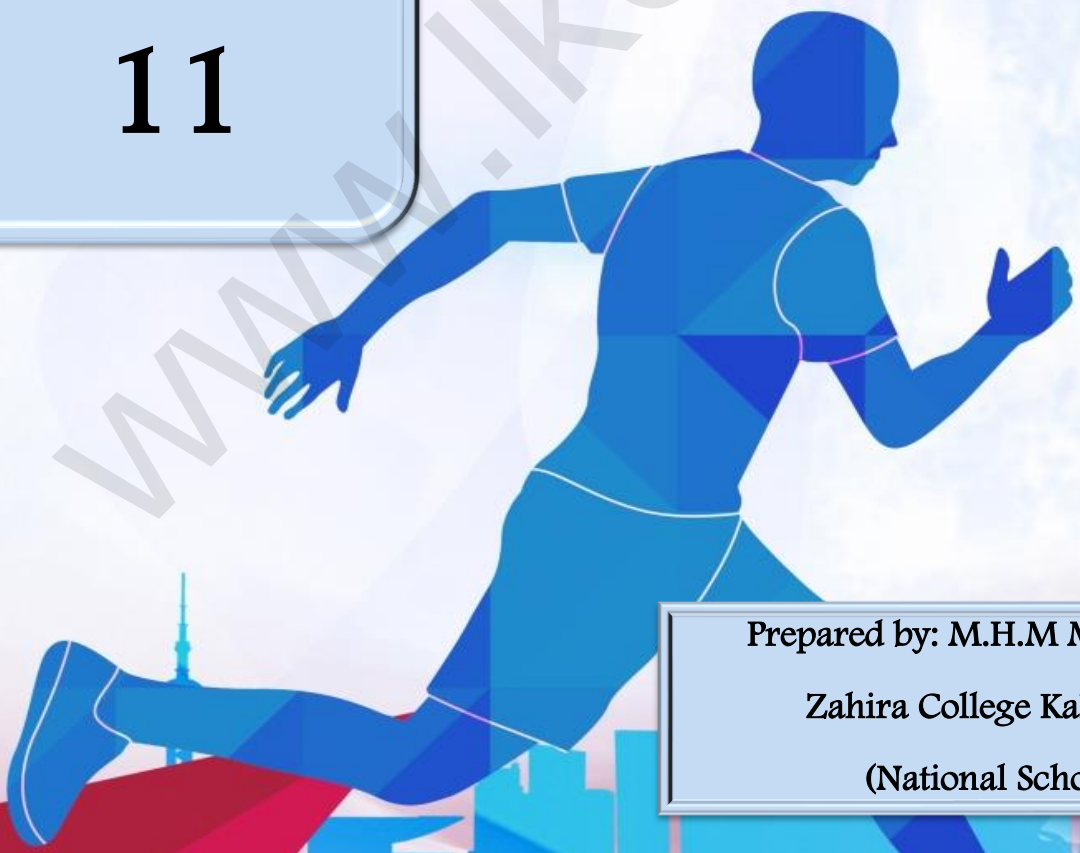
HEALTH & PHYSICAL EDUCATION

SELF-STUDY BOOK

GRADE 11



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01 Let us build a healthy society

01. What are the main objectives of the School health programmes in Sri Lanka?

- ✓ to obtain the maximum benefit from academic opportunities to improve the health status of school children
- ✓ develop skills in personal, family and community health promotion.

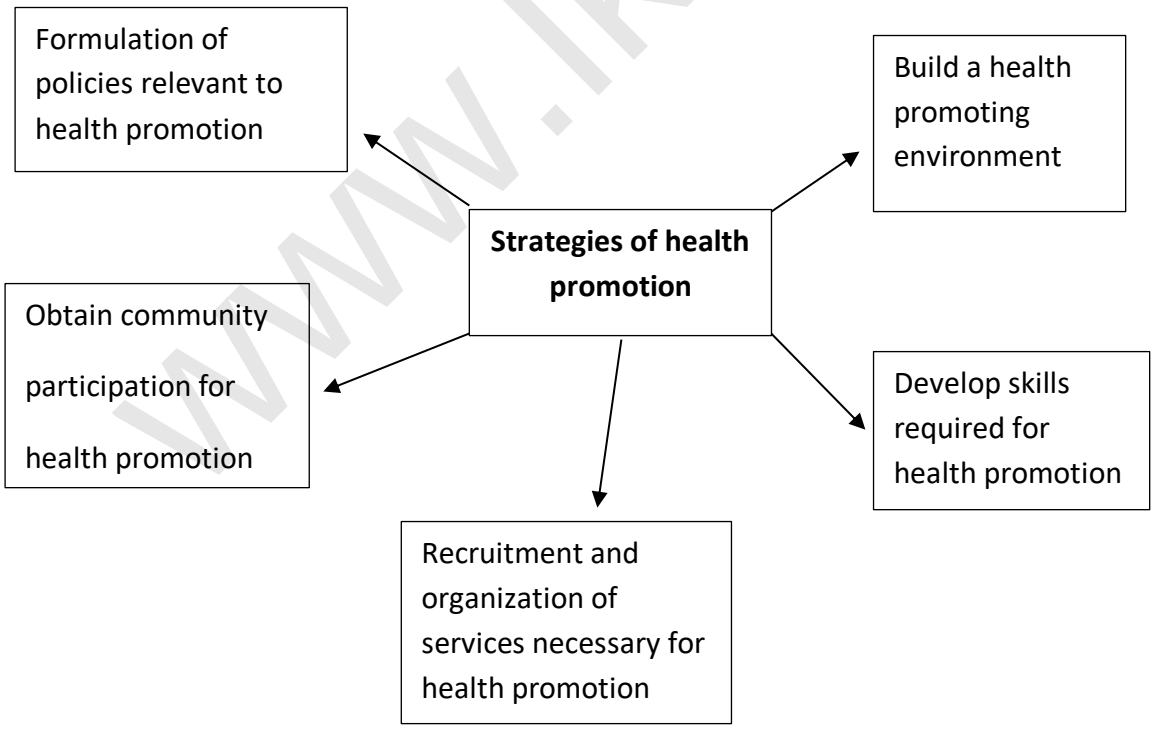
02. Write The school health promotion programmes.

- ✓ build a healthy environment within schools
- ✓ carry out immunization programmes
- ✓ detect unidentified illnesses and impart health education to families.

03. Write the definition of health promotion according to the World Health Organization (WHO)?

- ✓ Health promotion is the process of enabling people to increase control over, and to improve their health. It moves beyond a focus on individual behaviour towards a wide range of social and environmental interventions.

04. Write the Strategies of Health promotion.



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05. Write the Centres of health promotion?

- ✓ Our home
- ✓ the school
- ✓ village
- ✓ city
- ✓ hospital and work places

06. Write the Actions to develop school health promotion?

- ✓ Formulation of health promotion policies
- ✓ Building an environment favourable for health promotion
- ✓ Community participation in health promotion
- ✓ Developing skills required for health promotion
- ✓ Provision of required services for health promotion

07. Write the factors that should be considered when Formulating of health promotion Policies?

- ✓ The development of pro health policies can create an environment, favourable to the promotion of health within the entire school system.
- ✓ In formulating a health policy, the first step is to identify the current health issues the school is faced with and means of eliminating or reducing these factors.
- ✓ Once the policy is formulated the laws and circulars required to implement the policy are made.

08. Write Some school health promotion policies?

- ✓ Students should be provided with adequate knowledge on health
- ✓ Clean drinking water should be made available within schools
- ✓ Schools must have hygienic canteens
- ✓ The school environment should be accident free
- ✓ Students who are aged 12 years and below, should be provided with school dental services

09. Write some environments that should be impacted on health promotion?

- ✓ Physical environment
- ✓ Mental environment
- ✓ Social environment



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10. Write some qualities favourable for physical environment?

- ✓ Provision of clean drinking water
- ✓ Provision of adequate toilet facilities - at least one toilet per 50 students
- ✓ Building class rooms with adequate light and ventilation
- ✓ School gardening
- ✓ Accident and danger free environment
- ✓ Provision of adequate facilities for sports



11. Write some qualities favourable for Mental environment?

- ✓ Students should not be insulted
- ✓ There should not be any form of abuse
- ✓ All students should be treated equally
- ✓ Counselling services should be established so that students can discuss their difficulties
- ✓ The school environment should be free of stress

12. Write some qualities favourable for Social environment?

- ✓ Students should not be insulted
- ✓ There should not be any form of abuse
- ✓ All students should be treated equally
- ✓ Counselling services should be established so that students can discuss their difficulties
- ✓ The school environment should be free of stress

13. Write some steps for Community participation in health promotion?

- ✓ dengue eradication campaign
- ✓ Drug trafficking
- ✓ Sharamadana campaign for prepare school ground



14. Write some skills required for health promotion?

- ✓ Good decision making
- ✓ Effective communication
- ✓ consuming healthy meals
- ✓ following an active lifestyle
- ✓ being able to face and manage life stresses successfully

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15. Write some actions for developing skills required for health promotions?



- ✓ educational workshops
- ✓ group competitions
- ✓ debates
- ✓ Sports competitions

16. What are the services Provision of required services for health promotion?

- ✓ The Public Health Inspector (PHI) carries out an annual School Sanitation Survey
- ✓ School dental camp
- ✓ Providing iron and folic acid tablet
- ✓ Correcting any shortcomings.

17. Write some Criteria for school health promotion evaluation?

- ✓ The school accepting the need to follow established health policies
- ✓ Recognition of health policies that can be carried out by the school
- ✓ Identifying methods of carrying out these health policies

18. Mention some Laws pertaining to school health promotion in Sri Lanka?

1. Compulsory health education from grade 6 to grade 9 (according to the syllabus)

2. Compulsory provision of health facilities



- ➢ **Facts regarding provision of health facilities**
- ✓ Ensure that the well is protected
- ✓ Provide one toilet per 50 students
- ✓ Create an accident-free school environment
- ✓ Carry out dengue eradication programmes

3. Prohibit the consumption or sale of unhealthy food

4. Prohibit the possession or use of cigarettes, alcohol and drugs

19. What you meant by Quality of life?

- ✓ Quality of life is the general well-being of a person. Improved quality of life leads to increase in longevity, reduction in disease and infirmity and a happy and active life.



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20. Write some Factors that affect the quality of life?

- ✓ Health status
- ✓ Economic status
- ✓ A clean environment
- ✓ Opportunity to receive an education
- ✓ Opportunity to engage in suitable employment
- ✓ A good family life

21. What you meant by total health?

- ✓ total health is not merely the absence of disease or infirmity, but the presence of physical, mental, social and spiritual well-being.

22. Write some Features of a community with a high quality of life?

- ✓ Efficiency in doing work
- ✓ Increased life expectancy (Sri Lankan males 73 years; females 76 years)
- ✓ Reduced prevalence of non-communicable diseases
- ✓ Following a healthy diet
- ✓ Acting according to principles
- ✓ Improving mental well-being / being happy
- ✓ Leading a simple lifestyle
- ✓ Literacy

23. Write some Criteria used to measure an individual's health status?

- ✓ Body Mass Index (BMI)
- ✓ Waist circumference
- ✓ Physical fitness
- ✓ Memory
- ✓ Resilience towards illness
- ✓ Being active
- ✓ Pleasant appearance
- ✓ Hygiene and good habits





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02 Let us identify stages in life after childhood

01. Write the stages in childhood.

Prenatal period	period in mother's womb
Neonatal period	from birth to 28 days
Infancy	from birth to one year
Early childhood	from one year to five years
Late childhood	from six years to 10 years

02. Write the stages after childhood.

Adolescence	10- 19 years
Youth	20 - 39 years
Middle age	40 - 59 years
Old age	above 59 years

Adolescence

03. What is Adolescence?



- ✓ Adolescence- stage between 10 and 19 years

04. Write some Physical changes during adolescence?

- ✓ Rapid physical growth
- ✓ Emergence of secondary sexual characteristics
- ✓ Maturation of reproductive organs

05. Write some Mental changes during adolescence?

- ✓ Quick to respond to emotions such as anger and happiness
- ✓ Creative
- ✓ Likes to be independent

06. Write some Social changes during adolescence?

- ✓ Likes to socialize
- ✓ Interest in the opposite sex
- ✓ Enjoy the company of peers

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07. Write the Needs during adolescence?



- ✓ **Physical needs**
  - ➢ Nutritional needs
  - ➢ Exercise
  - ➢ Rest
- ✓ **Mental needs**
  - ➢ Love
  - ➢ Security
  - ➢ Rest
  - ➢ Personality development
- ✓ **Social needs**
  - ➢ Education
  - ➢ Socializing with peers
- ✓ **Spiritual needs**
  - ➢ Meditation
  - ➢ Engaging in religious practices together with the parents

08. Mention some Problems encountered when providing needs of adolescents?



- ✓ Deterioration in financial status
- ✓ Inadequate rest
- ✓ Neglect
- ✓ Get misled by others, into wrongdoing
- ✓ Inappropriate relationships
- ✓ Not getting adequate sexual education
- ✓ Inability to balance education and other activities

09. Write some Steps we can follow to make adolescence a success?

- ✓ Engage in educational activities
- ✓ Engage in extra curricular activities
- ✓ Good time management
- ✓ Listen to teachers, parents and trustful elders' advice
- ✓ Associate with good friends
- ✓ Develop the abilities of being creative, making good decisions, rational thinking and good communication.

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Youth



01. What is Youth?

- ✓ The period between 20 to 39 years of age

02. Write the Needs of youth?

- ✓ **Physical needs**
  - ➢ Nutrition
  - ➢ Exercise
  - ➢ Rest
  - ➢ Sexual Needs
- ✓ **Psychological needs**
  - ➢ Rest
  - ➢ Love and marriage
- ✓ **Social needs**
  - ➢ Higher education
  - ➢ Employment
  - ➢ Housing and possessions
- ✓ **Spiritual needs**
  - ➢ engage in some form of religious activities to fulfil your spiritual needs. Practice a religion you believe in.



03. Write some Challenges and issues faced by youth?

- ✓ Deterioration in economic status
- ✓ Not getting suitable employment
- ✓ Not having suitable educational qualifications
- ✓ Restlessness and competitiveness

04. Write some Steps to overcome problems?

- ✓ Achieve a high level of education
- ✓ Obtain necessary qualifications for suitable employment
- ✓ Develop skills to get an additional income
- ✓ Have an aim in life
- ✓ Good time management
- ✓ Lead a responsible life with understanding

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Middle age



01. What is Middle age?

- ✓ period between 40 to 59 years

02. Write the Needs during middle age?

- ✓ **Physical needs**
  - ➢ Nutrition
  - ➢ Exercise
  - ➢ Rest
- ✓ **Psychological needs**
  - ➢ Love
  - ➢ Rest
- ✓ **Social needs**
  - ➢ Desire for promotions and increase in salary to be financially stable
  - ➢ Interest in children and welfare of their families
  - ➢ Interest in obtaining additional source of income
- ✓ **Spiritual needs**
  - ➢ Be more involved in religious activities and become more spiritual
  - ➢ Get more involved in charity and creative activities to reduce stress

03. Problems encountered during middle age



- ✓ Financial difficulties
- ✓ Difficulties in employment
- ✓ Unrest
- ✓ Illnesses
- ✓ Distance from children
- ✓ Sexual problems

04. Write some Ways of overcoming difficulties to lead a good middle age?

- ✓ Involve in religious activities
- ✓ Proper management of finances
- ✓ Time management
- ✓ Exercise
- ✓ Necessary treatment
- ✓ Developing good habits
- ✓ Guide children in the proper path
- ✓ Engage in children's activities in a tactful way

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Old age

01. What is Old age?

- ✓ Period after 59 years

02. Write Some physical changes occurring during this period?

- ✓ The skin gets thin, loses its elasticity, becomes dry and wrinkled.
- ✓ Hair turns Gray and becomes fine and falls.
- ✓ The head protrudes forward compared to the body. Shoulders get hunched and become more concave. Therefore, the height too is slightly reduced at this age.
- ✓ There can be problems associated with hearing, the skeletal system, taste and body functions.

03. Write the Needs during old age?



- ✓ **Physical needs**
  - ➢ Nutritional needs
  - ➢ Exercise
  - ➢ Rest
- ✓ **Psychological needs**
  - ➢ Love
  - ➢ attention
- ✓ **Social needs**
  - ➢ To stay peacefully
  - ➢ Position in communities
- ✓ **Spiritual needs**
  - ➢ Spiritual development should be sought through religion

04. Write some Issues faced when supplying needs of the elderly?

- ✓ Poor socio-economic status
- ✓ Different illnesses
- ✓ Physical weakness
- ✓ Distance from children
- ✓ Distance from society
- ✓ Difficult in controlling emotions

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05. Write the Ways of reducing problems of old age?

- ✓ Engaging in more religious activities
- ✓ Understanding the future and facing it
- ✓ Getting involved in social work or household activities
- ✓ Remain socially active by joining societies for the elderly
- ✓ Control impulses





03 Let us identify principles of biomechanics to maintain correct postures

01. What is the meaning of correct postures?

- ✓ keeping the body parts in proper positions so that minimum amount of energy is spent and no strain is caused to any part of the body during movement or remaining still.

02. What are the factors that are depending different postures from person to person?

- ✓ body weight
- ✓ body size
- ✓ age

03. Write the types of Postures?

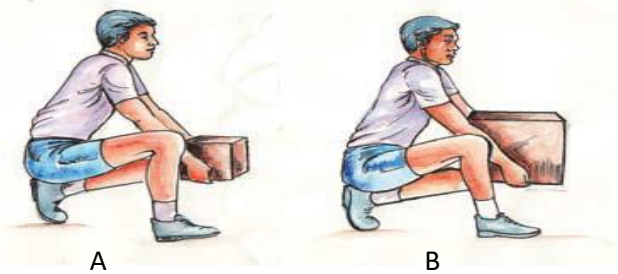
- ✓ **Static postures** - eg: sitting, standing, lying
- ✓ **Dynamic postures** - eg: running, jumping, walking

04. Write the principles of biomechanics influence these postures?

- ✓ Centre of gravity
- ✓ Balance
- ✓ Inertia
- ✓ Force
- ✓ Direction of force
- ✓ Momentum

05. What is Inertia?

- ✓ Inertia is the property of resistance of a body that remains at rest to move or the resistance of a body that is in motion to stop.
    - Let us consider two objects (A and B) that have been kept on the ground for lifting. If it is more difficult to lift object B than A, inertia of the object B, or the resistance of object B to move, is higher.



A B

    - Think of a leather ball and a tennis ball that are rolling over. You will understand that it is easier to stop the tennis ball than stopping the leather ball. This means that inertia of the leather ball is higher.

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06. What is Force? And explain the force with examples.

- ✓ An effect that causes an object which remains at rest to move or which changes the nature of motion of an object in motion is called a 'force'.
    - When a weightlifter is lifting a barbell that is on his shoulders, he pushes it upwards. When the barbell that is on the ground is lifted, the weightlifter has to pull it upwards. We see such acts of pushing and pulling in different forms in sports. Actions like pulling, pushing and lifting are results of exerting force.



    - When a sprint race is about to start, a sprinter stands still bracing his feet against the starting block. In order to break this stillness, the sprinter has to exert some influence. The influence that breaks the stillness is a force. The force that breaks the stillness of the sprinter is the force of the reaction that is produced as a result of the pressure exerted against the starting block by the sprinter.



    - When the ball is coming towards a batsman, he hits it with his bat in order to change the direction of motion of the ball by exerting some force on it. The force necessary for a sportsman for motor activities is generated by the contraction of his muscles.
    - When an athlete is throwing the shot put, he has to exert some force on it in order to make it move. Further, that force has to be exerted in the direction in which the shot put has to be thrown.

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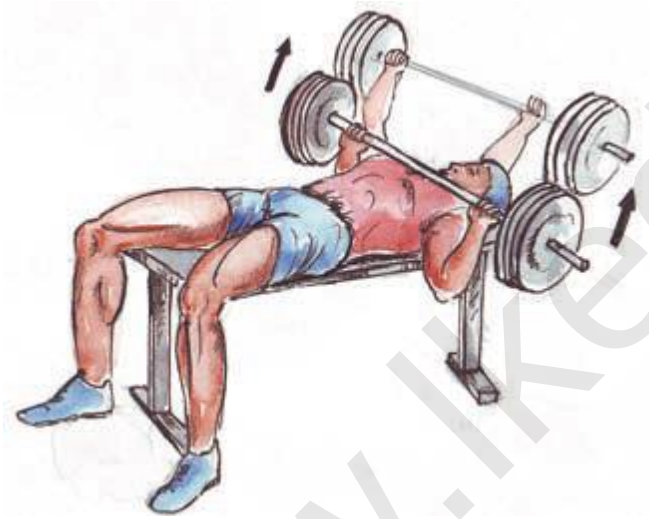
07. What is the first law of Newton?

- ✓ ''Until an unbalanced force is applied on it, bodies at rest remain stationery and bodies in motion continue to move at uniform velocities.''

08. Explain the Direction of Force.

- ✓ A force has both a magnitude and a direction. Direction of force, too, has an effect on actions. When illustrating the direction of force by drawing a line, the length of the line that is drawn to scale is reflective of the magnitude of the force and the direction in which the force is acting is indicated by the direction of an arrow head.

- ✓ A weightlifter exerts an upward force in order to lift a weight. Then that object moves in the direction in which the force is exerted.



- ✓ When an athlete jumps up, the ground exerts a force vertically upwards on the athlete because of the force that the athlete exerts on the ground. That means the force acts in the direction of the motion.

09. What is the third law of Newton?

- ✓ “For every action, there is an equal and opposite reaction.”

10. What is Momentum? Explain it.

- ✓ Momentum is a measure of how difficult it is to stop the motion of an object in motion.

- ✓ When playing ˝Elle˝ it is easy for you to catch the ball that a player throws at you, but if a heavier object is thrown at you, it would be more difficult for you to catch it.
- ✓ Further, even an object that is not so heavy would be difficult to be caught when it is moving very fast.

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- ✓ **Accordingly, it is clear that momentum depends on the mass and velocity of an object.**

momentum = mass x velocity

- ✓ The momentum of a shot put that is rolling over fast is greater than the one that is rolling over slowly. Further, the momentum of a bigger shot put that is rolling over at a certain speed is greater than that of a smaller one that is moving at the same speed.

- ✓ When a cricketer catches the ball coming towards him, he exerts some force on the ball with both his hands in order to stop the ball (Figure 3.5). Then the momentum of the ball becomes zero as its velocity becomes zero and consequently the ball stops moving.

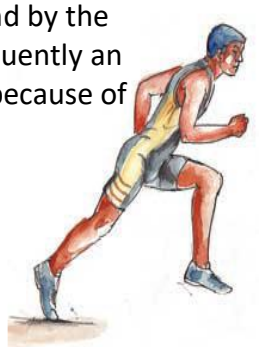
➢ Effects of principles of biomechanics on activities

Walking

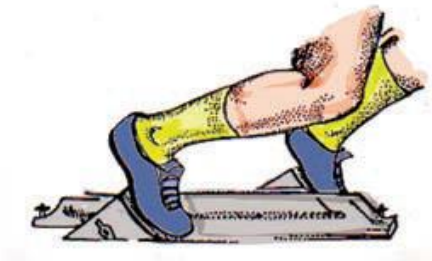
- ✓ The purpose of the activity of walking is to carry the body from one place to another. While walking, the body moves forwards or backwards and the weight of the body is shifted from foot to foot alternately. Accordingly walking is called an unceasing process in which the balance of the body is lost and regained.
- ✓ While walking, the balance of the body is maintained by moving hands and legs in opposite directions.

