

Private Security

NVEQ Level 1 – Class IX

SS106-NQ2012- First Aid at Workplace (Basic)

Student's Workbook



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Preface

The National Curriculum Framework, 2005, recommends that children’s life at school must be linked to their life outside the school. This principle makes a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home, community and the workplace.

The student workbook on “**First Aid at Workplace (Basic)**” is a part of the qualification package developed for the implementation of National Vocational Education Qualification Framework (NVEQF), an initiative of Ministry of Human Resource Development (MHRD), Government of India to set common principles and guidelines for a nationally recognized qualification system covering Schools, Vocational Education and Training Institutions, Technical Education Institutions, Colleges and Universities. It is envisaged that the NVEQF will promote transparency of qualifications, cross-sectoral learning, student-centred learning and facilitate learner’s mobility between different qualifications, thus encouraging lifelong learning.

This student workbook, which forms a part of vocational qualification package for student’s who have passed Class VIII or equivalent examination, was created by a group of experts. The Security Knowledge and Skill Development Council (SKSDC) approved by the National Skill Development Corporation (NSDC) for the Private Security Industry developed the National Occupation Standards (NOS). The National Occupation Standards are a set of competency standards and guidelines endorsed by the representatives of Private Security Industry for recognizing and assessing skills and knowledge needed to perform effectively in the workplace.

The Pandit Sunderlal Sharma Central Institute of Vocational Education (PSSCIVE), a constituent of National Council of Educational Research and Training (NCERT) in association with SKSDC has developed modular curricula and learning materials (Units) for the vocational qualification package in Private Security sector for NVEQ levels 1 to 4; level 1 is equivalent to Class IX. Based on NOS, occupation related core competencies (knowledge, skills, and abilities) were identified for development of curricula and learning modules (Units).

This student workbook attempts to discourage rote learning and to bring about necessary flexibility in offering of courses, necessary for breaking the sharp boundaries between different subject areas. The workbook attempts to enhance

these endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups and activities requiring hands-on-experience. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy of Education (1986).

The success of this effort depends on the steps that school Principals and Teachers will take to encourage children to reflect their own learning and to pursue imaginative and on-the-job activities and questions. Participation of learners in skill development exercises and inculcation of values and creativity is possible if we involve children as participants in learning, and not as receiver of information. These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table would be a necessity to maintain the rigour in implementing the activities and the required number of teaching days will have to be increased for teaching and training.

About Your Workbook

This workbook is to assist you with completing the Unit of Competency **SS106-NQ2012: First Aid at Workplace (Basic)**. You should work through the workbook in the classroom, at the workplace or in your own time under the guidance and supervision of your teacher or trainer. This workbook contains sessions which will help you to acquire relevant knowledge and skills (soft and hard) on various aspects of the unit of competency. Each session is small enough to be easily tackled and digested by you before you move on to the next session. Animated pictures and photographs have been included to bring about visual appeal and to make the text lively and interactive for you. You can also try to create your own illustrations using your imagination or taking the help of your teacher. Let us now see what the sections in the sessions have for you.

Section 1: Introduction

This section introduces you to the topic of the Unit. It also tells you what you will learn through the various sessions covered in the Unit.

Section 2: Relevant Knowledge

This section provides you with the relevant information on the topic (s) covered in the session. The knowledge developed through this section will enable you to perform certain activities. You should read through the information to develop an understanding on the various aspects of the topic before you complete the exercise (s).

Section 3: Exercise

Each session has exercises, which you should complete on time. You will perform the activities in the classroom, at home or at the workplace. The activities included in this section will help you to develop necessary knowledge, skills and attitude that you need for becoming competent in performing the tasks at workplace. The activities should be done under the supervision of your teacher or trainer who will guide you in completing the tasks and also provide feedback to you for improving your performance. To achieve this, prepare a timetable in consultation with your teacher or trainer and strictly adhere to the stipulated norms or standards. Do not hesitate to ask your teacher or trainer to explain anything that you do not understand.

Section 4: Assessment

The review questions included in this section will help you to check your progress. You must be able to answer all the questions before you proceed to the next session.

INTRODUCTION



Purpose of First Aid

The purpose of First aid includes but not limited to:

- Save the life of the victim before the arrival of a qualified medical expert.
- Lessen pain.
- Help in early recovery.
- Prevent condition from worsening.

Injuries and pain are part of human life. In case of injury, some kind of immediate medical attention or treatment is needed to reduce the discomfort, pain and deterioration of the condition.

The medical attention that is given at the first instance before seeking professional medical help is called “First Aid”. First-aid is the immediate and temporary treatment given to the victim of an accident or sudden illness, while awaiting the arrival of “Medical Aid”.

First aid in the workplace means providing the initial treatment and life support for people suffering an injury or illness at work. Here it is important to understand that first aid has its limitations and does not take the place of professional medical treatment. Proper early assistance given by first aider helps in saving the life of a patient.

Important rules for first aid are as follows:

1. **Check:** Find out what has happened, and then what is wrong with the person. Comfort the victim and arrange shelter.
2. **Call:** Arrange for professional, medical aid.
3. **Care:** Help the victim preferably without moving him or her.



In this unit, we will study the various aspects of basic first aid at workplace and the role of the first aider in case of fever, back pain, asthma, food borne illness, gastric problems, injury, burns, and bites.

SESSION 1: RELATING HEALTH EMERGENCY WITH FIRST AID

RELEVANT KNOWLEDGE

MEANING OF HEALTH EMERGENCY

A health emergency is a situation in which the health of a person is in danger because of sudden illness or accident, and immediate help is required to “save a life”. In case of any health emergency at workplace, the ill or injured person should be given immediate attention and first aid before the medical help arrives. Now the question arises “What could be various emergency situations at workplace”. It could be (i) electric shock, (ii) difficulty in breathing due to asthmatic attack, (iii) burns, (iv) bleeding, (v) injury, (vi) fracture, (vii) heart attack, etc. Before we indulge into learning about how we can handle these health emergencies at workplace, let us first try to understand about the basic requirements of a healthy body.

Health as a Physical, Mental and Social Well Being: According to the World Health Organisation (WHO), “health is a state of complete physical, mental and social well being and not merely the absence of the disease”. Although the state of physical, mental and social being is interrelated, we will look at each of them separately to develop a deeper understanding on each of them.

