, we should make a journey by launch and steamer, after considering its loading capacity. Everybody should look into the factor of over loading of passengers and goods. Besides these, the playing of these transports during foggy night may cause collision face to face and thereby causes fatal accident. Without learning swimming, one should not make a journey by boat. It is always to remember that the value of life is more than that of time.

B. Boat

Though, the use of boats in the river-ways of our country is becoming limited, yet in the village areas, boat is still considered as the main media of journey during rainy season. Comparatively accidents occur, less with the boat. Without knowing
swimming, one should not make a journey by boat. Sometimes boat sinks due to overloading of goods and passengers. During rainy season, it is found that in some village-areas, passengers along with goods are carried by boats. These boats have marine engine attached with it. It is true that boat is a small water transport. Slight overloading of passengers or goods may cause the boat sink. So all should make their journey by these sorts of transports carefully.

C. Bus

Now a days, bus has become the main transport for movement in our country. Most of the people make their journey by bus. So, frequently accidents occur by this transport. Desperate and rush driving cause these accidents. Overloading of passengers is one of the causes of these accidents. Besides these, lots of goods are also carried in the passengers bus. Thus passengers whole journey by the bus look like a Bat-Hanging position. The accidents occur due to these reasons. If the owner of the bus, driver and concerned authorities become aware of the consequences only then the possible accidents might be avoided. You must not make a journey by bus like a "Bat hanging" position or sitting on the roof.

D. Railway Carriage :

Railway accident is very dangerous. It costs human lives-and loses lots of assets. The main causes of these accidents are excess number of passengers, overload of goods as well as defective railway lines etc. Moreover, during rainy season, if the train runs very fast, then it may be derailed and may cause accident. Most of the engines of me railway carriages of our country are old and worn out and as such can not work properly. These may be stopped at any place and, time. Thereby an accident may occur. Only the effective steps token by the concerned authority may prevent from these types of accidents.

Animal bites:

The dog biting is the most dangerous among all other bitings of animals. There is nothing to be afraid of a bite from a pet dog. But biting of a mad dog is very dangerous. Without proper treatment in time it may cause death. In order to be safe from the biting of a dog, one should neither beat nor to throw any stone to the dog. The dog should not he fed by hand. If a dog becomes mad, it should be killed. Biting of a mad dog causes hydrophobia. Even scratching of a mad dog may
be the cause of this disease. The virus of this disease remains in the saliva of a mad dog. If a mad dog bites any pet, cat or cow, then these will also be attacked with hydrophobia. Again, the biting of mad dog, wolf, cat, jackle, mongoose etc. may also cause hydrophobia. **Treatment**

First of all, one must be sure about the madness of the dog i.e. whether the dog is really mad or not. Then the following steps are to be taken in regard to the treatment:

1. The affected part should be kept are low as possible.
2. Quick arrangement for stopping bleeding if there is any, should be made.
3. The wounded part will be well-cleaned with carbolic soap or water.
4. If it is not possible to obtain the services of a doctor within a very short time, the wound should be cauterized.
5. It is a must to Wash the wounded part with a solution of powdered permanganate of potash.
6. Dry dressing on the wounded part should be applied.

**Oven, fire and burning materials:**

We use oven in urban as well as in rural areas in our country. Some ovens are made of mud and some are run by gas. The oven after cooking food, should be extinguished. If it is a mud made oven, the fire should be extinguished with water. Sometimes after cooking, the oven is left burning. But the clay and light materials at the side of oven, may be dropped inside the oven and the fire may cause. The light and dry may also fall in the oven through air and cause fire. Thus it can make a conflagration. So the sides of an oven should be kept well-cleaned. A bit of carelessness may cause a big fire. Even in the city, it is observed that gas-oven is kept open without putting it out. It is a misuse of gas which is valuable asset of the country. A burning gas oven may cause a big fire. We put the gas-oven off at night and we should open the door and window of the kitchen in the morning in order to drive out the gas from inside. Then the gas oven should be lit. Otherwise, the whole room may catch fire by the leaked out gas.
Sometimes a burnt article like end of a cigarette is thrown after smoking. But we do not care about the place where it is thrown. It may drop on a dry thing or it may be carried by the air. Thus it may come in contact with other substance and thereby a great fire may break out. So after smoking, the cigarette should be put out properly.

**Toys:**

There are various kinds of toys with wheels. Children toys like railway carriage, bus etc. with wheel are also known as wheeled-toys. At the time of paddling a toy cycle, some children become off balanced and fall oil the ground or on stair case. In this way, there is every possibility of twisting hand, etc. Specially, the children-of first floor or above, being unbalanced, may down from stairs. One must be careful while the children play. Playing with wheeled-toys inside the house may break or spoil the housing materials. When the children play with these types of toys the guardian may keep an eye on it.

**Marble:**

It is observed that the children nave natural inclination of playing with marble on the streets. But during play, it may hit the^ eye and may cause injury. Moreover, it may damage Valuable articles of the house. Normally marble rolls down very fast. The children try to catch it and may fall down. As a result their hand and foot may be sprained. So the parents should take special care while children play with marbles.

**Slippy materials**

Powder, oil, skin of banana, wet soap etc. may be said as slippy materials. While using talcum powder, it may be dropped on the floor without Our knowledge. The children then stepping on that spot may slip down and get injured. It is not only the children, but also the adults that they may slip down on a cemented floor, if they put steps on the spot where oil, wet soap etc, exist.

The skin of banana must not be thrown here and there after consuming it. Because if anybody steps on that skin, he may slip and fall down. Thus his hand or foot may be fractured. So, a great care should be taken while using all these slippy things.

**First aid**

First aid means to take care of a wounded or an indisposed person, before obtaining the services of a doctor or shifting the patient to a hospital. In wider it means that the first hand aid is given to a patient so that the wound or the hit of the person may not be aggravated. The patient may not feel more pain before actual treatment is provided.
and he should be removed to a doctor or to a hospital soon. There are a lot of accidents in which the victims fall and suffer from it. Some of accidents and their first aid is given below:

**Hot liquid substance**

A scald may be caused by hot oil, boiling water, tar, pitch etc. So necessary care should be taken before hand to use all these things. Specially the hot oil and water are to be kept always in a safe place. Because the children may dip their hands into these or may turn down the container. Thus they get sealed. When the pitch is spread over the road, no one should walk on it bare footed. Blister may be formed in contact with the hot pitch. If the scald is caused then the skin will be reddish at first. Then blister may appear accordingly to the degree of heat. The skin, and muscles may be burnt or destroyed. At the time of cooking the hot oil may be sprinkled on the body. Therefore every care must be taken before putting something in a caldron of hot oil.

