Resource Material on Management of Disasters

FIRE AND STAMPEDE



First Edition
June 2015 Jyaishtha 1937
Reprinted
May 2018 Vaishakha 1940
June 2019 Ashadha 1941, June 2020 Jyeshtha 1942

PD 352T RPS

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₹ 30.00

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Printed on 80 GSM paper

Published at the Publication Division by the Secretary, National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi 110016 and printed at Vidya Prakashan Mandir (P.) Ltd., Vidya Estate, Baghpat Road, Meerut- 250 002 (U.P.)

ISBN 978-93-5007-336-0

About the Series

A disaster is an event caused by the sudden disruption of normalcy within society resulting into widespread damage to life and property. Sometimes we also face accidents that are so serious that they have a long term effect on life and property. To avoid such accidents we need to be cautious in our day-to-day activities.

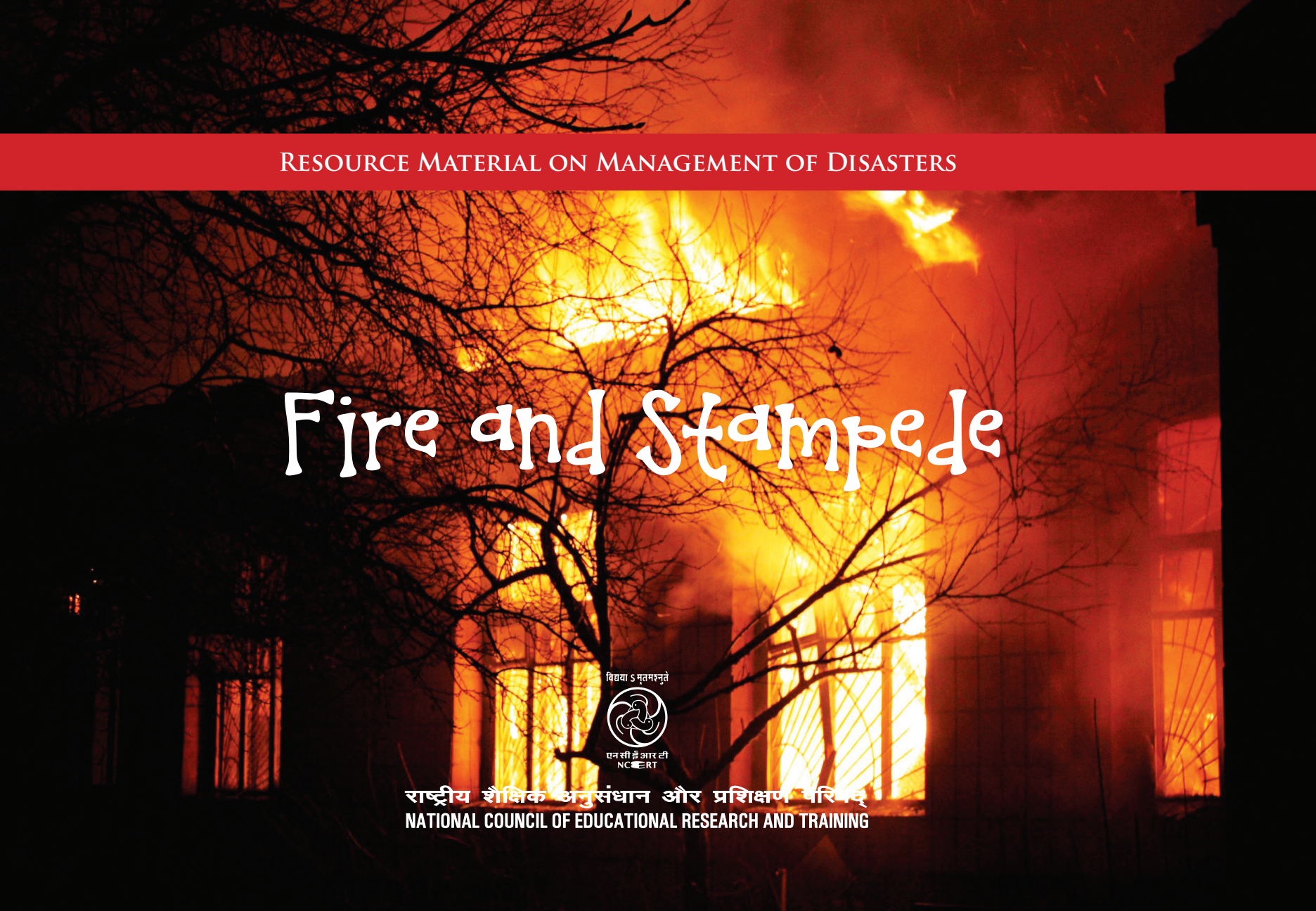
In this series, an attempt has been made to raise awareness in order to handle these disastrous situations effectively so as to minimise losses.

