

When a serious injury occurs, you have to think and act quickly. Medical assistance may be only minutes away, but you have to consider that seconds count. What you do in those first few seconds and minutes can make the difference between life and death. Quick, calm, and correct action can make all the difference.

"First aid" is emergency care given to the sick or injured before EMS or medical personnel arrive.

### At the end of the session, the participants should be able to:

- demonstrate Basic Life Support / CPR;
- follow first aid proper procedures;
- perform carrying techniques; and
- make an emergency water filter.

## Pretest: True or False?

- After an accident, immediately move the victim to a comfortable position.
- If a person is bleeding, use a tourniquet.
- Signs of a heart attack include shortness of breath, anxiety, and perspiration.
- All burns can be treated with first aid alone; no emergency medical attention is necessary.
- Reposition the victim with head injury before administering CPR.

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Before we get started, let's see how much you already know about first aid. Decide if each of the statements on the screen is *true* or *false*.

#### How did you do? Did you get all the answers right?

During the session, you'll learn more about these first-aid issues & I guess a lot more...



Every medical emergency is different, of course, but there are four basic rules that apply to all medical emergencies.

- One, call for medical help immediately. An employee on the scene should call RESCUE/EMS while another certified in first aid and CPR tends to the victim. If you make the call, explain the kind of injury and where the victim is located.
- Two, bring help to the victim, don't bring the victim to help. In other words, victims should not be moved unless they are in imminent danger where they are.
- Three, check the ABCs. "A" stands for airway. "B" stands for breathing. And "C" stands for circulation. That means check to make sure the throat is clear, the victim is breathing, and the victim has a pulse. A first-aid certified employee may be called upon to perform rescue breathing or CPR to keep the victim alive until EMS (emergency medical services) personnel arrive.
- And four, do no further harm. Be careful not to cause additional injuries in your attempt to help a victim.

Characteristics of a Good First Aider
<ul> <li>□ Gentle - should not cause pain.</li> <li>□ Resourceful - should make the best use of things at hand.</li> <li>□ Observant- should notice all signs</li> <li>□ Tactful - should not alarm the victim.</li> <li>□ Emphatic - should be comforting.</li> <li>□ Respectable - should maintain a caring attitude.</li> </ul>
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Gentle in the sense that rescuer don't add injury to the victim. Resourceful as in we utilize what we have... Observant in checking all the possible signs like for example the victim has head injury or broken ribs. The first aider must be tactful in dealing with the victim... and in addition emphatic. Lastly, we must be professional and respectable in doing our task as servant first aider.



Direct contact (giving first aid without PPE)

Indirect contact (accidentally and unaware of the PPE)

Air Born (cough or inhalation of victim's breathing)

# Checking vital signs: Determine radial pulse (pulse rate) Adult 60 - 90/min. Child 80 - 120/min. Infant 120 - 160/min. Determine breathing (respiration rate) Adult 12 - 20/min. Child 18 - 30/min. Infant 25 - 50/min.

#### Checking vital signs: Pupil Signs

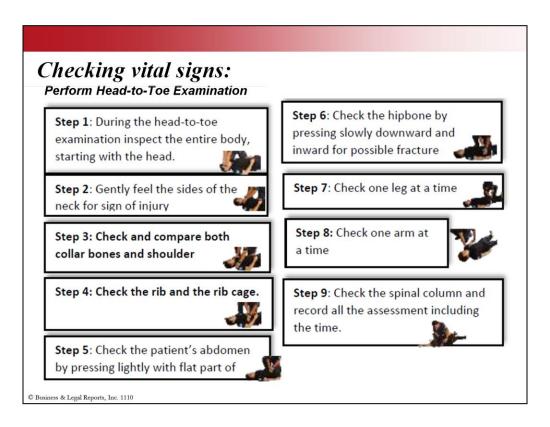
- ☐ Dilated Pupils Bleeding and State of Shock
- ☐ Constricted Pupils Heat Stroke or Drug Overdose
- ☐ Unequal Pupils Head Injury or Stroke



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**Dilated** = enlarged

**Constricted** = contracted (small pupil)



Deformity, Contusion, Abrasion, Puncture, Burns, Bleeding, Tenderness, Laceration, and Swelling

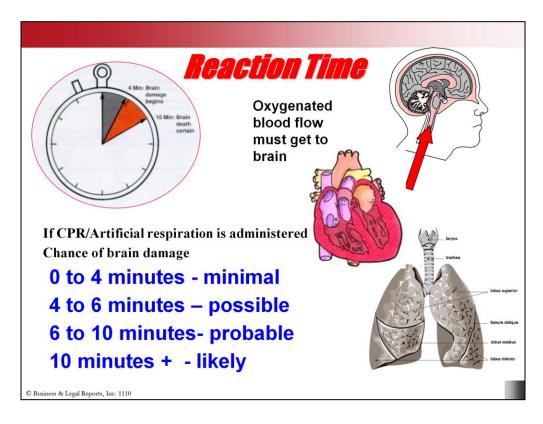


When a person is unconscious and not breathing, irreversible brain damage occurs within 3 minutes. You have to act very fast.