**Treatment**

1. Do not touch the burnt place by naked hand. If the blister burns out, then a sterilized scissor should be used to break it down fully.
2. Penicillin ointment or ointment prescribed by the doctor should be used.
3. The burnt place should be covered with clear materials.
4. It is better to keep the patient inside a mosquito net.
5. It will be beneficial to the patient if he takes hot drinks or coffee.

**Electrical instruments**

Now a days, electricity has been provided in urban areas and even in the villages. Due to the unplanned and unauthorized connection of the electricity in the house holds, accident may occur by electricity. There are two types of electric current one is AC current and other is DC current. AC Current pulls or draws near and DC current gives push only. So AC current is very dangerous for living beings. If electric current comes in contact with wet cloth or tree, it causes accident. Besides these, sometimes the electrical wires are turned by storm or it becomes loose and then an accident may happen. An electrified person must not be touched by hand. If he is touched by any person, he may also be electrified.
Actions to be taken when electrified:

1. First of all main switch is to be put off.

2. If it is not possible to put it off, then the electrified person should be detached with the help of dry cloths, wooden or bamboo sticks.

3. The electrified person may be detached with the help of rubber or dry cloths in hand.

Treatment:

1. If the breathing of the patient stops then an effort for artificial respiration is to be started.

2. Ointment will have to be applied to the place of burning according to doctors advice.

Sharp, pointed materials

You should not play with a sharp materials. Moreover, you should have an eye to the younger children, so that they may not play with sharp instruments. Older people while working should also be careful about these sharp materials. Even a small cut may cause septic and turn into a serious danger. A hit or blow from a rushed iron is also very dangerous. There is ever possibility of causing a wound septic from a strike of a rushed iron. Children must not be allowed to play with sharp blade. These should be kept in a safe place and must be out of reach of the children.

Unconsciousness

One becomes unconscious when-

1. the nervous system becomes excited too much.

2. any functional disorder to the central nervous system.

There are two types of unconsciousness

A. Stupor - When the patient will have partial sensation but drowsiness will be found in him, then he will be in semi-conscious or stupor.

B. Coma- When the patient will have no sensation at all i.e. fully unconscious, then he will be in coma.
Causes of unconsciousness:
Unconsciousness is caused due to

1. Accident- Electric shock, suffocation, bleeding, severe hit on head, horrifying sight of an accident etc.
2. Heat- Sun stroke, heat stroke, fatigue due to heat etc.
3. Poison- Taking fatal poison e.g. thorn apple, potassium synoide, poisonous gases, excessive drinking of wine, over doses of sleeping pills etc.

Treatment of unconsciousness:

1. The patient is to be taken in an open and airy space;
2. All the clothings are to be loosed;
3. Artificial teeth are to be taken off;
4. The real causes of being affected are to be found out and removed quickly e.g. electric wire, broken trees, houses etc;
5. Unnecessary crowding is to be avoided;
6. Patient should be laid on his back unit i.e. in dorsal position;
7. Bleeding if any, is to be stopped;
8. The patient is to be observed carefully and action is to be taken accordingly. The followings are to be observed;
   a. Degree of unsensibility whether stupor or coma
   b. Pulse rate
   c. Occurrence of bleeding.
   d. If breathing continues or stops
9. If it is a shock, it needs first aid treatment;
10. If breathing stops, the artificial respiration is to be started;
11. When the patient feels a little bit well, he should be sent to a doctor or a nearby hospital;
12. No stimulants should be given to the patient;
13. No food should be given to the patient in an unconscious state;
14. While carrying unconscious patient, he should be kept in a laying position, with his head low.

Artificial respiration:
When the act of natural breathing is suspended or about to be suspended, an effort of restoration of respiration is performed by imitating the movement of breathing. This activity is called artificial respiration.

Artificial respiration may be done by hand or by machine. The basic aim of artificial respiration by hand is to move the lungs with air from ten to twelve times per minute rhythmically. The diaphragm rises and air is driven out of the lungs producing expiration. Again the diaphragm descends the thorax is enlarged and the fresh air enters into lungs producing inspiration.

There are different methods of artificial respiration. The most popular methods are:
1. Schafar method
2. Silvester method
3. Holgemielsen method
4. Eve's Rocking method

These methods were invented and introduced by different persons. So these have been termed after their names.

1. Schafar method:
Lay the patient in a prone- position with face downward, arms extended above the head in two sides and his head turned to one side, so as to, keep his nose and mouth away from the ground. Time should not be wasted before loosening his cloths.

The first aider will kneel at one side of the patient, facing towards his head, paralleled to his waist. He will place his hands on both sides of the patient's waist in such a way that the waist nearby touching both the sides of vertebra column. Thumbs will be in front and the fingers will spread over the waist diagonally: First aiders hands and elbows will be kept quite straight and rigid.
without bending the elbow rather bending forward; pressure will be imparted. This pressure will fall on the abdominal organs and the air will be driven out of the lungs. [F."7.1 A]

Then relax the pressure gradually. The pressure, giving and relaxing must be completed within 5 seconds i.e. pressure given 2 seconds and relaxing 3 seconds. Artificial respiration must be continued until respiration is restored. [F.7.1B]

Silvester method

Place the patient on his back. Support his neck on a small pillow in such a way so that his head hangs beyond the pillow. Remove the cloths. A great care should be taken so that the tongue may not obstruct the windpipe, falling back over the top of it. Tongue should be placed forward.
As in the Picture, place the patient on his back, then grasp his forearms just below the elbow and draw the arms upwards outwards and towards the alder with a sweeping movement. Then elbows will be placed at the two sides of the chest with a jerk, so that pressure may be felt on both the sides of the chest of the patient, Thus the movement of once pressing and then relaxing with stretching Should be made, the rhythm will be pressure three seconds and relaxing two seconds i.e. in total 5 seconds. [F. 7.2 A, B and C]

Repeat these movements and watch the patients natural breathing, by putting a paper in front of his nose. Artificial respiration must be continued until the respiration is restored,-

3. Holgersen Method:

1. The patient should be laid on his breast.
   The laying position is shown in the picture.
2. The first aider will kneel down at the side of the patients head.
3. He will press on the back.
4. Then grasping his arms, he will draw the arms of the patient upward and downwards. [F. 7.3]

It is to be remembered that if the shoulder joint of any other joint close to it is broken, this method will not be adopted.