(i) Physical health: A person enjoys good physical health when he/she is eating healthy food, exercising regularly, sits or stands in the right posture, sleeps in the right posture, sleeps well, takes care of oral hygiene, visits doctor regularly for check ups and remains positive about his/her state of health.

(ii) Mental health: Mental health at workplace is influenced by the people and the environment around you. A person enjoys good mental health if he/she has a positive thinking towards life, work and other people. He/She should be able to control his emotions, sensitive to the needs of others, confident in his/her abilities and whatever he/she does and keeps himself/herself from undue and extreme desires and wants.

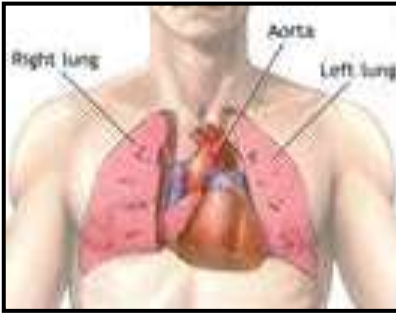
(iii) Social health: A person is said to have a good social health if he/she gets along with people, work in team, always maintain a pleasant look, helps others in their needs and good deeds, fulfills social obligations and responsibility and does not look for returns while fulfilling social responsibilities.

RELATIONSHIP BETWEEN PHYSICAL, MENTAL AND SOCIAL HEALTH

Relationship between physical, mental and social health: You must have experienced that at times when things did not happen in the manner you expected, you lost your temper and got irritated. This affected your social relationships. Let us consider a scenario. Suppose you are not well and you have asked your brother to get some fruits from the market and he blatantly refuses to do it. You get annoyed and irritated and shout at him, losing your mental stability. Your blood pressure shoots up and you develop further health complications. You stop talking to your brother and look for alternative ways of getting your job done like asking your father and friends for a favour. In this scenario we can see that how your physical health has affected the mental health and social relationship. You may face similar issues and problems at the workplace, which may affect your performance and productivity.

If you want to stay healthy, you should strictly practice personal hygiene and health schedule. You need to brush your teeth, trim your nails, take bath regularly, wear clean clothes or uniform, develop good eating habits such as washing hands before and after meals, comb your hair, stay away from alcohol and illicit drugs, adopt correct postures while sitting and standing, and exercise regularly. All these practices will help you in keeping fit and healthy. Regular exercise helps you to reduce body fat, facilitate better digestion and respiration, increases blood supply to parts of your body and energizes your body for the tasks ahead. When we say that the first aid is administered to a victim, then we need to first understand the human body in order to treat the victim effectively. Let us now try to identify the various parts and systems of our body.

The Human Body: The human body is an amazing living machine in which hundreds of parts work together to flawlessly perform countless tasks. It consists of a head, neck, torso, two arms and two legs. By the time the child reaches adulthood, the body consists of close to 100 trillion cells, the basic unit of life. These cells are organized biologically to eventually form the whole body. At birth, a newborn baby has over 300 bones, whereas on average an adult human has 206 bones. The organ systems of the body include the musculoskeletal system (related to muscles), cardiovascular system (related to heart), digestive system (related to stomach), endocrine system, integumentary system, urinary system (related to kidney), lymphatic system, immune system, respiratory system (related to lungs), and reproductive system.



We will now look at two aspects of life which are important from the point of view of first aid.

Breathing: Breathing is vital to life and a person breathes about 20,000 times a day. All of this breathing could not happen without the respiratory system, which includes the nose, throat, voice box, windpipe, and lungs. Air can be taken in through the nose and the mouth. These two openings of the airway (the nasal cavity and the mouth) meet at the pharynx or throat, at the back of the nose and mouth. The diaphragm that separates the chest from the abdomen plays a lead role in breathing. It moves downward when we breathe in, enlarging the chest cavity and pulling air in through the nose or mouth. When we breathe out, the diaphragm moves upward, forcing the chest cavity to get smaller and pushing the gases in the lungs up and out of the nose and mouth. When you breathe in, which is called as **inhalation**, the **diaphragm** moves downward toward the **abdomen**, and the **rib muscles** pull the ribs upward and outward. In this way, the volume of the chest cavity is increased. Air pressure in the **chest cavity** and lungs is reduced, and because gas flows from high pressure to low, air from the environment flows through the nose or mouth into the lungs. When you breathe out i.e. **exhalation**, the diaphragm moves upward and the chest wall muscles relax, causing the chest cavity to contract. Air pressure in the lungs rises, so air flows from the lungs and up and out of respiratory system through the nose or mouth.

Blood circulation: Blood is the viscous fluid composed of plasma and cells. The composition of the blood includes plasma, red blood cells, white blood cells and platelets. The centre of the circulatory system is the heart, which is the main pumping organ. The heart is made of muscles. The heart is in the middle of the chest. It is located between the two lungs. The heart is tipped somewhat so that there is a little more of it on the left side. The pointed tip at the bottom of the heart touches the front wall of the chest. Every time the heart beats it goes “thump” against the chest wall. You can also listen to them with your ear. When the heart contracts it pushes the blood out into two major loops or cycles. In the systemic loop, the blood circulates into the body’s systems, bringing oxygen to all its organs, structures and tissues and collecting carbon dioxide waste. In the pulmonary loop, the blood circulates to and from the lungs, to release the carbon dioxide and pick up oxygen. The systemic cycle is controlled by the left side of the heart, the pulmonary cycle by the right side of the heart.



Health and safety risks at workplace: Risk is the chance or probability that a person will be harmed or experience an adverse health effect if exposed to a hazard. Let us now learn about the various types of hazards and their cause. This will help you to recognize the various hazards that you may encounter at workplace.

(i) Biological - Biological hazards are caused by living organisms like bacteria, viruses, insects, plants, birds, animals, humans, etc.

TYPES OF HAZARDS

(ii) Chemical - Chemical hazards, which include acids, poisons, cleaning agents, etc. depends on the physical, chemical and toxic properties of the chemical. The severity of the hazard depends on the toxic properties of the chemical.

(iii) Radiation - Radiation hazards are related to exposure to radiations from radioactive substances.

(iv) Ergonomic - Ergonomic hazards are caused due to repetitive movements, improper set up of workstation (e.g. computer workstation, workstation for repair of electrical gadgets, etc.), faulty designed chairs, tools and equipment, wrong postures, etc. Wrong postures often bring about physical fatigue and/or bodily harm, including back pain, and discomfort in shoulders and lower limbs.