Running

- ✓ Running is to be pushed forwards by the force that is exerted on the ground by the feet. When running, a runner exerts some force on the ground and consequently an equal and opposite force acts on the runner. The runner moves forwards because of the reactive force that is generated.



- ✓ At the start of a 100-metre race, a sprinter remains at rest on the starting block. He exerts some force on the block using his feet. As the reactive force generated by the block in response to the athletes force, acts back on him, he is pushed forwards. If that reactive force does not act on him, he remains at rest on the block.



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11. What is the second law of Newton?

- ✓ "The acceleration of a body is directly proportional to the unbalanced force acting on it, while it is inversely proportional to its mass.''

- ✓ According to this law, acceleration of an object or an athlete can be increased by increasing the force that acts upon that object or the athlete **(a higher rate of velocity change).**
- ✓ The acceleration produced when a sprinter of a 100-metre race takes off at starting block is directly proportional to the force that he exerts on the block. If the force he exerts on the block is greater, the acceleration of taking off the block is greater, too.



Jumping and throwing

- ✓ Releasing an object to the air by throwing or shooting forward, is called a **projection** and the object that is projected is called the **projectile.**
- ✓ In sports and in physical education activities, there are various events in which objects are thrown forwards.

eg: javelin, shot put, discus

- ✓ Moreover, various pieces of sports equipment are thrown forwards using various techniques.

eg: hitting the ball, kicking the ball

- ✓ In events like long jump, high jump, triple jump and hurdles, the body of the athlete becomes the projectile.

12. What is trajectory?

- ✓ The centre of gravity of a piece of sports equipment or that of an athlete that is taken-off into the air moves along a circular path in the air. This path is called the trajectory.

- ✓ **The following figure shows the path of the centre of gravity of a long-jumper from the time he takes off until he lands.**



Figure 3.9

C = Point of taking off
B = Landing point
A-B = Distance of the jump
h = Take-off height

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13. Factors affecting the distance or the height of the jump of an athlete?

- ✓ Velocity of take-off
- ✓ Angle of take-off
- ✓ Height of take-off

- ✓ The height or the distance of the jump determined on the above factors cannot be changed by the movements that the athlete makes while he is in the air. In an event like long jump, such movements are only useful in preparing the body for a successful landing.
- ✓ The velosity of the take-off is the most important one of the above factors. In jumping events, the approach run is used to increase the take-off speed.
- ✓ The optimum take-off angle differs according to the event. The height at take-off differs according to the height of the body of the jumper and the position of the body of the jumper at the take-off.



14. Write some Factors that determine the distance of the throw?

1. velocity of release
2. angle of release
3. height of release

- ➢ **Velocity of release of the equipment**

- ✓ In a throwing event the key factor that determines the distance of the throw of the equipment is the velocity of release of that equipment. The magnitude of the force exerted on the equipment depends on the direction of force, the distance and duration of exerting the force and the speed of release of the equipment. In order to attain the maximum speed of the propellers, the thrower uses different techniques. A discus or shot-put thrower by rotating the body and a javelin thrower by running fast, gets the speed.



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- **Angle of releases of the equipment**

✓ The next important factor is the angle of release of the equipment. In throwing events, the optimum release angle differs from event to event. When a piece of equipment is released in the proper angle, it can be thrown further and when that equipment is thrown at angles greater or lesser in magnitude to the proper angle, the equipment lands at shorter distances.



- **Height of release of the equipment**

✓ In a throwing event, the height of release of the equipment is a factor that depends on the height of the athlete. An athlete who is taller than another can release the equipment at a greater height when compared to the shorter one. If all the other factors are equal, the athlete who releases the equipment at a greater height is in a slightly advantageous position.



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04 Let us play Volleyball

- ✓ Two teams of **six players** in each are needed to play volleyball. Volleyball is played in a court of **18m x 9m** which has been divided crosswise by a net into two equal halves. The team to serve first is selected through the toss of a coin between the two captains. The play starts as the player on the right back of the selected team serves the ball to the opposing team***. A team can win a point if the ball lands on the court of the opponent's side or due to an offence committed by the opposing team.***

01. What is the National game of Sri Lanka?

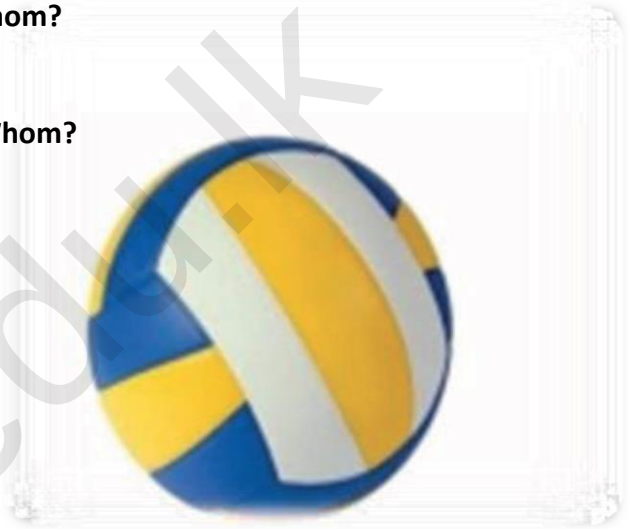
- ✓ Volleyball

02. When was Volleyball introduced in Sri Lanka? By Whom?

- ✓ 1916- Robert Walter Camack

03. When was Volleyball introduced in the World? By Whom?

- ✓ 1895- William G Morgan



04. Write the skills of Volleyball?

- ✓ Serving
- ✓ setting
- ✓ blocking
- ✓ Receiving
- ✓ Court defending
- ✓ Spiking

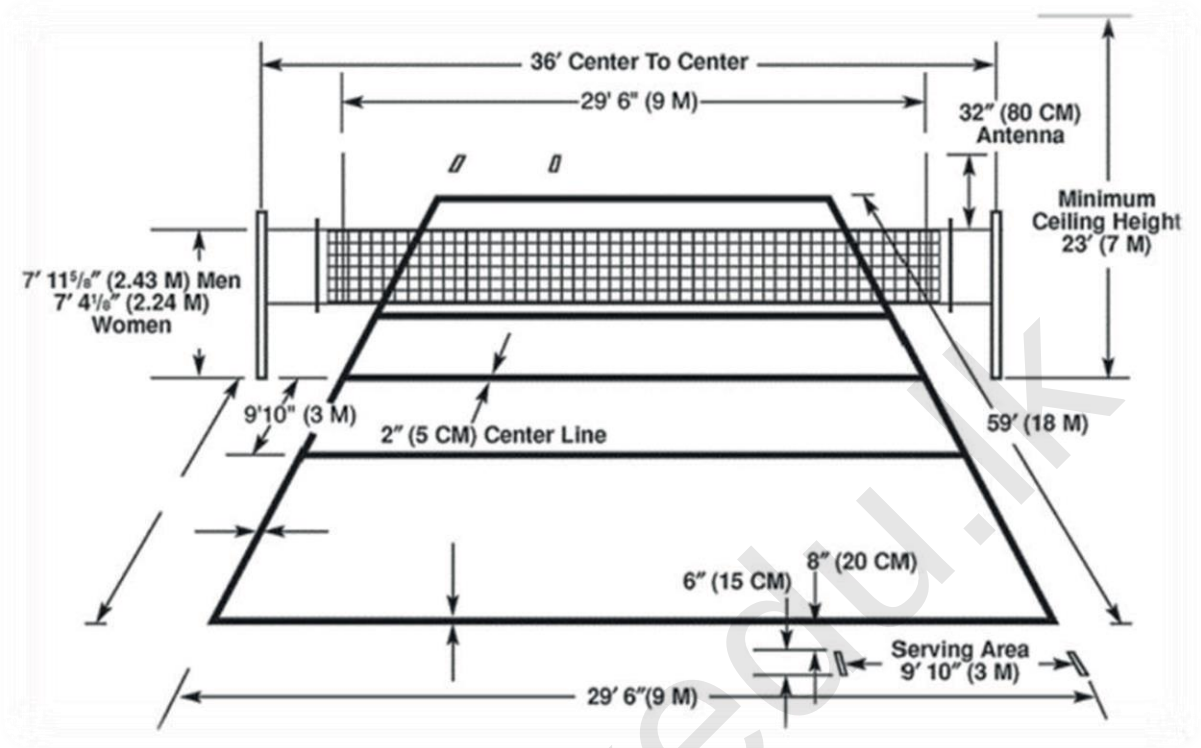
07. What is the name of the place which volleyball was started?

- ✓ Minro net



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08. Draw the volleyball with measurement.

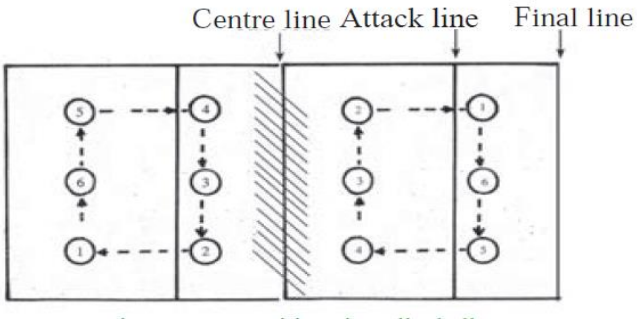


09. Explain the Positions in Volleyball.

- ✓ When playing volleyball, the players should comply with the following order of rotation of positions:
- ✓ The positions of players in volleyball are numbered. The order in which the players are positioned before the start of the play is considered the initial order of players. This order should be maintained until the end of the particular round of play.
- ✓ the order of players cannot be changed, but a substitution can be made if necessary. If there is any change in the order of players before the start of the play, it can be corrected in accordance with the line-up sheet and players should be positioned accordingly. A penalty is not given for that.

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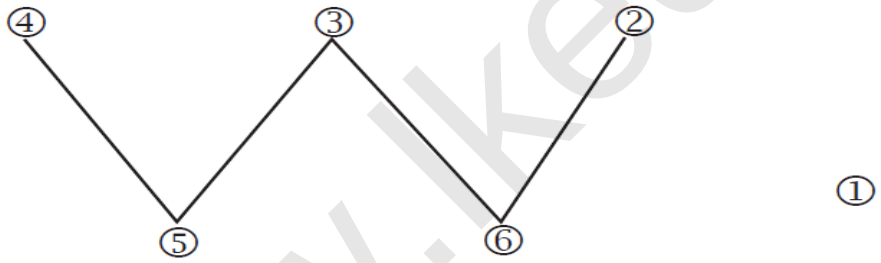
10. Explain the positions of Players.



- ✓ While the ball is being served, all the players of both teams, except for the server, should remain inside the court. The six players of each team should stand in 2 rows of three players each. The three players standing close to the net are called the front row and the other three players are called the back row.

- ✓ The three players in the back row should be positioned behind the players in the corresponding positions of the front row. According to the rules related to the six positions of volleyball, the three positions of the first row are named zone 2,3 and 4, and the three positions in the back row are named zone 5,6 and 1. The server should always be in number 1 position.

- ✓ Although there are several ways of positioning players in volleyball, the beginner players are positioned in a 'W' formation.



- ✓ The position of a player in the court is determined based on the place in which the soles of the player's feet lie. The front row player's foot should lie closer than that of the back row player's foot is to the centre line at least by a small distance. The foot of the side player should lie closer than that of the middle player to the side line. After the ball has been served, the players can play within their playable areas or by moving to any part of the free zone.

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11. Mention the Offences related to player positions.

- ✓ While the ball is being served, the other players should remain in their positions and it is an offense to be outside their positions.
- ✓ While the ball is being served, if offences are committed with regard to player positions and service both, first a penalty is given for the offence related to the service.
- ✓ If the ball fails after it has been served, it is disregarded and the penalty is given for the offence related to player positions.

12. What are the penalties that may be given for offences related to player positions?

- ✓ As a penalty given to the team that committed the offence, the service and a point are awarded to the opposing team.
- ✓ The players should revert back to their correct positions.

13. How should Player's rotation correctly occur?

- ✓ When a team has received the service after winning a rally with the other team, the players of the team that has received the service have to rotate positions clockwise around the court. The player in zone 2 should move to zone 1 and serve the ball while the player in zone 1 should move to zone 6.

14. What are the penalties for Rotation offences?

- ✓ A player rotation offence is a rotation of the sever position in a wrong order. The following penalties are given for rotation offences.
  - ➢ As a penalty given to the team that committed the offence, the service is awarded to the opposing team.
  - ➢ The opposing team is awarded a point.
  - ➢ The players should rotate again so that they are in the correct positions



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05 Let us play netball

- ✓ Netball is played between two teams of **seven players** each. However, **twelve players** can be registered for a netball team, and a netball match can be played with a **minimum of five players**. Each player should wear a bib showing the abbreviation that indicates the player position and the two teams should wear **bibs** of different colours so that the two teams can be identified clearly. The captains of the two teams should toss a coin to start the match. The team that wins the toss can select either the ball or the side of the court. After the toss has been won, the two captains should inform it to the umpires who then toss a coin between them selves to select their roles. When the umpire blows the whistle, the two teams should take their positions inside the court.



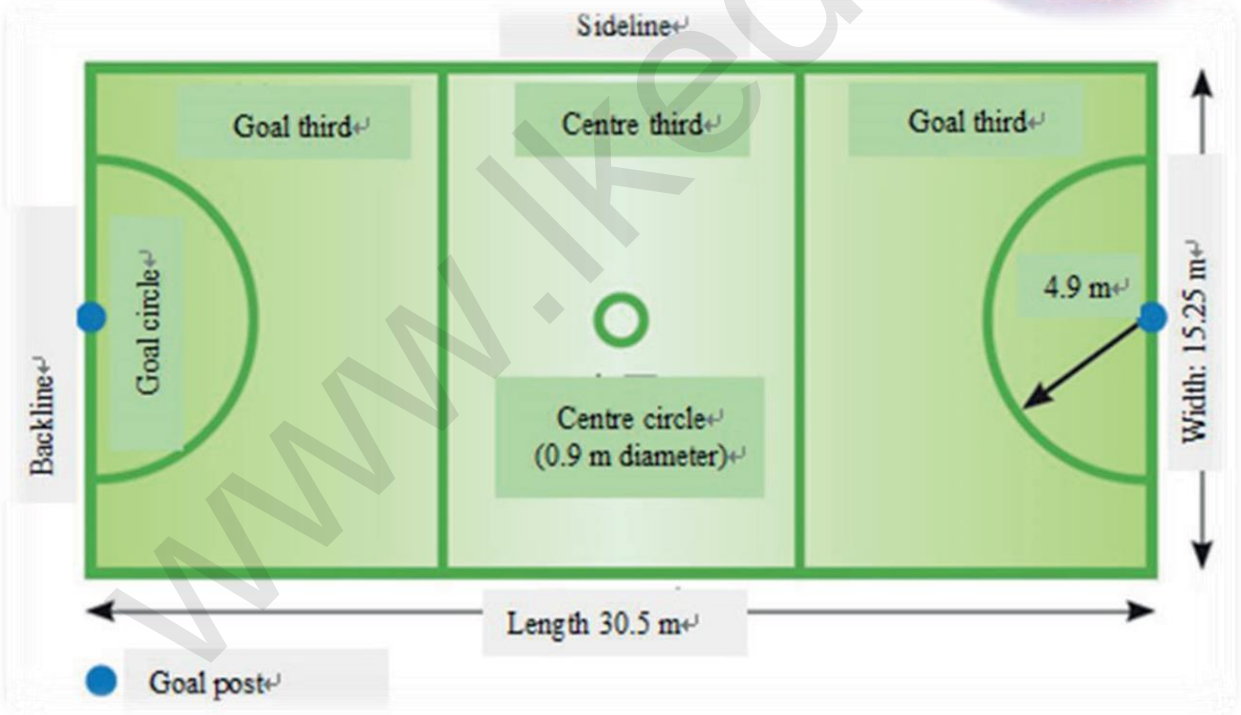
01. When was netball introduced in Sri Lanka? By Whom?

- ✓ 1921- Jenny Green

02. When was netball introduced in the World? By Whom?

- ✓ 1891- Jams Smith -U.S. A

03. Draw the netball court with measurement



04. Write the skills of netball?

- ✓ ball controlling
- ✓ footwork
- ✓ attacking
- ✓ shooting
- ✓ Defending



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05. What are the penalties given in netball?

- ✓ Free Pass
- ✓ Penalty Pass
- ✓ Penalty Pass or Penalty Shot
- ✓ Throw in
- ✓ Toss Up

06. Explain the Free pass.

- ✓ For all the offences committed by a team, except for the obstructions caused to a player or players of the opposing team (eg: obstructions, impeding contacts, committing offences by two opposing players simultaneously, obstructions related to goal post), the opposing team is awarded a free pass. If a goal shooter gets a free pass when she is within the goal circle, she cannot shoot that ball. Any player in the opposing team who is allowed to play in that area can get the free pass from the place where the offence was committed.

07. Mention occasions where a free pass is awarded.

- ✓ A free pass is awarded for committing the following offences:

08. Mention Offences committed in handling the ball.

- ✓ Rolling the ball over the ground
- ✓ Throwing the ball up and catching it again before it touches any other player.
- ✓ Throwing the ball while lying, sitting or kneeling on the ground.
- ✓ Holding the ball for over three seconds – this is called the three-second law.
- ✓ When passing the ball, the distance between the two players being less than 3 feet.
- ✓ Receiving the centre pass without touching the centre area or moving to the centre area before the whistle has been blown.
- ✓ Players moving to areas that they are not allowed to.
- ✓ Throwing the ball over two transverse lines without being touched.
- ✓ Using the goal post as a support in receiving the ball.

09. Mention Offences related to footwork.

- ✓ Dragging along the ground or slipping the landing foot of the player holding the ball.
- ✓ Jumping on a foot holding the ball.
- ✓ Going a few steps holding the ball.
- ✓ Jumping up on both feet and landing on both feet without releasing the ball from hands. (The ball should be released from the hand before the foot that was used for landing after the ball has been caught is raised and landed once again. This is the rule related to footwork.)

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10. Mention offences related to players.

- ✓ Incorrect substitution of a player or improper changing of teams.

11. Explain the Penalty pass.

- ✓ A penalty pass is awarded for the offences committed by two or more players of the two teams outside the goal circle.
- ✓ The player who committed the offence should not join the play until the ball has been released from the thrower's hand.

12. Explain the occasions where a penalty pass is awarded.

- ✓ Obstructing the player in possession of the ball being within a distance of less than 3 feet from the landing foot of that player.
- ✓ Stretching the hands or extending the knees forwards when defending.
- ✓ Coming into contact with, pushing, causing to fall hitting the opposing player or grabbing the ball off the opposing player while defending or attacking.
- ✓ Falling on or jumping upon a player of the opposing team, extending the elbow, pushing with the ball in hand a player of the opposing team or punching the ball.
- ✓ Holding on to a player of the opposing team either deliberately or accidentally.

13. Explain the penalty pass or penalty shot.

- ✓ For offences committed within the goal circle by a player, a penalty pass or a penalty shot is awarded to the opposing team from the place where the offence was committed. The player who committed the offence should stand beside the thrower so that the thrower is not disturbed and should not join the play until the ball has escaped the thrower's hand.

14. Explain the occasions where a penalty pass or penalty shot is awarded.

- ✓ Same occasions where a penalty pass is awarded, committed within shooting circle.
- ✓ Extending the hands within the obstructing distance (3 ft.) so that the shooting is obstructed.
- ✓ Touching the ball with the hand or hitting the ball.
- ✓ Shaking the goal post or coming into contact with it by the defending player with the intention of obstructing the shooting.

15. Explain the Throw-in.

- ✓ When the ball runs out of the court, throwing it back into the court is called throw-in. The player throws the ball into the court setting the foot close to the boundary line from outside the court at the place where the ball ran out from. The rules related to footwork and three-second rule should be followed when taking the throw-in.

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16. mention the instances where a throw-in is awarded.

- ✓ the ball touches the ground outside the court or when it touches a person or an object outside the court.
- ✓ a player who is touching the ground outside or touching a person or an object outside the ground catches the ball.
- ✓ a player who is touching the ball touches the ground outside the court.

17. Explain Toss-up.

- ✓ On occasions where it is difficult to decide on the player who should be given the ball out of two opposing players, the ball is tossed up between them. The toss up is taken between the two players who were involved in the offence and at the place inside the court that is closest to the place where the offence was committed.

- ✓ The two players should stand facing each other and their own goal ends with arms straight and hands to sides, but feet in any position. There should be a distance of 3 feet between the nearer feet of the two players. They shall not move from that position until the whistle is blown.

- ✓ The umpire should keep the ball on the palm of her hand that is held at a level that is slightly lower than the shoulder level of the shorter player when she is in her usual standing position, and should blow the whistle and toss the ball up from a midpoint between the two players so that the ball does not go more than two feet up.

18. Explain a toss-up is taken when.

- ✓ opposing players gain simultaneous possession of the ball with either or both hands;
- ✓ opposing players simultaneously knock the ball out of court;
- ✓ opposing players are simultaneously offside, one in possession of or touching the ball;
- ✓ opposing players make simultaneous contact;
- ✓ the umpire is unable to determine the last player to touch the ball before it goes out of court;
- ✓ after an accident, the umpires are unable to say who had the ball, or when the ball was on the ground when play was stopped.

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19. What are the things that should be judged by two umpires before starting a match?

- ✓ It is very important that netball matches are judged following the rules and regulations of the game giving players the relevant penalties in order to control netball games and to make decisions. A netball match is judged by two umpires and it is their responsibility to ensure that the following are in order:
  - ➢ the court, shooting posts, and the ball
  - ➢ players are wearing bibs, have trimmed finger nails and have removed jewellery.
  - ➢ the 3-metre-wide free zone around the court has been arranged so that the play or the judging is not disturbed.
  - ➢ availability of two umpires for controlling the game and for making decisions and that they get to know each other.
  - ➢ the captains of the two teams toss a coin between them and its result is conveyed to the umpires and the scorekeepers.
  - ➢ the umpires judge the side that they are in charge of.
  - ➢ stopwatches and score keepers are kept ready.







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06 Let us play football

- ✓ Football is a game played between two teams with **eleven players each.** Each team tries to score goals by kicking the ball into the opposing team's goal. It has won recognition as the most popular sport in the world as it has become the game that is watched by the most number of people. In football, the players, except for the goal keeper, cannot touch the ball with their hands during play. Hence, they engage in play employing a variety of skills…… The game was started in **1911** in Sri Lanka.

01. Write the skills of football?





02. What are the instances where a kick-off is used in football?

- ✓ At the beginning of a match
- ✓ After scoring a goal
- ✓ At the start of the second half of a match
- ✓ At the start of each period of extra time if the two teams are on a tie.

03. Explain the procedure for kick-off.

- ✓ The ball should be placed stationary on the centre mark.
- ✓ All players must remain in their own half of the field of play.
- ✓ The opponents of the team taking the kick-off should remain at least **9.15 m** away from the ball until it is in play.
- ✓ After the referee has given the signal, the ball may be kicked so that it either moves forwards or it is directly played into the goal.
- ✓ (A goal may be scored directly from a kick-off.) The player who takes the kick-off can touch the ball again only after it has been touched by another player.