Overview of BLS Steps

- H- Hazard
- H- Hello
- **H** Help
- **C**-Circulation
- **A** Airway
- **B** Breathing
  - Someone trained in cardiopulmonary resuscitation, or CPR, should lay
    the person on his or her back while someone else calls RESCUE/EMS.
    Loosen the clothes around the neck and make sure nothing is blocking
    the mouth or throat.
  - First, give 30 chest compressions by placing both hands in the center of the victim's chest with one hand on top of the other and pressing down with the heel of your hand 1½ to 2 inches. Press quickly at a rate of about 100 compressions a minute.
  - Next, open the airway by tilting the head slightly and lifting under the chin. Do not move the victim's head back if you suspect a neck injury.

- Form a seal around the mouth and pinch the nose. Use a pocket/CPR mask if you are trained in its proper use. Breathe two slow breaths into the person's mouth—enough to make the chest rise and fall. Then, continue chest compressions.
- Once you begin CPR, continue until EMS personnel arrive.



A **heart attack** occurs when blood flow to a part of the **heart** is blocked, usually by a blood clot. Without oxygenated blood, the **heart** muscle begins to die. A **stroke** is a brain **attack**, cutting off vital blood flow and oxygen to the brain. **Stroke** happens when a blood vessel feeding the brain gets clogged or bursts.

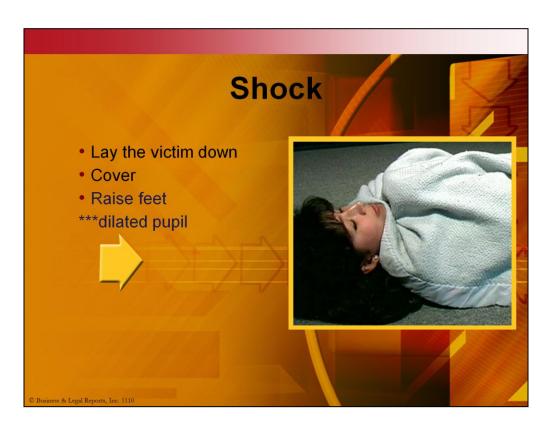
The Air that enters the lungs contains about 21% of oxygen and only a trace of carbon dioxide. Air that is exhaled from the lungs contains about 16% oxygen and 4% carbon dioxide.



- **Heavy bleeding** is another serious medical emergency. If a teacher/student is bleeding heavily, you have to stop the flow of blood while you wait for EMS personnel to arrive.
- Because of the risk of bloodborne diseases, you must wear gloves when administering first aid for bleeding.
- Next, cover the wound with a clean bandage / gauze.
- Then apply pressure with your hand directly over the wound.
- Do the same thing if a finger, hand, or other body part has been amputated. While you are applying pressure to the wound, have someone else place the amputated part in a plastic bag with ice. Make sure to wrap the severed part so that it doesn't directly touch the ice. Give the package to EMS personnel or rush it to the hospital. In many cases, severed limbs can be reattached.

Do you know where the nearest first-aid kit is located in your work area? You should. You should also know what materials the kit contains.

Tell trainees where to find first-aid kits in their work areas. Show them a kit so that they become familiar with first-aid materials in the kit.



In cases where a person has lost a lot of blood, a condition known as shock can develop. Shock is the body's way of reacting to severe injury. A person in shock may appear stunned or confused. To treat shock:

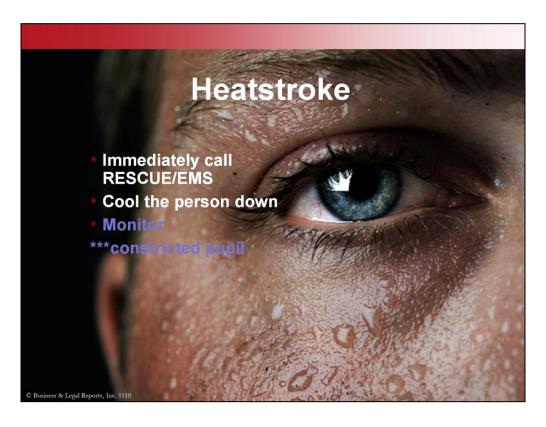
- Lay the victim down,
- Cover the victim to keep him or her warm, and
- Raise the feet slightly above heart level.