(v) Physical - Physical hazards are caused due to slippery surfaces, falling objects, manual handling (lifting, pushing, carrying), sharp tools and equipment, radiation, magnetic fields, extreme pressure (high pressure or vacuum), excessive loud and prolonged noise, and bullying (abnormal, repeated behaviour directed against a worker or group of workers which results in a risk to health and safety. It may result in stress, depression, loss of self-esteem, feelings of guilt, phobias, sleep and eating disorders, sexual harassment (a situation in which unwanted behaviour with a sexual connotation, expressed physically, verbally or non-verbally takes place), verbal threat, abusing, use of weapons, etc.

(vi) Psychosocial - Psychosocial hazard are caused due to violence, excessive pressure or stress at workplace for meeting deadlines, conflicts at workplace, etc. It also includes hazards due to discrimination on the grounds of caste, race, skin colour, ethnic origin, sex, religion, etc.

(vii) Safety - Safety hazards at workplace include slipping or tripping, inappropriate machine guarding, collision, bumps, road accidents, fire accidents, equipment malfunctions or breakdown and electrical accidents (it could result in skin burns affecting the areas that have been in contact with the electrical current or electric shock due to electrical discharge).

Principles of First Aid: The basic principles of first aid are as follows:

1. **Preserve life:** This includes the life of the casualty and rescuer.
2. **Protect the casualty from further harm:** Ensure the scene is safe and the casualty is not affected by the presence of people.
3. **Provide pain relief:** This could include the use of ice packs or simply applying a sling.
4. **Prevent the injury or illness from becoming worse:** Ensure the treatment you provide as part of the First Aid does not make the condition of the casualty worse.



Symbol of First Aid: The ISO specified symbol for the first aid is white cross on a green background.

EXERCISE

Assignment

1. Visit an organisation or an Industry, interact with the employer and employees of the organisation/industry, ask the following questions, and write the answers:

(a) Questions for Employer

(i) What are the plans/schemes that the organisation/industry is implementing for ensuring physical, mental and social well being of the employees?

(ii) What are health related factors that affects the productivity and performance of the employees at workplace?

(b) Questions for Employees

- (i) Are you happy with the provisions made for taking care of your physical and safety requirements at the workplace? Tick on the appropriate answer.

Employee A: Yes/No
Employee B: Yes/No
Employee C: Yes/No
Employee D: Yes/No
Employee E: Yes/No

- (ii) What are those factors that you think are affecting your physical, mental or social well being at the workplace?

Employee A:

Employee B:

Employee C:

Employee D:

Employee E:

(iii) What actions should be taken by the employer in terms of fulfilling health and safety need of the employees?

Employee A:

Employee B:

Employee C:

Employee D:

Employee E:

A. Fill in the blanks

1. A medical attention that is given in the first instance before professional medical help arrives is called _____.
2. Health is a state of complete _____, mental and social well being and not merely the absence of the disease.
3. We must sit, stand and sleep in the right _____.
4. Biological hazards are caused by _____ organism.
5. ISO specified symbol for first aid is _____ cross on a green background.
6. Stress at workplace is an example of _____ hazard.
7. Road and fire accidents are examples of _____ hazards.

B. Multiple Choice Questions

Tick the correct answer

1. The purpose of first aid is
 - (a) To save life
 - (b) Lessens pain
 - (c) Prevent conditions from worsening
 - (d) All of the above
2. Hazards caused by bacteria and viruses are known as
 - (a) Biological hazards
 - (b) Chemical hazards
 - (c) Radiation hazards
 - (d) Physical hazards

3. Sitting in a wrong posture is an example of
 - (a) Biological hazard
 - (b) Psychological stress
 - (c) Chemical hazard
 - (d) Ergonomic hazard

4. Nutritional imbalance and digestive disorder results in increased occurrence of
 - (a) Obesity
 - (b) Body strength
 - (c) Diseases
 - (d) All of the above

5. The ISO specified Symbol for the First Aid Kit is
 - (a) Red Cross on a green background.
 - (b) White Cross on a green background.
 - (c) Red Cross on a white background.
 - (d) Green Cross on a white background.

CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between physical, mental and social health.
- (b) Differentiated between different types of hazards.

Part B

Discussed in class the following:

- (a) What is health?
- (b) What is health emergency?
- (c) Why do we need to exercise daily?
- (d) What are the common health problems and safety risks of security personnel?
- (e) What are the basic principles of first aid?

Part C

Performance standards

The performance standard may include, but not limited to:

Performance standards	Yes	No
Identify 3 types of health risks and hazards at workplace.		
Enlist 3 emergency situations at a workplace.		
Enlist 3 factors that affect good health.		
Enlist 2 factors that influence mental health at workplace.		
Enlist 2 causes of biological hazards at work place.		
Enlist 2 causes of chemical hazards at workplace.		
Enlist 6 causes of physical hazards at workplace.		
Enlist 2 causes of psychosocial hazards.		
Enlist 2 causes of safety hazards.		
Draw the symbol of first aid.		
Correlate the principles of First Aid with the activity of First Aid.		

SESSION 2: IDENTIFYING FACILITIES, EQUIPMENT AND MATERIALS FOR FIRST AID

RELEVANT KNOWLEDGE

First Aid facilities should be located at points convenient to workers. An ambulance should also be made available at the workplace to meet any emergency. **Ambulance** is a vehicle specifically designed to transport critically sick or injured people to a medical facility. Most ambulances are motor vehicles, although helicopters, airplanes, and boats are also used. The interior of an ambulance has room for one or more patients plus several emergency medical personnel. It also contains a variety of supplies and equipment that are used to stabilise the patient's condition *en route*.

It is the responsibility of the head of the organisation or the employer that the first aid facilities such as a first aid room, a first aid kit, a health centre and first aid equipment are made available in the premises to meet any emergency.

Once the employer has set up first aid facilities, he/she should nominate one or two persons as **First Aider**. They should be trained for first aid facilities and services at the workplace. Now let us look at each of these facilities and the important aspects that we need to keep in mind when arranging these facilities.



(i) **First Aid Room:** It is the place where equipment and materials are made available and systematically arranged for providing first aid services. It should have the following:

- A name plate with the symbol of **FIRST AID**.
- Proper lighting and ventilation.

- Toilets, which should be friendly for differently-abled (disabled) persons.
- Facilities for easy movement of a person on a stretcher or a wheelchair.