This series comprises of ten booklets covering different areas such as earthquake, landslide, tsunami, flood, drought, fire and stampede, chemical hazards, epidemics like swine flu, malaria and dengue, food poisoning and cholera. You will notice that the topics selected here do not include all the issues related to disaster. These are only illustrative cases. This is because the idea is to impart necessary information to develop skills to enable people to prevent disasters or to reduce their impact by efficient handling of such situations.

Simple and communicative language has been used in the entire series so that children in the age group of 10–16 years can understand it effectively. We hope that the readers will benefit from this material and have confidence to handle such kind of situations proving to be smart and responsible citizens.

It is suggested that the teachers and facilitators use this series as an example to develop related material for school projects. The teachers could also share these projects and hold awareness programmes for the community with an aim to initiate continuous participation when such situations arise.

The Council also welcomes the suggestions from the users of this material.



RESOURCE MATERIAL ON MANAGEMENT OF DISASTERS

Fire and Stampede

विद्यया ऽ मृतमश्नुते

एन सी ई आर टी
NCERT

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

Do You Know ?

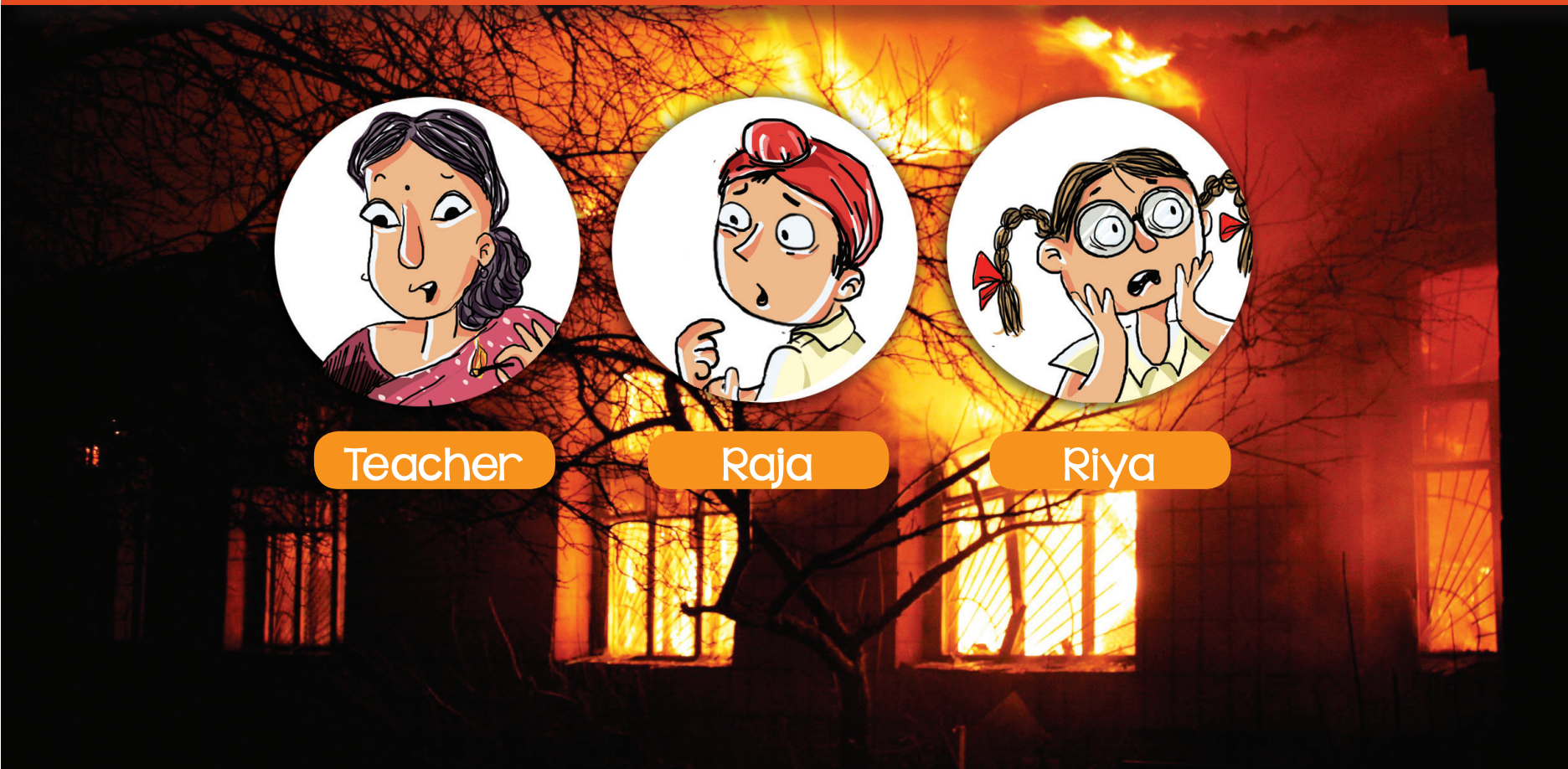
According to the 86th Constitutional Amendment Act, 2002, free and compulsory education for all children in 6-14 year age group is now a Fundamental Right under Article 21-A of the Constitution.