Signs that someone is having a **heart attack** include shortness of breath or difficulty breathing; anxiety; pressure, squeezing, fullness, or pain in the center of the chest, radiating down either arm, or in the jaw; ashen color to skin, and perspiration, nausea, or vomiting.

- First aid for heart attacks begins with calling RESCUE/EMS,
- Then make the victim comfortable, either lying down or sitting,
- Loosen tight clothing at the waist and neck,
- Ask the victim if he or she has heart medication,
- Don't let the victim move around, and
- Don't give the person any stimulants like coffee or tea.

If the heart stops beating, begin CPR. However, if the heart is beating and the person is breathing, CPR is not necessary. Just keep him or her comfortable until EMS personnel arrive.



If a person suffering from heat exhaustion is not treated promptly, it can turn into heatstroke. Heatstroke is a life-threatening condition in which the body gets so hot that it can't cool down. Signs of heatstroke include very hot and dry skin, extreme tiredness, and confusion.

- You have to act fast in cases of heatstroke. Immediately call RESCUE/EMS.
- While you're waiting for help to arrive, cool the person down by hosing his or her body with cool water or by fanning the body.
- Monitor the victim to make sure the airway remains open, the person is breathing, and the person has a pulse.

If you work in a hot environment or if you exercise or work outdoors on hot days, you should recognize the symptoms of heatstroke and take precautions to prevent overheating.

Describe precautions for preventing heatstroke, such as drinking lots of fluids, pacing yourself while you work, taking rest breaks in a cool place, and so on.

#### **Fainting**

- Check for breathing
- Administer CPR if necessary
- Call RESCUE/EMS if more than few minutes
- If conscious, lay the victim down with feet elevated



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Fainting can occur when blood pools in the legs, reducing the blood flow to the brain. People may faint when they are standing for a long time in the heat. Fainting can also be brought on by stress.

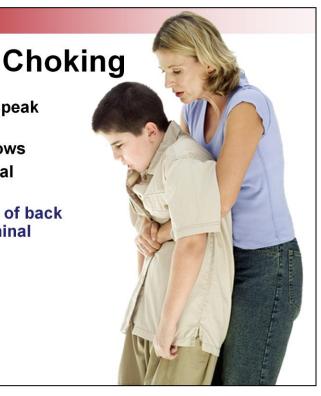
- Check a person who has fainted for breathing.
- If the person is not breathing, begin CPR.
- If the person does not regain consciousness within few minutes after fainting, call for emergency medical assistance and continue to monitor breathing.
- Otherwise, if the person quickly regains consciousness, have the person lie down with feet slightly elevated. Loosen any tight clothing. Then allow the person to rest for 10 or 15 minutes until normal blood flow is restored, and the person feels all right again.



The rule for treating people who may have broken bones is never to move them unless it's necessary for their safety. Neck and back injuries are especially risky. The wrong move could cause paralysis or death. If you suspect broken bones, call for emergency medical assistance, and instruct the victim not to move.

- Then look for swelling and deformity.
- Ask the victim to rate the pain, explain how the injury happened, and if he or she can move the injured limb.
- Treat for shock if the person shows symptoms.

If it seems that a person might have a broken bone, apply ice wrapped in a towel or cloth to the area, and keep the victim comfortable until help arrives.



 Ask a person to speak or cough

- Deliver 5 back blows
- Perform abdominal thrusts
- Repeat sequence of back blows and abdominal thrusts

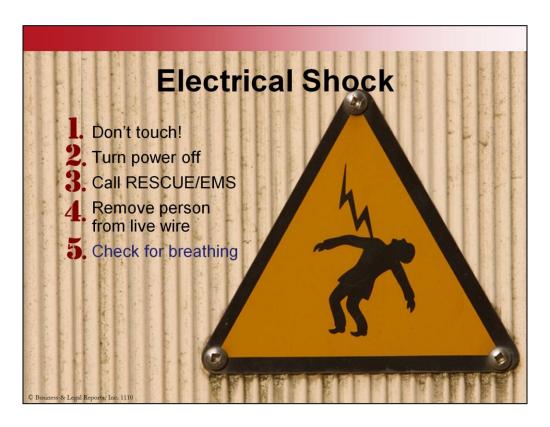
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A person can choke to death in a couple of minutes.