The facilities at the first aid room should include:

1. Table and chairs.
2. Telephone.
3. Directory of emergency telephone numbers. (For example, in India telephone number for fire service station is 101, for police it is 100 and for emergency services/Ambulance it is 108)
4. First aid kit.
5. Examination lamp.
6. Medical examination couch with blankets and pillows.
7. A portable screen.
8. Container for sharp things like surgical knives, etc.
9. Sink and wash basin with hot and cold running water.
10. Steriliser.
11. Stretcher.
12. Workbench or dressing trolley.
13. Oxygen cylinder.
14. Sphygmomanometer - blood pressure measuring instrument.
15. Resuscitation equipment.
16. Cupboards for storing medicines, dressings and linen.
17. Electric power points.
18. Suitable seating.
19. Container for soiled dressings.
20. Medical waste containers.



First Aid Kit: The contents of the **First Aid Kit** are mainly meant for providing first aid in case of bleeding, bone fractures and burns. The contents of the first aid kit could also be made industry/organisation specific (nature of the job being undertaken at the industry/organisation). For example, in casting and forging industries, medicine used in burns and scalds should be kept in the first aid kit. A basic first aid kit should include:



Ace Bandage Roll



Adhesive Bandage



Cotton Strip



Thermometer

1. Band-aids of all sizes.
2. 4" by 4" gauze pads - for cleaning wounds.
3. 4" by 4" dressing bandages - for wounds, cuts, and abrasions.
4. 2" dressing rolls or crepe bandage - for wrapping and bandaging injuries.
5. Medical tape.
6. Cotton balls.
7. Safety pins.
8. Alcohol pads or isopropyl alcohol for cleaning wounds.
9. Antimicrobial hand wipes - placed in a sealed plastic bag to keep them moist.
10. Hydrogen Peroxide for cleansing skin wounds.
11. Sterile water bottle.
12. Eye flushing solution bottle with an eye cup.
13. Ace bandage for wrapping sprains and contused soft tissue.
14. Arm sling.
15. Chemical ice pack.
16. Chemical hot pack.
17. Thermometer - oral and rectal (for kids).
18. Tweezers.

19. Scissors.
20. Torch.
21. Nail clippers.
22. Jackknife.
23. Clean string - for a variety of uses.
24. Sterile gloves.

Important medications and other relief materials that should be kept in a first aid kit and updated (check for expiry of the medicine and replace immediately with fresh batch) include the following:



1. Antibiotic ointment - for cuts and scrapes of the skin.
2. Medicated sunburn spray or cream.
3. Calamine lotion.
4. Insect sting relief pads.
5. Tylenol (Acetaminophen) - It is used as pain and fever reducer.
6. Advil (Ibuprophen) - It is anti-inflammatory, used for pain, swelling, and fever.
7. Benadryl (Diphenhydramine) - It is antihistamine for allergic reactions, itching, and runny nose.
8. Cough suppressant.
9. Throat lozenges.
10. Oral Rehydration Salts (ORS).
11. Defibrillators: An electronic device that administers an electric shock of preset voltage to the heart through the chest wall. It is used to restore the normal rhythm of the heart during ventricular fibrillation.
12. Tourniquet bandage (compression bandage): If the bleeding does not stop with direct pressure within 15 to 20 minutes the tourniquet bandage is applied.
13. Slings: Sling is a bandage used to support an injured forearm. It is a wide triangular piece of cloth which is used to support the hand from around the neck.



14. Splints: Splints are orthopedic mechanical devices used to immobilize and protect a part of the body in the case of a fracture (such as a broken leg or hand).

Drugs for Common Ailments: There are a variety of common ailments from which people suffer from. These ailments are not very serious and can be cured by referring to some home remedies or over the counter medicines. A number of common illnesses are treated at home using non-prescription medicines. Some ailments are serious enough to require professional medical attention; even the common cold can become very serious if not treated correctly, as it can advance to other infectious diseases such as influenza and pneumonia. If ailments persist, then the patient should immediately consult a doctor or physician. Some of the common ailment and the drugs generally prescribed are given in the table below:

DRUGS FOR AILMENTS

Ailments	Drugs
Allergies	Cetirizine
Headache	Saridon, Aspirin (Aspirin is also used in case of Chest Pain)
Heartburn/ Acidity	Digene
Nasal Congestion	Vicks Vaporub for rubbing on nose and chest
Cough and Cold	D'cold Total
Fever/Flu	Paracetamol (also used as a General Pain Killer)
Constipation	Isabgol (with hot milk)
Sprains and Strains	Flexon/Combiflam (used as a anti-inflammatory painkillers)
Dehydration	Oral Rehydration Salt (ORS)

Assignment

1. Enlist the facilities that should be set up by an organisation/ industry to provide first aid, services to the employees.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

ASSESSMENT

Fill in the blanks

1. _____ is a vehicle specifically designed to transport critically sick or injured people to a medical facility.
2. _____ is an electronic device that administers an electric shock of preset voltage to the heart.
3. _____ is a bandage used to support an injured forearm.
4. A _____, _____ is someone who takes charge of an emergency scene and gives first aid.
5. ORS stand for _____
_____ Salt.

CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between equipment and materials used in first aid.
- (b) Differentiated between sling and s

Part B

Discussed in class the following:

- (a) What facilities should be established for administering first aid at workplace?
- (b) What are the contents of a first aid kit?

Part C

Performance standards

The performance standard may include, but not limited to:

Performance standards	Yes	No
Identify 3 equipment used for first aid.		
Enlist 3 furniture required for first aid room.		
Differentiated between different types of bandages.		
Read the label on drugs used for common ailment.		
Enlist 6 materials of First Aid kit.		
Enlist 3 types of bandages.		
Place the material at appropriate place in the First Aid kit.		

SESSION 3: PERFORMING THE ROLE OF FIRST AIDER IN FEVER, HEAT STROKE, BACK PAIN, ASTHMA, AND FOOD BORNE ILLNESS

RELEVANT KNOWLEDGE



FIRST AIDER

A **First Aider** is a person who takes charge of an emergency scene and gives first aid. Often the first aider at an emergency scene is a passerby who is willing to help. A parent can be a first aider to his or her child, a firefighter can be a first-aider to an injured pedestrian, or an employee can be trained as a first-aider.