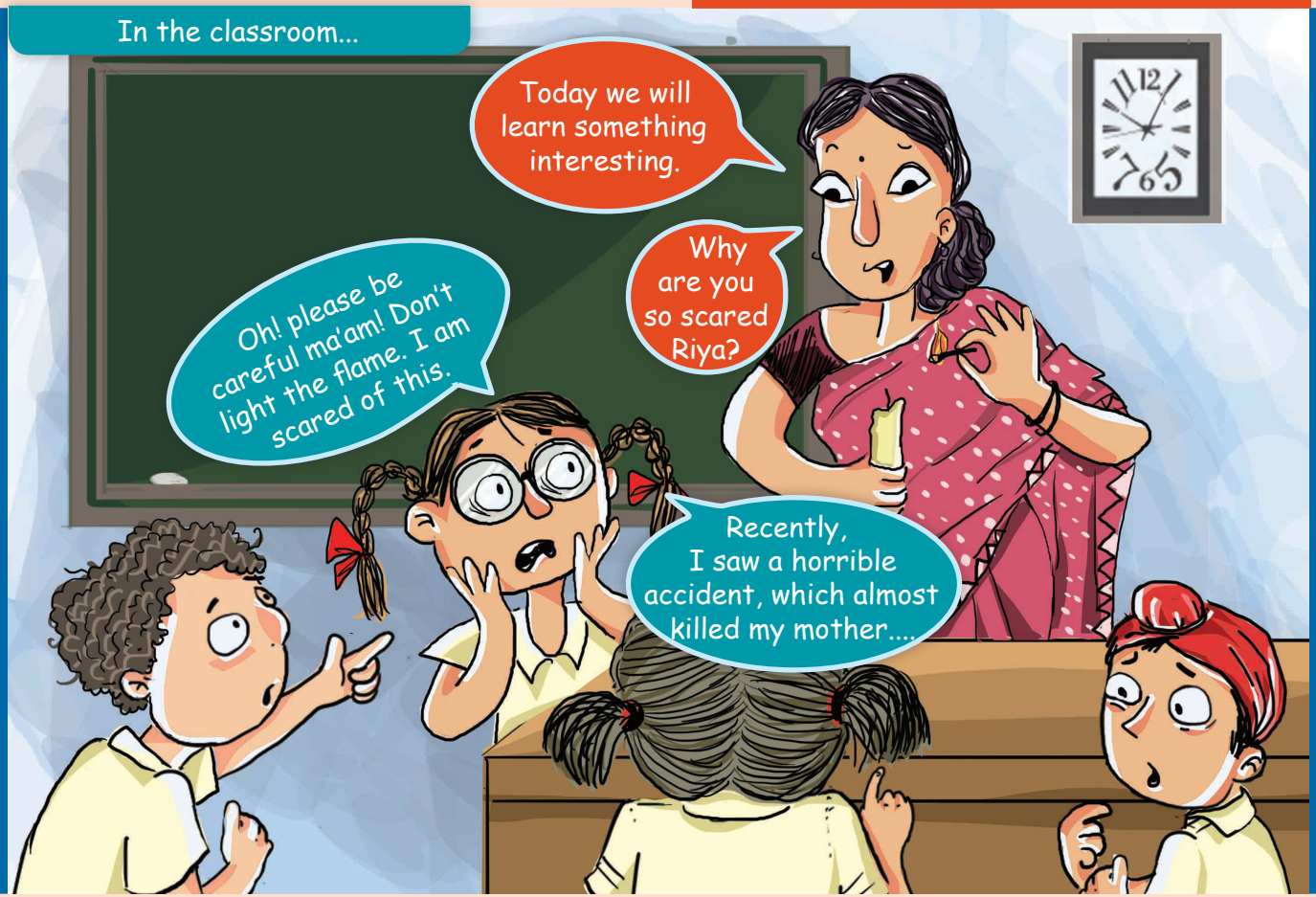
EDUCATION IS NEITHER A PRIVILEGE NOR FAVOUR BUT A BASIC HUMAN RIGHT TO WHICH ALL GIRLS AND WOMEN ARE ENTITLED