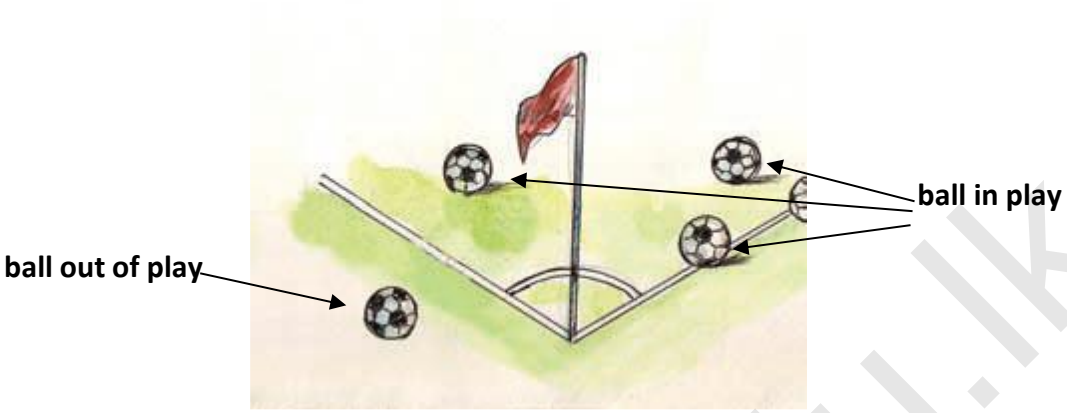
04. What are the instances where the ball is out of play?

- ✓ it has wholly crossed the goal line or touch line, on the ground or in the air
- ✓ play has been stopped by the referee

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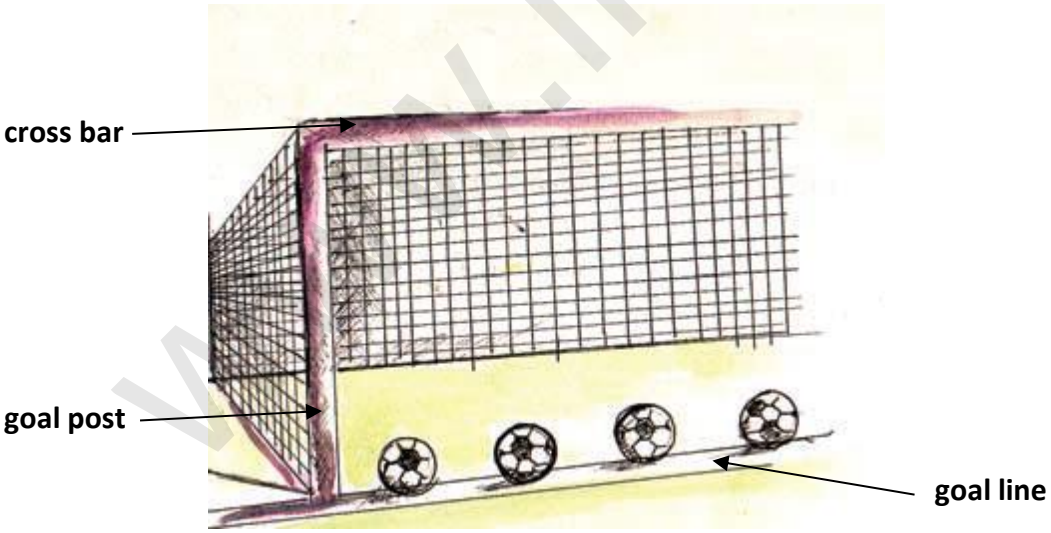
05. What are the instances where the ball is in play?

- ✓ it rebounds off a goalpost, crossbar or corner flag-post and remains in the field of play.
- ✓ it rebounds off either the referee or an assistant referee when they are on the field of play.



06. Explain the Scoring.

- ✓ A goal is scored when the whole of the ball passes over the goal line, between the goal posts and under the crossbar, provided that no infringement of the laws of the game has been committed previously by the team scoring the goal.



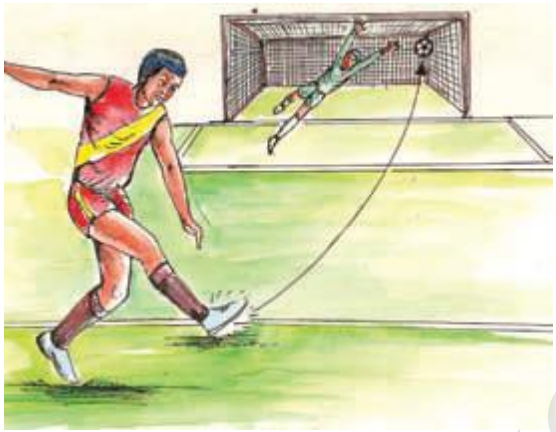
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07. Explain the Free Kick.

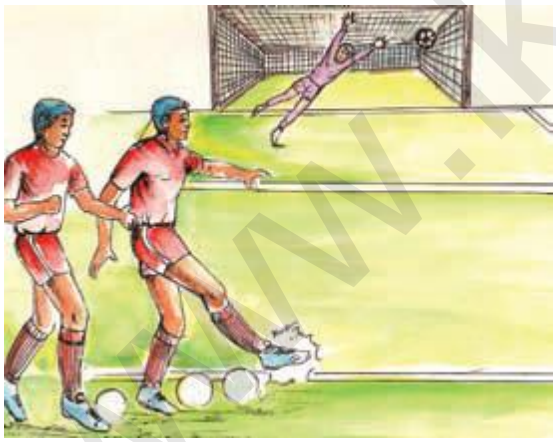
- ✓ When a player commits an infringement, the opposing team is awarded a free kick.
- ✓ When taking the free kick, the ball should remain stationary and the opponents of the team taking the free kick should remain at least **9.15 m** away from the ball until it is in play. The player who takes the free kick can touch the ball again only after it has been touched by another player.

08. Write The types of free kick.

- ✓ **direct free kick** – a goal can be scored directly from a direct free kick.



- ✓ **indirect free kick** - a goal cannot be scored directly from an indirect free kick.



09. Explain the penalty kick.

- ✓ If a player commits an infringement inside the penalty area of his team, a penalty kick is awarded to the opposing team. When the infringement is committed, the ball should be in play and the position of the ball is not taken into consideration.

- ✓ Except for the player taking the penalty kick and the goal keeper of the opposing team, all the other players should remain outside the penalty area.

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10. Explain the facts to be taken into consideration related to penalty kick.

- ✓ The referee must identify the player taking the penalty kick.
- ✓ The ball should remain stationary on the penalty mark.
- ✓ The ball should be kicked forwards.
- ✓ The defending goalkeeper must remain on his goal line, facing the kicker, between the goalposts until the ball has been kicked.
- ✓ If additional time is required for the penalty kick, the time taken for that should be added to the relevant half of the play.

11. Explain the offside position.

- ✓ A player is considered to be in an offside position if he is nearer to his opponents' goal line than both the ball and the second-last opponent. When a player is in offside position the player's active involvement in play is taken into consideration.



12. Mention the law of offside position will not be applicable if a player receives the ball Directly.

- ✓ a goal kick
- ✓ a throw-in
- ✓ a corner kick
- ✓ In the event of an offside offence, the referee awards an indirect free kick to the opposing team to be taken from the place where the infringement occurred.

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13. Explain the Fouls and Misconduct.

- ✓ A penalty kick is awarded to the opposing team from the penalty mark if a player intentionally commits a serious offence in the penalty area. If such an offence is committed in some other area of the field, a direct free kick is awarded from the place where the offence occurs.

14. Mention Fouls and Misconducts happening from players for a direct free kick.

- ✓ kicks or attempts to kick an opponent



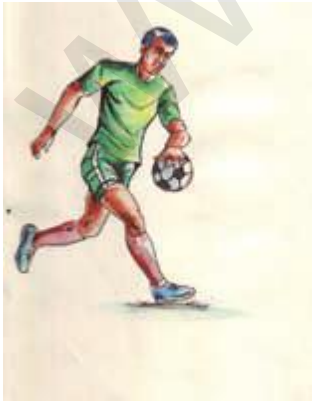
- ✓ trips or attempts to trip an opponent



- ✓ jumps at an opponent



- ✓ handles the ball deliberately, hitting it with hand or carrying it



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- ✓ strikes or attempts to strike an opponent



- ✓ pushes an opponent



- ✓ holds an opponent



- ✓ align tackles an opponent
- ✓ spits at an opponent

15. Explain Throw-in.

- ✓ A throw-in is awarded to the opposing team when the whole of the ball crosses the touch line, either on the ground or in the air. The throw-in is awarded to the opponents of the player who last touched the ball before it crossed the touch line.

• A throw-in is a method of restarting play.

• A goal cannot be scored directly from a throw-in.



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16. What should be taken into consideration when the throw-in is taken?

- ✓ Both foot of the thrower should be touching the ground.
- ✓ At the moment of delivering the ball the thrower should be facing the field of play.
- ✓ Should deliver the ball from behind and over the head.
- ✓ Should be holding the ball with both hands when delivering the ball.
- ✓ After delivering the ball, the thrower must not touch the ball again until it has touched another player.
- ✓ The opponents must stand not less than 2m from the point at which the throw-in is taken.
- ✓ The ball may be thrown either being in standing position or by approaching the place running.

17. Explain the goal kick.

- ✓ A goal kick is awarded to the defending team when the whole of the ball passes over the goal line, either on the ground or in the air, having last touched a player of the attacking team.

18. What should be taken into consideration when taking the goal kick?

- ✓ The goal kick is taken from any point within the goal area of the half from which the ball ran out of the field.
- ✓ When taking the goal kick, the opponents should remain outside the penalty area until the ball is in play.
- ✓ A goal may be scored directly from a goal kick.
- ✓ In a goal kick, no player should touch the ball until it has passed the penalty area.



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19. Explain the corner kick.

- ✓ A corner kick is awarded to the attacking team when the whole of the ball passes over the goal line between the goal posts and the corner flag-posts, either on the ground or in the air, having last touched a player of the defending team.

20. What should be taken into consideration when taking the Corner kick?

- ✓ When taking the corner kick, the opponents should remain at a distance not less than 9.15m until the ball is in play.
- ✓ The kicker must not play the ball again until it has touched another player.



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07 Let us use equipment adapting correct postures

01. What is correct posture?

- ✓ Keeping each part of the body in correct alignment thus avoiding undue strain on supporting muscles and joints.

02. Write the types of correct posture with an example.

- ✓ Standing, sitting and lying down are known as **static postures.**
- ✓ Walking, running and jumping are referred to as **dynamic postures.**

03. What are the advantages we can gain when we use correct postures?

- ✓ Minimize discomfort and fatigue.
- ✓ Mental and physical satisfaction
- ✓ Comfort for internal organs
- ✓ Maintenance of balance

04. Give 04 harmful effects of bad postures?

- ✓ Feel clumsy
- ✓ Feeling of pain
- ✓ Spine ailment
- ✓ Waste of energy

05. What are the features should be maintained when pushing an equipment?

- ✓ body leans forwards.
- ✓ feet should be kept apart and the supporting base should be wider



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06. What are the features should be maintained when pushing a vehicle?

- ✓ move one foot backwards and keep the body leaning forwards so that the head and torso lie straight.
- ✓ then the force that is gained through the feet can be exerted directly on the object.



Correct posture



Incorrect posture

07. What are the features should be maintained when pulling an object?

- ✓ one foot is kept in front and the body is leaned backward at the beginning while the torso and the head lie straight.
- ✓ the feet should be kept apart because the supporting base should be wider.
- ✓ Force is gained by pressing the feet against the ground and the correct posture for pulling is maintained by maintaining the body balance.



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08. Write down the nature of the posture that should be maintained when lifting an object.

- ✓ Keep the body straight.
- ✓ Keep the legs a little apart to wide the supporting base.
- ✓ Bend the knees and lower the body.
- ✓ Hold the object close to the body as much as possible.
- ✓ Keep the line of gravity along the central axis of the body.
- ✓ The legs are straightened when lifting the object as that the weight of the object is distributed equally between the two legs.



Correct posture



Incorrect posture

- ✓ Lifting objects in incorrect postures can harm the body. a person who tries to lift an object by bending the body forwards. The line of gravity of the person lies outside his supporting base in this posture. Therefore, the total weight of the object has to be borne by the spine and it could damage the spine.

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09. Write down the nature of the posture that has to be maintained when lowering an object from a hight.

- ✓ keep the torso and head straight.
- ✓ move one leg a little backwards and keep the supporting base wider.
- ✓ hold the weight close to the body.



Correct posture **Incorrect posture**

- ✓ a person is trying to lower some object by standing a little away from the object and placing the both feet close together. When this person is standing in this posture, his body does not lie straight. Then the line of gravity lies behind the supporting base. That makes it difficult for him to maintain the balance of the body.

- ✓ the picture which shows the correct posture, the body of the person lies straight. One leg has been moved backwards and the supporting base is wider. The weight is held close to the body.

- ✓ By adopting incorrect postures, you will lose your youthful appearance and the beauty of your body. In pushing, pulling, lifting or lowering objects, adopting incorrect postures can damage the spine and muscles.

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08 Let us engage in outdoor activities

01. What are the 03 facts to be followed in organizing outdoor activities, when acting according to a plan?

- ✓ Pre - preparation
- ✓ Implementation
- ✓ End (conclusion)

02. What are the facts to be concerned at pre-preparation for an outdoor activity?

- ✓ Deciding on the date, time, venue, objectives, and what activities to participate in
- ✓ Obtaining permission
- ✓ Preparing a participant information sheet.
  - **following information should be included in the information sheet:**
  - ► Name of the participant
  - ► Address
  - ► Class
  - ► Telephone number
  - ► Name, address and telephone numbers of the person who should be informed in case of an emergency
- ✓ Gaining awareness
  - **Gaining knowledge related to the following before engaging in the activity is important:**
  - ► information gathered through previous studies
  - ► ethics
  - ► rules and regulations
  - ► climate and weather conditions of the area
  - ► health and sanitary arrangements
  - ► road signs
  - ► first-aid
  - ► map reading
  - ► using the compass
  - ► making maps
  - ► protecting the environment with love for nature
  - ► use of equipment
  - ► safety precautions



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- ✓ Identifying the objectives
- ✓ Deciding on the items to be taken and arranging them
    - **A list of items that are commonly needed given here:**

► pure water ► food

► clothing ► some ropes

► a knife ► an electric torch

► a compass ► a notebook, a pen or a pencil

► materials necessary for putting up a tent ► a camera

► a road map of the area ► a mobile phone

► a small radio ► a binocular



03. What are the facts to be concerned at implementation for an outdoor activity?

► using the compass ► reading the map

► providing water ► cooking food

► pitching tent ► arranging health and sanitary facilities

► finding a safe place to spend the night

► video recording and taking photographs

► drawing pictures and taking down notes

► collecting items such as plants, stones and feathers etc.







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04. What are the facts on which attention should be paid at the group meeting at the end of the activity?



- ✓ sharing the experiences
- ✓ examining the material collected
- ✓ identifying the difficulties faced
- ✓ discussing the remedies taken to overcome the difficulties
- ✓ discussing the weaknesses and strengths in organizing the activity
- ✓ preparing the final report

05. Write some outdoor activities.

- ✓ study of jungle crafts
- ✓ mountaineering
- ✓ jungle explorations

06. Write some of the skills that we should develop in studying jungle crafts.



- ✓ Forecasting weather by observing animal behaviour
- ✓ Finding sources of water
- ✓ Camping
- ✓ Ability to tie different types of knots
- ✓ Utilizing equipment such as knife, axe
- ✓ Measuring the height of trees
- ✓ Measuring the width of a river
- ✓ Making a bridge
- ✓ Setting up a bonfire
- ✓ Methods of cutting down trees
- ✓ Identifying the directions by studying the position of the sun, moon, and stars
- ✓ Cooking food without using utensils
- ✓ Making fire if required
- ✓ Observing the footprints of animals and identifying them



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07. What are the challenges confronted when studying jungle crafts?

- ✓ hazards related to weather
- ✓ hazards caused by animals
- ✓ hazards related to food
- ✓ hazards related to water
- ✓ confusions regarding the direction
- ✓ diseases

08. Write some Important observations in overcoming the challenges confronted in the Wild?

- ✓ Footprints
- ✓ Landmarks
  - **Some examples for using landmarks are as follows:**
    - ➢ breaking a twig from a branch of a tree and hanging it by the side of the way.
    - ➢ keeping some fairly big stones arranged in a particular shape
    - ➢ leftover parts from what animals have eaten while they were moving about
    - ➢ places where animals are couched
    - ➢ crushed grass or other plants



09. What are the strategies that we can adopt while we are in a forest area?

- ✓ Camouflaging
- ✓ Walking cautiously
- ✓ Imitating animals
- ✓ Knowledge on food available in the forest

10. What is Mountaineering?

- ✓ Climbing mountains which do not have roads for easy access under difficult weather conditions like hot sun, rain and wind can be called mountaineering.

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11. What are the facts to be taken into consideration in mountaineering?

- ✓ Arranging only the essential items so that they can be carried in a rucksack.
- ✓ Gaining full understanding and training in utilizing safety equipment.
- ✓ Refraining from engaging in unnecessary, unsafe activities.
- ✓ Respecting leadership and following orders.
- ✓ Always working with team-spirit.
- ✓ Having received training in rope climbing.
- ✓ Having developed skills in tying knots with ropes.
- ✓ Using a stick as a support for walking.



12. What is the prime objective of jungle exploration?

- ✓ To study the biodiversity of the relevant area.

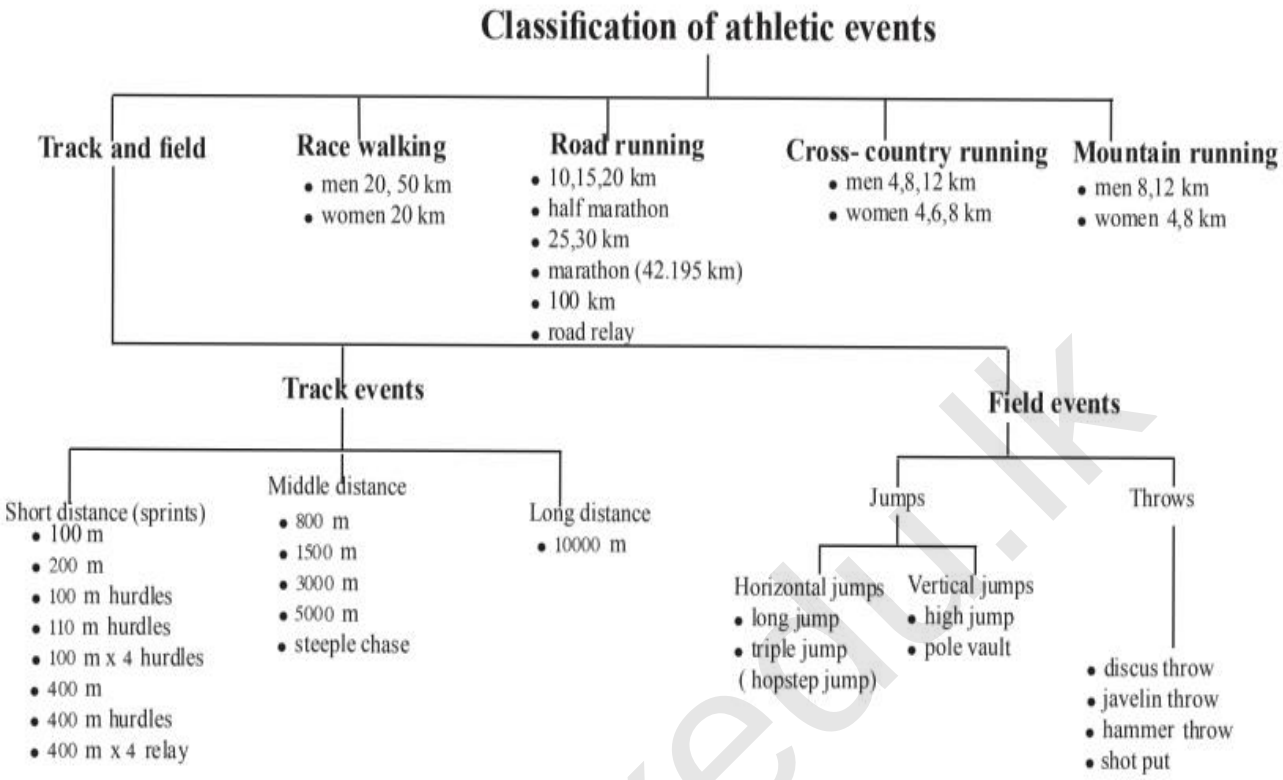
13. What are the facts that special attention should be drawn to in jungle explorations?

- ✓ Making marks along the path used for walking and using those to find the way.
- ✓ Gaining knowledge on how to use the compass and maps.
- ✓ Gaining skills in identifying footprints of animals.
- ✓ Mapping the route used for the exploration.
- ✓ Making notes, videoing or taking photographs of places of particular significance in the forest.
- ✓ Taking safe food and water.
- ✓ Carrying only the essential items.



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09 Let us learn about running events in athletics



General rules and regulations of athletics

01. What are the features that should be in cloths of the athletic taking part in athletic events?

- ✓ Athletes must wear clean clothing.
- ✓ Clothing should be appropriate for the event and made of a non-transparent material.
- ✓ Athletes must not wear clothing that could impede the view of the judges
- ✓ Athletes' vests should have the identical colour on the front and back

02. What are the rules and regulations related to wearing of shoes in athletics?

- ✓ Athletes may compete barefoot.
- ✓ Athletes may wear footwear on one foot only.
- ✓ Athletes may wear footwear on both feet.
- ✓ The purpose of wearing shoes for competitions is to give protection and stability to the feet and get a firm grip on the ground.
- ✓ Other than for the above, shoes must not be worn to get unfair, additional assistance (eg: shoes that have been made with springs or similar parts fixed inside should not be worn).
- ✓ A maximum of 11 spikes could have been fixed to the shoe.

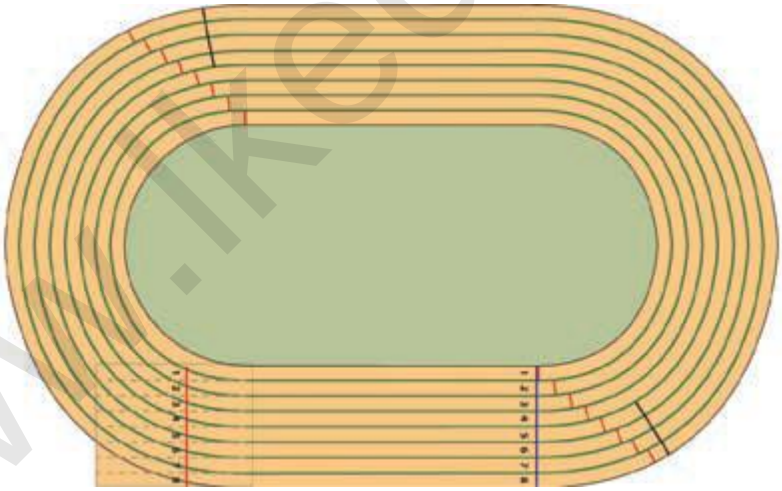
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03. How should Athletes use bibs?

- ✓ An athlete should wear two bibs containing the athlete's number visible on the breast and back.
- ✓ In high jump and pole vault events, only one bib may be worn either on the breast or at the back.
- ✓ The maximum length and width of a bib should be 24 cm and 20 cm respectively.

04. Mention the general rules and regulations related to the running track?

- ✓ The length of a standard running track should be 400m.
- ✓ The running track should consist of two parallel straights which are connected with two semi-circles of which the radii are equal.
- ✓ The width of a running lane should be 1.22 m.
- ✓ A running track should consist of a minimum of 8 lanes.
- ✓ In all the races up to and including 400 m, each runner should use a starting block.
- ✓ In mixed relay events of 4 x 100 m, 4 x 200 m and 4 x 400 m, the first runner should use a starting block.
- ✓ In running events of 800m and above that, it is compulsory to take the standing start.
- ✓ The direction of running or walking on the track should be anticlockwise.
- ✓ If there are many participants, preliminary rounds of the competition should be held.