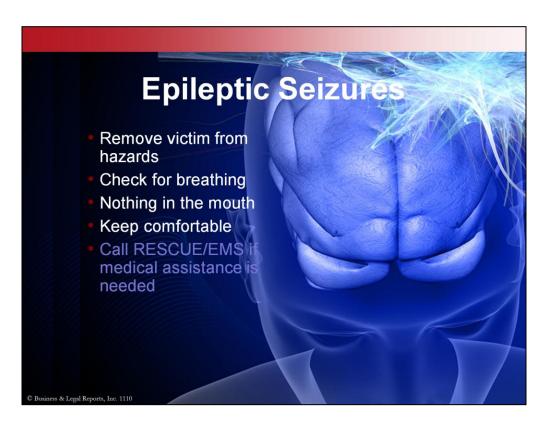
- The fastest way to find out if someone is choking is to ask, "Are you choking?" If the person can cough or talk, he or she is not choking.
- But if the person can't talk or cough, first deliver 5 back blows between the person's shoulder blades with the heel of your hand.
- If the back blows don't clear the object from the throat, perform abdominal thrusts:
  - Stand behind the victim and wrap your arms around the waist.
  - Make a fist with one hand. Place your fist, thumb-side in, against the victim's stomach—above the navel but below the ribs. Grab your fist with your other hand.
  - Pull in and up sharply and repeat if necessary to dislodge whatever is stuck in the throat.
- Repeat the sequence of 5 back blows and 5 abdominal thrusts until the object is cleared.

Do you know how to perform abdominal thrusts? Everybody should. It's simple, and it can save a life.

Demonstrate abdominal thrusts without using force on a volunteer from the group, and then give trainees the chance to practice it on one another.



- The first rule of dealing with electrical shock is not to touch a person who is in contact with a live electrical current. If you do, the current can pass right through the person to you and cause the same injury.
- So the first thing you should do is to turn off the power to the electrical equipment involved.
- Then call RESCUE/EMS. Electrical shocks can be life threatening. You want to get EMS personnel on the scene quickly in case the victim has stopped breathing.
- If you have to remove a person from a live wire, be very careful so you don't get a shock, too. Stand on something that's an insulator, like a rubber mat; wear rubber gloves; and use a dry stick, wooden broom handle, or board to push the person away from the wire. Don't use anything metal, wet, or damp.
- Once the victim is safe, check for breathing. Begin CPR if the person is not breathing.



A person having an epileptic seizure may fall to the ground and have convulsions. If a person appears to be having a seizure:

- Remove victim from any dangerous objects or hazardous situations;
- Check for breathing;
- Don't put anything in the victim's mouth;
- Try to keep the person as comfortable as possible; and
- Call for emergency medical assistance if the seizure lasts more than 5 minutes without signs of slowing down, if the person has trouble breathing afterwards, or if the person is in pain or other injury is present.



#### **Slide Show Notes**

Eye injuries are a common workplace medical emergency. Eye protection can prevent most injuries. But just in case, you should be familiar with first aid for different kinds of eye injuries.

- For chemical splashes, flush eyes for at least 15 minutes with water, and then close the eyes and cover them with a clean cloth. Get immediate medical attention.
- For solids (particles, dust, powders, etc.) in the eye, flush with water until particle comes out. If it won't come out, cover the eye and seek medical attention. Don't let the victim rub the eye.
- For a blow to the eye, apply cold compresses for 15 minutes to reduce pain and swelling. Get medical attention.
- For cuts near the eye, bandage loosely and get medical attention. Don't let the victim rub the eye.
- For objects that penetrate the eye, don't try to remove, move, or put any pressure on the object. Immobilize it by placing a paper cup or soft, bulky dressing around it, secured with tape. Bandage the other eye so that the victim will keep the injured eye still. Get immediate medical attention.



Burns are another common workplace hazard. You can be burned by hot surfaces, hot materials, or by the properties of certain materials. First aid for burns depends on the degree of the burn.