Give Girls Their Chance !

Fire and Stampede




In the classroom...
Today we will learn something interesting.
Why are you so scared Riya?
Oh! please be careful ma'am! Don't light the flame. I am scared of this.
Recently, I saw a horrible accident, which almost killed my mother....

I cannot forget that winter day when my mother had a narrow escape. My mother was alone in the house at that time. As usual she was busy preparing lunch for us. She tried to ignite the burner of a gas stove with a lighter, but it did not light.

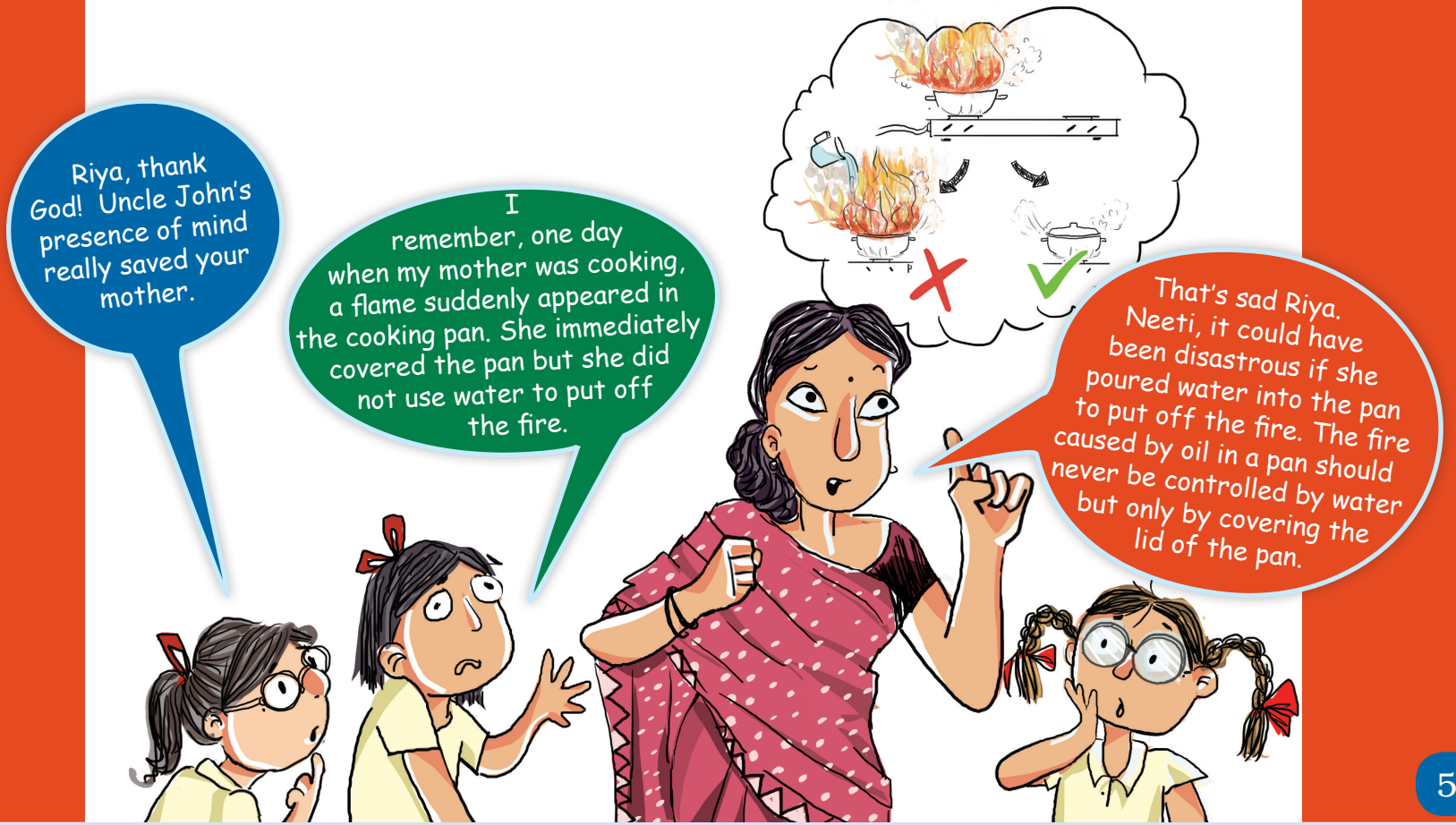


She realised that the lighter was not working. Hence, she started looking for a matchbox. But, she forgot to switch off the knob of the gas stove. She could locate the matchbox only after a few minutes and then lit the matchstick. Suddenly, a flame leapt from the stove and her saree caught fire. Mother shouted loudly for help. Fortunately, the main door was open at that time. Neighbours rushed into our house as they heard the shouts of my mother.

They were shocked to see that the saree of my mother had caught fire. Uncle John immediately realised what had happened and turned off the knob of the gas stove and the gas cylinder.

Then he opened all windows and warned everyone not to switch on or off any electric switch. Anita aunty quickly brought a blanket and wrapped my mother in it and rolled her on the floor. My mother got burns but thank God she was saved.




Riya, thank God! Uncle John's presence of mind really saved your mother.
I remember, one day when my mother was cooking, a flame suddenly appeared in the cooking pan. She immediately covered the pan but she did not use water to put off the fire.
That's sad Riya. Neeti, it could have been disastrous if she poured water into the pan to put off the fire. The fire caused by oil in a pan should never be controlled by water but only by covering the lid of the pan.