A first aider does not diagnose or treat injuries and illnesses (except perhaps when they are very minor). He/ she suspects injuries and illnesses and gives first aid. As a first aider, the first thing he/she does is to take charge of the situation. He/she stays in charge until the arrival of the medical help or ambulance. While in charge, many other people may offer to help and crowd the place. In an emergency, where there is a confusion and fear, the actions of a calm and effective first aider reassure everyone, and can make the whole experience less traumatic. Besides giving first aid, he/she should ensure the following:

- Keep unnecessary people away
- Protect the casualties belongings

General Considerations and Rules

The elementary life saving procedures are head tilt, first aid at choking and recovery position. Important rules for first aid are as follows:

1. **Check:** Find out: (a) what has happened, (b) what is wrong with the person, (c) comfort the victim and arrange shelter.

2. **Call:** Arrange for professional aid.

3. **Care:** Help the victim without moving him or her.

Now let us imagine that a person has met with an accident. The services of priority that should be followed by the first aider in an emergency are as follows:



Step 1: Check for bleeding: Stop bleeding by applying direct pressure on the wound site.

Step 2: Check for head, neck and spinal injury: If any of these are suspected, do not move the victim unless it is absolutely necessary to prevent further injury. Moving a victim will often make injuries worse, especially in the case of spinal cord injuries.

Step 3: Determine responsiveness: If a person is unconscious, try to rouse them by gently shaking and speaking to them. Do not give fluid, the victim cannot swallow and could suffocate. Look for the victim's chest to rise and fall and listen for sounds of breathing (place your ear near the nose and mouth and feel for breathe on your cheek).



- If the victim is not breathing then mouth to mouth resuscitation is to be given. If you are not trained to do that, then call for medical help at the earliest.
- If the victim is breathing, but unconscious, roll him/her on one side, keeping the head and neck aligned with the body. This will help drain the mouth and prevent the tongue or vomit from blocking the airway.

If the person remains unresponsive, carefully roll them onto their back and open his airway.

1. Keep head and neck aligned.
2. Carefully roll them onto their back while holding his head.
3. Open the airway by lifting the chin.



Observe ABC as follows:

- A - Airway
- B - Breathing
- C - Circulation

- (i) **Airway:** Ensure that the tongue or any foreign body does not obstruct the airway.
- (ii) **Breathing:** Make sure the victim is breathing. If you are trained to give mouth to mouth respiration, then facilitate breathing.
- (iii) **Circulation** - Check for the pulse to ensure that the heart is beating properly. Check heart beat/pulse of the victim. If there is no pulse and if you are trained to do Cardio Pulmonary Resuscitation (CPR), then begin CPR immediately.

(Note: CPR is administered when both heart and lungs have ceased to function)

Step 4: Call Emergency Services: Call for help or tell someone else to call for help as soon as possible. If you are the only person on the scene, try to establish breathing before calling for help, and do not leave the victim alone for an extensive amount of time. Stay calm and don't give up. Continue to aid the victim until medical help arrives.

ROLE OF FIRST AIDER - GENERAL CONSIDERATIONS

Let us now learn about the basic first aid practices that may be utilised by the first aider to provide first aid to people working in various occupations, with special reference to the security sector. Considering your age and body strength, we will take up only those first aid practices that you can easily perform.

Fever



Fever is higher-than-normal human body temperature (normal body temperature is 37°C or 98.6°F). Your body temperature is a good indicator of your health. Fever is a symptom and not disease. Fever can be categorised as given below:

- Low fever: 98.8°F to 100.8°F
- Mild to moderate: 101°F to 103°F
- High fever: 104°F and above

If the temperature is high, then it is a sign that your body is fighting illness.

Causes: Fever may be caused due to hot weather, bacterial or viral infection, spending too much time under the sun or allergy to medication or food/water.

Symptom: Symptoms may include hot flushed face, nausea, vomiting, head and body ache, constipation, diarrhea.

Taking body temperature

In case of fever, the body temperature is measured using a thermometer. Let us now learn how to take body temperature.



Step 1 - Prepare: Wash the tip of the digital thermometer with clean water and wipe it with a clean cloth. Wipe it with a paper tissue after it has been cleaned. This will remove certain germs on the surface.

Step 2 - Switch On: Switch on the digital thermometer to make sure that it is working properly. The LCD screen should read "0". If this does not occur or the screen remains blank, you may have to replace the battery. Check the instruction manual to replace the battery. Use the thermometer when the starting reading is correct.

Step 3 - Position: Place the thermometer in the mouth of the person by laying the tip on a middle point at the back of the tongue before asking him/her to close the lips around it to hold the length of it.

Step 4 - Take Temperature: Press the button to make the appliance read the temperature. This can take few seconds to a few minutes. Remove the thermometer from the mouth and read the temperature.

Step 5 - Store: After you have finished using the thermometer, switch off the thermometer and clean the lip with water and wipe with tissue paper or dry cloth. Keep the thermometer in its protective case and store it at safe place, away from the reach of children.

First Aid: Monitor temperature using a digital thermometer. Remove the excess clothing. Keep the person in a cool place and if required give a sponge bath in luke warm water. Give plenty of fluids and prescribed dose of paracetamol.

Heat Stroke



Heat stroke is the most severe of all heat-related illness. It could be life threatening. It is caused when the cooling mechanism of the body fails due to excessive heat and humidity. Impairment in sweat gland function may be another cause of heat stroke.

Symptoms: Body temperature greater than 104⁰F. Fever may cause headache, dizziness, fatigue, fluctuating blood pressure and irritability.

First Aid: Shift the person to a shady place. Cool the person by sponging with wet towel. Apply ice packs in armpits and groin. Give luke warm water with electrolyte.



Back Pain

Back pain is a short-term acute pain in the back of the body. It indicates that the body is under stress. It is caused due to problems in bones, ligaments and muscles of spine and nerves.

Triggering Factors: Back pain may be aggravated due to poor posture, inappropriate footwear, incorrect walking habits, prolonged sitting, sleeping on soft mattresses, kidney, bladder prostate disorders, constipation, stress, etc.

First Aid: Massage with hot/cold packs and use painkillers or relaxants for pain relief.

Asthma

Asthma is a chronic inflammatory lung disease that causes airways to tighten and narrow. It creates narrowing of air passages of the lung and therefore produces difficulty in breathing.

Symptoms: Symptoms may include wheezing, cough and cold, tightness in the chest, sticky mucus, disturbed sleep, and breathlessness.