- First-degree burns are the least severe. They just involve the top layer of skin, which becomes reddened and painful.
- Second-degree burns are more serious and include blistering in addition
  to reddened skin and pain. First- and second-degree burns may be treated
  with cold, running water for relief of pain. Then cover the burned area
  with a moist, sterile dressing. Don't break blisters on second-degree
  burns.
- Third-degree burns are the most serious and can even be life threatening.
  With third-degree burns the skin is destroyed, you see charring and deep
  tissue damage. You may even see exposed bones. For third-degree burns,
  call RESCUE/EMS immediately, and keep the victim comfortable until
  help arrives.

Always get immediate medical attention for all burns, especially those that are severe and those that cover large areas of the body.

#### Spider Bite/Scorpion Sting

Signs and Symptoms

Bite mark.

Swelling

Pain

Nausea & Vomiting

Difficulty of Breathing of Swallowing



#### First Aid

- 1. Wash wound.
- 2. Apply a cold pack
- 3. Get medical care to receive antivenin.
- 4. Call EMS number, if necessary.

#### **Marine Life Stings**

Signs and Symptoms

Possible mark

Swelling

Pain

Possible allergic reaction

#### First Aid

- 1. If jellyfish soak area in vinegar.
- 2. If sting ray soak in no scalding hot water.
- 3. Clean & bandage the wound.
- 4. Call EMS number, if necessary.

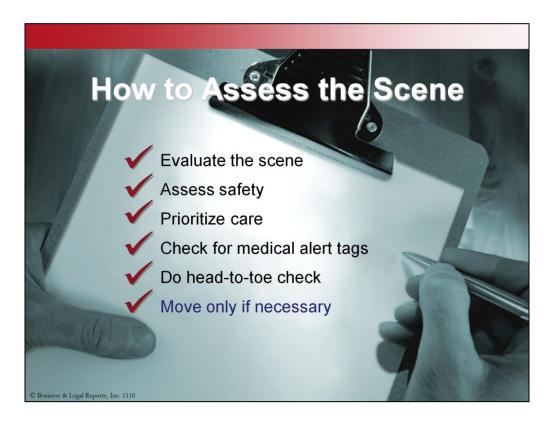
#### **Snake Bites**

Signs and Symptoms Possible mark Pain

## Dorling Kindersley

#### First Aid

- 1. Call RESCUE/EMS number immediately.
- 2. Wash the wound
- 3. Keep bitten part still, and lower than the heart.



When it is clear that a victim's condition is immediately life threatening, such as choking or not breathing, perform first aid immediately.

When the situation is not life threatening, there are multiple injuries, or when there are multiple victims, take a few moments to assess the scene to make sure it is safe for you and other helpers and to be certain you know what type of first aid is required:

- Evaluate the scene for number of injured and nature of the event.
- Assess the safety of the scene, including the potential for toxic vapors or gases in the air, and other risks such as electrical or fire hazards.
- Prioritize care when there are several injured.
- Check victims for medical alert tags.
- Perform a logical head-to-toe check for injuries.
- Move the victim only if absolutely necessary to prevent further injury from a hazard at the scene.

#### Lifting and Moving the Victim:

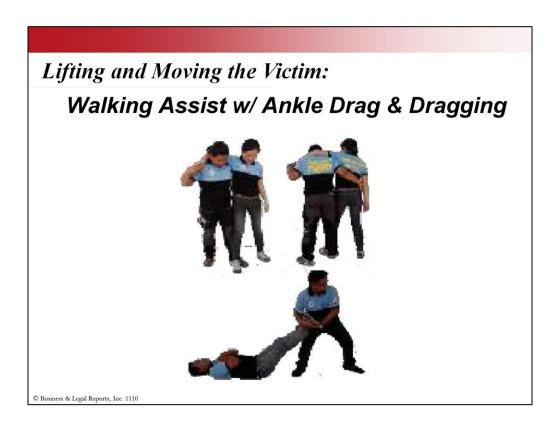
#### **Emergency Situations**

Danger of fire or explosion Risk of toxic gases Serious traffic accident Risk of drowning Danger of electrocution Danger of collapsing walls

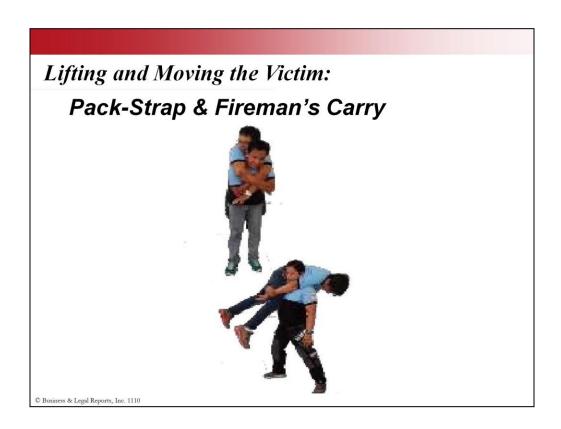
#### Lifting and Moving the Victim:

Selection of transfer method will depend on the following:

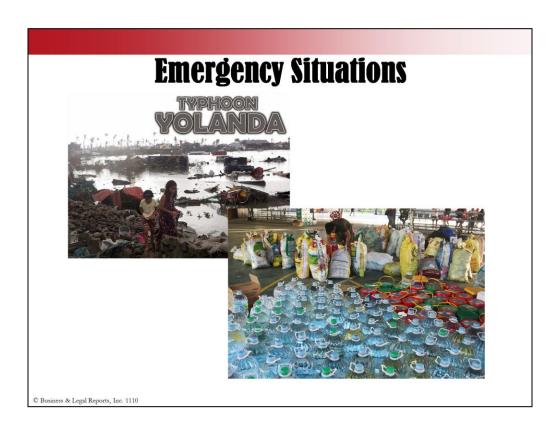
Nature and severity of the injury
Size of the victim
Physical capabilities of the first aider
Number of personnel and equipment available
Nature of evacuation route
Distance to be covered
Gender of the victim (Last Consideration)

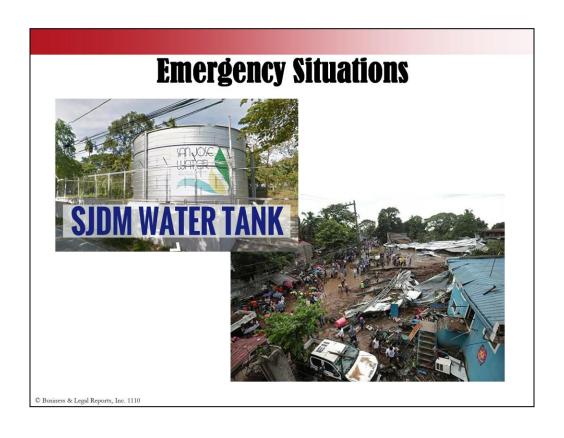


Correct position of feet **Back straight** Correct hold **Position of arm** Position of head **Use of body weight** 









# Emergency Water Filter Local Water District Treatment Process: Aeration Coagulation-Flocculation Sedimentation

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☐ Filtration

☐ Disinfection (Chlorination)

**Aeration** - water is sprayed into the air to release any trapped gases and absorb additional oxygen for better taste.

**Coagulation-Flocculation** - this is the process by which small sediment particles which do not settle well combine together to form larger particles which can be removed by sedimentation.

**Sedimentation** - this is the process by which suspended solids are removed from the water by gravity settling and deposition.

**Filtration** - this is the passage of fluid through a porous medium suspended matter which did not settle by gravity.

**Disinfection** - is the method of introducing a controlled amount of chlorine to the water in order to attain a desired degree of disinfection.

Emergency Water Filter to purify muddy/rain water
Tools & Materials:
☐ Plastic bottle (2 pcs)
☐ Clean cotton & gauze cloth (lampin)
☐ Charcoal
☐ Sand (fine and coarse)
☐ Gravel or pebbles
□ Scissors
☐ Hammer
☐ Newspaper
☐ ZONROX Original (unscented)
☐ Alum (Aluminum Sulphate)
(
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Zonrox/Clorox Original (unscented) has the main ingredient called Sodium Hypochlorite at around 5.25 to 6.00%

Alum (Aluminum Sulphate) which locally known as "tawas"

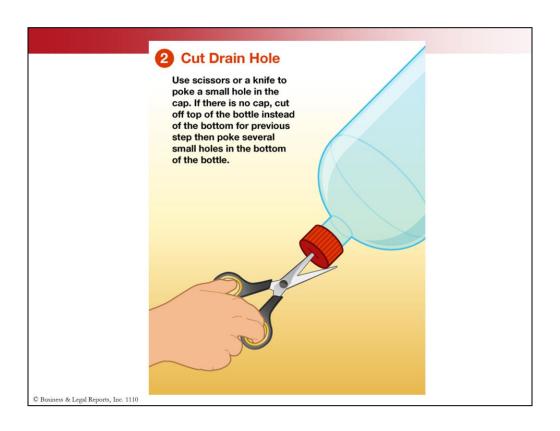


The prescribed dosage of **Alum/Aluminum Sulphate** varies from **5 mg per liter** for a relatively clear water to **85 mg for a highly turbid waters** like industrial waste. However, the normal dosage for drinking water is about 17 mg per liter.