Prevent fire during cooking

Be careful while working in the kitchen.

Keep clothing away from open flames.





Once you have completed cooking, make sure that you have turned off the stove, cover *sigri* (*laties*)/wood fired *chulha*.

Turn off the gas cylinder before you leave your home and before you go to bed each night.

Prevent fire during cooking

Take the lighter/matchstick in one hand and then open the knob to ignite the stove with the other hand, instead of opening the knob first and then igniting.





In case of a gas leak, turn off knobs, don't switch on/off light, or light a matchstick. Open all doors and windows. Inform the authorised agency dealing with gas leakage.

Do not repair gas appliances by yourself. Get professional help.


My *nani* lives in Jaipur. She told me about Jaipur oil spill accident. It was quite terrible.
Ohhhh! Then how was the fire controlled in Jaipur oil tanker accident????
Let us recall and find out more about the Jaipur accident?

12 killed in Jaipur IOC depot fire, Army called

TNN | Oct 30, 2009, 01.41 AM IST

JAIPUR & NEW DELHI: A devastating fire swept through an Indian Oil fuel storage and distribution terminal on the outskirts of Jaipur on Thursday, killing at least a dozen people and injuring more than 100. The toll is likely to go up as the blaze is still raging. At the time of going to press, all 12 tankers at the terminal were aflame.



Source: TRAINING MODULE —Chemical (Industrial), Disaster Management Module. National Institute of Disaster Management (Government of India, Ministry of Home Affairs) New Delhi –2012

Preliminary reports said the fire broke out after a pipeline valve failed when petrol was being transferred from the IOC terminal to Bharat Petroleum's storage nearby.