Method of pressing

1,2 - Press on the hack.
3-Relax (a little while)
4,5 - Draw the arm
6- Relax (for a short time)

By this method the respiration will be restored from 10-12 times in a minute. The volume of the air circulation is one litre i.e. one thousand milliliter per turn.

4. Eve's rocking:

Raise the patient's waist by grasping and release and then roll him. The method will be continued. This is an old method. It may not be always effective.

Besides all those methods mentioned above, there is another method which has become popular. It is called "Mouth to mouth breathing" At first, lay the patient on his back. The first aider will clean the vomit or nasal mucus etc: of the patient. Then he will start to do according to the [F. 7.4]
1. Lay the patient on his back.

2. The first aider will kneel down by the side of the patient.

3. Draw his head back as far as possible.

4. Patients nose is to be closed by one hand.

5. Release the breath vigorously into the mouth of the patient.

6. Release one breathing after four seconds. By this way, restore the patients respiration then he himself will be able to take his own breathing.

This artificial respiration can be done with the help of machine too. But it may not be possible to arrange this machine at the time of need, it is possible to arrange only after the patient reaches a hospital.

**Body temperature:**

The temperature of a normal healthy person remains 98.4 degree under his tongue. If the temperature of the body goes above the normal degree then it will be presumed that the body has a temperature. If the degree of temperature raises more than 102° then cold water should be poured on the head, or a piece of wet cloth is to be placed on forehead. If the temperature raises very high, then the body should be sponged thoroughly with wet cloth. In this way, the temperature may fall down. If not, medicine will be taken by the advice of a doctor.

**Drowning:**

There are innumerable small pools, drains, ponds etc. around us. For this reason, every body should learn how to swim. No body should bathe in an open water without learning swimming. Because he can slip down into the water and gets downward. This kind of accident may be avoided, if one takes his bath in a bath room or with the water brought for the bathing purpose. If any body is drowned into water, then he should be rescued

a. By throwing something towards him immediately:

b. By swimming to him for the purpose of rescuing. But one should be careful about the person to be rescued. Because the drowning man can entangle him and make his life risky.
If a person is drowned and takes a lot of water, then the water inside his stomach, is to be cleared out quickly. Otherwise, the water may enter into his breathing pipe and cause his death. The following actions are to be taken for drowned patient:

For a child:
An immediate arrangement shall be made to bring out the water from the stomach of that child. Otherwise Water may enter into the wind -pipe and may cause suffocation. The following arrangements will be made for a sinking child

a. Raise the heel up and keep the head down. Light slap shall be applied on the back from time to time. By this way, water inside will come Out. Again if any other existing water plant enters into the mouth; it will also come out.

b. Apply artificial respiration:

c. Wet cloth will be removed.

d. Artificial respiration is to be continued till medical aid is available

For an adult:

a. The throat, mouth etc. of the patient are to be cleaned first,

b. By lending his knees the patient shall have to be seated on a chair or on a tool in such a way that his head may hang. Right slap on his back will bring out the water one inside.

c. The wet colth will be removed.

d. The artificial respiration will be continued till medical aid is available.

Burn:
There are several causes of burning. Our body or any part of our body may be burnt by fire boiling oil, burning tar etc. In our daily activities, we must be careful about all these aspects of burning so that, it may be possible to avoid these types of accidents.

Treatment of burns:

1. Do not touch the burning part of the body. If the blister bursts out it should be cut by a sterilized scissor.

2. Penicellin or tetracycline ointment may be applied on the burnt place.

3. The burnt part must not be kept open and it should be kept covered always with clean cotton or gauze.
4. Patient should be kept inside a mosquito net;
5. Plenty of hot drinks such as tea, coffee etc. should be given. These will be beneficial for him;
6. Injection may be pushed for deep sleep if required.

**Bleeding from nose:**

The patient will be placed on a chair or will be laid down on his back, leaning his face little backwards. He will be advised to take breathing by mouth. Nose will be pressed lightly. The clotted blood beneath must not be removed because it may cause more bleeding. This bleeding may be stopped quickly, if cold water or ice can be applied on the affected nose.

**Snake bite:**

Immediately after snake bite, rope or a piece of cloth should be tied over the wound. It shall be two in number. Another binding may be done much higher than the former one. The loop of the binding will be tighten in such a way that it stops the circulation of blood of the vein and circulate the blood of artery i.e. poison may not come in contact with the circulation of blood. The patient should be sent to the nearby hospital.

**Poisoning:**

The person shall have to be sent to the hospital as soon as it will be known that he has taken poison. If the hospital is far away the following actions, are to be taken:

Make the patient vomit so that the poison may come out of the abdomen. Vomitting can be done by -

a. putting finger/fingers inside the throat.
b. feeding warm water with melted salt.
c. feeding a mixture of the white portion and the yolk of an egg with milk. This may be an effective one.
d. Feeding mastered oil.

When the poison will come out with the vomiting, the antidote will be taken. By this way, all poison will be removed from the stomach.

It is important to know the antidotes of poison. If it is properly used, it will be beneficial for as well as the patient. The following table will help learn the antidotes of poison;
<table>
<thead>
<tr>
<th>Poison</th>
<th>Antidote</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Acid- nitric, sulphuric or hydrochloric acid etc.</td>
<td>1. To drink hot water with chalk powder</td>
</tr>
<tr>
<td>2. Drinking excessive wine</td>
<td>2. To drink lemon juice or; black coffee.</td>
</tr>
<tr>
<td>3. Arsenic poison</td>
<td>3. To take mixture of white portion and the yolk of an egg.</td>
</tr>
<tr>
<td>4. Poisonous effect from thorn apple</td>
<td>4. To drink water, strong coffee or tea.</td>
</tr>
<tr>
<td>5. Alcohol type or Alkali type of poison.</td>
<td>5. To drink lemon juice, lactic acid, vinegar, tamarind, rose water etc.</td>
</tr>
</tbody>
</table>

**Muscle Pull:**

During play, suddenly a muscle or a group of muscles together may become excited and may cause contraction of these. As a result these become very stiff and create pain. Even it can make a person inactive. This is called muscle pull. The Injured part of the body may be rested on something and ice should be. applied immediately. After 24 hours, hot water compress mixed with boric acid powder shall be applied on that affected part. Then, gradually the contraction of muscle pull will be removed.