05. Write the general rules and regulations for field events (jumping / throwing events)?

- ✓ Before the beginning of the event, each athlete may have practice trials at the competition area.
- ✓ Once a competition has begun, athletes are not permitted to use the playground or the landing area for practice purposes.
- ✓ In all field events, except the high jump and the pole vault, where there are more than eight athletes, each athlete shall be allowed three trials and the eight athletes with the best valid performances shall be allowed three additional trials (Except for internationally recognized competitions, the number of trials for the competition may be decided at the discretion of the organizers).
- ✓ In high jump and the pole vault three trials are given to make a particular height.

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06. Write the two key factors that determine the running speed?

- ✓ the stride length of the runner
- ✓ the stride frequency (the number of steps made within one second)

    - **Running speed can be increased either by increasing the stride length or by increasing the stride frequency or by increasing both those factors. However, it is important that those two factors are maintained at a moderate level.**

07. Write the two main techniques for starting the run in a running event?

- ✓ **Standing start** – for running events of over 400 m.
- ✓ **Crouch start** – for running events of 400 m and below 400 m
    - eg: 100 m, 200 m, 400m
    - 4 x 100 m, 4 x 200 m, 4 x 400 m relay races
    - 100 m, 110 m, 400 m hurdles

- ➢ According to the classification of athletics events, running events are divided into three types namely,
    - **short distance running**
    - **middle distance running**
    - **long distance running**. In middle-distance running events, running takes place at a moderate speed. Unlike in sprinting, the starting speed is comparatively lower in long distance running.

stage and the command	on your marks	get set	go
postures			

08. A running stride consists of three phases:

- ✓ take-off
- ✓ flight
- ✓ landing



Take - off **Flight** **Landing**

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09. Explain the short distance running (Sprints).

- ✓ In sprint techniques, the functioning of legs, movement of hands and the position of the head and the torso are very important. As the race ends in a very short period such parts of the body function at their maximum capacity.

- ✓ You have already learnt that the crouch start is used for sprints. For the crouch start there are three commands namely,

- **"on your marks",**
- **"get set"**
- **"go".**

10. Explain the sprinting technique.

- ✓ In sprinting the start is very fast. Initially the body is leaned forwards and it then gradually becomes upright.
- ✓ When finishing the race, the speed is slightly reduced and the body is leaned forwards.
- ✓ The hands are rotated by about 90_0 forwards and backwards around the shoulder.
- ✓ The legs rotate around the axis of the hip.
- ✓ The knees are raised higher.
- ✓ Running strides are long.

11. Explain the long distance running.

- ✓ A standing start should be taken for running events above 400 m and above that.
- ✓ In the standing start only the **"on you mark" and "go**" (gun shot) commands are given.

12. Explain the running technique in middle-distance and long distance running.

- ✓ In long distance running, the upper part of the body is kept upright while running.
- ✓ As the running speed is increased towards the end of the race, the body is leaned forwards.
- ✓ In long distance running, the running strides are short, and the knee is raised to a moderate level.
- ✓ Hand movement in long distance running is not as fast as in short distance running.
- ✓ The body functions in a relax manner rhythmically.

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13. Write the running exercises.

- ✓ In previous lessons you have learnt about running exercises and about the benefits gained by engaging in running exercises. Let us study some more exercises that can be used to practise the running technique as well as to increase the running speed.



- ➢ **Ankling -** Walking fast with very short strides so that the balls of the feet touch the ground.



- ➢ **Skipping A -** Moving forwards fast so that each foot strikes the ground alternatively during skipping stride.



- ➢ **Skipping B -** Moving forwards skipping with one foot while the other foot is swung forward alternately.



- ➢ **Bounding -** Exerting pressure on the ground with the supporting foot and bending the knee and walking with leaping strides.

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14. Explain the hurdling.

- ✓ Hurdling is a fast and rhythmic technically activity and is a very interesting one of the running events in athletics. Hurdling is a short distance event. Player should run over ten hurdles in this event. Hurdling has a special significance to the field of athletics in Sri Lanka **because Sri Lanka won its first ever Olympic medal when Duncan White won a place in a 400 m hurdling race**.

15. What are the hurdling events that are held in sports competitions at national and international levels?

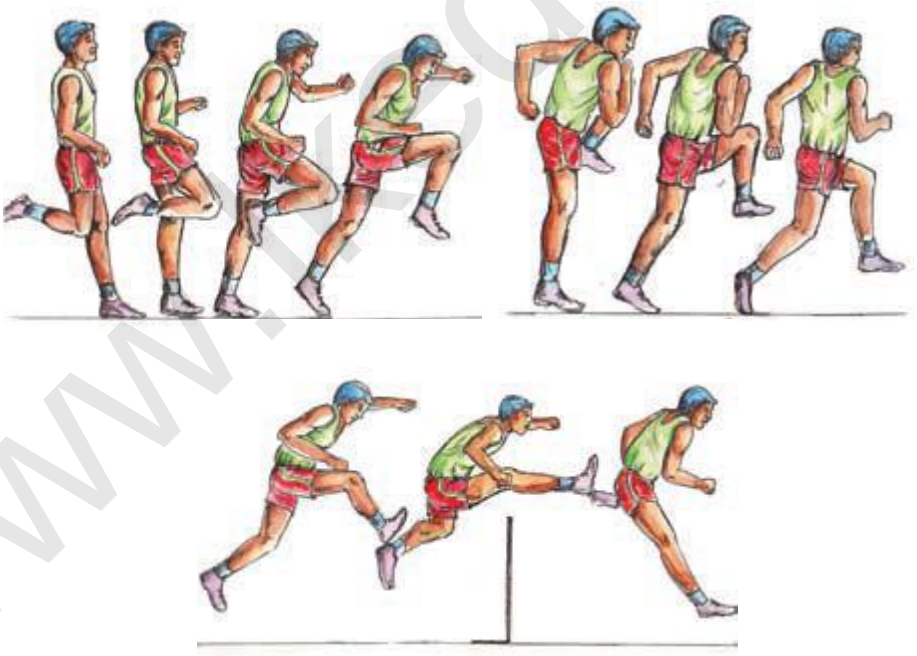
- ✓ Men's – 110 m hurdles, 400 m hurdles
- ✓ Women's – 100 m hurdles, 400 m hurdles

16. Write the two key phases of the hurdling technique?

- ✓ clearing the hurdling
- ✓ running between hurdles

17. Clearing the hurdle can again be divided into three phases…….

- ✓ taking off
- ✓ clearing the hurdle
- ✓ landing



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18. running between hurdles……

- ✓ In 100 m and 110 m hurdling events, the first hurdle should be reached with eight steps from the starting block.
- ✓ It is important to position leading leg on rare block of the starting block so that the first hurdle is approached with the leading leg. (This can be changed for beginners)



- ✓ In 100 m and 110 m hurdling events, the next hurdle should be approached with three steps.

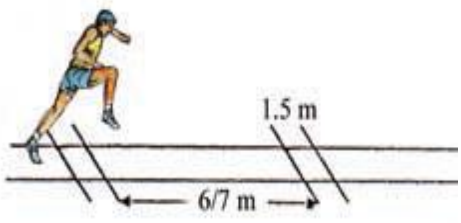


19. Write the training exercises for hurdling.

- ➢ Place in a limited area of the playground some obstacles like cardboard boxes that are not very high, and run about freely jumping over the boxes from time to time.

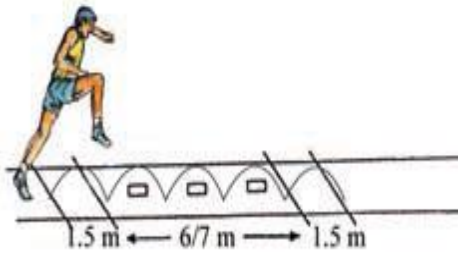


- ➢ Mark some gaps on the ground as shown in the picture. Run the 7-meter gap in three steps jumping over the 1.5-metre gap.



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- Now place some small obstacles in the 1.5m gaps and continue doing the same activity.



20. Write some key rules and regulations of hurdling events.

- Runners should clear the hurdles in the same lanes that have been allocated to them until the end of the race.
- While clearing the hurdle, a foot/the feet should not be taken out side of the hurdles
- It is illegal to knock down the hurdle with hand or foot deliberately.

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10 Let us cooperate with management and organizing through sports

01. What is organization?

- ✓ An organization is “an economic or a social unit which utilizes resources effectively for the achievement of set aims and objectives”.

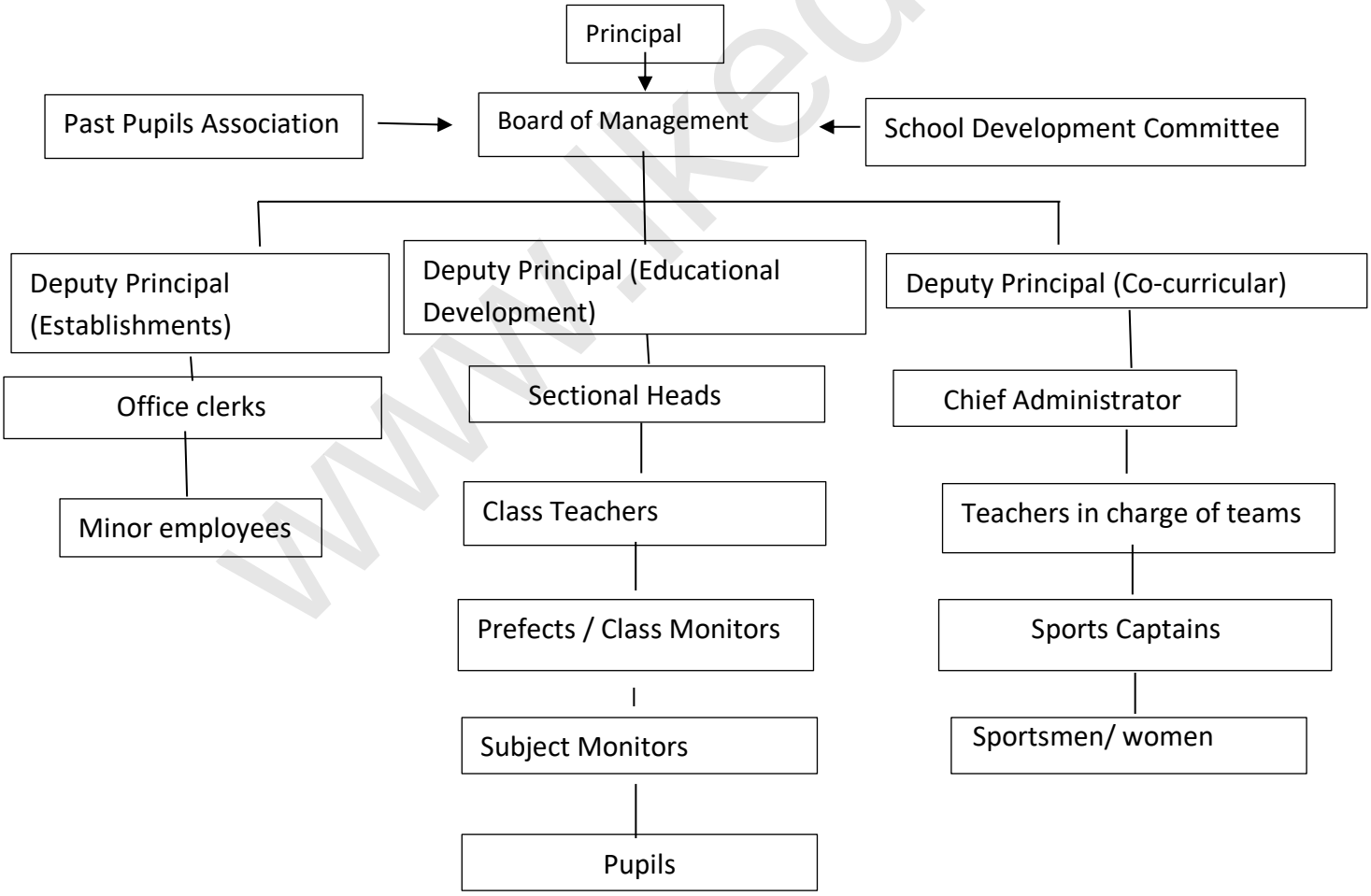
02. What is organizational structure?

- ✓ These organizations perform different functions. There are persons appointed to carry out those functions. They have been assigned with various tasks, and a structure has been formed for the assignment of those tasks and for the performance of those functions. It is called the ‘organizational structure’.

03. Write the several features that are common to organizations?

- ✓ having set aims and objectives
- ✓ having defined ways of (strategies for) achieving those aims and objectives.
- ✓ having persons for the implementation of those strategies.

04. Draw organizational Structure of a School.

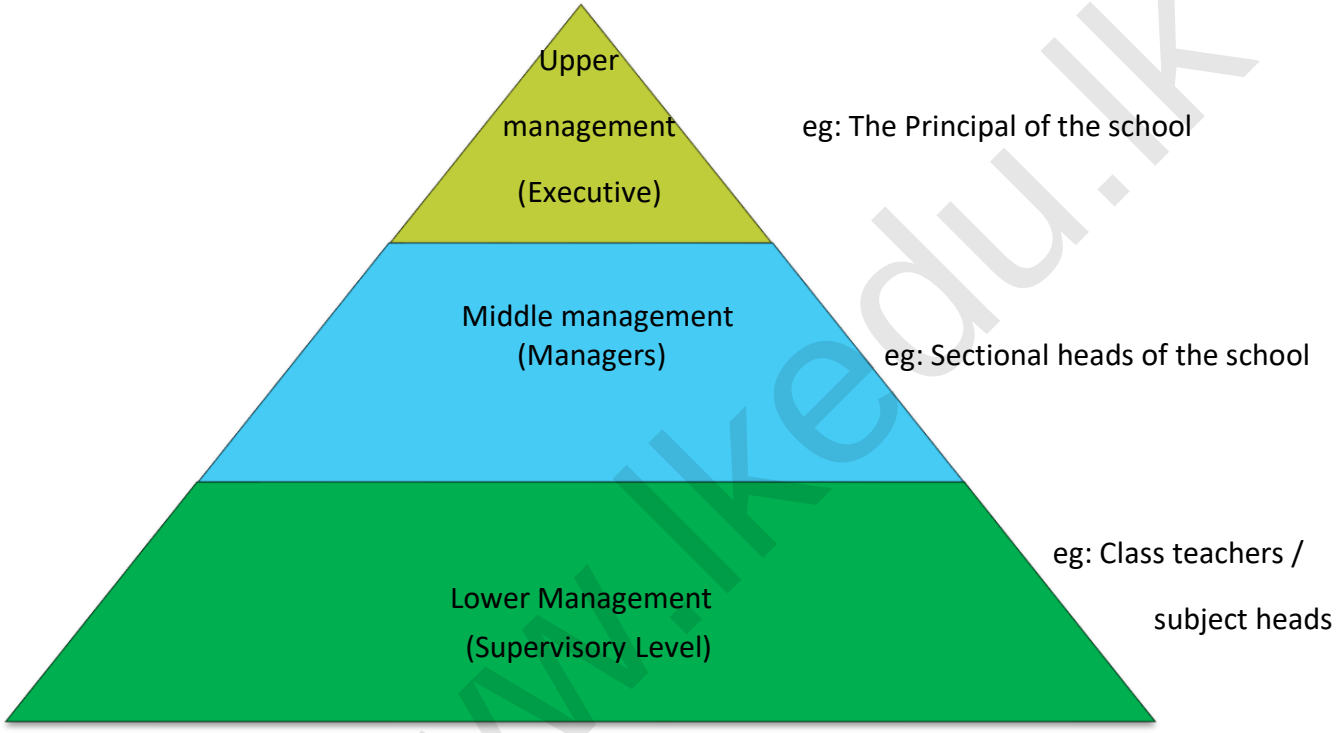


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05. Who is Manager?

- ✓ The person who is engaged in the process of coordinating all the resources of an organization in order to achieve the aims and objectives of that organization is called 'manager'.
- ✓ It is the responsibility of the manager of an organization to set aims and objectives for the organization and to formulate policies, strategies and plans to work towards the achievement of those objectives.

06. Draw the management of an organization consists of three tiers.



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- ✓ Generally, there are managers belonging to different levels of management of different fields in society.
- ✓ As far as the school education sector is concerned as a whole, the Secretary to the Ministry of Education is the chief manager and the principal of a school is in the lower management, but as far as a school is concerned, the principal is in the top management.

07. Write the qualities that a manager should possess.

- ✓ Excellent skills in taking leadership
- ✓ Knowledge and skills in his/her subject area
- ✓ Good interpersonal skills
- ✓ Good communication skills
- ✓ Skilled in making judgments and in analyzing
- ✓ Emotional balance and skills to handle pressure successfully
- ✓ Skilled in maintaining institutional balance
- ✓ Flexibility
- ✓ Skilled in human resource management

08. Who is the Follower?

- ✓ One who is managed, organized, and led by the role of management is called a follower. That means a follower is a person who works cooperatively under a leader in order to achieve the set aims. When there are efficient followers, the management process continues successfully.

09. Write the qualities that a follower should possess.

- ✓ Providing assistance to achieve the common goals.
- ✓ Respecting the leadership.
- ✓ Handling pressure effectively.
- ✓ Carrying out responsibilities properly.
- ✓ Maintaining healthy interpersonal relationships.
- ✓ Acting with team spirit.
- ✓ Being flexible.

10. Explain the role of physical education management.

- ✓ The process of planning, organizing, directing and handling of human and other resources efficiently and effectively for the achievement of the aims and objectives that are defined in terms of physical education should take place under physical education management. Management of resources is very important in physical education management.

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11. What is resource management in physical education?

- ✓ Resource management of an organization means obtaining resources necessary for that organization, to distribute and utilize them and to conserve them making necessary developments in order to achieve the aims and objectives of that organization.
- ✓ In physical education activities the sports manager is responsible for the proper management of resources. These resources can be divided into two main categories namely,
- ✓ **human resources**
- ✓ **physical resources** in addition to these two, time and finances, too, should be managed as resources.

12. What are the steps to management of physical resources in physical education?

- ✓ planning and identifying resources necessary for the sports section eg: playground, sports equipment etc.
- ✓ obtaining those resources
- ✓ distribution of those resources
- ✓ maintenance and repairing

13. What is fulfilled by the management of physical resources?

- ✓ enables the use of such resources for multiple purposes.
- ✓ provides every one of the schools with an opportunity to use the available resources.
- ✓ helps inculcate good attitudes related to conservation of resources.

14. Physical education programmes that can be managed within school can be divided into three main categories.

- ✓ **Compulsory physical education programmes**
  - physical fitness programme
  - physical fitness test
  - teaching of the subject of Health and Physical Education



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✓ **Co-curricular physical education programmes**

- Inter-house sports meet
- Organized training programmes and athletics training workshops conducted at school
- Sports clubs
- Athletics / physical education day
- Special sports training programmes



✓ **Physical education programmes conducted outside school**

- Inter-school competitions
- First-aid, scouting or cadets camps
- Hikes, mountain climbing programmes



15. Write down some of the benefits you can enjoy by participating in physical education programmes conducted at school:

✓ improvement of fitness including rhythm
✓ development of attitudes
✓ development of skills in managing stress
✓ acquiring the ability to start the day actively
✓ personality development
✓ getting the opportunity to share experiences

➢ pupils who have special talents in sports get the opportunity to further develop those talents Participating in sports activities enables pupils to maintain a healthy body and also to engage actively in studies with a peaceful mind. It also helps the pupils to relieve the monotony and stress caused by continuous studies.

➢ Manage your time properly so that at least an hour can be allocated every day for engaging in sports activities which helps you to maintain a good physical, mental and social balance.

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16. Write some facts to be taken into consideration when planning physical education activities:

- Sports activities should be designed to suit the age and the gender of the participants.
- The activities should be appropriate to the environment.
- The activities should be able to be implemented using the resources available with the organization.
- They should be in accordance with the restrictions and traditions of the school.
- The sports programmes should be designed in such a way that physical and mental needs of the pupils are addressed.
- They should be helpful in training pupils to spend their leisure effectively.

17. What are the aims of organizing inter-house sports competitions.

- ✓ Pupils to develop their personality.
- ✓ identify the talents of the pupils by providing opportunities for all the pupils of the school to participate in sports events and also to facilitate them to develop their talents.
- ✓ The pupils who take part in sports events, and others who possess talents in dancing, leadership skills, organizing skills and creative ability, too, get the opportunity to display their talents by organizing inter-house sports meets.

18. Name the three main phases in the organization of a sports meet.

- ✓ organizing pre-meet activities
- ✓ organizing activities on the day
- ✓ organizing post-meet activities

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19. Various committees can be appointed at the discretion of the Organizing Committee and those committees can be assigned with different tasks.

Committee	Activities to be implemented
Main organizing Committee	Monitoring all the activities from the preparation to the end of the sports meet Implementing the plans Considering the needs of all the parties
Finance Committee	Making estimates of all the expenses and obtaining sufficient funds to meet those expenses
Records and Certificates Committee	Preparing all the necessary documents Preparing certificates
Refreshment Committee	Making arrangements for providing refreshment required for all the occasions from the beginning of the competitions to the end of the sports meet Serving refreshment

20. What is tournament?

- ✓ A series of competitions of some sport held between teams or persons in accordance with a set of accepted rules in order to select the winners is called a tournament.

21. What are the several ways of preparing the draw.

- ✓ Knockout tournament (Single elimination tournament)
- ✓ League tournament
- ✓ Combination tournament
- ✓ Challenge tournament

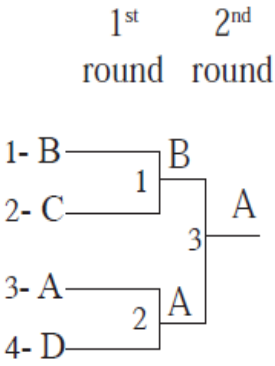
22. What is Knockout tournament.

- ✓ When playing a tournament according to the knockout system, the defeated competitor is removed from the tournament and therefore this method is called single elimination tournament or knockout tournament. This method is often used at school level competitions in Sri Lanka. For easy understanding, this method has been divided into two types as follows and
- ➢ **how the draw is prepared in each type is explained below:**
    - When the number of teams is a power of two.
    - When the number of teams is not a power of two.

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01. The draw of the tournament when the number of teams is a power of two.

Numbers like 2 (2^1), 4(2^2), 8(2^3), 16(2^4), and 32(2^5) are powers of two. Suppose that four teams namely A,B,C, and D take part in the tournament. When chosen by lot, team B got No. 1, team C got No.2, team A got No. 3, and team D got No. 4. (Look at the draw)



In the first round, B and C play each other and then A and D play each other. If B wins in the match between B and C, and if A wins in the match between A and D in the first round, the second round (the final round) will be played between B and A. According to this example, A is the winner.

Calculating the number of matches to be played using the formula

Number of matches = n -1 (n = Number of participating teams)

Number of participating teams = 4
n = 4
The number of matches to be played = n -1
Accordingly the number of matches = 4 - 1
= 3

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02. The draw of the tournament when the number of teams is not a power of two

If the number of teams participating in the first round is not a power of two, the number of teams coming to the second round should be made a power of two. This is done by awarding 'byes' in the first round.

How byes are awarded

Byes are awarded in various ways. Let us study an example in which byes have been awarded in the bottom – top method.

Suppose that the number of teams participating in the tournament is six.

Step 1

Find the number that is the next power of two that comes after six which is the number of teams.