The Met department recorded a tremor measuring 2.3 on the Richter scale around the time the first explosion was heard at 7.36pm. Such was the impact of the explosions that windows of houses even 3km away were damaged. The capacity of the terminal is 80 lakh litres of fuel.

There were at least 40 IOC employees at the terminal, which is close to the Sanganer airport, and it isn't known how many of them have managed to escape. About 300 tourists from nearby Chowkidhani resorts were evacuated. Electricity lines in surrounding areas have snapped. Students living in nearby hostels have been taken to safer places.

All 31 fire tenders in Jaipur have been rushed to the spot and an expert from Mumbai has been contacted to fly down and help douse the fire. The terminal gets its supplies from IOC's Mathura refinery through pipeline and feeds part of the Rajasthan market.

The massive spillage of highly inflammable petrol being pumped at high pressure has resulted in heavy destruction. A team of IOC officials has rushed to Jaipur. Petroleum minister Murli Deora is expected to reach the spot on Friday morning. IOC officials said oil supply in the state would not be affected, and that another terminal at Jodhpur would be pressed into service.


My *nani* told me that the accident was perhaps due to carelessness.
Why do such accidents happen?
So, who is responsible for such mishaps?
Well! Definitely our oversight or carelessness. I can recall many accidents that occur due to carelessness. For example, in the year 2013, a night bus plying between Hyderabad and Mumbai met with an accident and the bus caught fire. Many passengers were burnt alive in this accident.
Strict enforcement of rules and regulation can prevent such tragic mishaps. This requires effective management.



Effective management has three main components:

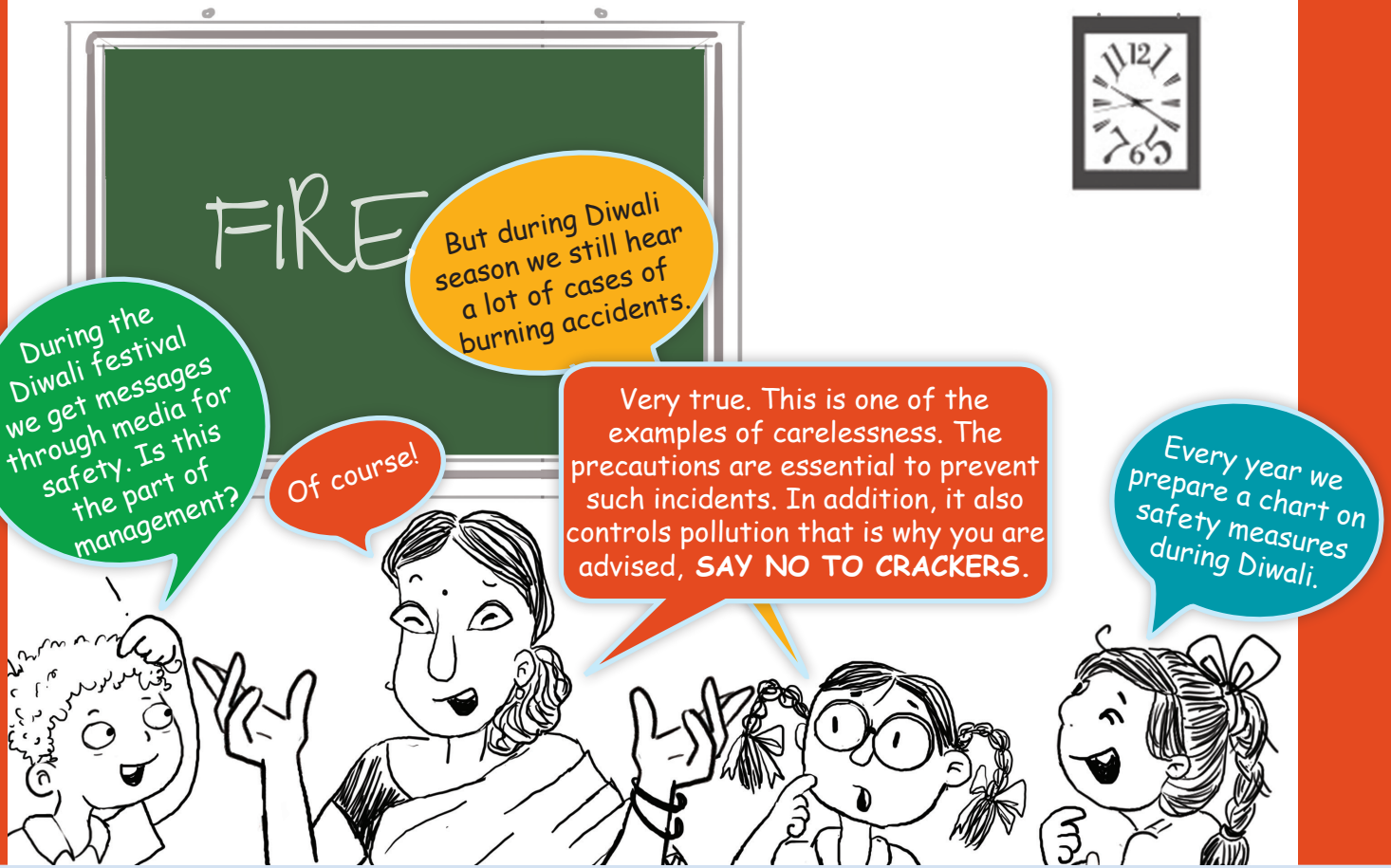
- anticipation of things that can go wrong,
- preventive measures so that things do not go wrong and
- effective measures to minimise damage if things do go wrong.