Causes: It is believed that heredity factors are the main cause of asthma. Environmental factors like dust, mite, pollen and occupational exposure to irritants aggravate asthma. Colds, viruses, cigarette smoking, scent, pollution, change in weather, etc. are the triggering factors.

First Aid: In case of asthmatic attack, use asthma inhalers. **Asthma inhalers** are hand-held portable devices that deliver medication to your lungs. A variety of asthma inhalers are available to help control asthma symptoms in adults and children. Types of asthma inhalers include: (i) **Metered dose**

inhalers: These inhalers consist of a pressurized canister containing medication that fits into a boot-shaped plastic mouthpiece. (ii) **Metered dose inhaler with a spacer:** A spacer holds medication after it's released, making it easier to inhale the full dose. Releasing the medication into the spacer gives you time to inhale more slowly, decreasing the amount of medicine that's left on the back of your throat and increasing the amount that reaches your lungs, (iii) **Dry powder inhaler:** These inhalers don't use a chemical propellant to push the medication out of the inhaler. Instead, the medication is released by breathing in a deep, fast breath. Available types include a dry powder tube inhaler, a powder disk inhaler and a single-dose powder disk inhaler. Finding the right asthma inhaler can help make sure you get the right dose of medication to prevent or treat asthma attacks whenever you need it.

Food Borne Illness

Food borne illnesses occur by eating unhygienic food and water. Bacteria are the most common cause of food contamination.



Symptoms: Common symptoms include diarrhea, which may be bloody, nausea, abdominal cramps, vomiting, fever, dehydration, shallow breath, rapid pulse, pale skin, and chest pain.

First Aid: Oral Rehydration Salt (ORS) should be given with luke warm water. In severe cases, the patient should be hospitalized immediately. Recipe for Making a 1 litre ORS solution using Sugar, Salt and Water

1. Clean Water - 1 litre - 5 cupfuls (each cup about 200 ml.)
2. Sugar - Six level teaspoons
3. Salt - Half level teaspoon
4. Stir the mixture till the sugar dissolves.

EXERCISE

Practice Session

1. Pair up with your classmate and practice ABC of first aid under the supervision of your teacher/trainer

A - Airway

B - Breathing

C - Circulation

Step 1: Airway: Ensure that the tongue or any foreign body does not obstruct the airway.

Step 2: Breathing: Make sure the victim is breathing.

Step 3: Circulation: Check for the pulse to ensure that the heart is beating properly.

2. Write about your experience in not more than 25 words.

Practice Session

1. Pair up with your classmate and perform the steps under the supervision of your teacher/trainer to take the body temperature using a digital thermometer.

Step 1 - Prepare.

Step 2 - Switch On

Step 3 - Position

Step 4 - Take Temperature

Step 5 - Store

Note the temperature in the table given below.

Note: Carefully read the instructions before using the digital thermometer. The normal oral temperature for a child is between 97.6° and 99.3° F (36.4° and 37.4° C). The normal oral temperature for older persons is 98.2° F (36.8° C).

S.No.	Student's Name	Temperature (°F)	Temperature (°C)
1.			
2.			
3.			
4.			
5.			
6.			
7.			

A. Short Answer Questions

1. Read the two statements given below and answer the question that follows:

(a) Open and clear the airway by carefully removing any objects from mouth with your finger. Place two fingers under the point of the chin and place your other hand on the victim's forehead. At the same time, lift the chin and gently tilt the head back.

What are you doing in relation to first aid?

(b) Look for the victim's chest to rise and fall and listen for sounds of breathing (place your ear near the nose and mouth and feel for breathe on your cheek).

What are you doing in relation to first aid?

(c) You arrive at an emergency scene and take charge of the situation. You stay in charge and provide first aid until you hand control of the scene over to more qualified person.

1. What role are you playing in relation to first aid?

2. Describe ABC of First Aid.

B. Fill in the Blanks

1. A person is suffering from fever ranging from 98.8° F - 100.8° F is said to be suffering from _____ fever.
2. A person is suffering from a temperature of 104° F and above is said to be suffering from _____ fever.
3. In high fever, a person should be kept _____ by sponging with wet towel or applying ice packs in arm pits.
4. _____ is a chronic lung disease.
5. Back _____ is caused due to problems in ligaments and muscles of spine.
6. Bronchodilators are used in case of _____ attack.
7. _____ are the microorganisms which are said to be the most common cause of food contamination.

CHECKLIST FOR ASSESSMENT

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between low, mild and high fever.
- (b) Differentiated between different causes of fever.

Part B

Discussed in class the following:

- (a) Who is first aider?
- (b) What is the role and function of a first aider?
- (c) What is ABC of first aid?

Part C

Performance standards

The performance standards may include, but not limited to:

Performance standards	Yes	No
Perform ABC (airway, breathing and circulation) of first aid.		
Perform all steps for measuring body temperature using a digital thermometer.		
Enlist 3 triggering factors that cause back pain.		
Prepare ORS.		

SESSION 4: ROLE OF FIRST AIDER IN CUTS, BLEEDING, BURNS, INSECT BITES AND STINGS, DOG BITES AND SNAKE BITES

RELEVANT KNOWLEDGE

Let us now learn about the various first aid procedures that we need to adopt while handling patients with cuts, bleeding, insect bites and stings, dog bites, and snake bites.

Cuts



Cut is an injury which forms an opening in the skin.

Types of Cuts: The two types of cuts are minor and deep cuts.

(i) Minor Cuts / Scrapings: Minor cuts are caused by sharp tools and equipment like scissors, razors, saws, knives, pruners, chisels, and snips.

First Aid: Clean the cut with clean water and then with savlon. Apply antibiotic ointment or first aid band. Apply first aid bandage.

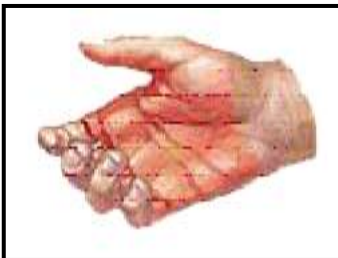
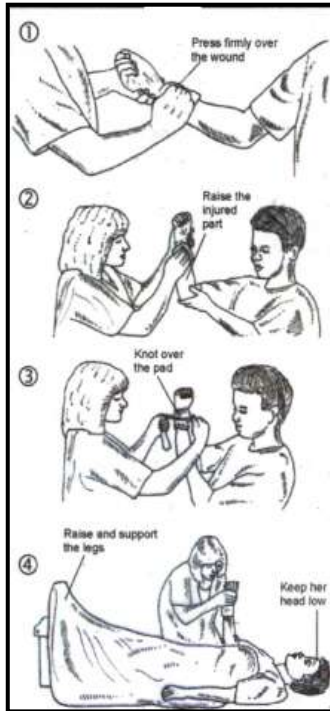


(ii) Deep Cuts: Deep cuts may expose the underlying tissues and cause heavy bleeding.

