

Textbook

Disaster Reduction

For

Grade 4



Ministry of education
Institute of national sciences and education
(With the cooperation of national disaster preparedness center)
Supported by DANIDA, ADPC

2003

Textbook of Disaster reduction

Elementary school Grade 4

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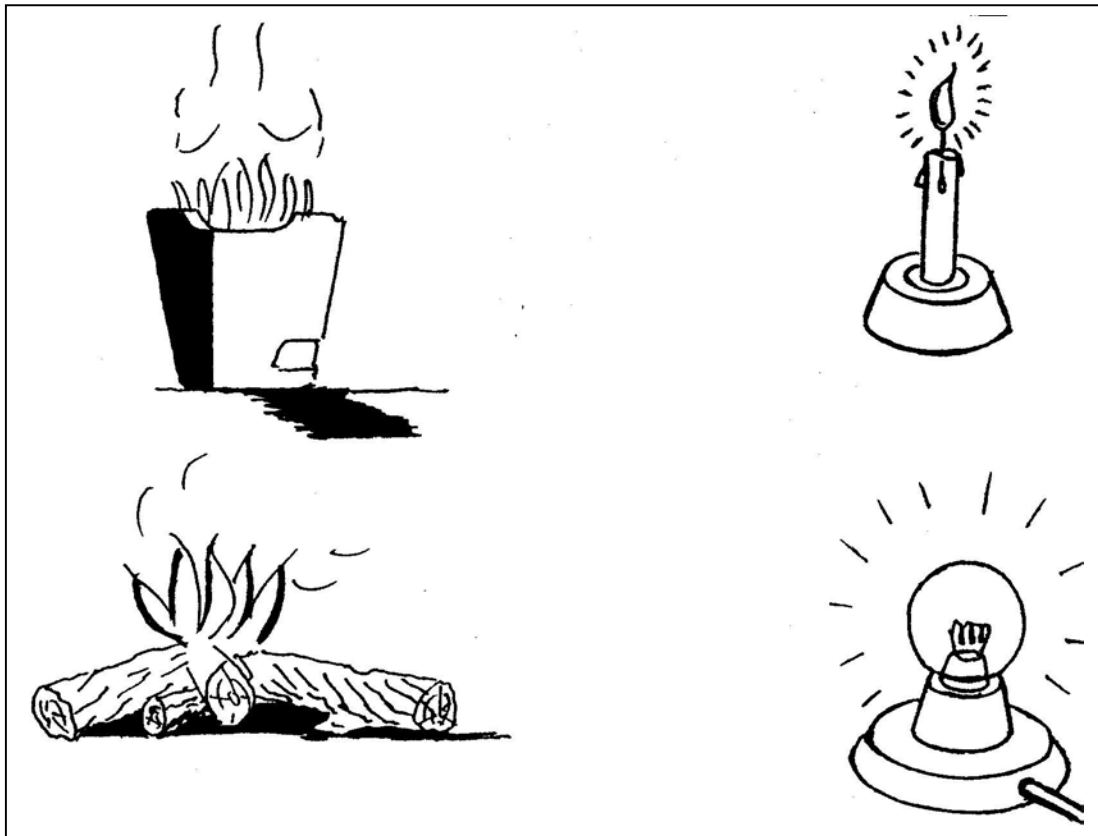
Content

Lesson 1	Fire accident.....	1
Lesson 2	Flood	6
Lesson 3	Drought	13
Lesson 4	Pollution.....	19
Lesson 5	Road traffic accident	26
Lesson 6	Social Disordering.....	34

Lesson 1 Fire accident

Flame and Non flame fire

Fires are used for cooking and boiling water a well. In addition, we can also use fire for lighting at night.



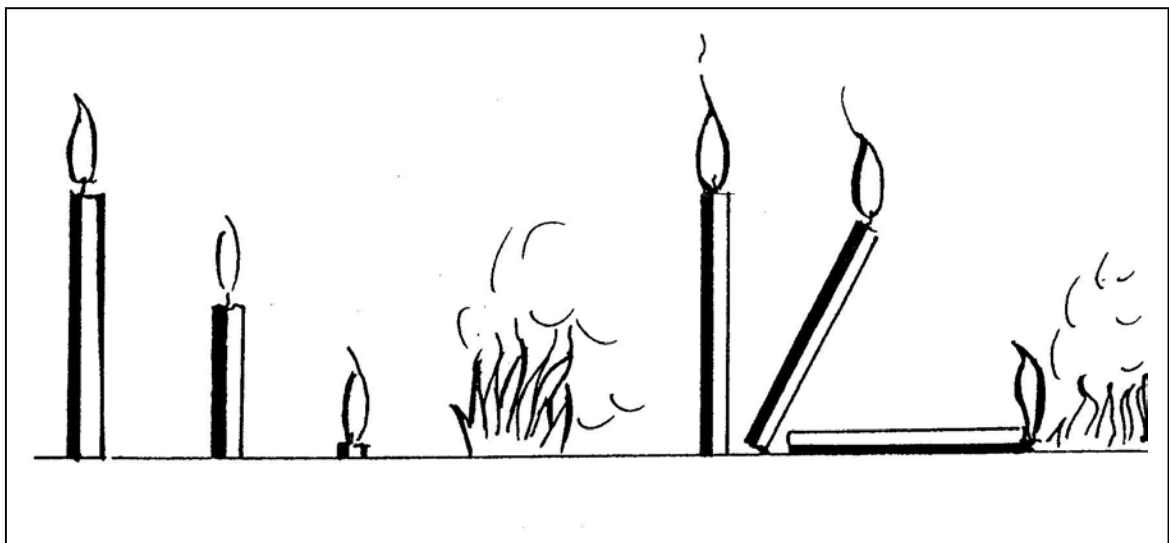
Therefore fire is very useful and beneficial materials for our daily life. Please remind that “To be stolen five time is rather than get burning for one time”

After a house is burned, there is nothing left except ashes. Moreover it causes death and invalid.