**Bandage:**

A piece of cloth which is used to keep the injured limb firmly is called the bandage. You have learnt about the bandages of different sizes in the textbook of class VI. Now let us discuss about sling here.

**What is sling ?**

The bandage which is used to hang the injured limb with the body is, called sling. If any hard blow or any fracture, involves any bone of the hand, the sling is used to keep that injured limb firm.

**Arm sling**

The tied up bandage which is used to hang the whole arm is called large arm sling. It is shown in the picture. Arm sling is required for hanging the front part of the arm at ease. Now spread out a triangular bandage placing one end on the shoulder of the no affected arm. Then it will be passed round the neck and brought towards the shoulder of injured limb. The other end will hang in front of the chest. Then lay the injured arm on the centre of the bandage. The top or the vertex of the bandage will remain- behind
the elbow. Then the second end will be tied up with the first end of the bandage. The top side of the bandage will be folded up to the elbow. Then in front of the bandage, it will be attached with two safety pins. [F.7.5]

**Colar and cuff sling:**

This sling is used for hanging the wrist. Now, bend the elbow in such a way that the fingers can touch the other shoulder. Hand will rest on the chest. Then lie it up with a clove hitch. [F. 7.6]

Clove hitch will be made with a narrow bandage. Make two loops. Place second loop on the first. Then bring the loop from behind the first one and make a clove hitch. Now fasten it with the neck tightly passing round the wrist.

**Wrist bandage:**

The bandage which is used to keep the injured part of the wrist fixed, when it is hit or twisted is called a wrist bandage. [F. 7.7]

**Method of bandage making :**

1. Always use a hard as well as rolled bandage.
2. Keep the injured limb as it is and bandage it.
3. Bandage slowly by holding its top part.
4. Bandage attached with each other will be rolled upward first then downward gradually. No space shall be kept in between, while rolling a bandage.
5. Bandage with a moderate pressure, so that it may not be more or less than the required pressure.
6. Finish the bandage uncured or smooth and lastly, tie up with safety pins.
Palm bandage:
The bandage which is used for the binding of palm is palm bandage. This bandage starts from the bottom of the finger and reaches up to the wrist. First to start from the wrist then to roll towards the palm. It will end at the middle of the fingers. The rollar bandage is also used here.

Ankle bandage:
The bandage which is used to keep the foot and ankle Joint fixed when these are injured, is called ankle bandage. To bandage these injuries, a medium wide bandage is required. This bandage starts rolling from toe to heel. [F. 7.9]

EXERCISE

1. Fill in the blanks:
   a. Launch and steamer accidents occur due to overloading ........ and ......
   b. The body temperature of a healthy person is ............degree.
   c. AC current.......... DC current............
   d. One becomes unconscious when the nervous system becomes too Much...
2. **Make a pair with appropriate words:**

   A. Bus                        B. Artificial breathing  
   B. Sling,                      B. Slippery Substance  
   C. Eve's Rocking               C. Unconsciousness  
   D. Skin of banana              D. Transport.  
   E. Coma                        E. Bandage

3. **Write down the names of the method showed in the picture below:**

![Image](image.png)

4. **Answer briefly the following questions**

   a. What is hydrophobia"?
   
   b. What do you understand by slippery substance ?
   
   c. What is the body temperature of a healthy person?
   
   d. What is muscle pull?
   
   e. What is stupor?
CHAPTER EIGHT
The human body

The blood circulatory system

The human body is made of innumerable cells. To keep the cells healthy and active it is necessary to supply balanced food, oxygen and of other elements as well as elimination of waste materials from the body. This supply of nutrition to body is done through the circulation of blood. The heart pumps blood and circulates it all over the body and thus supplies required nourishment to the cells.

The organs through which the circulation of blood is done, from the circulatory system. [F-8.11]

![Diagram of the blood circulatory system](image)

Fig-8.1 The blood circulatory system

The name of the organs of circulatory system and its functions.
The following organs form the circulatory systems (a) Heart, (b) Artery (c) Capillaries (d) Vein.
A. Heart:
The heart is situated in the left side of the chest and in between the left and right lungs. It is roughly cone shaped. It is made of special type of involuntary muscles. The wall of the heart has three layers. The outer layer is called epi-cardium whereas the middle and inner layers are called mio-cardium and endocardium respectively.

Epi-Cardium is just like screen of the outer wall. This screen covers the heart and confines it with the chest cavity. The mio-cardium is a thick layer which does the job of extension and contraction of muscles and pumps out the blood throughout the body. The endo-cardium is the inner layer of the heart. This one helps the heart valves for its movement in the heart.

The inner part of the heart is hollow. It is divided into four chambers. The upper chambers are smaller than the lower ones. The names of the upper chambers are right auricles and left auricles and the names of the lower chambers are right ventricles and left ventricles. In both auricles and ventricles there are holes which are opened and closed by the valves. It is because of these valves, the blood moves in one way and a drop of it cannot be returned to the opposite direction.

The blood circulatory system:
We have learnt before that the heart is nothing but a pump for circulation of blood. The impure or veinous blood goes to the right auricle through the auriculoventricuiar valve. Veinous blood goes to the, right ventricles and from there to the lungs for purification. There it gives up carbon dioxide and absorbs oxygen. In this way the blood gets purified and comes to -the left auricle. When the right ventricles become full of blood, it contracts and blood enters into the auricles. When the left auricle becomes full of blood, it contracts at the next moment and sends blood to aorta. In this way blood flows through the blood veins, the body and the cells are supplied with oxygen and nutrients. In the picture below, the blood circulation system has been shown [F. 8.2].

In this way blood enters the right auricle through superior venacova in A, B, C, D the right ventricles, the veinous blood through the pulmonary vein goes to both lungs. (E-F). The oxygenated blood from lungs enters the left through the pulmonary vein. Through the valve "G" blood comes from left auricle and enters left ventricles (H. I. J). The purified or oxygenated blood carried from the left auricle through the aorta and spreads throughout the whole body.
You must have seen that when a doctor examines a patient puts his hand on his pulse and examines the chest with stethoscope. In this way, the beat of the heart is measured. Healthy adult heart beats 70-72 times per minute. If the heart beat is increased or decreased then the person is treated as sick.