The next power of 2 after 6 $= 2^3$

$= 8$

Step 2

Reduce the number of teams (i.e. 6) from the next power of 2 that comes after 6 (i.e. 8).

number of teams to which byes should be awarded $= 8 - 6$

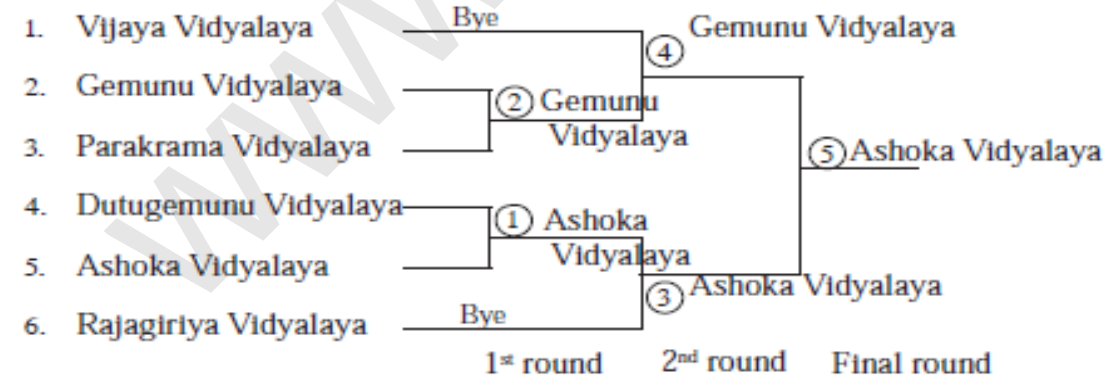
$= 2$

The number of participating teams is 6 and the number of byes that should be awarded is 2.

Step 3

Select the order of teams by drawing lots between team captains. After arranging the teams in the order, award byes for two teams each from the bottom and from the top.

Diagramme 10.3



According to this example, Ashoka Vidyalaya is the winner.

When the number of participating teams is higher, competitions are held dividing the teams into quarters. Then byes can be awarded using cue-chart.

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23. Advantages of single elimination or knockout tournament.

- As losers are removed from the tournament, the number of matches to be played is lower.
- Organizing tournaments according to this method is comparatively easier.
- The tournament can be finished within a short period of time.
- The amount of physical resources like equipment, funds and stadiums etc., required for holding the tournament is less.
- The tournament can be held with a lower number of referees.

24. Disadvantages of single elimination or knockout tournament.

- The teams or players that lose once are left out from the tournament.
- The place that each team wins cannot be selected in the right order beginning from the first place.
- If two strong teams play each other, one team has to leave the tournament while a weaker team may go ahead.
- Sufficient opportunity is not available under this method to identify the team or player with the best skills or to judge the talents of each team or player.
- In a tournament where there are a large number of participants, the teams that win in a round will have to wait a long time until their next match is played. It dampens their enthusiasm.

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25. What is League Tournament?

- Unlike in the knockout tournament, the losers are not removed from the tournament in the league method. Each team gets the opportunity to play one another. Under league tournament the rotational method is used for pairing the teams. When the number of participating teams is an even number (eg: 2,4,6, 8,…) , they can be paired easily, but when it is an odd number (eg: 3,5,7,9, …), one team is awarded 'bye' and the other teams are paired.

Calculating the number of matches based on the formula.

$$\text{The number of matches played under league method} = \frac{n(n-1)}{2}$$

eg:

If the number of teams participating in the tournament $= 6$

$n = 6$

$$\text{Number of matches played} = \frac{n(n-1)}{2}$$

$$= \frac{6(6-1)}{2}$$

$$= \frac{6 \times 5}{2}$$

$$= 15$$

For easy study, how the draw is prepared for league tournament has been divided into two.

I. When the number of participating teams is an even number.

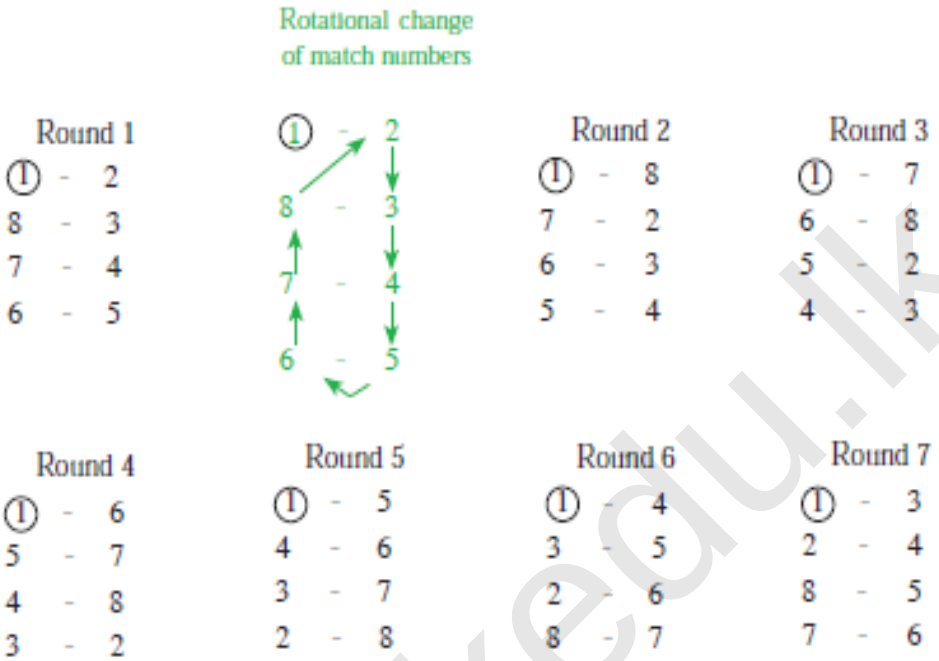
II. When the number of participating teams is an odd number.

In the draw the teams can be rotated either clockwise or anti-clockwise, but number 1 is kept stable.

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I. Preparing the draw when the number of participating teams is an even number

Here, number 1 has been kept stable. The draw has been prepared by rotating the numbers of the other teams from the second round onwards.



The teams that play each other in the first round

1 and 2
8 and 3
7 and 4
6 and 5

The teams that play each other in the second round

1 and 8
7 and 2
6 and 3
5 and 4

The two teams to play each other in each round is decided upon in this way.

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The number of participating teams - 8 (n - 8)

The number of matches - $\frac{n(n-1)}{2}$

- $\frac{8(8-1)}{2}$

- $\frac{8 \times 7}{2}$

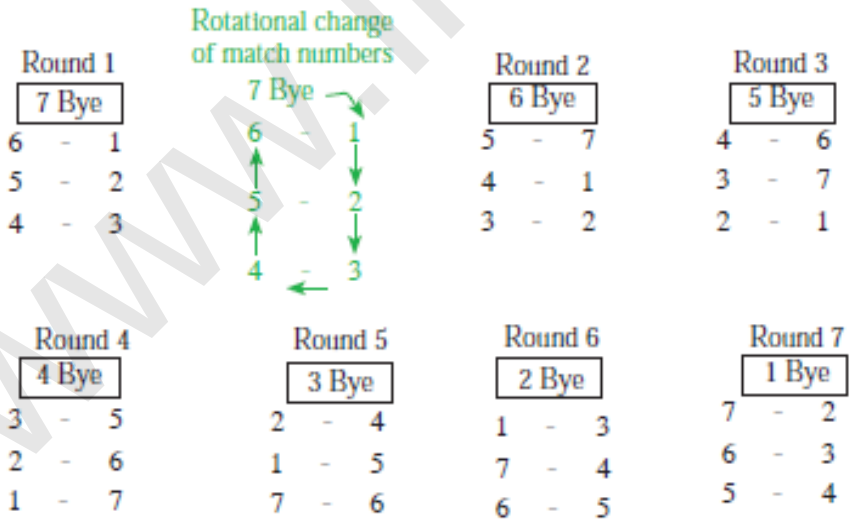
- $\frac{56}{2}$

The number of matches played - 28

II. Preparing the draw when the number of participating teams is an odd number

When the number of participating teams is an odd number, one team is awarded a bye in one round. After one team has been awarded a bye, other teams are paired. The numbers of the teams can be rotated either clockwise or anti clockwise.

In the following example, the number of participating teams is 7 and the numbers have been rotated clockwise from the second round onwards.



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The teams that play each other in the first round

6 and 1
5 and 2
4 and 3

The teams that play each other in the second round

5 and 7
4 and 1
3 and 2

The number of matches $= \frac{n(n-1)}{2}$

$= \frac{7(7-1)}{2}$

$= \frac{7 \times 6}{2}$

$= \frac{42}{2}$

The number of matches played = 21

The following method can be adopted in this tournament to select winners:

The team that wins the match gets 2 points.
If the match ends in a draw, both teams get 1 point each
The team that loses the match gets '0' points.
The points that each team gets in all the matches are added together and the winner of the tournament is selected based on the total number of points each team has obtained.

26. Advantages of the league tournament.

- ✓ Out of the participating teams, the best team can be selected.
- ✓ As each team has to play the other teams many times, the participants get the opportunity to improve their talents.
- ✓ All the participating teams can be ranked according to their talents.
- ✓ Teams can remain in the tournament despite been defeated.

27. Disadvantages of the league tournament.

- ✓ Organizing the tournament is a little difficult because the number of matches to be played is higher.
- ✓ As the number of matches are high, more physical resources like funds, playgrounds, and equipment are needed.
- ✓ More judges are needed.
- ✓ It takes a long time to complete all the matches.
- ✓ Teams that suffer continuous defeats may get discouraged.

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28. Compare the advantages and disadvantages of knockout tournaments and league tournaments.

Feature	Knockout tournament	League tournament
Time taken for the tournament	shorter	longer
Organizing activities	Easier	A little difficult
Finances for organizing	Low	High
Possibility of selecting the best winner	Low	High
Obtaining necessary physical resources (playground / equipment).	Simple	Complicated
Finding judges	Easier	Difficult
Ordering teams according to performance	Difficult	Easier
Developing talents from match to match	Difficult	Easier

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11 Let us consume nutritious food for a healthy life

01. Write some importance of nutritious food?



- ✓ needed for growth,
- ✓ repair of worn-out tissues,
- ✓ protection from illnesses
- ✓ to provide energy needed for different functions of the body

02. What is Food safety?

- ✓ Food safety is a scientific discipline describing handling, preparation and storage of food, in ways that prevent contamination and food-born illness.

03. Write the factors that affect food safety?

- ✓ **Biological factors**
- Micro-organisms present in food that are harmful to the body, belong to this category.
- eg : bacteria, fungi
- Micro-organisms spoil food and emit toxins, which are usually harmful to man.

- ✓ **Chemical factors**
- These include residual chemical substances added to food at various stages.
- eg: Prior to harvesting – pesticides
- After harvesting – chemical substances added to ripen food and for food preservation
- If vegetables and fruits are not washed well prior to consumption residual agro
- chemicals may enter the body. Long term deposition of such substances may give rise to diseases like cancers and kidney diseases.

- ✓ **The Ministry of Agriculture recommends that the harvest should not be gathered until two to three weeks have passed since the last use of agrochemicals.**

- ✓ **Physical factors**
- These include substances such as stones and sand, which can contaminate food during transport, storage and preparation. Numerous diseases can occur due to one or more factors related to food safety.
- eg: spoilt food can give rise to vomiting and diarrhoea

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➢ Instances where action should be taken to ensure food safety

04. What are the actions taken to protect manufacture of food within the farm land?

- ✓ Adding pesticides according to recommended standards
- ✓ Use of natural pest control methods (e.g., Margosa juice)
- ✓ Use of organic fertilizer
- ✓ Ensuring cleanliness of farming equipment and farmland

05. What are the actions taken to protect manufacture of food within the factories?

- ✓ Ensuring cleanliness of raw ingredients
- ✓ Ensuring cleanliness of the manufacturing environment
- ✓ Ensuring cleanliness of the equipment used in the manufacturing process and the interior of the factory
- ✓ Maintaining personal hygiene of staff members
- ✓ The use of recommended artificial flavours and dyes in recommended quantities during manufacture

06. What are the actions to be taken on food safety during Transportation of food?

- ✓ Use of wooden boxes and plastic baskets to prevent bruises and scratches
- ✓ Avoid stacking boxes one on top of the other beyond the available space.
- ✓ Use appropriate temperature settings to suit the food items. Eg: milk products should be transported maintaining the ideal temperature
- ✓ Use covers to prevent contamination.
- ✓ Use natural protective measures as much as possible instead of artificial chemicals to prevent food spoilage during transport.

07. What are the actions to be taken on storage of food?

- ✓ Arrange items on the shelf according to their date of expiry and place the items with early dates of expiration in front.
- ✓ Use measures to prevent damage by insects and other animals such as rats, cockroaches, weevils and termites.
- ✓ Maintain the appropriate temperature within the stores according to the relevant food items.
- ✓ Correct use of refrigerators and deep freezers.



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08. What are the actions to be taken on food safety when storing inside the refrigerators and deep freezers?

- ✓ Food items should be stored in appropriate locations in the fridge
- ✓ Food that requires refrigeration or deep freezing should be kept at the
- ✓ required temperature throughout 24 hours. The refrigerator should not be switched off during the night.
- ✓ Food and beverages should not be stored together with substances such as toxic materials, medication, aromatics etc.
- ✓ Meat, fish and ice cream should not be stored together

09. What are the actions to be taken on food safety when preparing food?

- ✓ Avoid using food which has been damaged or consumed by animals
- ✓ Avoid using spoilt or mouldy food
- ✓ Keep pets away from the area in which food is prepared
- ✓ Wash hands well before preparing food
- ✓ Clean green leafy vegetables well, soak in salt water for some time and then use
- ✓ Scrub and wash the outer skin of fruits well

10. What are the actions to be taken on food safety in consumption of food?

- ✓ Keep food covered until consumption
- ✓ Avoid use of metal, using clay or glass bowls and wooden or plastic spoons to serve food containing vinegar, as vinegar which contains acid will react with metal and form harmful substances.
- ✓ Avoid consumption of food such as potatoes which have become green in colour and manioc which has been exposed to air
- ✓ Avoid use of bruised or swollen tinned or packet food

11.What is food Spoilage?

- ✓ Food spoilage is the presence of any substance in food, which make it unsuitable for consumption.



12. What are the causes of food spoilage?

- ✓ Action of micro-organisms eg: mould growing on food
- ✓ Action of other animals eg: rats consuming part of the food
- ✓ Interactions between food and environment eg: browning, oil rancidity

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13. What are the ways of recognizing spoilt food?

- ✓ Foul smell
- ✓ Change in colour
- ✓ Change in texture
- ✓ Change in taste

14. Write the negative outcomes of food spoilage?

- ✓ Increase in incidence of disease eg: vomiting, diarrhoea
- ✓ Wastage of food
- ✓ Economic loss eg: reduction in income due to loss of crops
- ✓ Reduction in quality of food eg: reduced nutritional value in food due to change in chemical composition of proteins and other elements following their breakdown.

15. What is known as food Adulteration?

- ✓ Food adulteration is any means by which the quality of food is reduced.



16. Write down many ways in food adulteration.

- ✓ Addition of numerous chemicals to food
- ✓ Addition of papaw seeds to pepper
- ✓ Addition of melamine to milk powder
- ✓ Addition of artificial dyes to tea leaves
- ✓ Addition of wheat flour, rice flour, corn flour, brick powder, rice chaff, cattle feed and wood shavings to adulterate chili powder, saffron and pepper
- ✓ Addition of manioc flour to adulterate corn flour

17. Write some problems arising due to food adulteration?

- ✓ **Negative impact on health**
  - Use of adulterated food can give rise to diseases as well as discomfort.
  - eg: Tartrazine, which is added to cordials, can cause poor sleep at night.

- ✓ **Loss of nutrients**
  - Reduction in the amount of nutrients received due to addition of other substances to food.
  - eg: The nutritional requirement which one expects to fulfil by drinking a glass of milk, cannot be achieved when milk is adulterated with water. Iodine deficiencies occur when non-iodized salt is labelled as iodized salt and sold in the market.

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- ✓ **Economic losses**
    - There is a drop in sales when people suspect adulteration and avoid consuming food from these places. Losses can occur even due to legal action and banning of products. Furthermore, as people contract diseases due to food adulteration the expenses borne by the government for medication and health services increase.

18. Write some methods of identifying adulterated food?

- ➢ Chemical and physical methods are used to identify food adulteration. According to the colour, shape, smell and texture the adulterant can be identified. Simple methods in identifying food adulteration are mentioned below.

- ✓ **Sieve (filter) -** shards of glass, pieces of iron, metal, plastic, wood, stones, sand, cigarette butts can be separated and identified by this method. In a similar manner different parts of plants and insects such as cockroaches and weevils can be separated from food.

- ✓ **Smell -** a strong malodour is emitted when a chemical such as formalin is added. There is a difference in smell between coffee which is unadulterated and which is mixed with flour.

- ✓ **Shape / colour** - When formalin is added to fish its red colour gives way to a more pale appearance.

19. What is food Poisoning?

- ✓ Food poisoning is defined as the occurrence of an illness due to a toxic substance in food entering the body with food or water.
- ✓ It can cause the following clinical features, which include abdominal pain, dizziness, vomiting, diarrhoea and fever.
- ✓ Food poisoning occurs due to substances naturally found in food, as well as due to other substances incorporated into food during cultivation, manufacture and preparation.

20. Write some instances where toxic substances get incorporated into food?

- ✓ **Food which contains naturally occurring chemicals toxins** eg: cassava, cabbage, some green leafy vegetables
- ✓ **Toxic substances which arise due to environmental factors** eg: potatoes when exposed to sunlight produce a toxic substance called solanine and turn green in colour

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- ✓ **Toxins produced by micro-organisms that grow on food** eg: black mould which grows on peanuts
- ✓ **Insecticides and pesticides used in cultivation becoming toxic**
- ✓ **Toxic substances produced during cooking** eg: When pickles are prepared in aluminium dishes the dilute acetic acid in vinegar dissolves the aluminium and produces toxic substances.
  When coffee, meat and potato slices are charred toxic substances and a bitter taste will be produced.
  Reuse of the same oil repeatedly for frying can produce harmful chemicals.

21. Write some causes of food poisoning?

- ✓ **Micro-organisms such as bacteria and viruses**
- ✓ **Toxins**
  - Chemical substances released by bacteria during their metabolic activities are known as toxins. They could be present in food and cause food poisoning.
  - Cooking at an adequate temperature will destroy toxic bacteria as well as the toxins produced by them. Heating for 1-2 minutes is sufficient to destroy the toxic bacteria. However, to destroy their toxins the food must be cooked at a temperature exceeding 60 0C for approximately 30 minutes.
- ✓ **Chemicals**
  - All food items are made of chemical constituents and our bodies also contain numerous chemicals. However, the chemicals, which give rise to food poisoning, do not naturally occur in those foods. These chemicals may have been included due to accidental contamination or as an additive to obtain the required taste, smell or colour or as a preservative.
  - Soaking in water helps to remove the natural toxins of cassava and soy-beans.

22. What is food Allergies?

- ✓ Consumption of some food items can give rise to clinical features such as itching, urticarial rash, vomiting and faintishness. If this occurs as an abnormal reaction mounted by the body's immune system against that food item, it is known as a food allergy.
- ✓ Symptoms of allergy can occur with the consumption of any type of food.'
- ✓ The same food item will affect different people in a different manner. A food item which causes an allergy in one person, may not do so in another.

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23. What are the causes of food allergies?

- ✓ Special ingredients in food
  - The constituents of some food either acting directly or by stimulating other reactions in the body can give rise to clinical features.
  - eg: wine, cheese, yeast extract

- ✓ Chemicals which are added for food preservation
  - The body gives rise to numerous reactions against these chemical substances.
  - eg: sulphur dioxide and sulphide

- ✓ Difficulty in digesting some food substances
  - Some individuals suffer from lactose intolerance. The ease with which infants and young children digest milk products is lost in adulthood.



24. Write some clinical features of allergies?

- ✓ Itching
- ✓ Urticarial rash
- ✓ Warmth at the site of allergy
- ✓ Red eyes
- ✓ Running nose
  - As this condition can be fatal it is important to identify food that can cause allergies early on and avoid their use, as well as obtaining medical advice when necessary.

25. Write some food that commonly cause allergies?

• Peanuts • Prawns, crabs

• Milk • Types of fish

• Eggs • Chocolate

• Pork, bacon • Preservatives and dyes

• Gluten proteins (corn, rye, barley)

• Tomatoes • Pineapple



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26. Write some steps to be taken to prevent allergies?

- ✓ Always check the food labels to identify any substances that you may be allergic to (especially with regard to packet, tin and pre-prepared food).
- ✓ When consuming food from outside find out for certain if any allergens have been used in preparation.
- ✓ If you have suffered from a serious allergic reaction always wear an allergy bracelet or keep with you a document indicating the allergy.
- ✓ When obtaining medication from a doctor disclose any previous allergies especially prior to receiving vaccines.
- ✓ Inform all family members regarding any allergies that a family member has so that they can inform a doctor in an emergency.
- ✓ If a child suffers from allergies his or her carers, teachers, parents of friends and many adults who are in regular close contact should be informed of this. They should also be informed of the steps which need to be taken during an allergic reaction.

➢ Let us protect the nutritional value of food

27. What are the actions to be taken to protect the nutritional value of food?

- ✓ When preparing green leafy vegetables first prepare the onions and coconut and then add the freshly cut green leafy vegetables. Then cook on a low heat for a short period so that the leaves do not discolour. This will help to preserve the nutritional value.
- ✓ Cooking meals in the shortest possible time will protect the colour, nutrient value and taste. Pressure cookers and microwave ovens can be used for this purpose.
- ✓ As calcium can reduce iron absorption, avoid cooking foods rich in calcium and iron together.
- ✓ Obtain different nutrients in the same meal by cooking several types of food together
- ✓ eg: add leaves of drumsticks when cooking rice, mixed green leaf salad, hath maluwa, soups
  Add condiments to improve the taste and give a medicinal value to the meal
  Additional nutrients can be obtained by using fortified food
  eg: Iodized salt Vitamin A fortified oil
  To fulfil the amino acid requirement, consume pulses and grains together.
  Increase iron absorption by adding lime to food. Add lime juice to a cooked meal once it cools down. If not, the heat will destroy vitamin C in lime juice.
  To increase the iron content in the food, add Maldives fish.

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28. Many types of food are found in the market. Write the types of that.

- ✓ **Natural food**



- Natural food includes food that has had minimal preparation to preserve its natural quality. They do not contain artificial flavours, dyes or aromatics and are healthier than pre prepared food. Natural food contains a lot of antioxidants and therefore helps to protect from diseases such as cancer. In addition, they contain a large amount of fibre. Even natural food can have an less favourable effect on the body in instances such as cutting vegetables long before cooking and use of chemical fertilizers in place of organic fertilizers.

- ✓ **Processed food**



- Processed food includes food that has been prepared in a manner easy to use or to increase shelf life. Additives are commonly used for flavour, colour and aroma. These foods have high calorie content and less fibre. Therefore, by consuming these foods the risk of contracting diseases increases.

- ✓ **Fast food and Junk food**



- Food that is made in a manner that enables it to be prepared for consumption over a short period of time is known as instant food. These can be seen in several forms.
- Dried food
- Food that can be consumed after adding water. eg: tea, coffee, milk powder, soups
- Food that can be consumed after adding other
- ingredients and a short cooking process. eg: noodles

- ✓ Some types of fast food are suitable according to health standards while others are not. Therefore, it is important to be vigilant about the ingredients of these food items when selecting them. Food, which is high in energy, sugar and oil content and low in other nutrients, are unhealthy and are defined as junk food. Therefore, even though fast food has the advantage of saving time and provides ease in cooking you must be intelligent enough to avoid what is unhealthy among these foods and select only healthy food.



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12 Let us learn about jumping and throwing events in athletics

- ✓ Under the classification of athletics events **long jump** and **triple jump** can be identified as **horizontal jumps** while **high jump** and **pole vault** come under **vertica**l **jumps.** The shot put, the discus, the javelin and the hammer are the throwing events in athletics.