We should know that wound caused by burning is very difficult to treat and take a lot of time to recover. The burning cicatrix is very ugly. If fire burns more than half of skin body, it could not be treated, but lead to death only.



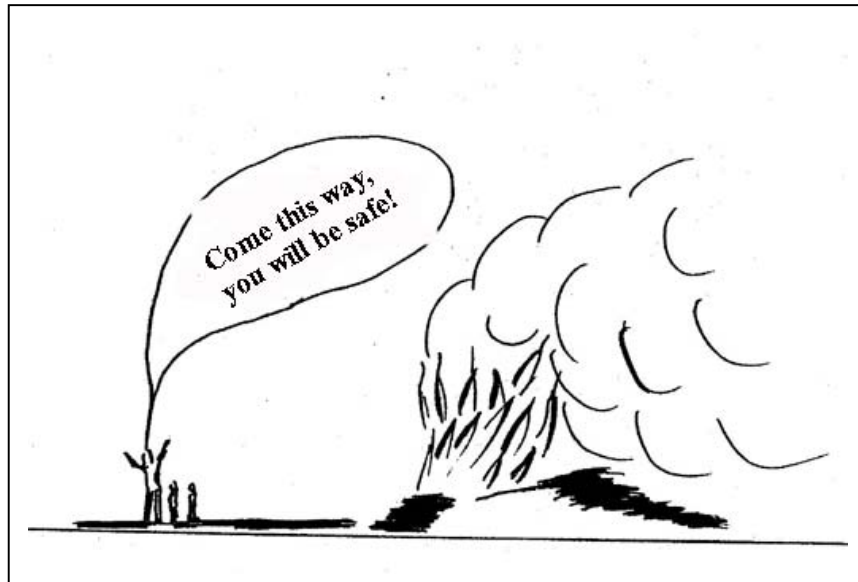
Friend! all fire accidents are occurred just due to careless and irresponsibility, but not depends on luck at all.



Using fire for cooking and went to do something else
Boiling water until water was all evaporated from boiling pot
Keep the kerosene lamp near the mosquito net.
Use electric appliances without knowing the right instructions.
Burning garbage

Fire evacuation measures

Actually, It is windy when severe fire accident occurs, we should evacuate to safe place, which has no wind and smoke and do not disturb fire officer working.



Fire extinguishing measures

If fire accident occurred, first of all, we have to pay attention to this accident, be brave and rapidly give fire alarm, then look for fire extinguishing materials to stop fire burning and investigate for the source of fire accident immediately.

- Shutdown all the electric power in the fire area or just call electrician by 192.
- Call fire brigade urgently by 190.
- Rapidly remove belonging, combustible and fuel substances out to save place.
- Help the victims from fire accident.
- Guide fire brigade vehicle to the fire accident site using the shortest way and safe.