**Blood carrying vessels**: 

Blood carrying vessels are two in number. One is artery and the other is vein. The artery carries blood from heart to body whereas vein brings back blood from body to heart.

**Artery**: The outer body of the artery is thick and elastic. The heart when contracts receives blood and becomes expanded. When the heart is expanded at that time it creates pressure due to capability and this pressure keeps the blood flowing in the body thereby keeps the blood pressure stable.

The wall of the artery is made of muscles. At the time of need the tubes can be expanded or contracted. Small arteries are also muscular and their numbers are innumerable. These arteries take part in increasing the blood pressure. From the left auricle-of the heart a big artery has come out and it is called aorta. It is divided into many branches and sub-branches and spread out in all parts of the body. The arteries thus coming from the heart become gradually smaller and thinner and have spread throughout the body.
During the flow of the blood in the arteries a side pressure is noticed. This is called blood pressure. Due to blood pressure, blood is circulated throughout the body. In all the blood vessels blood pressure is felt. The pressure of blood in veins and in capillaries is less than the blood pressure is felt in the arteries.

Vein: The vein carries blood absorbing a carbon-di-oxide from the different parts of the body and bring back to the heart. Like the arteries the veins are also spread throughout the body. The veins generally start from the capillaries and gradually come to veins, subveins and afterwards it turns into superior venacova. The superior vanacova collects blood from the upper parts and the inferior venacova does it from the lower parts of the body and enters in the south ventricle.

The veins of the upper and lower parts of the body have many valves. As a result the blood flows to the heart uninterruptedly. It is because of these valves, the blood can not flow in other direction.

<table>
<thead>
<tr>
<th>Difference between veins and artery</th>
<th>Artery</th>
<th>Vein</th>
</tr>
</thead>
<tbody>
<tr>
<td>The beat of the blood vessels</td>
<td>present</td>
<td>not present</td>
</tr>
<tr>
<td>The blood speed and its origin</td>
<td>from heart to the body</td>
<td>from body to the heart.</td>
</tr>
<tr>
<td>Colour of blood</td>
<td>red</td>
<td>blackish red</td>
</tr>
<tr>
<td>Valve</td>
<td>not present</td>
<td>present</td>
</tr>
<tr>
<td>The middle layer of the wall</td>
<td>thick</td>
<td>thin</td>
</tr>
<tr>
<td>If the vein is cut</td>
<td>blood pushes out generally it carries oxygenous blood.</td>
<td>blood rolls down. It carries blood with CO₂.</td>
</tr>
</tbody>
</table>

In the picture, vein and artery have been shown.
Capillaries

The artery veins are all connected with the capillaries that is why the blood moves in a circular way around the blood vessels. Capillaries exist around the cells. The thin layers of epithelial cells form walls of capillaries. So; the plasma of the blood can come out by breaking through the walls of the vessels. The plasma is called lasika or lymph. In the procedure of transportation the food and oxygen come out and penetrates the thin layer of the wall of the cells. And again in the same procedure, carbon-dioxide, urea and other waste materials are eliminated from the capillaries. But most of the lymphatic materials of the cells come back to the heart through the lymph and lactial vessels.
Lymphatic system.

The lymphatic system also helps in the circulation of blood. The lymphatic system is consisted of lymph vessels, lactial and lymph glands. The wall of the lymph lands are made of thin epithelial cells. In lymph vessels, there are many lymph glands [F. 8.5].

much of any pressure the secretion from lymph nodes occurs. Because, the continuous lymph juice from capillaries enters by piercing through the walls of lymph vessels. It comes off from the cells piercing the walls of the lymphatic glands and enters in. There are valves in the lymphs like veins. Due to the contracting pressure made in the heart, the blood of the veins goes to the heart and during this course of blood flow, the valves in the veins remain closed.

Similarly due to contracting pressure of muscles the lymphatic fluid goes to the heart. If any germ enters the body it is trapped into the lymphatic fluid and is destroyed by the fagocites and antibodies. In order to perform these functions the lymphatic glands suffer from the attack of the germs of diseases.

Blood:

Blood is a kind of liquid substance which flows in the body through arteries and veins. Blood is circulated in the whole body. Its colour is deep red. In a body of grown-up adult there exists approximately 5 (five) litres of blood. It is salty in taste. The temperature of blood in human body is 100 degree (fahrenheit). In human body two kinds of blood is found.

a. The blood in which oxygen is carried in a big volume is red to look at.

b. The blood in which the quantity of oxygen is less and the quantity of carbon-di-oxide is more, is blakish red to see.
Components of blood:
The components of blood are of two kinds-
a. Plasma (b) Blood corpuscles.

A. Plasma: The liquid portion of blood is called the plasma. In the blood plasma the blood corpuscles remain floating. In the plasma the quantity of water is 90-92% Besides glucose, amino acid, glycerol, protein (as-albumin, fibrinogen) mineral salts, hormon, vitamin, urea, antibody, oxygen, carbohydrate and other waste substances are found.

B. The blood corpuscles

In human body, there are three kinds of blood corpuscles found (Fig. 8.6)

For example
1. White blood corpuscles - WBC.
2. Red blood corpuscles - RBC
3. Platelets (it helps to clot the blood)

1. White corpuscles: The white corpuscles are big in size and few in number than the red corpuscles. They have no colour. But they have nucleus. The white corpuscles can change its size and can move from place to place. The white corpuscles work as guards to the body. They penetrate the capillaries and swallow the germs of diseases from outside. This process is named as fagcytosis. The dead white corpuscles turn into pus.

2. Red corpuscles: These are smaller in size and round shaped like rings. These are too small and cannot be seen with eyes except with the help of microscope. In a grown up man around 50 laks of red corpuscles are present in one cubic millemetre of blood. But in case of women the number of red corpuscles is less in comparison with the male. In a new born baby its number is a little more. In red corpuscles a substance known as hemoglobin remains present and for this reason, the colour of blood is red.

Red corpuscles are generally produced in the red bone marrow and spleen. They live for 120 days only. They are destroyed in the spleen and other parts of the body during old age. From the bone marrow, the new red corpuscles replenish the dead ones. In this way approximately one percent of the red corpuscles grows and is destroyed daily in a living body.
**The function of the red corpuscles** : The main function of the red corpuscles is done with the help of hemoglobin. They receive oxygen from the lungs and carry it to the different parts of the body. It brings back the carbon dioxide produced in the tissue to the lungs.