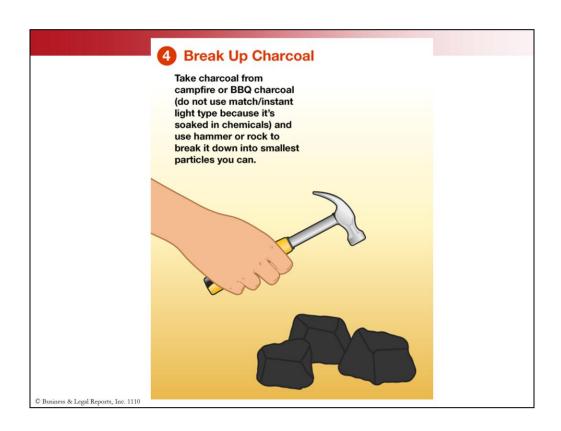
Around 4 liters of water is to half a teaspoon powdered Alum and stirred well (therefore 1 liter water is to 1/8 teaspoon of alum).

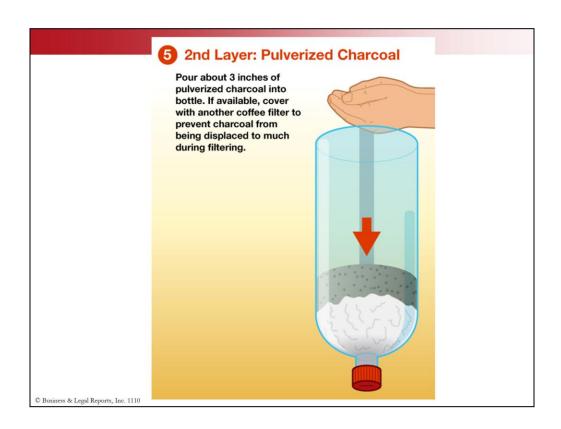
Water needs to be kept still for about **3 to 5 hours** so that the sediments get coagulated and settles down at the bottom.