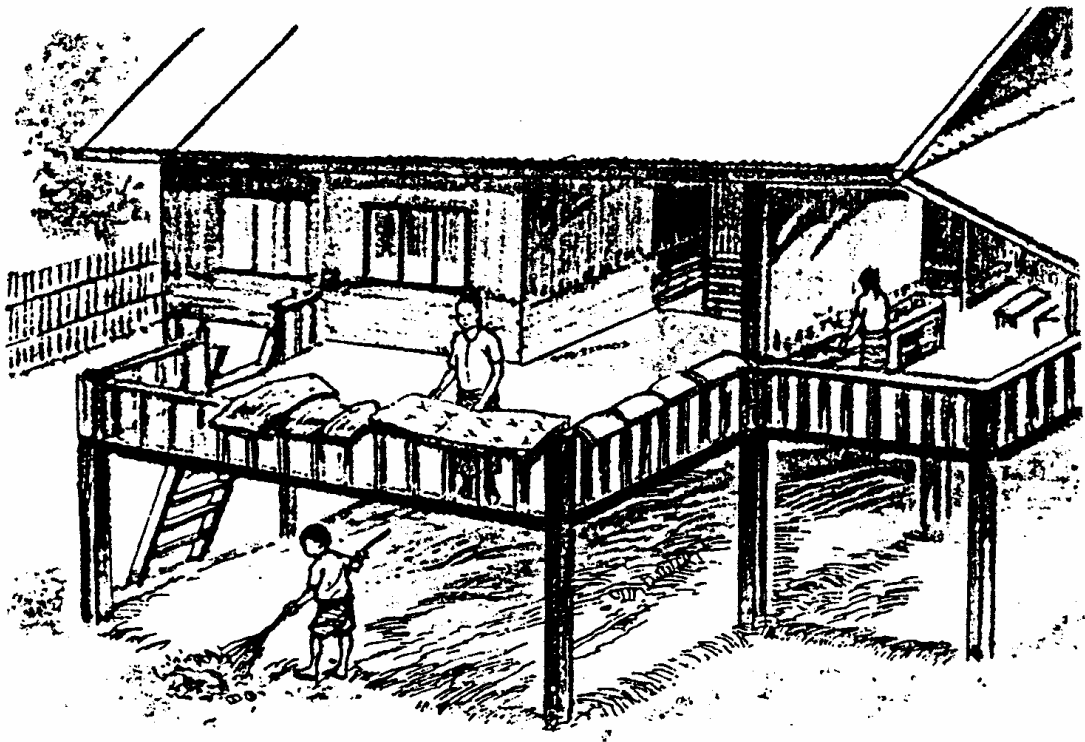
Fire accident prevention

It is better to do fire accident prevention rather than stopping fire accident. Therefore, we should be careful when working in the place where fire is used, especially kitchen, because there is a stove. What should we do in the kitchen is:

- Cleaning up the floor and remove all pieces of paper, dry leaves, grass and wood out
- Separate and keep wood, charcoal and combustible substances away from fire.
- Don't forget to leave match near fire after using
- Bucket of water or sand should be available for us in the kitchen.

If severe fire accident occurs from cooking, we can use water to stop it. If fire is from fat or vegetable oil, sand can be used to stop it. In case of severe fire accident with high flames, electric power should be shut down immediately before fire extinguishing.

- Keep playground and living area clean from combustible substances.

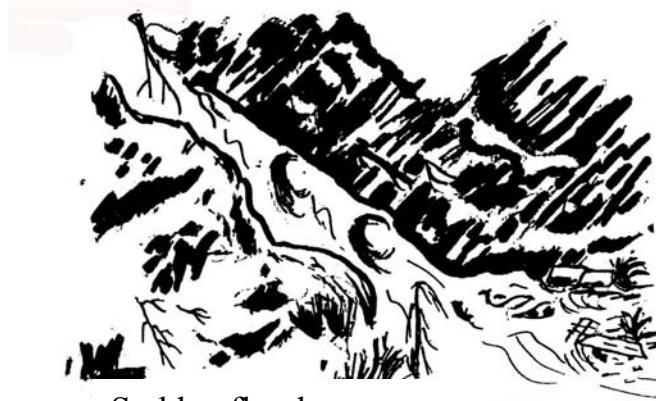




Lesson 2 Flood

1. Flood characteristics

A. Sudden flood



Sudden flood

Sudden flood is caused from strong rainfall, which flows from high and disforest mountain through small streams. The soil at this place could not hold on the big amount of water, so it over flood residences. It is not easy to control sudden flood.

B. Overfull River

Hard continuous rain leads to water increasing over the warning water level of the reservoir and lake. The overflow river is occurred according to the season and extended for many days and weeks.



Overfull river

2. Causes of flood

A. Two small rivers

We construct two small rivers by pouring water on the two sloped soil. One slope is covered by grass and another without grass. Take an observation to these small rivers which one will flow quickly and erode soil, which one will flow slowly and does not erode soil.



Two small rivers

The result of this experiment shows that the small river quickly flows through the slope without grass or forest and also eroded soil. For this can be one reason of soil erosion that brings sediment to river and the river become shallow.

B. Two adventurous rivers

We construct two small rivers. Put the garbage and plastic bags into a river and closely distribute some big stones very near to each other. Pretends big stones as a dense house settlement into another river.



Two adventure rivers

After that just pouring water into these two canals and take an observation on it: What will happen when garbage block off the canal? How does it flow? and How does another river with big stones flow?

When canal is full of garbage or dense houses were built without wastewater discharging system, river slowly flows and floods over the houses and other settlements.

3. The impact of flood



Flooding village

During flooding period, river rapidly flows, and damages human life, animals and lost of properties: houses, buildings. The communication roads were disconnected, disruption of infrastructure and shortaged food. Electricity lines also suddenly cut down and the broken wires get to water will be dangerous to people and animals. Underground water pumping stations and well full of garbage and can not used for many days and weeks. During flooding and post-flooding periods various severe epidemics can be occurred such as rash, dysenteries, diarrhea, dengue, etc. Trees fallen down, damaged cash crop and livestock lead to famine. Moreover, some of planting soil also are flooded, eroded, and can not be use to replant crops. The flood impacts is affected to production, goods, and also investment.

4. Participation in flood reduction

What should do for prevention from flood:

Plant more trees, plant more trees in risky flood area, keep listen flood warning news during rainy season, following water increasing level information from TV, radio, and newspapers. Check and maintain water dike. Provide flood campaign, and training in risk flooding area. Keep valuable properties, important documents, keep dry foods in a dry and high place, and also keep clean drinking water. If it is convenient, may be boats should be prepared. Search for high place for moving to. It's necessary to contact nearest local clinic in case of emergency deliver patients.



B. Flooding period



Evacuation from flood

During the flooding period, first of all we should switch off all electric switches and gas stoves in the house and move up to high and safe places. Do not walk through the place that electrical lines down and have contacted to water, otherwise it will cause the electrical shock and death. Do not swim, ride motorbike and bicycle in flood area because many danger places. Do not wear too much clothes, should wear safe coat, or floating clothes and apply floating instrument to help such as empty container, banana tree, wood etc. Do not have food that comes along with flood, because it is contaminated by various diseases. Do not use and drink flooding water, because it is contaminated poison and better to drink and use rainwater.



Prohibit to ride bicycle, motorbike and to play water in flooding area.