01. Name 03 jumps relevant to triple jump.

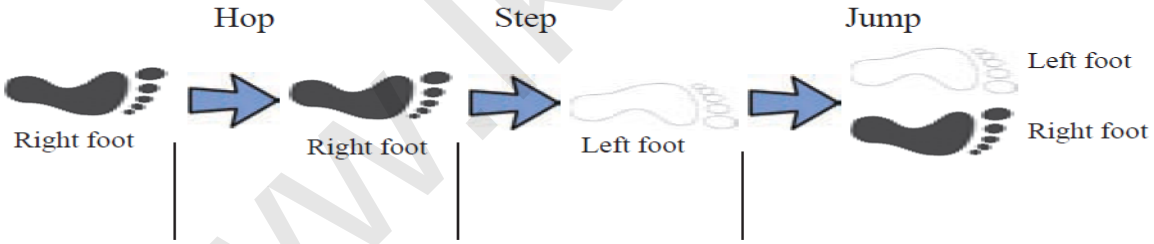
- ✓ Hop
- ✓ Step
- ✓ Jump

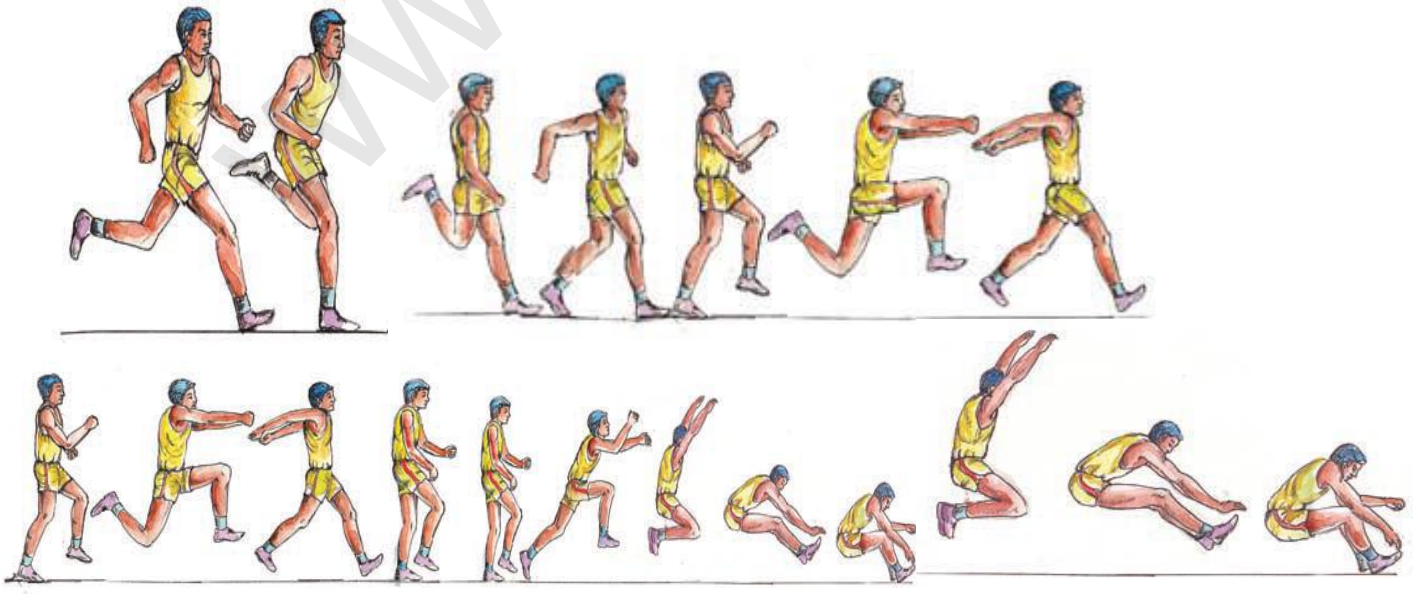


02. What are the 05 phases in the triple jump?

- ✓ Approach run
- ✓ Hop
- ✓ Step
- ✓ Jump
- ✓ Landing

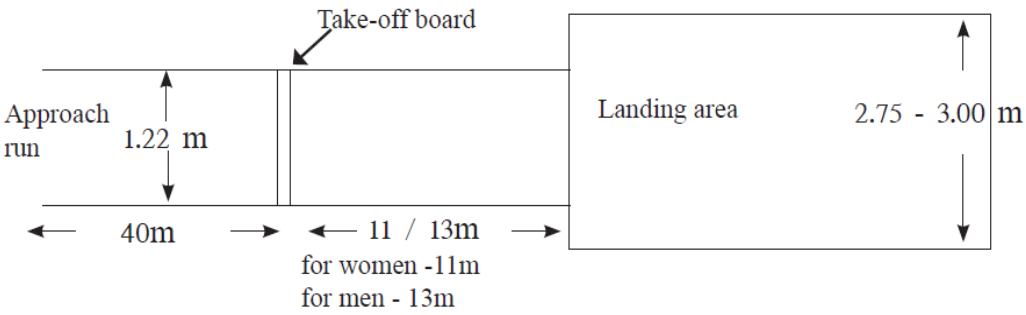
In triple jump, the second take-off should be made using the same foot that was used for the first take-off while the third take-off should be made with the leg opposite to that. Finally the landing should be made with both legs.





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04. Draw the triple jump runway and landing pit.



05. Write some training exercises for triple jump.

- ✓ Place in some limited area a few cardboard boxes or similar objects that are not very high and that do not pose any danger, and run about the area freely jumping over those obstacles.
- ✓ When jumping over the obstacles the landing should be done with the same foot that was used to make the take-off.

- ✓ Mark some area on the ground and move about in that area by jumping forwards keeping to the hop, step and jump order.

- ✓ Mark a frame of lines and practice the three phases of the triple jump, hop, step and jump.



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06. Write the Rules and regulations of triple jump.

- ✓ The triple jump should consist of the three phases hop, step and jump consecutively.
- ✓ At the hop phase, the landing should be made with the same foot that was used for the take-off and at the step phase landing should be made with the opposite foot and the same foot should be used for the take-off for the jump.
- ✓ If the free leg touches the ground during jump, it is not considered a fowl jump
- ✓ In addition to the rules and regulations given above, the rules and regulations for long jump are applied to the triple jump, too.

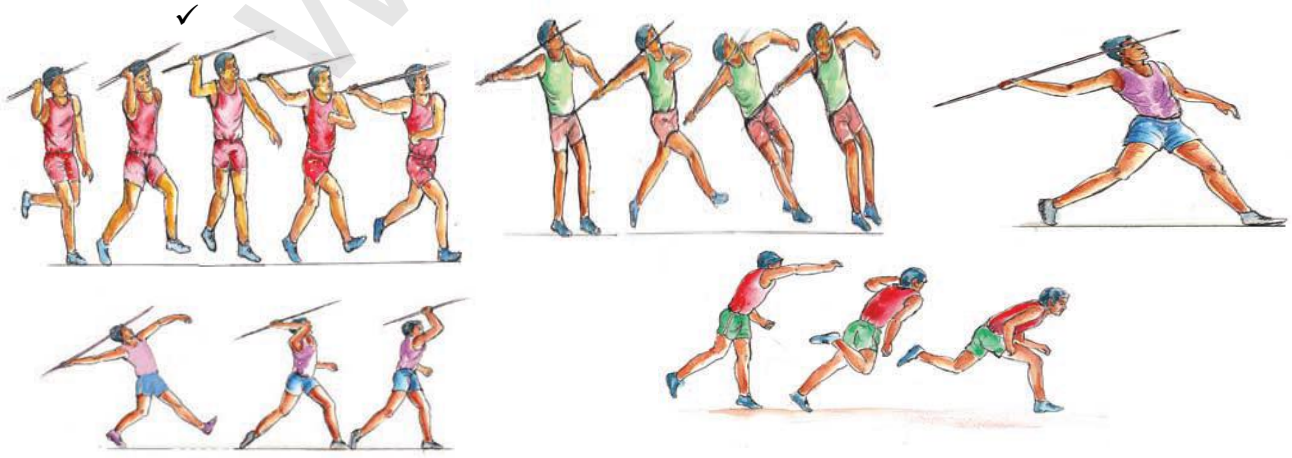
Javelin throw

- ✓ When you were in grade 10 you learnt about the shot put and the discus which comes under field events according to the classification of athletics. Javelin throw, too, comes under throwing events. Out of the equipment used for putting and throwing events, javelin is a piece of comparatively lower-weight equipment.
- ✓ The javelin is thrown by using the power that is gained by running.
- ✓ As the shot put, throwing the discus and the javelin are events that involve dangers. Therefore, training of those events and holding competitions should be done only under the supervision of teachers.

07. List out the Javelin throw technique.

Javelin throw technique can be divided into 7 phases:

- ✓ preparation
- ✓ approach run
- ✓ pulling the javelin backwards
- ✓ crossover
- ✓ power position
- ✓ delivery
- ✓ recovery (Follow through)
- ✓



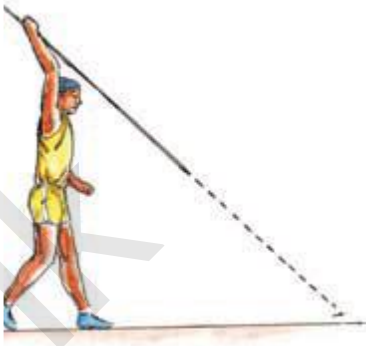
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08. Write some exercises for practicing javelin throw.

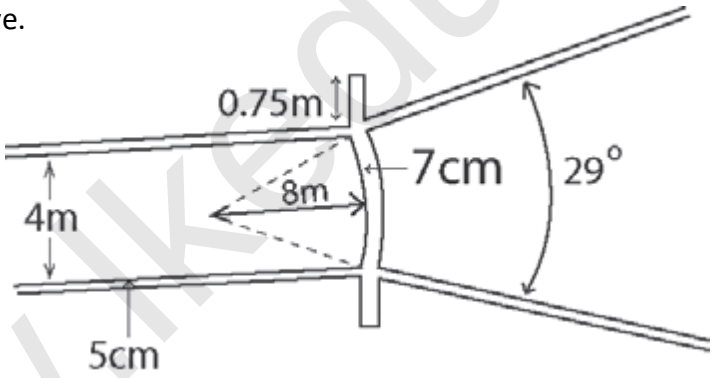
- ✓ Throw to a distance from over the head a light ball such as a tennis ball.

- ✓ Pull the javelin backwards over the head and throw it hard onto the ground so that the point of the javelin hits the ground about 3 – 4 metres ahead.



- ✓ Throw the javelin staying at the power position.
- ✓ Practise throwing the javelin following the last three phases of the javelin throw technique described above.

09. The field for javelin throw.



- ✓ The minimum distance of the javelin throw runway should be 30 metres.
- ✓ The angle between the sector lines should be 290.

10. Age-wise weight of the javelin used in all island school athletics competitions in Sri Lanka.

Age limit	Boys	Girls
Under 16 years	600g	500g
Under 18 years	700g	500g
Under 20 years	800g	600g

(New values introduced in circular 2016/34)

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13 Let us understand the musculoskeletal system

✓ We are constantly in motion during the whole span of life. Three systems in our body that help us to do this are the

- **skeletal system -** the skeletal system acts as a lever
- **muscular system -** The muscular system provides the power
- **nervous system -** provides the stimulus and coordination

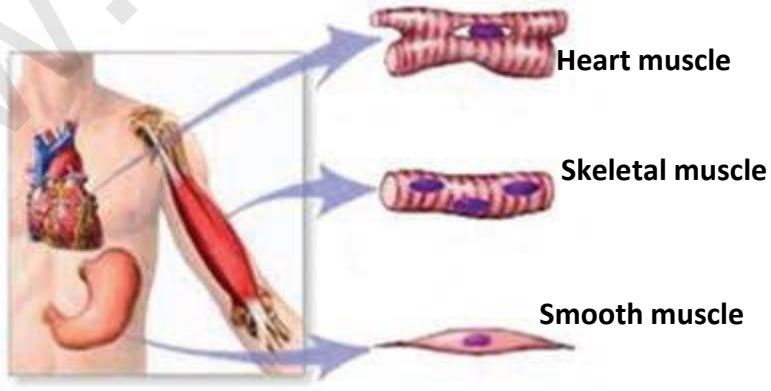
Muscular system

✓ **Anatomy of the muscular system**

- Different types of muscles perform specific actions in various parts of the body.
- Different postures can be adapted due to the contraction and relaxation of muscles
- Tendons are attached to bones. They are thick and strong and help with movement.
- The muscles are attached to the bones and help with movements
- The energy needed is stored in the muscles
- The nerves send stimuli for contraction and relaxation of muscles and help with movements
- Special muscles in the face are involved when crying, laughing, showing happiness and sadness.

✓ **There are three types of muscles classified according to the function and structure**

- Skeletal muscles
- Smooth muscles
- Cardiac muscles



✓ **Skeletal muscles**

- These muscles constitute 40% of the body weight.
- They are long and cylindrical in shape. The two ends are attached to the bone by tendons. They are called striated muscles due to the horizontal striations seen in the muscle.
- The muscles are controlled by the brain. They contract in a rhythmical manner and get tired. There are more than one nucleus and a large number of mitochondria in a muscle cell.

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- Glycogen is stored as a source of energy in the muscles. Striated muscles are present in the arms, legs and diaphragm

✓ **Smooth muscles**

- These muscles constitute about 3% of body weight. There is one nucleus in the muscle cell.
- The muscles are long and the striations are not seen. They contract in a slow, rhythmical manner and do not get fatigued.
- Smooth muscles are present in walls of arteries, veins and the digestive tract

✓ **Cardiac muscles**

- The cells branch out. Each cell has one nucleus. A large number of mitochondria are present in the muscle cells.
- These muscles contract nonstop in a rhythmic manner right throughout one's life.
- Cardiac muscles are present only in the heart.

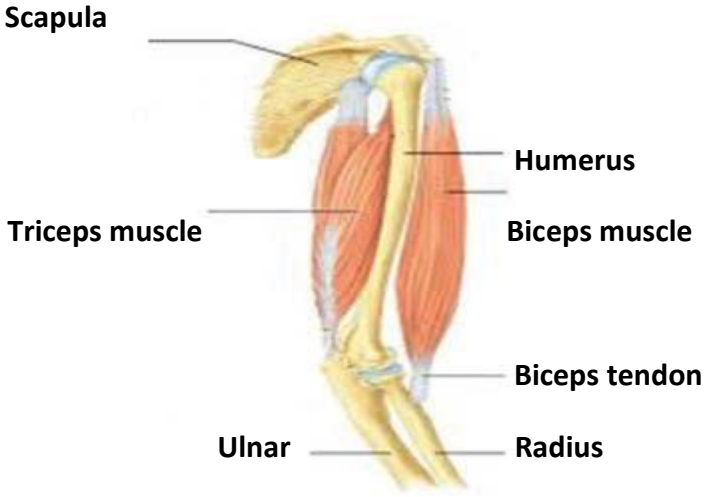
✓ Functions of the muscular system

- Aids in body movement by contraction and relaxation
- The heat generated during muscle contraction is used to maintain the body temperature
- Storage of glycogen needed to generate energy
- Intercostal muscles and diaphragmatic muscles aid in respiration.

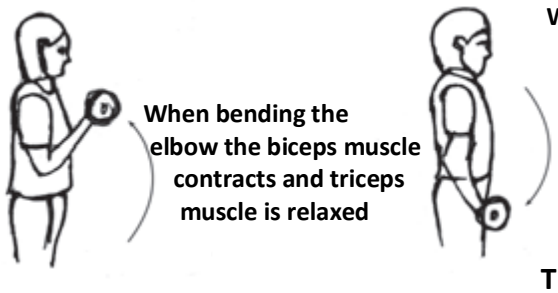
✓ How does muscular system work

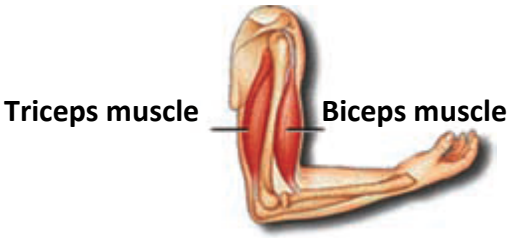
➢ **Contraction and relaxation of muscles**

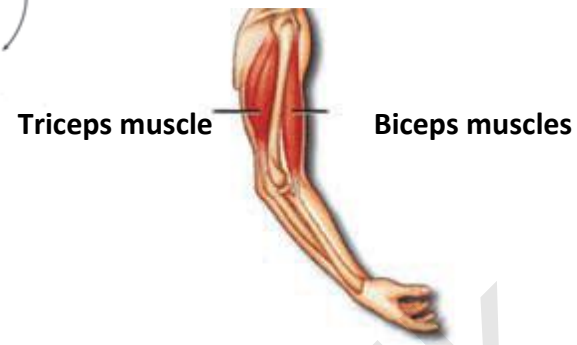
- The skeletal muscles help in movements and to maintain posture. The muscles have a narrow end and a broad middle. They are designed to help with movements that will be efficient



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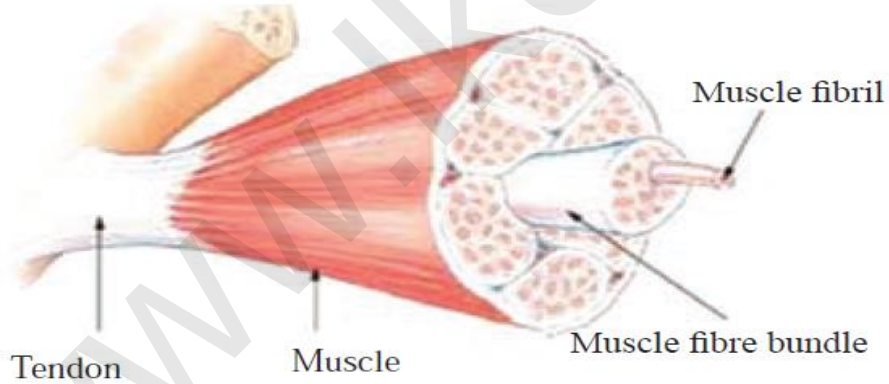






- ✓ When the elbow is bent the biceps muscle contracts and triceps is relaxed. When elbow is extended the triceps contracts and the biceps is relaxed.

- ✓ The basic structural unit of an organism is a cell. The basic unit of a muscle is known as a muscle fibre. Figure 13.4 shows how multiple muscle fibres make a muscle bundle and many muscle bundles make a muscle.



Ratio of fibres

- ✓ You have learnt about the structure and function of muscle fibres. Recall how your friends play in the grounds. One friend can run very fast but gets tired soon and another can run slowly for a long period without getting tired. Various types of muscle fibres help in these situations.
- ✓ The energy needed to perform a task generated by a muscle is known as **muscle energy**.
- ✓ The muscles of the student who runs fast will contract and relax very quickly.
- ✓ Whilst the muscles of the student who runs slowly for a long period will contract and relax slowly.

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- ✓ Sports medicine has helped the progress of sports immensely.
- ✓ Two types of fibres have been identified. They are
  slow twitch fibres
  fast twitch fibres.
- ✓ The fast twitch fibres are further categorized into two. In this grade you are expected to study
- ✓ **slow twitch**
- ✓ **fast twitch** fibres only.
- ✓ You are born with a particular ratio of these twitch fibres. The friend who **runs very fast has a higher ratio of fast twitch fibres to slow twitch fibres** whilst the friend who **runs slowly has a higher ratio of slow twitch fibres to fast twitch fibres.**

1. Slow twitch fibres- STF; Type 1

- These fibres are also known as red fibres as oxygen is utilized to generate energy (red blood corpuscles transport oxygen). These fibres have a lot of capillaries. The sportsmen with a high ratio of these fibres have the ability to run long distances successfully.

2. Fast twitch fibres FTF; Type 11

- Oxygenation (need to use oxygen) in these fibres is low. These fibres do not utilize oxygen to generate energy. Therefore, the ability to contract is more in these fibres. Sports persons with a higher ratio of these fibres can perform events that require speed such as sprints, jumps, throws and excel at them.

Identify the differences between these two fibres.

Characteristics	Fast twitch fibres	Slow twitch fibres
Colour	white	red
Storage food (glycogen)	more	less
Speed of contraction	more	less
Aerobic respiration	less	more
Anaerobic respiration	more	less
Resistant to fatigue	less	more
Involved in high impact sports	more	less
Involved in long duration	less	more

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• Uses of skills training in sports

- ✓ The area of the cross section of the fibre can be increased. Strength can be developed by doing resistance exercises.
- ✓ The number of units in motion are more. Impulses travel to the fibres fast and the velocity is increased. Therefore, the fibres contract very fast.
- ✓ The number of mitochondria present in fibres increases. The production of ATP and storage increases. Thus, one does not get tired quickly.
- ✓ The density of blood vessels in the muscles increases. The number of capillaries in the muscles increases. This enables the rapid transport of glucose and oxygen to the muscle cell. Excretory products are also transported out rapidly. Thus, performance can continue for a longer period.

• The factors that hinder the functioning of the muscular system

✓ **Nutritional deficiencies**

- The development of muscles is affected due to nutritional deficiencies from the time you are a foetus right until you pass the other developmental stages

✓ **Wrong postures**

- Wrong postures tire the muscles and cause muscular ailments. When muscles are not used properly a lot of energy is used. Therefore, wrong postures over a long duration can lead to various diseases.

✓ **Inadequate amount of exercise and rest**

- The muscles are affected when the body does not get adequate exercise. Rest is needed for cells to regenerate. A person can have physical ailments if he works for a long period without rest. It is important that you do warm up exercise when you engage in sports or exercises, as the muscles can get damaged.

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• Ways to Protecting the muscular system

✓ **Good eating habits**

- Balanced meal including calories is important to protect the muscular system. It is important to eat at regular times and to eat natural food as much as possible. It is necessary that you eat high quality proteins and non-vegetarian food.

✓ **Maintain good postures**

- Fatigue felt by muscles can be minimized by maintaining a correct posture. Maintaining good postures help to have healthy muscles.

✓ **Taking adequate exercise and rest**

- An adult should engage in at least 30 minutes of exercise daily. Exercise develops the function of muscles, capillaries that are connected to them and nerve endings. Getting at least six hours of sleep a day regenerates the tired body. The worn-out cells are regenerated and muscles remain the original state by rest. It is important that one does warming up exercises before sports or exercises.

• Skeletal system

✓ **Special characteristics of the skeletal system**

- The skeletal system that comprises 206 bones.
- The brain is protected by the thick and rounded skull.
- The eyes are protected by the sockets.
- Ball and socket joints help perform a wide range of movements
- The digits in the fingers help with the ability to hold
- The female's pelvic bones are designed to assist with child birth
- Ribs protect the heart and lungs
- The femur is long, broad and strong to bear weight.
- Cartilage at end of bones protects the bones within a joint.
- A bone heals even if it fractures
- Bone marrow manufactures blood corpuscles

➢ The bones cannot function alone. Muscles help in movement. Human bones are initially formed with cartilage and subsequently replaced by bone cells. The deposition of minerals makes it hard. Most bones are hollow. The marrow in the hollow portion of the bone manufactures blood cells. Bones store calcium and phosphate.