First Aid: In deep cuts, stitching of tissues may be required, therefore, immediate medical aid needs to be given. **Tetanus toxoid** injection should be given to prevent **tetanus**.

Bleeding

Bleeding refers to the loss of blood. Bleeding can happen inside the body (internal bleeding) or outside the body (external bleeding). Internal bleeding may also occur due to an injury to **blood vessel**.



External bleeding could be blood flowing through a natural opening (such as the mouth, vagina or rectum). A cut on the skin can lead to severe external bleeding. It involves loss of large amount of blood.

Causes: Severe bleeding may occur in case of accidents, blow to the head, or due to certain illness like hemophilia, scurvy, cancer, thrombocytopenia, leukemia, hemorrhage, peptic ulcer, etc.

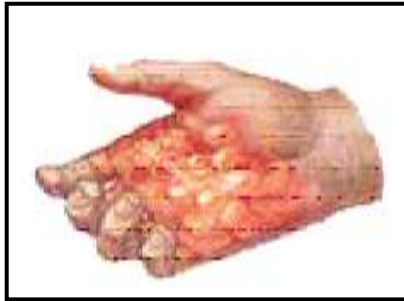
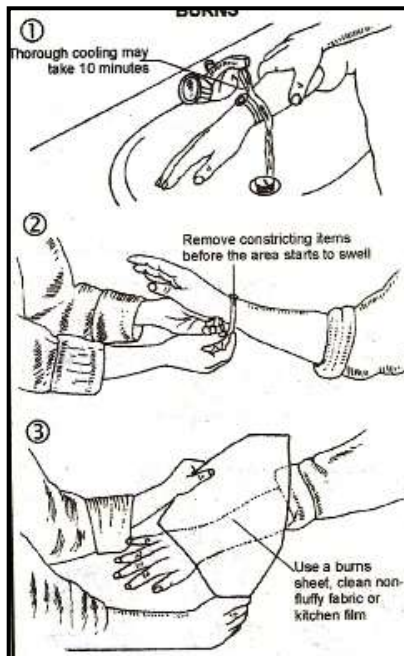
Symptoms: Symptoms include discharge of blood from a wound.

First Aid: Wash your hands and wear surgical gloves before administering first aid to victim. Make the victim lie down. Keep the affected area elevated. Remove any obvious debris/particle. Apply direct pressure using clean cloth/bandage. Hold the bandage in place using an adhesive tape. In case of bleeding does not stop, call the doctor.

Burns

Burns are injuries to the skin and tissues caused due to heat (e.g., fire, hot water, etc.), chemicals (e.g., acids), electricity or radiation. Burns can cause swelling, blistering, scarring and, in serious cases, shock and even death. They can lead to serious infections as they damage the skin's protective covering. Severe burns affect muscles, fat and even bones.

Burns can be classified into three categories viz., first, second and third degree burns, depending on the severity of burn.



(i) First degree burns: In first degree burns, injuries are superficial or mild.

Symptoms: Swelling and redness of the injured area takes place. Pain develops. No blisters are seen. Burned area becomes white on touch.

First Aid:

- Remove patient from heat source
- Remove the burnt clothing.
- **DO NOT** apply lotions, ointment or fat (e.g. ghee) to burns.
- Run cool water over burnt area.
- Wear surgical gloves and gently clean the injured area and dry.
- Apply antibiotic, such as Silver Sulphadiazine or Burnol.
- Use a sterile bandage to cover burns.

(ii) Second-degree burns: Burns extend to middle skin layer. 90% body surface injury results in death, while 60% injury in elderly is fatal.

Symptoms: Swelling, redness and pain are observed. Blisters develop, that ooze a clear fluid. Dehydration may occur.

First Aid:

- Make the patient lie down.
- Apply antibiotic cream over affected area.
- Splints may be used to rest the affected joints.
- Take the patient immediately to the hospital.



(iii) Third-degree burns: Damage occurs to all the three skin layers. It destroys adjacent hair follicles, sweat glands, and nerve endings.

Symptoms: Lack of pain due to destroyed nerves. The injured area does not turn white on touch. No blisters observed. Swelling occurs. Skin develops leathery texture. Discoloration of skin is observed. Scars develop. Crusty surfaces may occur.

First Aid: Move the patient to the hospital, without any delay.

Insect Bites and Stings



Insect bites are mostly not severe. Sometimes they cause a severe allergic reaction known as **anaphylaxis**. Sting of bees, wasps, hornets, and bites of fire ants are painful. Bites of insects, like mosquitoes cause itching and may result in diseases like malaria. The bite of a black widow spider can be fatal, if left untreated.

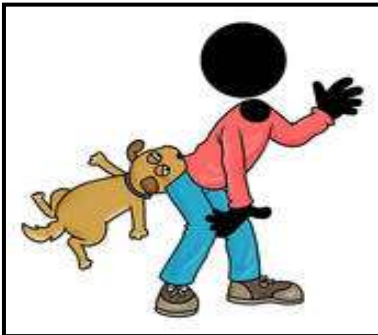
Symptoms: General symptoms of insect bites and stings include localised pain, swelling, redness, itching, numbness, burning, tingling sensation, breathlessness, and weakness.

First Aid:

- Remove the stinger using a straight- edged object like sterilised needle.
- Wash the area thoroughly with soap and water. Place ice wrapped in a cloth on the affected area. Repeat after every 10 minutes.
- Apply a gentle cream to prevent itching.
- Consult a doctor in case of severe bite.

Dog Bites

Dogs can cause slight injuries such as lesions, light traumas (scratches and bruises) and serious injuries such as bites. They may also cause diseases as a result of infections and allergies caused by **bacteria, fungi, acarids or viruses**. **Rabies** - Latin **rabies**, means “madness is an acute viral disease of the central nervous system that affects humans and other mammals. **Rabies** may be caused by non-immunized dogs or stray dogs.