During the flooding, the help can be get from rescue and medical unit. They provide food, clean drinking water, clothes, medicines and temporary residence to the flood victims.



Flood recovering and helping people

C. Post-flooding period



Clean up, reconstruct flood building, and replant.

Children are not allowed to get into the flooded area, because it may has deep mud, dangerous animals. Do not switch on the electric power system Do not touch electric lines before checking. Do not eat remaining food from flooding. Sleep inside mosquito net at day and night time to prevent from mosquitoes bite. Cleaning up flooding areas, reconstructing flooding houses, replanting and raising livestock again.



Lesson 3 Drought

A. Characteristic of drought

There are three main characteristics:

1. **Meteorological drought** is occurred from no rainfall in a long period. Less rainfall comparing to the amount of normal yearly rainfall.



Drought from deficit rainfall

2. **Hydrological drought** is occurred by the water amount in water resources is reduced: dry lake, stream, etc. The another cause is overuse of natural water resources.



Water natural resource is almost dry

3. Agricultural drought:

This is because of the impact of climate change and natural water resources drying and it is affected to insufficient water supply in agriculture and production. These all lead to imbalanced water consumption for vegetation, therefore some of trees become dry trees that could not keep soil moisture, then affected to socio-agriculture.



Agricultural drought

B. Cause of drought

Various drought reasons:

- No rainfall for a long periods
- Climate change lead to unseasoned rainfall
- Yearly drought season
- Drought cause from drying of natural water resources

Cause of drying of natural water resource

- Population has been increased and the wood application also has increase. Slash and burn forest cause of hard land and could not absorb soil moisture.
- Slash and burn forest cause of less moisture soil, and can not keep water for long time.
- Overuse natural water resource without concerning to environment, and drought will be occurred in the future.



Deforestation

C. Impact of drought

Drought is the main reason of famine, poverty, lack of drinking water, and die at the end.

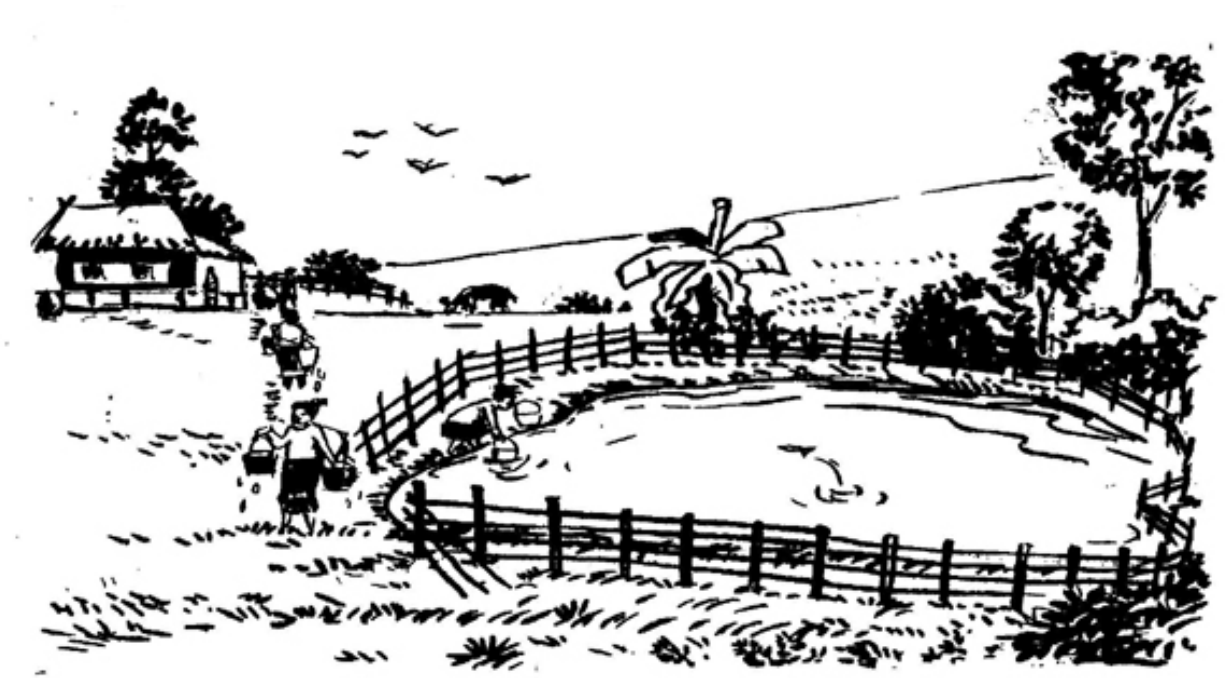
Severe drought impact stages:

Dry soil condition

Social disorder (war, poverty)
Loss of production
Decreasing income
Illness
Lack of medicine
Death

D. Damage drought reduction measures:

1. Drought reduction for drying natural water resource
 - Forest more trees for natural water resource preservation
 - Stop slash and burn forest for moving cultivation, due to it could reserve soil moisture through year
2. Environment preservation: Do not disorderly dump garbage, and dump it in arranged wastebaskets.
3. Reserve water resources for drinking and consuming in whole year. Keep natural lake, pond for livestock.



Reservation of water resource for drinking and using



Reservation of water resource for livestock

Lesson 4 Pollution

Pollution is gas, smell and smoke that harm to human health, animal, vegetation and environment. There are three main types of pollutions: water, air and noise pollution.