The fire extinguishers are hanging in the corridors of our school. This means that authorities anticipate that a fire may occur. Does this mean that the management of our school is good?
Not only this, mock drills are also arranged periodically to deal with such emergencies.
Such drills are meant to minimise damage in the event of such mishaps.


FIRE
During the Diwali festival we get messages through media for safety. Is this the part of management?
Of course!
But during Diwali season we still hear a lot of cases of burning accidents.
Very true. This is one of the examples of carelessness. The precautions are essential to prevent such incidents. In addition, it also controls pollution that is why you are advised, SAY NO TO CRACKERS.
Every year we prepare a chart on safety measures during Diwali.


dos and don'ts

WHILE PLAYING WITH CRACKERS...

Do's

- Store crackers in a safe place.
- Organise a community display of fireworks rather than individuals handling crackers.
- Keep stored water handy to deal with any untoward incident.
- In case of burns, pour large quantity of cold water on the burnt area.
- In case of major burns, wrap the victim in a clean cotton bed sheet.
- Take the victim to the nearest hospital. Don't panic.
- In case of eye burns, wash the eye with tap water for 10 minutes and take the victim to a hospital.

Don'ts

- Don't burn crackers close to your body or while holding them.
- Don't bend over the crackers while they are being ignited.
- Don't use a container to support the fire cracker while burning it.
- Don't approach or handle the cracker which fails to burst.
- Don't try to make crackers at home.
- Don't cover crackers with tin containers or glass bottles for extra sound effect.
- Don't allow small children to handle fireworks.
- Don't throw or point fireworks at other people and towards a building.
- Don't carry fireworks in your pocket.
- Don't store firecrackers near burning candles and *diyas*.
- Don't light firecrackers in a narrow lane or a small area; preferably use open areas and parks.
- Don't wear synthetic clothes or clothes which may catch fire easily while burning fire crackers or when engaged in activities involving use of fire in the kitchen or elsewhere. **Preferably wear thick cotton clothes**. Don't wear loosely hanging clothes.
- Don't apply any cream or ointment or oil on burnt area, instead pour cold water over the burnt area.
- Don't panic while taking a burn victim to the hospital.


Over 100 die
I have also read about the dreadful incident which took place in Meerut. A large number of people died and many were injured when a huge fire broke out at a crowded fair.

Over 100 die in Meerut Fire

On 10th April 2006 at least 51 people died and 100 were injured when a huge fire broke out at a crowded consumer electronics fair in Meerut.

Witnesses and officials said a short circuit had caused the fire, which spread rapidly to the polythene sheets covering a temporary enclosure where air conditioners, television sets and other home appliances were on display.

Hundreds of people rushed along a narrow passage towards a single exit in the long tented structure. The blaze soon spread to neighbouring tents.