In 100 millimeter of blood the quantity of hemoglobin is 14 grams. It is mainly composed of protein and iron. In order to maintain a healthy body, it is necessary to have adequate quantity of hemoglobin in the blood.

**The platelets** : It is a colourless substance. In size, it is far smaller than the red and white corpuscles. They stay in the blood as a cluster and look like pea-shaped thing. The number of platelets is 250,000 per cubic millimetre. They are produced in red bone marrow. It helps in the clotting of blood and as a result the oozing of blood is stopped.

**Blood group**:

Depending on some characteristics blood can be divided into four groups A, B, AB and O. A special kind of substance is produced by the protein and polysaccharide in certain class of red blood corpuscles. This substance helps to decide the blood group.

**Heart disease and high blood pressure**

It is a big problem in the present day world. The death rate is very high caused by this disease. Generally the aged persons are attacked with this disease.

During circulation of blood the side pressure, caused in the blood vessels is called blood pressure. In the nearest artery of the heart, this pressure 'is the highest and the pressure in the distance arteries is gradually felt less.

The pressure is felt further less in the vein. Due to the blood pressure, the circulation continues.

The arterial blood pressure has two phases -

(i) Sistolic and (2) diastolic pressure. The difference between these two is called pulse pressure.

The general systolic blood pressure of the human body is 110-14 mm. in the mercury, and the diastolic pressure on the mercury is 60-90 mm. The instrument for measuring the blood pressure is called sphygmo manometer.
Due to existence of excess fat in the body and high blood pressure or other reasons the blood flow is obstructed and then the function of the heart does not work properly. This condition is called the heart disease. If you want to protect your body from high blood pressure and heart diseases take balanced diet and avoid fat in your daily food items.

The habit of taking proper diet should be followed from the age of 35-40-years. You should lead a tension free life as far as possible. Regular light exercises and walking habit should be continued. Avoid smoking and get the habit of timely sleeping. While taking food additional salt should not be eaten. If the above mentioned rules in daily life are adhered to, then this disease will remain under control. Besides the blood pressure should be checked form time to time the rate of colosteral in the blood should also be checked.

**Respiratory system**:

The organs through which the respiration is taken are called respiratory system. At first, we should know what is breathing? Every cell of the body takes oxygen and leaves carbon-di-oxide. The system of give and take is called inhaling and exhaling. The pure oxygen after mixing with the carbon hydrogen inside the tissues, performs some complex functions. The carbon is mixed with oxygen and then goes out as carbon-di-oxide which is poisonous.

For saving the life of living beings this process of breathing is essential because the living being need the intake of oxygen and removal of carbon-di-oxide for survival. In the human body, respiration is done through special respiratory system (F. 8.7).

Respiration is constituted with the following organs:

1. Nasal tril
2. Pharynx
3. Larynx
4. Trachea
5. Bronchus.
1. **The nostril**: This is spread from the nose up to the pharynx. It is divided in two parts by a thin wall. Both the parts are covered with the blood circulating membrane. The front part of it is covered with hair, the floating dust and germs of diseases get stuck with the hair and the membrane. As a result, pure air reaches the lungs. Besides, while passing through the nostril, the air gets some moistures and hot. As a result the cool air cannot do any harm. There are veins and arteries and a pair of nerves in the wall. This nerve is called factory nerve. We smell with the help of this nerve and can sense the smell of other things. For this function of the nostril, it is also called the smelling organ.

2. **Pharynx**: The part behind the mouth cavity, is called the pharynx. In each side of the pharynx, there are two glands. These are called tonsils. In the upper part of the pharynx and in the back side of palate, there is a small tongue like thing which is fleshy. This is called uvula or the epiglottis (F. 8.8). At the time of swallowing food, it closes itself automatically and the back of the nostril remains closed. As a result, no food stuff can come out through the nostril. There are two hearing tube or eustasion tube at the two sides of pharynx. It connects the pharynx with the middle for which the outside air of the ear keeps balance with inner air. If due to problems in the nostril and pharynx, the eustasion tube gets blocked and as a result, the air pressure of the middle ear decreases then the ear becomes choked and we get short of hearing.

3. **Larynx**: The larynx is placed between the trachea and middle part of tongue. In these two parts, there are two thin muscles. This is known as vocal cord. Its shivering creates voice. There is a tongue like cover in the upper part of the larynx, this is called sub-tongue.
During breathing this screen remains open. At the time of eating the larynx remains losed for which the food stuff enters, directly the alimentary canal. If due to unmindfulness, any food' stuff enters in the larynx and breathing stops the coughing starts' at once and this, throws the food stuff out of the larynx (F-8.9)

4. **Trachea the wind pipe**:

This is situated in front of the aesophagus. It has entered into the chest from the part of the larynx. The length of trachea is 10.16 cm (4"). Its wall is made of cartilages. The cartilages are round in shape. The back part of it is incomplete. It keeps the shape of pipe and keeps the trachea always open. The trachea is covered with thin membrane. The membranes are contained with a pillar like cells. The very thin hair like sillias creates shivering and current in the watery layer of the trachea the currents goes up. As a result the dust particles, mucases etc. are thrown out from trachea.

**Bronchus**: This has been divided into two branches right and left after coming from the lower part of the trachea it goes upto the lungs. One branch has entered in the left lung and the other in the right lung. These branches are called south and left coelom branch. After entering into the lung, it has been divided into innumerable sub-branches. These are called bronchiole. Of these branches and sub branches cell and some balloon like ditch are seen: These are called alveoli. The innumerable alveoli together has formed the lungs.

**Respiration**:

The respiration is done through integration of different functions. The system through which lungs take oxygen is called inspiration or inhalation. The letting out of the air along with carbon-di-oxide from the lungs is called expiration or exhalation. During inspiration, the breathing centre in the media is excited by carbon-di-oxide. This excitement goes through nerve to diaphragm and comes to the, muscles of the throat. Thus muscles, are particularly involved in breathing activities. The contraction of these muscles chest cavity expanded downward and forward. This action results in decreasing the pressure of the air in the pleura which covers the lungs. When, the lungs remain without pressure, they expand and its internal air pressure lessens
somewhat from the outer air pressure. As a result oxygen enters in the capillaries and the
veinous blood throws carbon-di-oxide inside lungs.