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Classification of bones depending on the shape

- Long bones- present in arms and legs
- Short bones- present in the fingers and toes
- Flat bones- skull, ribs, shoulder blades and pelvic bones
- Irregular bones- spine, some bones in hands and feet

Functions of the skeletal system

- Gives shape to the body
- Bears the weight of the body
- Muscles are attached to bones by tendons for movement of joints
- Manufactures blood corpuscles
- Stores minerals such as calcium
- Protects the internal organs

How does skeletal system work

✓ Joints that help in movements

- **Hinge joint**

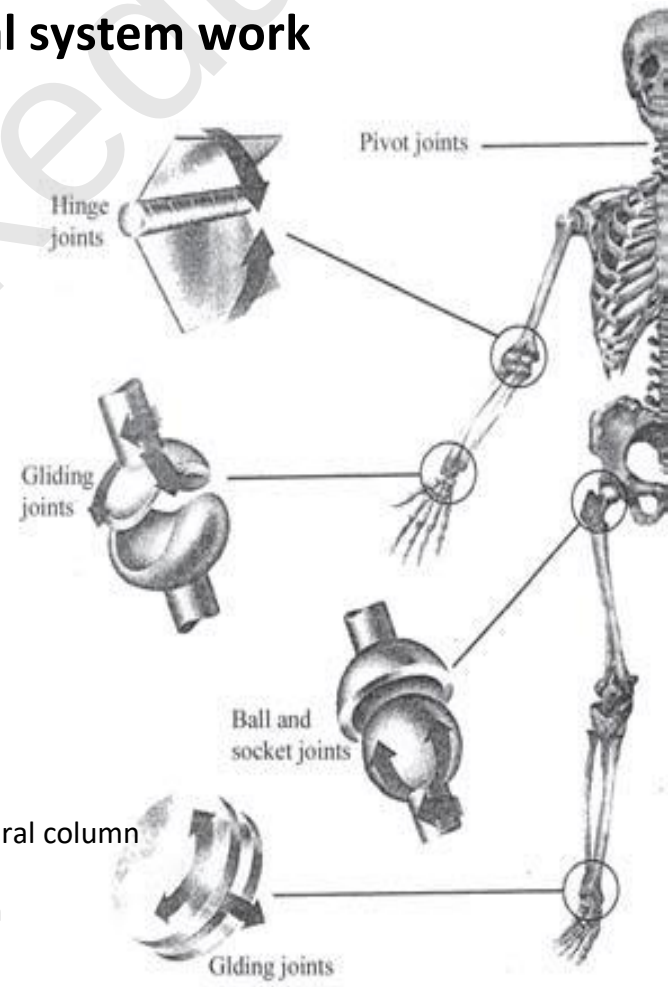
• This movement is similar to a door being opened and shut. The joint acts similar to the hinge of a door.
• Movement is not more than 180x
• Examples for this joint are the elbow, knee, and digits of fingers and toes.

- **Ball and socket joint**

• This is similar to a ball in a corresponding cavity
• Movement is 360x
• Examples are shoulder joint and hip joint

- **Pivot Joint**

• The joint where the Atlas (1st vertebrae) and Axial vertebrae (2nd vertebrae) meet in the vertebral column
• This joint has been designed so that the head can be moved from side to side and up and down



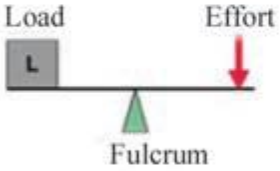
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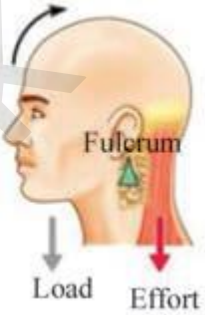
- **Gliding Joint**

• Ankle and wrist joints have gliding joints
• Movements can be performed to the front and back left and right Bones and muscles act as levers during movements. A lever is a rod that can be moved around a stable point. This bone is similar to the rod.
• Fulcrum or pivot is the fixed point in a lever. Joints in our body are examples of this
• The effort is the power on the lever. It is done by muscles.
• The resistance on the lever is the load. A mass raised by the arm is an example.

The movements in our body due to muscle and bones are similar to one of three types of levers

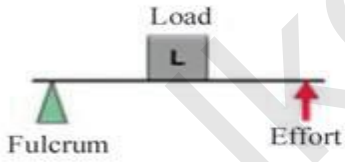
- **Type 1 lever**





✓ **Effort** - energy is supplied by contraction of muscle
✓ **Fulcrum** - Atlanto - Axial joint between 1st and 2nd vertebrate
✓ **Load** - weight of head

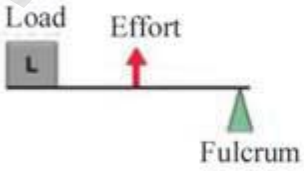
- **Type 11 levers**





✓ **Fulcrum** - the toes on the floor
✓ **Effort** - the gastrocnemius and soleus muscles of leg contracting
✓ **Load** - the weight of the body being directed down along the line of gravity

- **Lever type 111**





✓ **Fulcrum** – elbow
✓ **Load** - put shot
✓ **Effort** - biceps contracting to get the power

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Factors that hinder the functioning of the skeletal system

- ✓ Accidents
- ✓ Congenital bone diseases
- ✓ Poor posture
- ✓ Nutritional deficiencies and obesity
- ✓ Arthritis

Ways of protecting the skeletal system

- ✓ Good nutrition
- ✓ Healthy life style
- ✓ Maintaining a good posture
- ✓ Exercising daily
- ✓ Obtaining adequate amount of calcium from food

Nervous system

Structure of the nervous system

- ✓ Impulses obtained from the environment can be converted to electrical impulses
- ✓ Impulses are transmitted in a very short time
- ✓ Reactions can occur with or without thinking
- ✓ The brain controls our actions and is able to memorise them



- **The nervous system can be divided into two**
- ✓ Central nervous system
- ✓ Peripheral nervous system

Central nervous system

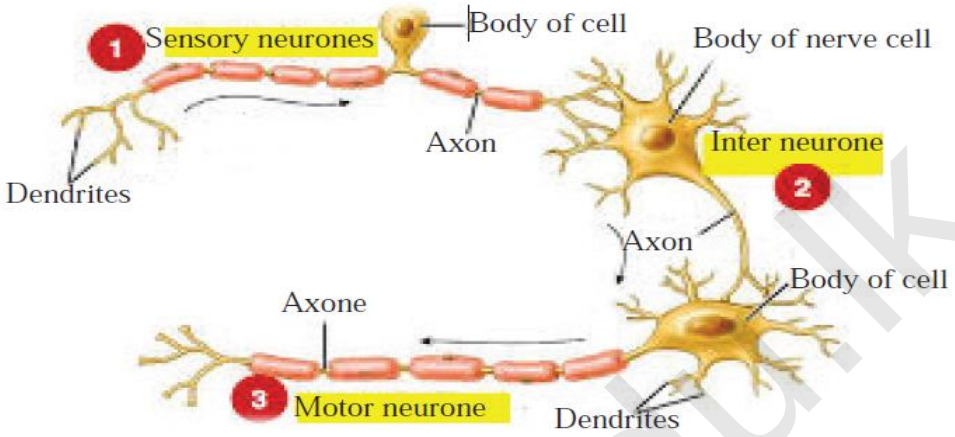
Brain - The brain and the spinal cord are the components of this system. The prominent part of the brain is the cerebrum. This constitutes left and right hemispheres that are divided by a sulcus. Cognitive functions such as memory, intelligence, responsibility, analysis, decent behaviour and learning are controlled by the cerebrum. Perceptions such as vision, hearing, taste, smell, touch, pressure, pain, warmth and cold are also identified by the cerebrum

Spinal cord - The spinal cord is a cylindrical bundle of nerves that runs down from the brain through the vertebral column. The spinal nerves arise from both sides of the spinal cord in pairs. There are 31 pairs of spinal nerves.

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Peripheral nervous system

- The 12 cranial nerves starting from the brain and the 31 spinal nerves arising from the spinal cord constitute the peripheral nervous system. Nerve cells are known as neurons. There are three types of neurons.



✓ **Sensory neurons**

- These nerves transmit impulses from sensory organs to the central nervous system

✓ **Motor neurons**

- These nerves transmit impulses from the central nervous system to the muscles

✓ **Inter neurons**

- Neurons that transmit impulses between sensory neurons and motor neurons

Functioning of the nervous system

Motor and sensory functions

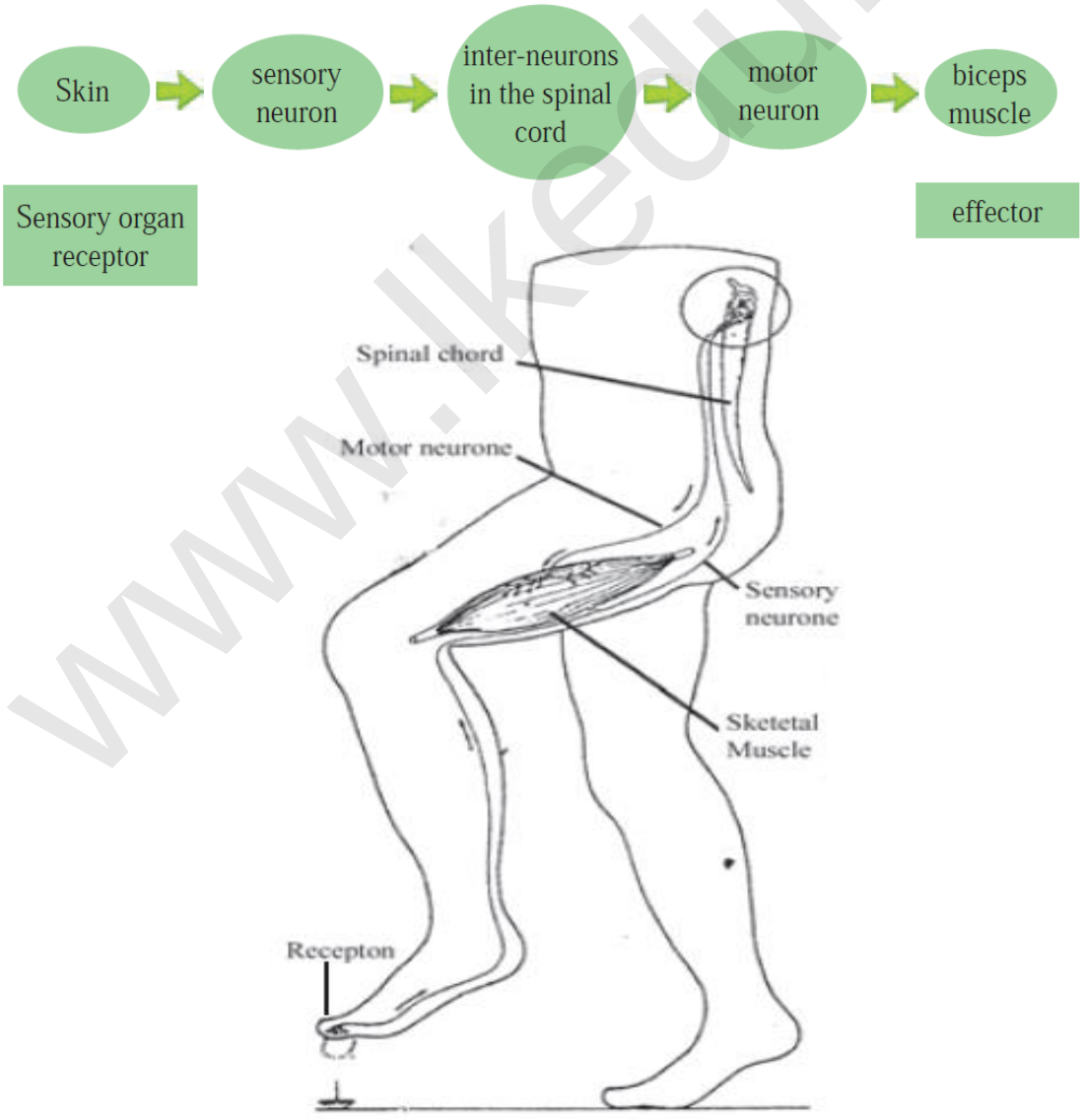
✓ The dendrites of sensory neurons start from sensory organs. The stimulus is taken up by the dendrites in the sensory organ. The axons of these neurons are situated in the central nervous system. The path of the impulses is directed from the organ towards the brain. The impulses in the motor neurons travel from the central nervous system to the effector which is the muscle.

✓ The sensory organs such as the eyes, ears, nose, tongue and skin receive the stimulus and impulses are sent via the sensory neurons to the central nervous system as messages. The central nervous system send back a message with regards to the action that should take place via the motor neurons to the effector.

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Reflexes

- ✓ In sports we think of the action needed to perform. Sometimes we react to an impulse instantly without having to think. This is known as a reflex. Recall how you reacted when your hand touched a hot electric iron. You may remember removing your hand immediately? That is a reflex action.
- ✓ The stimulus is the heat. It feels to the skin slowly. Impulses travel from the skin through the sensory neurons in the spinal cord. The inter-neurons in the spinal cord sends impulses to the hand along the motor neurons. The hand is removed immediately. The message reach the brain little later and after the immediate response the person will realize the incidence that occurred. The harm is minimized as the action is done very fast.
- ✓ The hand is taken off without our knowledge. It is known to us only after the reflex action. This pathway that impulses travel is called a reflex arc.



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Conditioned reflexes

- ✓ Scientists say that other than the innate reflexes we are born with, experience can develop reflexes. Reflexes that are developed from experience are known as conditioned reflexes. The pathway to these new reflexes is via the brain. Complex conditioned reflexes compared to the simple conditioned reflexes may not last throughout life.
- ✓ Conditioned reflexes could be developed by systematic training. Thereby complex sports skills can be performed in the correct manner without difficulty.

Factors that cause harm to the nervous system

- ✓ Smoking
- ✓ Using illicit drugs and alcohol
- ✓ Congenital diseases
- ✓ Illnesses that occur during pregnancy and birth
- ✓ Nutritional deficiencies that occur during pregnancy

Protecting the nervous system

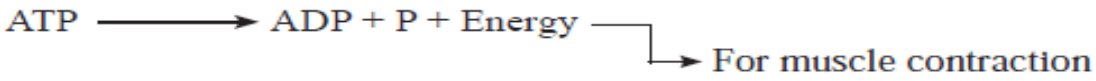
- ✓ Refrain from smoking
- ✓ Abstaining from using illicit substances
- ✓ Providing pregnant mothers and adolescent females proper nutrition
- ✓ Exercising
- ✓ Leading a stress-free life and being happy
- ✓ Getting adequate sleep and rest
- ✓ Protecting the eyes, ears, nose, tongue and skin

How energy is supplied during movements

- ✓ We learnt, there is a function of contraction and relaxation of muscles. For this action energy is needed. The energy is generated from ATP (Adenosine triphosphate) in mitochondria that is present in the muscle.
- ✓ **ATP molecule**

- Adenosine – Phosphate – Phosphate – phosphate
  One adenosine molecule is attached to three phosphate molecules. Energy is generated when a bond between two phosphate molecules is broken. This energy is used for the contraction of muscles.
- When ATP gets broken repeatedly ATP gets depleted. After energy is generated adenosine and 2 phosphate groups remains together to form Adenosine diphosphate.

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- ADP cannot generate energy again till it is converted to ATP. For that the released phosphate should get attached. Energy needed for the production of ATP occurs in two ways.

1. Anaerobic method

2. Aerobic method

✓ Anaerobic method

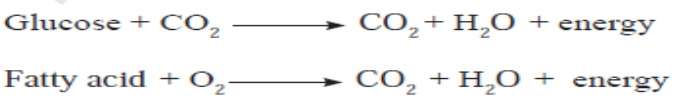
- The glycogen stored in the muscles are used for this purpose. In speed events energy is produced without utilizing oxygen. Under this method while producing energy it produces lactic acid. This energy is utilized to convert ADP to ATP.

Glycogen ⟶ Lactic Acid + Energy

- This method can generate only a small amount of energy and also it can be supplied for a short period only. Lactic acid gets accumulated in the muscles and they get fatigued. In the presence of oxygen, the lactic acid is cleared and relieved the muscle from fatigue.
- **In events like 400 running this method is used to produce energy. In the final stages of 800m and 1500m events this method is used. Untrained athletes run the last few stages of a 400m event at a slow speed due to the accumulation of lactic acid.**

✓ Aerobic method

- Glucose and fatty acids are used to generate energy in this method. Glucose or fatty acid in the presence of oxygen produce energy. The energy generated is used to convert ADP to ATP. Carbon dioxide and water are the by-products of this process



- As oxygen is used in this method, it is known as aerobic method.
- **This method produces large amounts of energy. Energy generated by this method in not available very fast. Energy produced in this method is used in sports that take long duration of time such as Marathon, 10000m run etc.**

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- Other than above methods there is an another method known as creatine phosphate method.

- **Creatine phosphate (CP)** also known as **Phosphocreatine (PCr),** is a molecule that serves as a rapidly mobilizable reserve of high-energy phosphates in skeletal muscles. When energy has to be supplied immediately, breakdown of creatine phosphate will provide the required.

$$\text{Creatine phosphate} \longrightarrow \text{creatine} + \text{Phosphate} + \text{Energy}$$

- This energy will be used to convert ADP to ATP. This method can function with or without the use of oxygen. As it does not use oxygen, sometimes it is referred to as the Anaerobic Alactic method.
- **Events such as 100m, 200m, 100m x 4 relay, jumps, throws and carrying weight, which require a burst of energy instantly, specially at the beginning (first 2-3 seconds) is supplied by this method.**

Involvement of the muscular system during exercise

- There are many ways that energy is generated for the muscles to act. During high impact exercise and low impact exercise energy is produced in different ways.
- In movements, muscles that are used more and use more force are stronger and bigger. It is due to the cross section being larger,
- By exercising, the endurance and flexibility can be improved.
- The number of mitochondria is increased and ATP increases.
- During training the lactic acid breakdown becomes fast.
- By exercising the activity becomes more efficient depending on the type of muscle fibres you posses

Involvement of the different systems during exercise

- Larger and stronger muscles are situated in places where there is a lot of strain on the body.
- To prevent muscle injury during strenuous activities muscles get fatigued.
- By training the density of capillaries are increased.
- The time taken to produce lactic acid can be lengthened by training
- By training, cardiac muscles get strengthen Involvement of the skeletal system during exercise
- The limb bones are strong and long to bear the weight of the body and get stronger when exercising
- Presence of ball and socket joints help to increase the range of movements

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- The natural position of the atlas vertebra help in a range of movements of the head.
- Muscles are attached to joints which aid in movements and get stronger with exercise.
- The natural position of the vertebral columns helps in the ease and efficiency of movements.
- Presence of arches in the feet help in efficient walking and running.
- The joints in the feet help to absorb the impact of vibration.

Involvement of nervous system during exercise

- Conditioned reflexes are developed
- Unnecessary movements are reduced due to the impulses being directed appropriately
- The parasympathetic nervous system works more during rest
- During exercise the sympathetic nervous system works more
- The organs work more efficiently eg: heart and lungs
- Thirst makes us drink water to compensate for the volume of water that gets excreted as sweat during exercise.
- Fainting attacks occur as a measure to regain oxygen lost during exercise to the brain.

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14 related to Let us maintain fitness motor skills

- ✓ In order to lead a healthy life, it is necessary to maintain **physical, mental and social fitness.**
- ✓ Activities that require a large amount of physical exertion in the past are now done easily with the use of modern technology. Furthermore, we are at risk of developing non-communicable diseases from a younger age due to the unhealthy lifestyle.

Components of fitness related to motor skills

01. Name the components in fitness related to motor skills.

- ✓ Power
- ✓ Agility
- ✓ Coordination
- ✓ Balance
- ✓ Speed
- ✓ Reaction speed

Power

02. What is known as power?

- ✓ The ability to exert or release a maximal force in the shortest time is known as power. It can also be defined as the ability to move by instant exertion of muscle force against resistance. Power is a product of muscle strength and speed. Power is essential in all sports. However, some sports require more power than others.

03. Examples of instances where power is important in sports.

- ✓ **Weight lifting**
  - In events such as snatch and power clean, in order to succeed it is necessary to lift a heavy weight instantaneously. The competitor with greater power would win such an event. The resistance is produced by the weight lifting equipment, which is overcome by muscle strength which will result in movement of the equipment.



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- ✓ **Athletics**
    - Events such as throwing the shot put and the take-off of the long jump require competitors to have developed greater power. In throwing the shot put, it is necessary to concentrate the power in your body on to your throwing arm and to let go of the shot put very quickly. This requires training in specific technical skills of throwing the shot put.
    - Similarly, the power exerted on the take-off board in long jump enables the athlete to jump a longer distance. Therefore, the athlete who can instantly release the power in his legs during long jump is able to demonstrate greater skill.
    - **Further examples of how power is useful in sports include;**
        - spiking in volleyball
        - the power exerted at the start of a short distance running event

04. Activities to improve power.

- ✓ **Throwing a medicine ball**
- ✓ Medicine balls are made to different weights. The medicine ball can be thrown both forward and backwards using both arms. The ball can be thrown using one arm as well. The steps noted below should be followed when throwing a medicine ball.
    - Stand with both feet parallel to each other.
    - Hold the medicine ball close to your chest using both hands.
    - Bend the knees and move your body downwards, while holding them medicine ball.
    - Raise your body while fully extending your arms and throw the medicine ball as far away as possible quickly.





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- ✓ **Jumping exercises (these exercises need to be done quickly)**
    - Hop 5 steps forward using your left leg.
    - Hop 5 steps forward using your right leg.
    - Keep both feet together and jump forward.
    - Keep a few small boxes an equal distance apart and hop over them with
    - one leg (This exercise should be carried out using both feet alternately).

Agility

01. What is agility?

- ✓ Agility is the ability to instantaneously and smoothly change course, controlling the direction and position of your body.
- ✓ In certain sports activities it is necessary to quickly and instantaneously change your posture. When changing from one posture to another, agility is required to identify the next change in posture and to change into it quickly.

02. Write some examples of instances where agility is useful in sports.

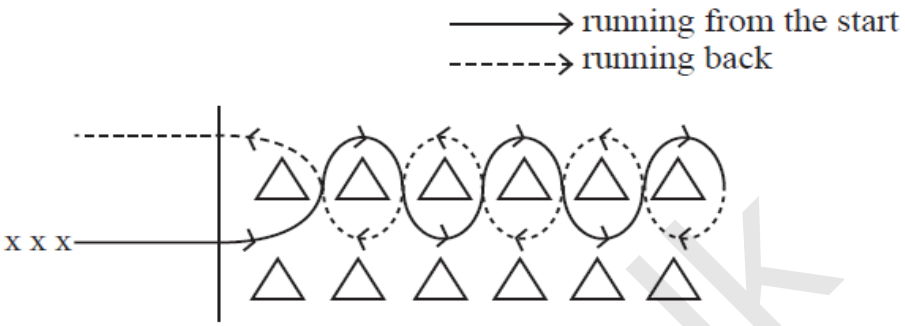
- ✓ In sports such as rugby, football and basketball it is necessary to take the ball to the goal while avoiding the players from the opposing team (in order to avoid one's opponents while moving forward, it is necessary to be able to instantaneously change posture).
- ✓ In sports such as football and hockey, the goalkeeper needs to change his/her posture depending on how the ball is coming towards him/her.
- ✓ Agility is very useful in sports such as javelin throw and hurdles.



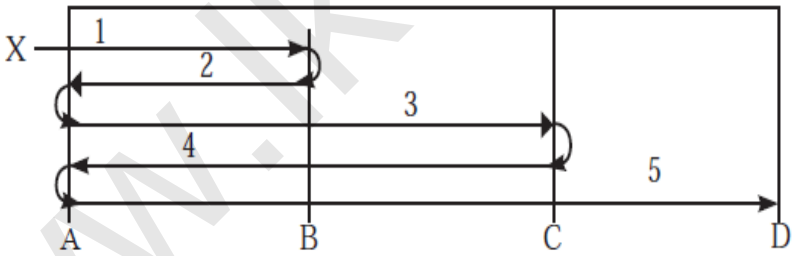
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03. Write 02 activities to improve agility.