I Water pollution

Water pollution is water with degraded quality or water composition has been changed. Since the water is full of dirt: bad smell water, poison water, unclear water, disease, chemical, and oil spill contaminated water and the water can not be used.

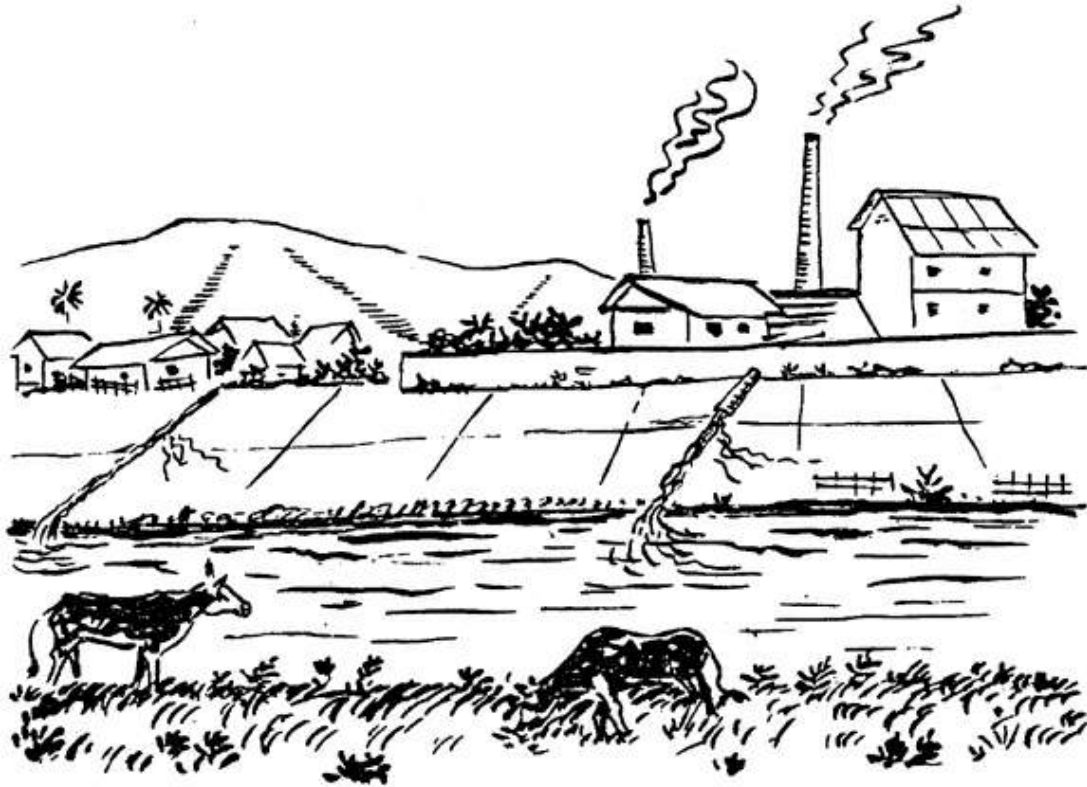


water in canal polluted with bad smell

1. Cause of water pollution

Water is a usefulness and necessity for our daily life. unfortunately due to irresponsibility in water use such as: wastewater discharging from various sources (household, hospital and factories) to natural water resource (lake,

river and natural canal) without inspection and treatment. In addition, dumped spoiling food, garbage, animals and vegetation corpse.



Water discharging from household and factories to natural water resources

2. The damage of water pollution to the environment

Water pollution harms to human health, animal and environment as follow:

- Dying of aquatic animal
- Rotten smelling causes malfunctioning to breathing system
- Source of various diseases
- Water can not be used for drinking, bathing and laundry and cultivation.



Flood damaging village

3. The water resource quality protection

To reserve water quality and avoid from water polluted, the following measures should be carry out:

- Do not pollute water resources
- Do not dump garbage and release wastewater to the natural water resource without water treatment
- Recycle wastebasket should be placed in each house that the waste urban sanitary authority can collect easily.



Waste baskets are placed in front of each house and garbage collector is working

II Air pollution

Air pollution is dirty and poisonous air or polluted air with bad smell, smoke, dust, and dangerous chemical components.



Air pollution

1. Cause of air pollution

Air pollution is caused by dumping and irresponsible disposing of daily waste. Burning, dumping garbage at residential area (under tree and into natural water resource), smoke from factories, vehicles and machines are caused of air pollution.

2. Danger from air pollution

Air pollution is dangerous to human and animal health. Particularly it directly affects to respiratory system that mainly cause nasal sinusitis, pneumonia, nonfunctional nerve system, etc.



Polluted canal with bad smell

3. The air quality reservation

For reserving air quality, what we should do are the following:

- Do not burn or throw garbage at residential area, and various water bodies. Should throw and kept in wastebasket which the garbage collector carry out to the arranged places.
- Trees should be planted surrounding houses and at empty spaces, since trees have capability of air filtering and make the air become clean.