After few seconds of inhalation the exhalation starts. At this time muscles connected with
inhalation for example diaphragm, chest cavity become slow.

For this slowness inhalation becomes possible. In this position the' diaphragm goes
upward and the chest cavity comes down. The size 4 the chest cavity thus comes to
normal. If the pressure in the pleura incrases the lungs shrink and the internal pressure of
the air increases, more than the outer air pressure. As a result carbon -di-oxide air vapour
comes out from the lungs through the nostril.

**Rate of Blood in the Respiration :**

The main function of respiration is to supply oxygen with the blood stream and excrete
carbon--di-oxide from the blood. With this end in view, the exchanges of air are done in
the lungs and the cells of the body. The taking and releasing process of air in the lungs
are called external breathing and while the same process is done in the cells it is called
internal breathing.

Oxygen received in the lungs after being surrounded by alveoli, enters the capillaries and
the red blood corpuscles mixes up with hemoglobin. This mixed substance is called oxy
hemoglobin. In this way, the purified blood is supplied through the artery to the body and
comes to tissues. In the tissues the oxygen is separated from oxy-hemoglobin and
penetrates the thin layer of capillaries and mixes with the fluid of the tissue. Then the
oxygen of this tissue fluid is carried to the cells. The carbohydrates of the cells along with
the oxygen performs the function of digestion. In such oxidization in the cells, carbon-di-
oxide, water and heat is produced penetrates the walls of the capillaries body and enters
the blood. Generally carbon -di-oxide, sodium-bi-carbonate and some physical substance
remain melted in the blood and are brought to the lungs. In this way, the 'blood is purified
in the tissue and through the veins it goes1 back to he heart. The veins lose its oxygen
and, becomes blue in colour and hot. Besides carrying too much carbon-di-oxide and
vapour, it brings many organic materials.

**Lungs :**

Lungs are placed in both the sides of chest cavity. It is soft like a sponge. There are three
lobes in the right lung and two lobes in the left lung. The lung is covered with a two
dfolded pleura. The one part of the membrane is attached with chest cavity and the other
part with the lungs. In lungs, there are
innumerable number of alvali, very small corbonets, and arteries. The air sacks remain full of air all the time and these exist in a clustared form when the air enters into the alvalic, it is inflated like a balloon and after becomes flat when the air goes out. The walls of the air cells and the capillaries are so thin that air can pass easily through them. The veins of blood from capillaries leave carbond-di-oxide inside lungs and takes oxygen from the air of the lungs. This is done through transportation (F. 8.10)

**General diseases of the lungs:**

Lung is an important organ of human body. Due to the attack of different kinds of germs of diseases and abnormal situation, the lungs can be sick. Some known diseases of the lungs are stated below:

1. **Pneumonia**: This disease spread in a cold unhealthy environment. Coughing, breathing difficulties, pain in chest along with fever are the symptoms of the disease. If treatment is given in time, the disease can be cured.

2. **Tuberculosis**: Unhygienic environment, lack of nutrition and attack of the germs of tuberculosis cause this disease: The germs of this serious like pneumonia also attack a weak body. When attacked, the symptoms are not seen early. When the germs defeat the disease preventive while blood corpuscles only then the symptom of the disease show up. The weight of the body starts decreasing and the body becomes tired. At the primary stage, coughing, low fever and sweating at night occur, Blood is seen with this coughing. If the disease is diagnosed in its primary stage can be cured by taking
The Human Body

proper medicine but the treatment takes- long time and in order to control it, the doctors advice should be followed.

Tuberculosis is a contagious disease. That is why the patient is to be sent to the hospital or to a place where open air is available. The used things of the patient should be separated and his spits are to be buried in the ground. Nutritious food and proper medical care should be provided to the patient. The children should be given B. C. G. Vaccine and its greatest prevention measure for the children. Even the B. C. G. Vaccine can be given to the people of all age group.

**The role of vaccination in controlling in tuberculosis diseases.**

The role of vaccine in the control of tuberculosis is great. The name of this vaccine is B. C. G. This vaccine is given once in a life time. In any age, this vaccine can be given. But it is better to give the vaccine in the childhood. Now it is being given to all the babies. After giving the vaccine, if the tuberculosis germs enter the body even then he will not be attacked with the disease: Because the vaccine creates preventive power inside the body. This is called antibody. This germ destroying power destroys the tuberculosis germs name coccus. In this way if all the people of this country are vaccinated, it is possible to wipe out the disease for good from the country.

3. **The cancer of lungs** : If some of the cells of the lungs after being excited they start dividing and create hindrance to the respiratory track and blocks the natural activities. The disease can occur due to smoking and unhealthy environment. The disease can be detected through x-ray.

4. **Asthma** : The disease of asthma is caused due to dust and some particular food. The walls of the breathing track are shrieked and the air tissues do no get enough oxygen and thus causes difficulties in breathing track. Medicine helps to get temporary relief but it cannot be cured completely.

5. **Pleurisy** : Each lungs is covered with a membrane named plura. This membrane is attacked and in the cavity of plura, some lymphatic fluid is deposited. Thus results high pain in the chest and creates breathing difficulties. The pus thus formed in restricts the movement of the lungs. In pleurisy disease, fever is present and this disease can be cured by applying penicilin.

6. **Bronchitis** : The burning of the inside membrane of the trachea is the cause of this disease. Fever,
low coughing, and breathing difficulties are the symptomps of this disease. Living in a damp room having cold or dusty air spread this disease. The patient becomes very weak due to this disease.

**Bad effect of smoking and addiction of drugs:**

**Bad effects of smoking:** Many persons have the habit of smoking in our country. In smoking, a kind of poison named Nicotin enters our body through the throat and nose and then the poisonous effect of smoking can be observed in our body. Besides nicotine, monoxide and pyridine are also found in it. The first one destroys the red blood corpuscles and second one blackens our teeth. This one causes damage to our lungs, heart etc. and decreases the energy of our body thereby resulting defect in our eye sight, coughing, bronchitis, cancer are cused by this dangerous disease. Smoking sometimes creates nausea. The smoking creates the habit of spitting here and there, which makes the homestead dirty. This smoking habit of the students and players is very harmful and dangerous. The popular saying in this respect is, "Smoking is just drinking poison. "So everybody should give up the habit of smoking.