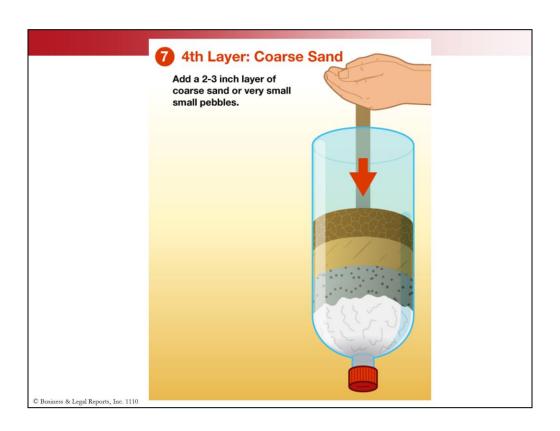


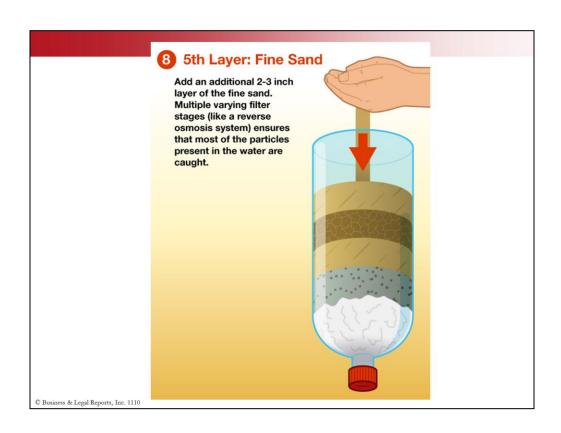


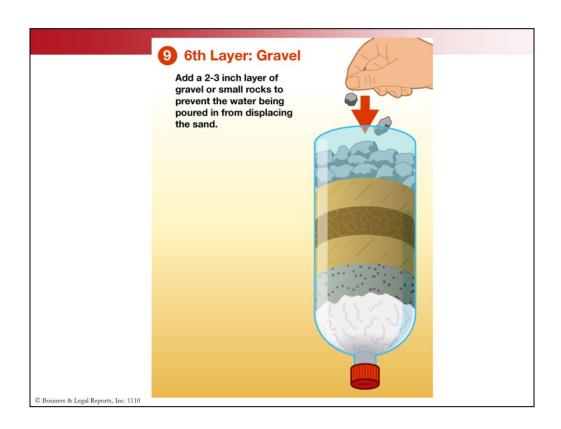




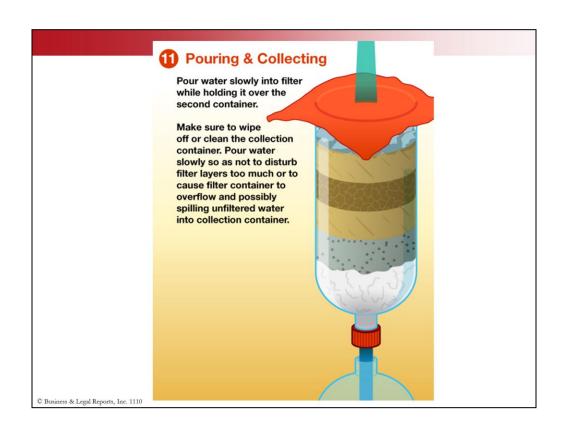














The dosage of bleaching solution as 2 drops per liter is suggested considering 60 to 70 % of chlorine (Sodium Hypochlorite) available in the bleaching powder. you can increase or decrease the amount by smelling the chlorinated water. More chlorine smell, add some clean water. Add a few more drops in case of no smell.

# Evaluation: Matching Type

Match the emergency problem with the correct first-aid procedure.

Epileptic Seizure	CPR
Choking	Elevate feet
No breathing	Keep victim still
Heart attack	Remove victim from hazards
Shock	Abdominal thrusts

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Now here's a matching exercise to see how much you remember about the first-aid procedures we've just described. In Column 1 you see a list of medical emergencies. In Column 2 there is a list of first-aid procedures. See if you can match the problem with the correct first-aid procedure. [PAUSE]

#### Here are the answers:

- Epileptic Seizure goes with remove victim from hazards;
- Choking goes with abdominal thrusts;
- No breathing goes with CPR;
- Heart attack goes with keeping the victim still; and
- Shock goes with elevating feet.

How did you do? Did you make all the right matches?

One of your workers has cut their hand on machinery on the farm. They are bleeding heavily from a large wound. What is the first thing you should do?

- a) Tie a tourniquet above the wound
- b) Let the blood drain out
- c) Put them into the recovery position
- d) Put pressure on the wound and call EMS

You need to perform CPR on your neighbor after she collapsed and stopped breathing. How many chest compression to rescue breaths should you do?

a. 30 compression: 2 breaths

b. 20 compression: 5 breaths

c. 15 compression: 3 breaths

What would you do if an object has been embedded into the casualty's stomach?

- a. Remove the object and then try and stem the bleed
- b. Ask the casualty to pull it out themselves
- c. Keep the object in place and keep them as still as possible.

### **Multiple Choice**

In disinfecting water, how many drops of chlorine is needed for 1 liter of water?

- a. 2 drops
- b. 3 drops
- c. 4 drops

Which position would you place a casualty who is unconscious, but breathing normally.

- a. Keep them standing up straight
- b. Lying down with their legs elevated
- c. Recovery position

After which stage in the primary survey should you send a bystander to telephone for an ambulance.

- a. Open the Airway
- b. Check for Breathing & Pulse
- c. Ventilate (breathe 2x)

To avoid injury in carrying the victim:

- a. the rescuer's back must be in inclined position.
- b. the rescuer's back must be kept in straight position.

### **Multiple Choice**

Which is the worst kind of burn?

- a. First Degree
- b. Third Degree

### **Multiple Choice**

Our first aid for a particle in the eye:

- a. Flush with water
- b. Rub eye

#### **Enumeration**

List three teaching strategies used by the lecturer.

- 1. Multimedia Instruction
- 2. Demonstration
- 3. Discussion
  Collaborative Learning
  Experiential Learning
  Learner-Centered Instruction

#### **EMERGENCY NUMBERS**

9225155 RESCUE5 (TV5)

122 / 927-5914 / 928-4396 DRRMO QC

09152581066 QC RED CROSS

0932-6000-119 **DRRMO CSJDM** 

911/8888 Emergency Hotlines

For learning material visit:

sirsun.weebly.com

#### **SOURCES:**

http://www.webmd.com/first-aid/

http://www.redcross.org.uk/What-we-do/First-aid

https://www.epa.gov/ground-water-and-drinking-water/emergency-disinfection-drinking-water

 $\underline{https://www.h2odistributors.com/pages/info/how-to-make-a-water-filter.asp}$