III Noise pollution

Noise pollution means various types of sound that are in extremely high volume

1. Cause of noise pollution

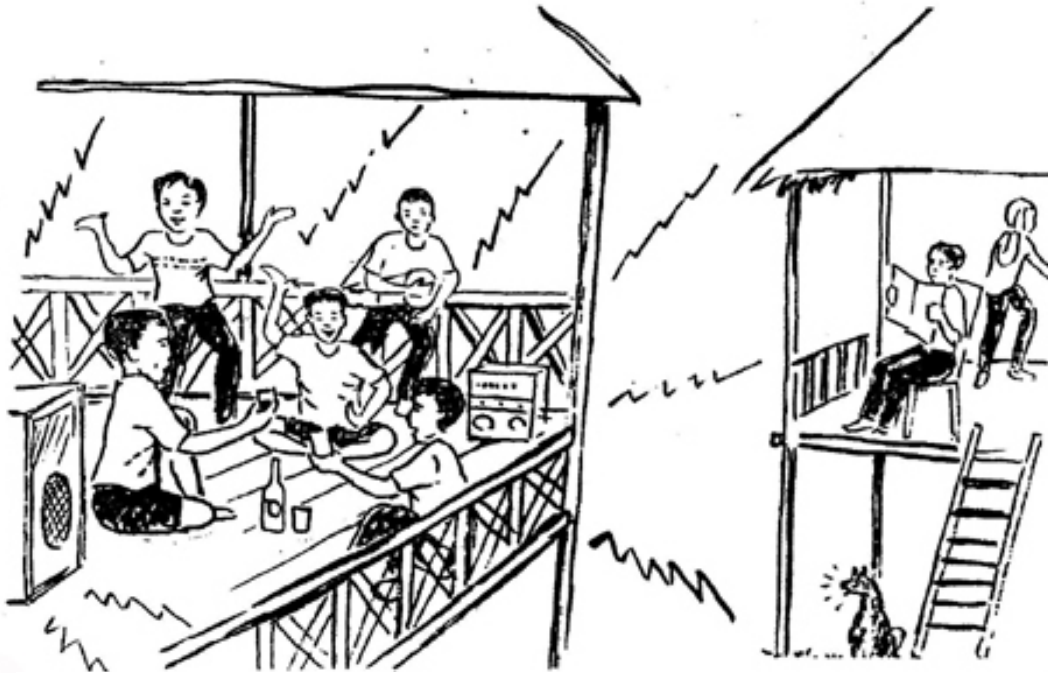
Main reasons of noise pollution are the irresponsible machines and vehicles usage daily such as factories and vehicle noise, TV, radio, audio system sounds and various sounds from various sources.



Various annoying sounds

2. Danger of noise pollution to human

Overloud sound is dangerous to human ear such as malfunctioning ear, deaf and stress.



Party, turning on audio system very loud, while neighbors are studying

3. Air pollution reduction

To reduce noise pollution, we should do as following:

- Do not turn on TV, radio, audio system too loud; just turn it on in appropriated volume that disturb others.
- To reduce nose disturbance in the noisy place, we should close our ears by protection materials such as cotton.



Ear protection at the noisy places

Lesson 5 Road traffic accident

1. Traffic signs

Traffic rule indicate by different types with various traffic signs for safe and discipline traveling.

1.1. Danger signs



Main road intersect to
minor road



bend to right
Danger



Bend to left
Danger



Slippery
Danger



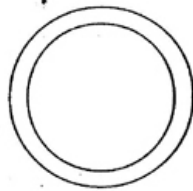
Roundabout



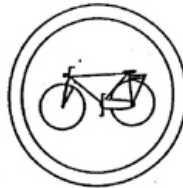
Ride learning

1.2 Giving-orders Signs

We will see these signs on the right roadside and certain places which are not allowed to pass. These signs are round shape, with red borders and prohibition sign inside.



No vehicles



No cycling



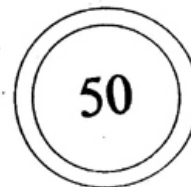
No walking



**No stopping
and
No parking**



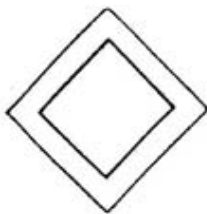
No overtaking



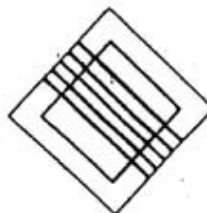
**Maximum speed
limit 50 Km/h**

1.3 Giving-right signs

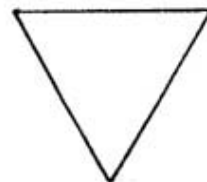
These signs are located on the roadside same as the Giving-orders Signs. These signs have different shapes such as:



Main road



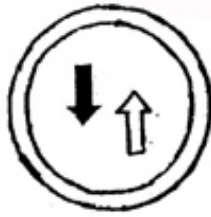
**Ending of main
road**



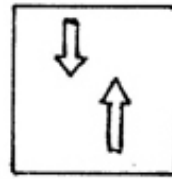
Give way



Stop



**Give way to
oncoming vehicles**



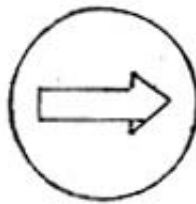
Go first, move first

1.4 Direction signs

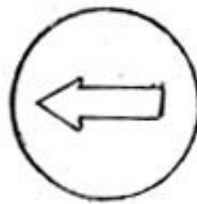
These signs are located on the roadside same as the Giving-orders, Giving-right and Warning Signs, which are round-shaped, blue background with direction signs.