**The bad effects of drugs:**

The things which cause intoxication, called drugs. Liqueur, heroin, pathedrin marizuana. cha'ras etc. are termed as drugs. For the natural growth of the body and energy, stimulation and drugs are not at- all required. In any healthy environment, adequate balance food gives the body its required 'rate of growth and thereby increases the energy. Even a little quantity of drinking makes the nerve tissues excited and it is not, though makes the body active for the time being. But continuous drinking makes the nerve cells gradually decay and if loses energy and the systems of the body do not function properly that is why a drunken person loses the balance of his body and at the time of his movement he starts tilling his body. He involves himself in many bad deeds in the society. Everyone looks at him with harmful eyes. The wine and country made liquer when taken overdoses make a person drunk. The drinking of liquor creates dyspepsia, loss of appetite, etc.

In the present day society it is being seen that the youths are being addicted with heroin, pathedrin type of drug. Many boys and girls due to lack of peace in their home society mixing with the bad friends, become disappointed and they get addicted to heroin and pathedrin. Once they get addicted to it, it is very hard to keep them away
from it. Besides, they stole money, ornaments and other valuables and sold these things to the black market for the purchase of drugs. As a result of taking these drugs, the nerve cells become infective and the body loses weight. The addicted fellow does not feel interest in eating and becomes irritating. In order to save the younger generation from this evil, the patient should be kept in a good environment and efforts should be taken to remove his mental anxiety. At the same time, the counseling from experienced doctor should be provided to the patient and lie should also be admitted in hospital for good treatment.

**Nervous system:**

The different kinds of system work in the body according to respective field of action. But there is no co-ordination amongst the works of these different system. The body can not work. The nervous system helps to make coordination between all the organs of the body and leads it to the right direction. In one work the nervous system acts as the pilot of the body. For this reason, nervous system has been given the top priority over other systems of the body. Our body works due to the internal and external stimulus.

The external stimuli are light, smell, taste and touch (press, pain, heat). These stimuli work through the sensory nerves of nose, mouth, eyes, ears, tongue and skin. Internal stimuli are the pressure, heat and different kinds of chemical materials. These stimulate the motor nerves which go to the brain. Then the brain takes decision and asks to act as per its decision.

Besides nervous system a very important chemical substance called hormone functions as the messenger of our body.

![Diagram of nervous system coordination](image.png)

Sensory system: The sensory nerves are ended with the five senses.
Five senses

A. Eye- Eye is the sense of seeing things. Every thing of the world good or bad, beautiful or ugly, small or big is seen and felt by the eyes.

B. Ear- Ear is the listening sense. It makes the balance in human being. The word, sounds, weeping, laughing; etc are co-ordinated through ear.

C. Nose- Nose is known as the smelling sense. We feel the smell of anything. The inside of the nose is covered with a membrane. This membrane is full with innumerable-smelling cells. When we catch cold, the smelling sense decreases and the nerve cannot work properly. So we cannot feel the taste of food.

D. Tongue- With the help of tongue we feel the taste of food staff. Besides the middle part, there are three types of membrane in the front, back and the sides of the tongue. In these membranes, the glands of taste are located and taste the food staff whether hot, cold, sour, sweet and salty etc.

F. Skin- There are nerve cells when anything comes in contact with the skin the cells of the sense are stimulated. The stimulus goes to the brain through the sensory nerves and as result we feel the touch, cold, hot-etc.

The central coordinating system

The central nervous system keeps coordination with the environmental surroundings and directs the external works. For example to go to school, take a bath, play games etc. require the movements of times. In order to do these things it is required to move the limbs and organs of the body.

Accordingly, we read write, think, feel pain when we get hurt etc. The central nervous system can be divided into three parts. (F) 8.11 (A) The brain (B) Spinal cord (C) Peripheral nerve.
The above mentioned parts are connected with nerves. The nerves are like thin long thread and fibrous. One part of it is connected with the nerves cell and the other part with fibre. Through these nerve fibres of the nerve centres, information is sent to nerve cells and the messages are received in the nerve centres through these sensory nerves. Nerve centres can be compared with the telegraph office, and the nerve fibres can be said as telegraphic wire.

Automatic nervous system: The internal organs like heart, stomach, intestine, pancreas, liver, kidney, etc are run by nerve which are out of our control. The system is known as automatic nervous system. It has centre and fibre also. The centre of this fibre is the spinal cord, cerebeling and stair spinal cord. There are two kinds of nerves (1) sympathetic nerve and (2) para sympathetic nerve.

They are opposite to each other in nature what ever one does, the other does the opposite. For example

<table>
<thead>
<tr>
<th>Organ</th>
<th>Sympathetic</th>
<th>Para sympathetic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart</td>
<td>Increases speed</td>
<td>Decreases speed.</td>
</tr>
<tr>
<td>Bronchus</td>
<td>Inflates</td>
<td>Deflates</td>
</tr>
<tr>
<td>Blood vein</td>
<td>Contracts</td>
<td>Expands</td>
</tr>
<tr>
<td>Pupil</td>
<td>Expands</td>
<td>Contracts</td>
</tr>
<tr>
<td>Digesting glands</td>
<td>Deminishes blood</td>
<td>Increases blood.</td>
</tr>
<tr>
<td>speed of stomach and intestine</td>
<td>Deminishes</td>
<td>Increases</td>
</tr>
</tbody>
</table>

What is going on inside the body is reached the nerve centre through the stimulus which is driven by automatic nervous system. The nerve centre sends messages to the organs through the sympathetic and para sympathetic nerves. This makes the involuntary muscles and joints works.

**EXERCISES**

1. **Fill in the blanks.**

While smoking tabaco, a substance called ............... enters .............. besides nicotin ............... and ................. are there in it. The first one .................the red blood corpuscles and the second ................. makes it black. There are ................. lobes in the left lungs.
3. **Answer the following questions in brief**
   a. How many chambers are there in a heart
   b. What are the functions of a lung?
   d. What is the function of hemoglobin?
   e. What is inhalation and exhalation?
   f. What is the name of the vaccine that prevents tuberculosis?

4. **Describe the following:**
   a. Write down the names of different parts of the blood circulatory system.
   b. Describe the construction of heart.
   c. What type of blood does the vein and artery carry?
   d. How many types of blood corpuscles are there in a human body and what are those?
   e. How many groups are there in blood. What are those?
   f. How many common diseases are there in the lungs and what are those?
   g. How many parts are there in the central nervous system and what are those?

5. **Draw a picture of blood circulatory system.**