- ✓ **Zig zag run**
  - Arrange cones into two parallel lines with space in between adjoining cones. This enables the participants to weave through them in a zig zag manner.



- ✓ **Shuttle run**
  - According to the figure 14.5 draw four lines named ABCD an equal distance (1m) apart from each other. When a signal is given run from line A to line B and touch line B. Instantly turn around and run back to line A and touch line A. Turn around instantly again and run to line C and touch line C. A person involved in this activity will need to change the posture instantaneously.



Coordination

01. What is Coordination?

- ✓ Coordination is the ability to use your senses such as hearing and vision and different parts of the body together, to perform tasks smoothly and accurately. For good coordination there should be optimal functioning of the nervous system and the musculoskeletal system of the body. Coordination is important for all sports.

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02. Write some examples of instances where coordination is useful in sports.

- ✓ In sports where rackets are used, such as table tennis, squash and badminton, there should be good coordination between the eyes and hands. It is important for the player to see the ball and to move the racket to where the ball is coming from.

- ✓ In parades to act on a given command the participants need to coordinate what they hear with their musculoskeletal system and move their hands and feet accordingly.

- ✓ Competitors with good coordination excel at sporting competitions.

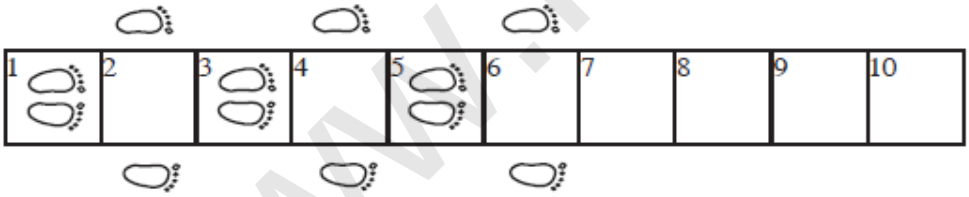
03. Write some activities to improve coordination.

- ✓ **Running ladder**

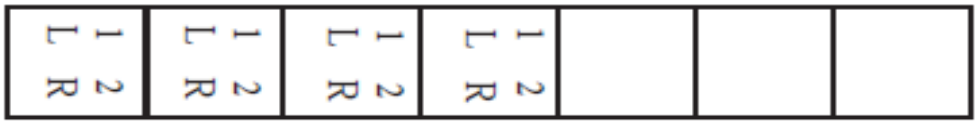
Draw 10 squares, which are 50cm X 50cm in the playground.



- Jump from one square to the next using both feet as you move forward.
- Next use your left leg to hop from one square to the next.
- Thirdly use your right leg to hop from one square to the next.



- Keep both feet inside the first square.
- Next keep both feet outside the second square.
- Keep both feet inside the third square again.
- In this manner jump forward.



- First keep your left foot in the first square.
- Then keep your right foot in the same square.
- Move your left foot to the second square first and then keep your right foot there.
- Move forward placing your feet in this pattern.

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- ✓ **Other exercises**
    - Run on the spot slowly to the rhythm of 1, 2, 3, 4
    - To the same rhythm, first bend your left leg and while raising it forward use your right hand to touch the toes of your left foot.
    - Next bend your right leg while raising it forward and use your left hand to touch the toes of your right foot.
    - Thirdly extend your left foot backwards and touch your toes using your right hand.
    - Fourthly extend your right foot backwards and touch your toes using your left hand.
- ✓ Do this exercise slowly according to the numbers initially, but once you are used to the sequence you can increase the speed.



Balance

01. What is Balance?

- ✓ The ability to maintain and control your body either when still or when moving is known as balance.
- ✓ Examples for maintaining balance when still or during slow movements respectively are standing at ease and serving in volleyball.
- ✓ Gymnastics is an example of maintaining balance when there are quick movements.

02. Write some examples of instances where balance is useful in sports.

- ✓ In gymnastics, all the movements and the finale need to demonstrate good balance in posture.
- ✓ In weight lifting good physical balance is demonstrated when the athlete lifts the weight above his head at the end.
- ✓ In martial arts a person must be well balanced while delivering a punch to the opponent as well as when landing after an attack.
- ✓ Ballet dancing also requires good balance.
- ✓ In athletics, especially high jump and throwing the shot-put balance is important.



03. Write some activities to improve balance.

- ✓ Jump up and turn half a circle and land on the ground while maintaining balance.
- ✓ Jump up and turn full circle and land on the ground while maintaining balance.
- ✓ Stand on one foot, bend your body forward, extend the other foot backwards and extend your arms to either side. Try to maintain this posture for a brief period (this exercise can be done alternating between the left and right foot).

Speed

01. What is Speed?

- ✓ The ability to carry out the maximum motor activity during the shortest possible time is defined as speed. All athletes require speed to succeed in sports.

02. Write some examples of instances where speed is useful in sports.

- ✓ In running events such as100m, 200m, 100m X 4 relay
- ✓ The approach run of the long jump
- ✓ Running between the wickets in cricket



03. Write some activities to improve speed.

- ✓ Run fast for approximately 30m.
- ✓ Run downwards over a slight incline.
- ✓ Roll a ball on the ground and run behind it and try to catch or touch the ball.

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Reaction Speed

01. What is Reaction Speed?

- ✓ The speed with which one is able to respond to an external stimulus is called the reaction speed Sportsmen with a fast reaction speed can make use of this to win games.
- ✓ In team sports players need to react to the movements of the opponents as well as the sporting equipment instantaneously. Thus, it is an important skill to develop in sportsmen.

02. Write some Examples of instances where reaction speed is useful in sports.

- ✓ At the start of short distance running events.
- ✓ The wicket keeper needs to have a fast reaction speed in cricket.
- ✓ Goalkeepers in football and hockey also require a fast reaction speed.

03. Write some activities to improve reaction speed.

- ✓ 'Meeyo Meemo' game-Listen carefully and respond to the correct word.
- ✓ Draw a starting line and lie on your back close to it. When the leader blows a whistle, or claps his hands, get up and start running forward.
- ✓ throw an empty tin backwards while standing and start running forward when you hear the tin hit the ground.



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15 Let us maintain good interpersonal relationships

01. What is known as Good Interpersonal relationship?

- ✓ Good interpersonal relationships are positive relationships between two or more people.

02. Write the importance of maintaining good interpersonal relationships?

- ✓ Much can be learnt by having relationships with people from varying age groups, religious and ethnic backgrounds, diverse areas of knowledge and socio-economic strata.
- ✓ We must have the ability to understand those who we associate with and be able to identify their skills, habits, talents, likes and dislikes.
- ✓ Working in a group helps us to develop our skills in cooperation, problem identification, problem solving and decision-making.
- ✓ Through association with elders, we learn customs, habits, laws and regulations in
- ✓ the family, community and the country.
- ✓ In addition, skills in exploring, observing and reviewing will improve our ability to understand the world around us and people living in it.
- ✓ Good interpersonal relationships develop our ability to understand the emotions of others and to respond to them appropriately. They improve our skills in effective communication and enable us to receive love and respect from others and to live harmoniously in society.

03. Outcomes of different types of interpersonal relationships

	The positive outcomes	The negative outcomes
Media	• Access to information • Access to new knowledge • Opportunity to launch new creations • Improves communication skills • Improves critical thinking • Improves artistic appreciation	• Spread of false rumours • Distribution of disturbing images • Exposure to meaningless programmes • Interference with education • Promotion of alcohol and smoking • Influence people to engage in wrongful activities
Peers	• Learn how to lead and to be a follower • Learn to be flexible	Use of alcohol and illicit drugs • Engage in dangerous activities • Engage in misconduct

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	• Develop team spirit /camaraderie • Share love and kindness • Receive security and acceptance • Opportunity to learn about others ideas • Learn to identify social issues and take action	• Making wrong decisions
Other groups	• Learn to emulate other groups • Become a self-learner • Learn about customs and behaviour • Identify different social strata • Gather new information • Receive love and protection	• Use of alcohol and cigarettes • Engage in illegal activities • Exposure to bad influences • Learn harmful ideologies and adverse life styles

04. Write the Important skills in maintaining interpersonal relationships.

- ✓ **Empathy**
  - Empathy is the ability to understand and share the feelings of another person. An example of empathy is your ability to understand a friend's sadness and help him, if he had to leave a match midway due to an injury which occurred on the playing field.
- ✓ **Communication skills**
  - Communication skills are required to exchange ideas, express emotions, hold discussions and solve problems
- ✓ **Make correct decisions**
  - We often have to make decisions, when associating with others. These decisions may include simple decisions such as "What game shall we play this afternoon?" as well as decisions that require deep thinking such as " which stream of subjects should I select for advanced level examination?''. When making a decision, it is important to discuss with others and to respect their opinions.
- ✓ **Self-awareness**
  - The ability to appreciate your own emotions, beliefs, likes and dislikes is known as self-awareness. It enables us to be aware of the way we should behave during interactions with others.

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- ✓ **Critical thinking**
  - In decision making you must learn to consider all the available information and critically analyse it.
- ✓ **Creative thinking**
  - It is important to be creative in your thinking when dealing with others, as it would minimise conflicts. As a result of it, you will be a more likeable person to others.











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16 Let us identify the challenges in adolescence

- ✓ **The World Health Organization defines adolescence as the ''period between 10 and 19 years of age''.**

01. Why is adolescence an important period in your life?



- ✓ It is the period of transition from childhood to adulthood
- ✓ It is a period when future citizens are formed
- ✓ Adolescents are a resource for the country
- ✓ It is a period of rapid physical, mental and social changes occur
- ✓ It is a period you are ready to take on responsibilities
- ✓ It is a time you are ready to explore and experiment

02. Write the physical changes during adolescence.

- ✓ **Changes in males**
  - Increase in height and weight
  - Broadening of shoulders
  - Increase in muscle mass
  - Reduction of deposition of subcutaneous fat
  - Growth of hair in the axillary, chest, pubic and limbs
  - Increase in the size of genitals
  - Development of acne on the face
  - Increase perspiration and body odour
  - Production of sperm
  - Adam's apple (larynx) becomes prominent
  - Voice becomes deep
  - Growth of beard



- ✓ **Changes in females**
  - Increase in height and weight
  - Development of breasts and skin becomes smooth
  - Broadening of hips
  - Increase deposition of fat in subcutaneous tissues
  - Appearance of axillary and pubic hair
  - Increase in size of genitalia Development of acne on the face
  - Increase perspiration and body odour
  - Start of menstruation
  - Production of vaginal secretions

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03. Mention the Mental and social changes during adolescence.

- ✓ Interest in one's body
- ✓ Interested in working for the common good
- ✓ Tend to stand up against injustice
- ✓ Desire to experiment
- ✓ Greater creativity
- ✓ Prefers to make independent decisions
- ✓ Desire to display capabilities and be outstanding
- ✓ Interest in the opposite sex
- ✓ Interest in forming romantic relationships
- ✓ Development of sexual feelings
- ✓ Prefer company of adults
- ✓ Interested in aesthetic activities



➢ **Do you know the reason for these physical and mental changes?**

- Many of the physical and mental changes in adolescence occur due to the changes in hormones.
- Due to production of FSH and LH hormones by the pituitary gland, oestrogen is secreted by the ovaries in females and testosterone is secreted by the testes in males.
- The action of these hormones causes secondary sexual characteristics in males and females.
- An accelerated growth or a growth spurt is seen because of the action of the hormones. Many changes in the reproductive system such as production of sperm and activation of ovaries occur due to these hormones.
- **This growth spurt occurs between the ages of 9 and 12 years in girls and between 12 and 14 years in boys.**

➢ **Your environment too contributes to your mental and social changes.**

- ✓ Influence of opposite sex
- ✓ Influence of peers
- ✓ Influence of advertisements
- ✓ Behaviour and attitudes of family, relations and friends you associate with

- **Decisions made during this period tend to be influenced by feelings and with little concern about the outcome. The reason for this is the underdevelopment of the fore-brain. Therefore, remember to take advice from elders (parent, teachers) when making decisions.**

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04. Mention the problems and challenges during adolescence.

- ✓ **Problems related to nutrition**
  - Improperly balanced meals, inadequate food, fast food, food made with large amount of wheat flour, oil or sugar may lead to obesity and other illnesses. Malnutrition at this age will have an effect on your next generation as well

- ✓ **Problems associated with the development of secondary sexual characteristics**
  - Among males, delayed growth of beard, size of the penis, changes in the voice among girl's preoccupation with the size of the breasts, irregularities in the menstrual cycle, pain and discomfort during periods are some problems faced by adolescents.
  - Menarche and production of semen depend on various factors such as genetic composition, environment, growth and level of nutrition.

- ✓ **Problems due to sexuality**
  - Myths regarding sexuality eg: Menstruation being considered a period of uncleanliness
  - Sexual abuse
  - Pregnancy

➢ Pregnancy could occur due to rape or even having sexual intercourse out of ignorance. Getting pregnant leads to many problems as they are mentally and physically not prepared for such.

- ✓ **Problems due to peer groups**
  - Peer suggestions and attitudes are important at this stage. Unwillingness to go along with them may cause rejection and isolation from the group. As a result, experimenting with illicit drugs, alcohol, smoking and engaging in unsuitable sexual activities at this stage can lead many problems.

- ✓ **Problems encountered with the media**
  - Misleading advertising and false propaganda may create problems, if you try to experiment with them.

- ✓ **Problems due to education and exam pressure**
  - Difficulties in understanding and remembering school work
  - Being scared of the reactions of parents and society due to failure in exams
  - Difficulties securing a job due to poor qualifications

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- ✓ **Problems arising from the use of illicit substances such as alcohol, illicit drugs, tobacco and banned stimulants**
    - Due to use of illicit drugs, one can be rejected by society, education can be jeopardized, be expelled from school or work place, get involved in theft which can lead to being jailed or sent to probation via the judicial system.
    - Using banned stimulants can lead to long term harm to the body or even cause death. In addition, one will be banned from taking part in competitive sports, victory declared null and void and lead to shame.

- ✓ **Problems due to growth and appearance**
    - Both males and females during this period are concerned about the body, complexion, height, being fat or thin, hair, acne and fungal infections. Boys may want to increase their physical strength, while girls may want to improve their appearance.

05. Briefly explain what is known as Unwanted pregnancies?

- ✓ poor sexual education and by acting out their feelings instead of rational thinking.

06. Write some factors can be reasons for pregnancy in adolescence.

Physical changes	Psychological changes or social factors
Sex hormones leading to; • Sexual stimulation • Physical development	• Attraction towards the opposite sex • Romantic relationships • Desire to be outstanding • Desire adult company • Desire to experiment • Interest in one's body • Ignorance about outcomes of sexual intercourse and pregnancy • Not being concerned about one's safety

- ➢ **Problems that arise from unwanted pregnancies**
    - Becoming a parent before you attain physical, mental, social and financial stability can bring about undesired difficulties for you and the offspring.
    - Some problems can be isolation from society, early termination of education, menial jobs, fear, uncertainty about your and your child's future, early and forced marriages leading to despair, unhappiness and possible divorce.
    - A baby born under such circumstances might be malnourished and may even die at an early age. The society may consider such children as illegitimate and marginalise them. It has been seen that some people perform abortions to avoid unwanted child birth.

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07. Write some good qualities of an adolescent.

- ✓ Creativity and exploration
- ✓ Bravery
- ✓ Aesthetic sense
- ✓ Generosity
- ✓ Dedication to and enjoyment of social service
- ✓ Setting an example to peers and young
- ✓ Democracy
- ✓ Fairness

08. How to overcome challenges encountered during adolescence.

- ✓ Develop skills in thinking:
  - make responsible decisions,
  - think in a creative manner,
  - develop analytical thinking,
  - develop logical thinking.

- ✓ Get involved in aesthetic activities such as dancing, arts, journalism or singing
- ✓ Seek an adult's opinion before venturing out to explore, experiment, test and get involved in social responsibility projects such as shramadhane
- ✓ Get involve in religious activities
- ✓ Do sports, learn methods of self-protection and improve physical fitness
- ✓ Have a good understanding of reproductive health and functions of the human body by reading relevant educational books



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17 Let us prevent sexually transmitted diseases

01. what is sexually transmitted diseases?

- ✓ A sexually transmitted disease (STD), is a disease that is contracted from asexual encounter with a person who is already infected with the disease.

02. Explain the sexually transmitted diseases.

- ✓ **Gonorrhoea**
  - **Signs of disease**

➢ A white discharge or secretion from a man's penis or a burning sensation or pain during urination.
➢ In females, occasionally a discharge or secretion from the vagina is seen, but this is rare.
➢ Females do not show signs of infection in the early stages.
➢ A baby can get infected from an infected mother during birth. The baby's eyes can be affected leading to loss of sight**.**



- ✓ **Genital Herpes**
- ✓ This can be transmitted during vaginal intercourse with an infected person as well as from kissing, or having oral or anal intercourse with such a person. Once the virus enters the body, it will be in your system for life and symptoms will manifest on and off.
  - **Signs of disease**

➢ It starts with liquid filled bubbles and lead to painful wounds
➢ It takes between 10-14 days for the initial wounds to heal
➢ Pain or burning sensation when urinating
➢ Fever
➢ If a healthy person comes into contact with herpes bubbles that contain the virus, he may get infected.



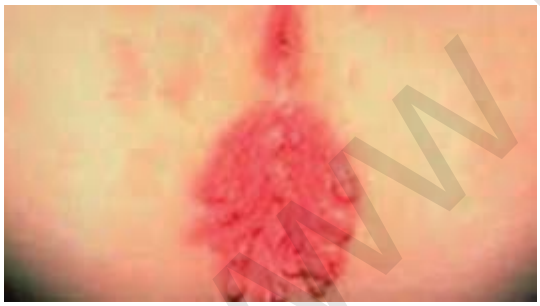


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- ✓ **The disease may occur even after an initial cure due to the following:**
    - Stress and fatigue
    - Fever and other severe infections
    - Menstruation
    - Certain medicines
    - Pregnancy
    - Any from of immune deficiency
- ✓ Although can be controlled, a cure has not been discovered for genital herpes as yet.

- ✓ **Syphilis**
    - Symptoms appear between 9-90 days after being infected. Syphilis is contracted chiefly by infection during sexual intercourse, but can pass on to a baby during pregnancy.
    - This can be transmitted via unscreened blood transfusions too.

    - **Symptoms and signs**
        - ➢ Painless lesion around or in the genitalia
        - ➢ Inflammation of inguinal lymph nodes
        - ➢ If proper treatment is not taken early, symptoms may manifest again after six months.




- ✓ **Chlamydia**
    - Chlamydia can be transmitted through vaginal, anal or oral intercourse. There is a possibility of a child born to an infected mother becoming blind.
- **Symptoms and signs**
    - ➢ Discharge from vagina penise
    - ➢ Pain or burning sensation during urination
    - ➢ Cervix is affected, manifestation of symptoms is delayed in females
    - ➢ Inflammation of area around the genitalia in males

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✓ **Genital warts**

- **Symptoms**
  - Warts that look like small pinkish scales are seen in groups of two or more or individually in areas around the vagina and penis
  - In case of anal intercourse, the warts may appear around the anus, and in case of oral sex, they may appear around the mouth
  - May be a cause for cervical cancer.
  - This condition can be managed, but it cannot be permanently cured.

✓ HIV/AIDS

- HIV/AIDS is caused by the human immunodeficiency virus. Let us concentrate more on HIV/AIDS that has become a major problem.

✓ **HIV/AIDS Methods of transmission**

- Due to unprotected sexual intercourse (among homosexual or heterosexual persons)
- Via unscreened blood transfusions
- From an infected mother to children:
  - during pregnancy
  - during delivery of baby
  - through breast milk
- Using unsterilised needles (injection) by oneself or in a group
  eg: using drugs, creating body tattoos.

✓ Illnesses are prevented by the body's own immune system by destroying germs. When infected with HIV, the immune system gets weak and the body becomes more susceptible to illnesses.

✓ The symptoms of HIV manifest from 3-12 years after the virus enters the body. It may take even 10 years to manifest symptoms. Gradually, the body's immunity decreases. Due to this weakened immunity, other illnesses are contracted which can lead to death.

✓ Any type of infection will make an AIDS patient very ill. Symptoms manifest depending on the type of infection.

➢ Symptoms

- Loss of weight in a short period
- Diarrhoea lasting a long time
- Fever lasting for more than a month
- Tuberculosis
- Pneumonia

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- **In addition,**
    - breathlessness, fatigue and cough lasting a long time
    - inflammation of neck and axillary glands
    - oral candidiasis
    - night sweats
    - loss of appetite

✓ A large number of people are unaware that they are infected with HIV as it takes a long time for symptoms to manifest The HIV virus cannot survive in a normal environment. It can survive in living cells only. The virus is predominantly present in the blood of an infected person.

✓ Other secretions where on the virus can be found

- Semen
- Cervical and vaginal secretions
- Breast milk

➢ Small quantities of the virus can be present in saliva, tears, sweat, urine and faeces, but illness cannot be transmitted from these secretions.

✓ AIDS is not transmitted by:

- shaking hands
- mosquitoes
- kissing and embracing
- playing group sports
- sharing the utensils such as cups, plates, towels etc
- sharing the same household, bed etc
- sputum, nasal secretion and saliva
- toilets

✓ When HIV enters the body, it grows rapidly and produces antibodies.

✓ When AIDS was first identified, it was found that three times more men than women were infected. At present both males and females are equally infected. Women are three to nine times more likely than men to get infected with AIDS because the wall of the vagina is thin and also after intercourse, sperm remain in the vagina for a relatively long period. Further, semen contains more virus than vaginal secretions thus women are more likely to get AIDS than males.

✓ Inadequate support from sexual partner to prevent the spreading of AIDS makes it a serious concern.

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- ✓ Women face many problems within the family and society when they get infected with HIV.

- ✓ A new born of an infected mother is likely to be infected. If both parents are affected, they may die prematurely and their children become orphans. This is likely to become a major social issue.

✓ Detecting HIV infection

- ✓ **Blood tests to detect HIV antibodies**

There are two tests available:

- ELISA Test
- Rapid Test
- ✓ If either of these tests is positive for HIV, a further confirmatory test has to be performed as these are only screening tests. They cannot detect HIV during the first three months which is called the window period.

- ✓ **Confirmatory test**
    - Western Blot test

Importance of HIV testing

- ✓ Once diagnosed as infected with HIV, ART (Anti-Retroviral Therapy) can be given
- ✓ By taking ART, quality of life and life span can be increased
- ✓ When proper treatment is taken, the concentration of the virus is reduced and the chances of infecting another person is become minimal
- ✓ By identifying infected people, the illness can be prevented from spreading
- ✓ By taking ARV (antiretroviral drugs), maternal transmission of the virus during pregnancy and breastfeeding can be reduced.
    - If you have had unprotected sexual intercourse, it is important that you get tested for HIV. Testing for HIV is done at all veneraeology clinics in government hospitals island-wide free of charge and confidentiality is maintained.

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Prevention of HIV and other sexually transmitted diseases

- ✓ Postpone sexual activities until marriage
- ✓ Limit sexual activities only to your spouse
- ✓ Refrain from unsafe sexual activities
- ✓ Identify risky situations in society and protect yourself from them
- ✓ Maintain a strong family unit
- ✓ If you suspect you have a sexually transmitted disease discuss with a doctor immediately
- ✓ If you have a sexually transmitted disease take medication
- ✓ Avoid sexual activity during an infected period
- ✓ Avoid using illicit substances

People who have a higher likelihood of being infected with HIV and other sexually transmitted diseases

- ✓ Commercial sex workers
- ✓ Those with multiple sexual partners
- ✓ People who engage in homosexual activities
- ✓ People who have warts or wounds on their genitalia
- ✓ People who share needles to inject illicit substances
- ✓ Offspring of HIV positive mothers

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Thank you...