Ahead only



Turn right



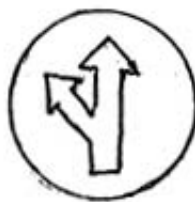
Turn left



**Pedestrian
only**



**Ahead or
turn right**



**Ahead or
turn left**



**Route to be use by
pedal cycles only**

1.5 Information and Service Signs

We will see these signs on the right roadside same as the other road signs. These signs have different patterns.



Taxi



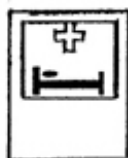
Bus stop



Parking



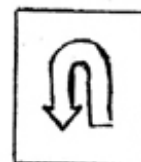
**Pedestrian
crossing**



Hospital



End of road

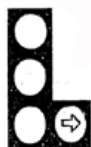


U - turn

2. Traffic light

The traffic light is located at the intersection of main road in the city. The traffic light has two types: vertical and horizontal types.

Vertical traffic light



Red is on the top, green is on the bottom and yellow is at the middle. Some traffic light may have green arrow at the same level of the green light.

**Horizontal traffic
light**



Red light is on the left, green is on the right and yellow is at the middle

Each color of Traffic light has the following meaning:



Red light means “Stop” not allow to go



Red light with green arrow means allow to turn right, following the arrow direction



Yellow light means no any traffic is allowed unless it is safe and necessary



Green light means allow to go

3. Reading: “Red traffic light violation”

Miss Mina and Mr. Boutta sit and talk under the tree at the school playground during class break.



Mina: Boutta! Why road accidents happen so often?

Boutta: Because people don't know traffic rules

Mina: I don't think so

Boutta: So, why?



Figure with damaged road, broken car and walking animals

Mina: That's because people don't pay attention in driving and don't respect traffic rules. Also that is because of damaged road, broken car. Sometimes dogs run across the road in front of moving cars, or children run to the road to pick up their balls.

Boutta: Why you said so?



Mina: Yesterday, Mr. Souk, our neighbor in the village has got road accident with a motor tricycle. His leg was broken even though he knows traffic rules.

Boutta: Uhm...!

Mina: That's why I think that road accident is not because of lack of traffic rules knowledge.

Boutta: So, why Mr. Souk has got road accident?



Mina: Because he has violated red traffic light.

Boutta: Oh! He should not violate the red traffic light. We come to school everyday we should follow traffic rules, so no road accident will not happen.

Questions:

1. Why does road accident frequently happen?
2. Why Mr. Souk has got road accident?
3. What Mr. Souk has lost?
4. What we should do to prevent road accident?

5. Game: No red light violation

How to play:

Organize students into four groups.

Group 1: three policemen that will be game judges.

Group 2: three traffic-light holders that will hold the traffic light up after the whistle was blew or the music has stopped.

Group 3: Blowing the whistle or singing song from time to time.

Group 4: Unlimited number of walkers and traffic-light holders

Playing game:

Group 2: Three students stay on a line and will be ready to hold up traffic light

Group 4: Stay in two lines, walking around in front of group 2 by keeping the distance between each other for 2 meters.

Group 3: Singing and clapping hands or blowing the whistle warn group 2 to hold up the red, green, yellow traffic light one after another. If group 4 see red light, they should stop, otherwise they violate red light, and they will be called to stop playing and come out for singing.

- If the yellow is on, players should stop, otherwise they will come out to sing
- If the green is on, they should not stop, otherwise they will come out to sing

The game will go on until the time is over. Who as followed up the traffic rules will be the winner.