Symptoms: Symptoms may include skin break, bruise or puncture, cuts, bleeding, swelling and redness of the area, and oozing of fluid. In case of rabies, the affected person is scared of water (hydrophobia).

First Aid:

- Wash hands before attending to wound.
- Wash wound with soap and running water.
- Apply antibiotic ointment.
- Dress using sterile bandage.
- Tetanus booster or antibiotics/ anti-rabies injection are required to be given at the hospital.



Snake Bites

Snakebite is an injury caused by a bite from a snake often resulting in puncture wounds. The outcome of snake bites depends on numerous factors, including the species of snake, the area of the body bitten, the amount of venom injected, and the health conditions of the victim. Feelings of terror and panic are common after snakebite and can produce a characteristic set of symptoms mediated by the nervous system such as increased heartbeat, nausea and giddiness. **Even bite from a harmless snake can cause allergic reaction.**

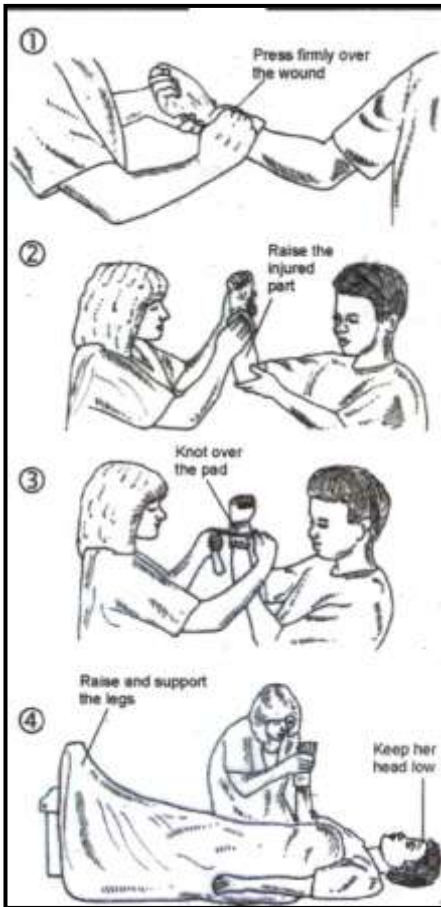
Causes: Snakes which may bite a person includes Viper, Cobra, Rattle snake, Water Moccasin and Coral Snake.

Symptoms: Symptoms may include fang marks, swelling or severe pain at the site, bloody discharge from wound, burning, blurred vision, numbness or tingling sensation, vomiting, loss of muscle co-ordinations, rapid pulse, fainting, etc.

Treatment:

- Immediately call for medical help. Get the victim to the hospital as soon as possible.
- Check the snakebite for puncture wounds. If one or two fang markings are visible, the bite is from a poisonous pit viper.
- Remember what the snake looks like. The doctor will need to know this to provide proper treatment
- Keep the victim calm. Keep the bitten arms or leg below the level of his heart to slow the blood flowing from the wound to the heart. The more the victim moves, the faster the venom spreads through the body.

- Wash wound with soap/water, keep the bitten area slightly elevated, and apply cool compress/wet cloth to the affected part. Be sure to wipe away from the bite. This keeps any venom on the unbroken skin around the bite from being wiped into the wound.
- Watch for general symptom (i.e. sharp pain, bruising, swelling around the bite, weakness, shortness of breath, blurred vision, drowsiness, or vomiting. If any of the these symptoms occur within 30 minutes from the time of the bite, and you are over two hours away from medical help, tie a constricting band (3/4 to 1 1/2 inches wide) two inches above the bite or above the swelling.



The band needs to be loose enough to slip a finger underneath it. The band slows blood flow away from the bite, keeping the venom from reaching the heart. The band must be applied within 30 minutes after the time of the bite to be effective. If the swelling spreads, move the band so that it is two inches above the swelling. Monitor for pulse, respiration and blood pressure till the medical aid is given to the victim.

Practice session

1. Pair up with your classmate. Imagine that your classmate has met with an accident and injured his/her wrist. Perform the steps shown in the diagram under the supervision of your teacher/trainer and write the steps in the space given below:

- Step 1: _____
- Step 2: _____
- Step 3: _____
- Step 4: _____

Fill in the Blanks

1. The two types of cuts are _____ and deep cuts.
2. Tetanus _____ injection is given to prevent tetanus, which may be caused due to cut in the skin.
3. In certain illnesses like ulcer, excessive _____ takes place.
4. A first-aider should always wash his/her hands with antiseptic soap and water before and after administering _____.
5. You should wear surgical _____ before administering first aid.
6. Mild or superficial burns are also known as _____ degree burns.
7. In second degree burns _____ develops that ooze a clear liquid.
8. The third degree burn damages all the _____ layers of the skin.
9. _____ is a disease that may be caused by the bite of non-immunized dogs.

CHECKLIST FOR ASSESSMENT ACTIVITY

Use the following checklist to see if you have met all the requirements for assessment activity.

Part A

- (a) Differentiated between different types of cuts.
- (b) Differentiated between different degree of burns.

Part B

Discussed in class the following:

- (a) How burns are caused?
- (b) What are the different degrees of burn?
- (c) What should not be done in case of burns?
- (d) How bite of non-immunised dogs is dangerous?

Part C

Performance standards

The performance standards may include, but not limited to:

Performance standards	Yes	No
Administer first aid for cut in a hypothetical situation.		
Enlist 2 symptoms of first degree burns.		
Establish the type of burn-first, second or third degree burn.		
Administer first aid to a victim (bitten by an insect - a hypothetical situation).		
Enumerate steps for providing first aid to a victim of snake bite.		

BOOKS

- First Aid Basics, National Council for Science & Technology Communications, Department of Science & Technology, Ministry of Science & Technology, Government of India.
- First Aid - A Medical Dictionary, Bibliography, and Annotated Research Guide to Internet Reference, Icon health publications.

WEBSITES

- <http://www.medindia.net>
- http://medical.tpub.com/10669-c/css/10669-c_140.htm
- http://en.wikipedia.org/wiki/First_aid
- http://en.wikipedia.org/wiki/First_aid
- http://en.wikipedia.org/wiki/First_aid_kit
- http://kidshealth.org/parent/firstaid_safe/
- <http://www.medindia.net/patients/firstaid.asp>
- <http://www.nlm.nih.gov/medlineplus/firstaid.html>
- http://www.ehow.com/how_7690979_teach-basic-first-aid-kids.html