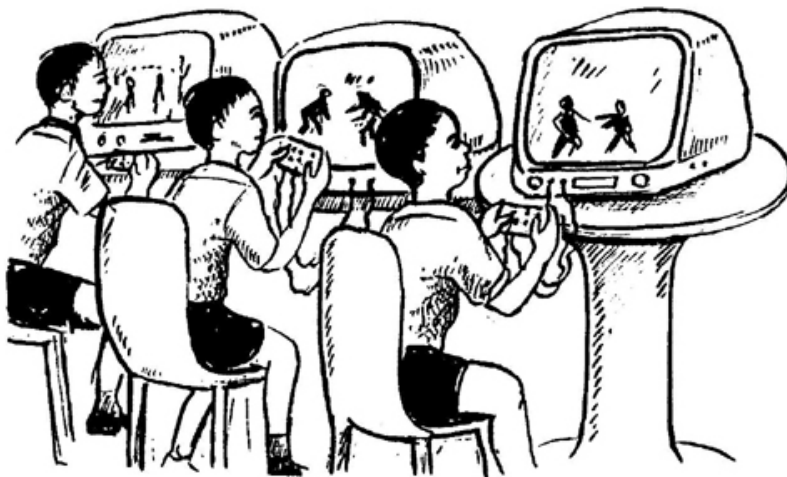
Lesson 6 Social Disordering

1. The meaning of gambling
Gambling is to challenge or to try luck by self-ability and skill to gain or lost.

Gambling



Playing cards



Playing game



Throwing ball



Throwing arrows



Sandal-throwing game

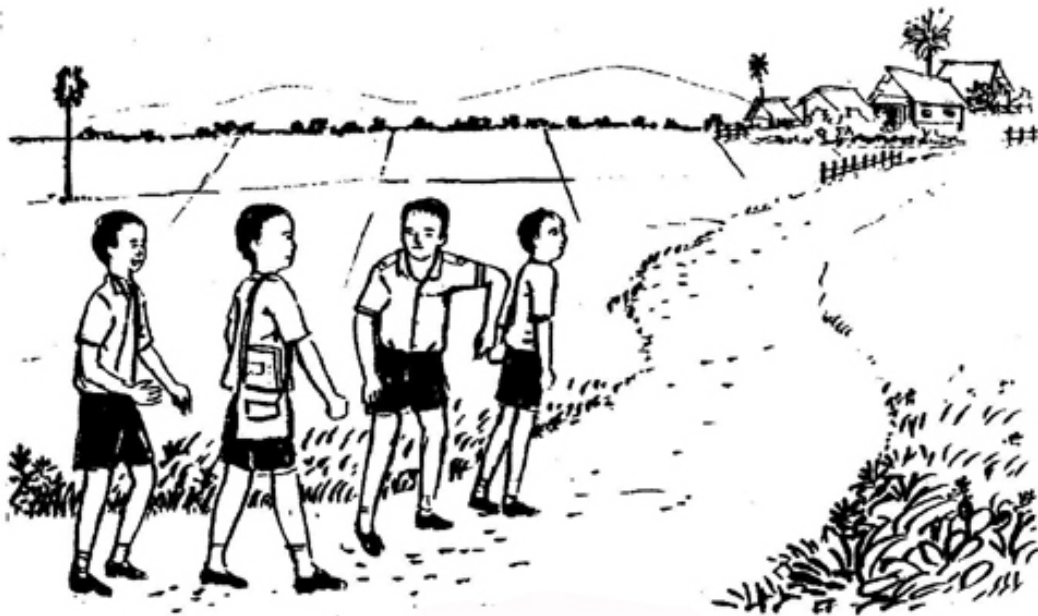
2. Damage from gambling
Waste of time, money, health, friendship and bad for study.
3. Story: Stop gambling

In Friday afternoon, Mr. Kam went to play cards with his friends. Sometimes he won, sometimes he lost. When he won, his face looked happy. When he lost, his face looked unhappy. His friends teased him. When he has no money, he borrowed it from his friends to play and owed to his friends.



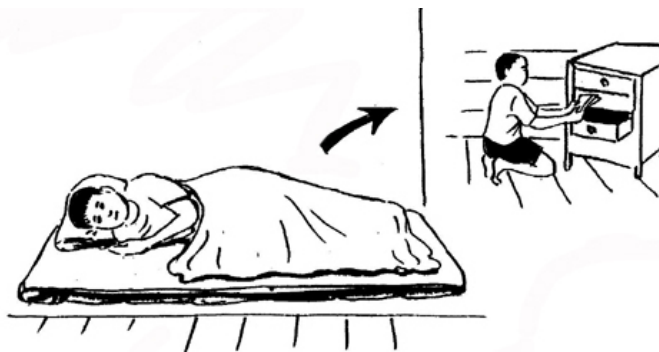
Mr. Kam is playing cards

When the class finished, the students that played cards went back home as usual. The parents were happy to see their children came back home on time.



He went back home

However, Mr. Kam lied his parent from playing cards, but when he was in bed, he still always thought how to find money to return back to his friends. After sometimes, he found where to get the money: “I got it! my mother’s money is hidden in the night table”.



He thought how to get money

In the morning, Mr. Kam has stolen his mother's money to return to his friends. Once he was on the way to return money, he was attacked by his friends. He went back home and his parent saw his bruised face with some blood. His mother intently asked his son: "What happened to you? What did you do, please tell me"



Mr. Kam was attacked by his friends

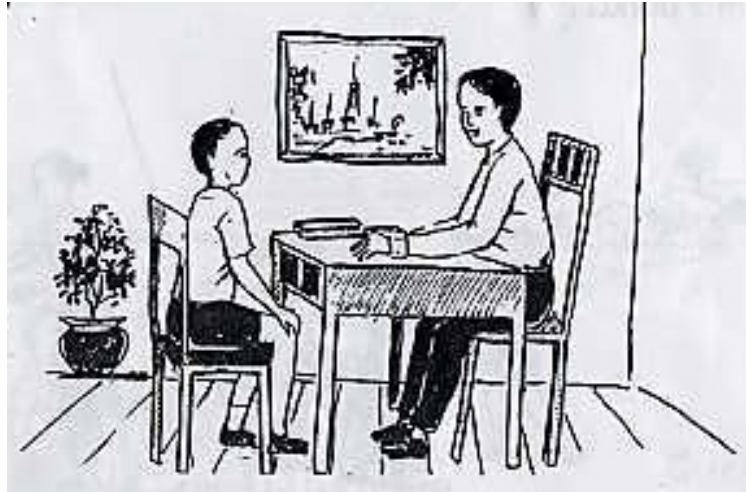
Mr. Kam sat down and told to his parent: "I owed to my friends, I got no money for playing cards, then I was attacked by them".

Mr. Kam felt very harmful and moaned. When his mother saw that, she put medicine on him carefully and tell him: "you should not do so, gambling is bad, since now you should not play cards anymore".



His mother put medicine on him

On the next day, Mr. Kam went to school. He was called to the teacher office, and was asked about what is happened. Mr. Kam told all of story. Once the teacher knew about that, he advised him:



The teacher asked him

“Since now, you should not miss the class, stealing money and playing cards. After class you should go back home to help your parents in the household work“. After listening to his teacher, Mr. Kam has changed himself to be a good boy, helpful to his parents and concentrated on study.



He helped his parent feeding pigs