"There were three sheds which were covered with polythene sheets, which catch fire easily.,"

" The fire is believed to have been caused by a short circuit and because of the plastic sheets the fire spread rapidly. People did not get time to run out as there was only one exit point."

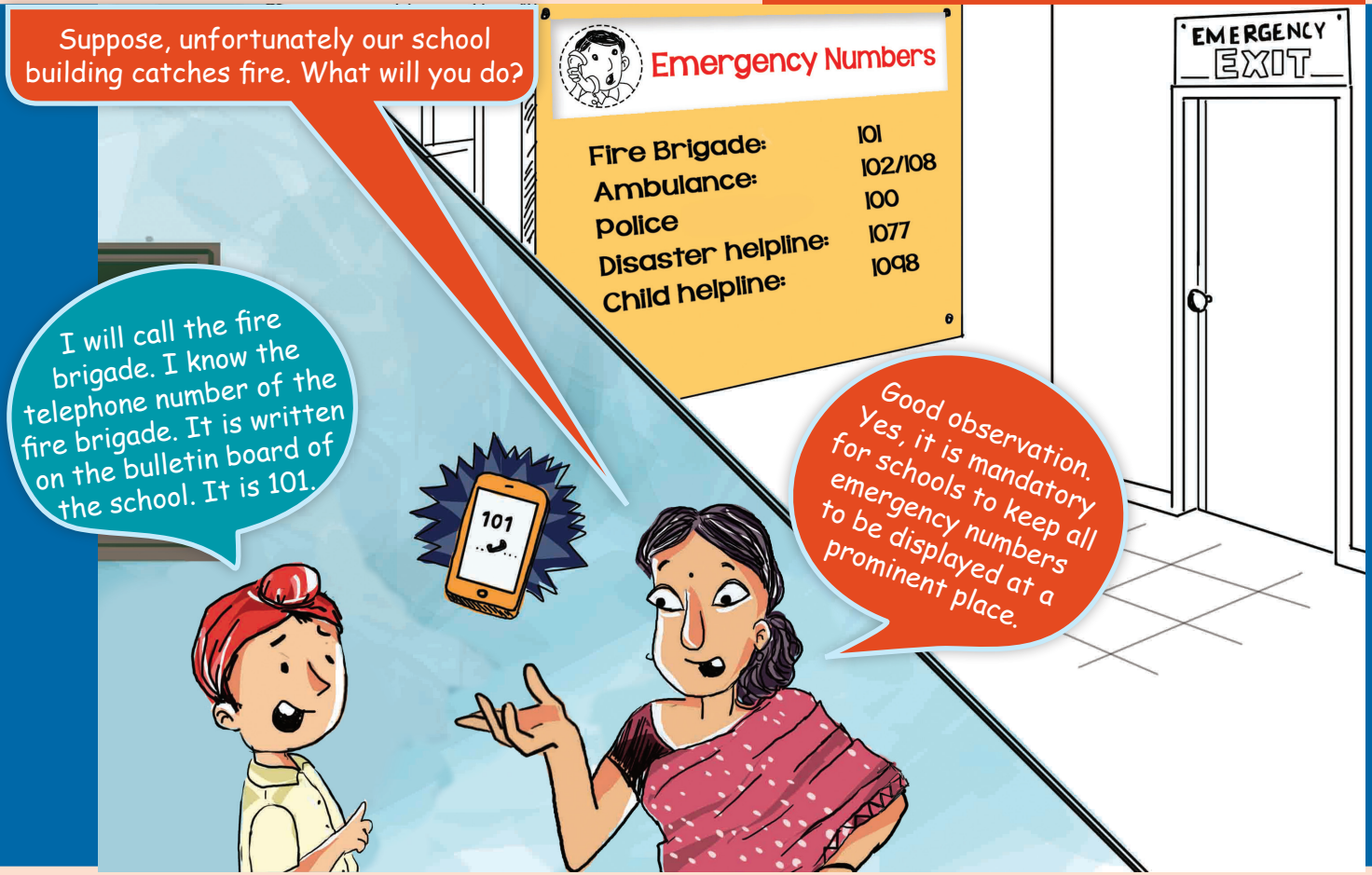
Many of the dead were women and children.

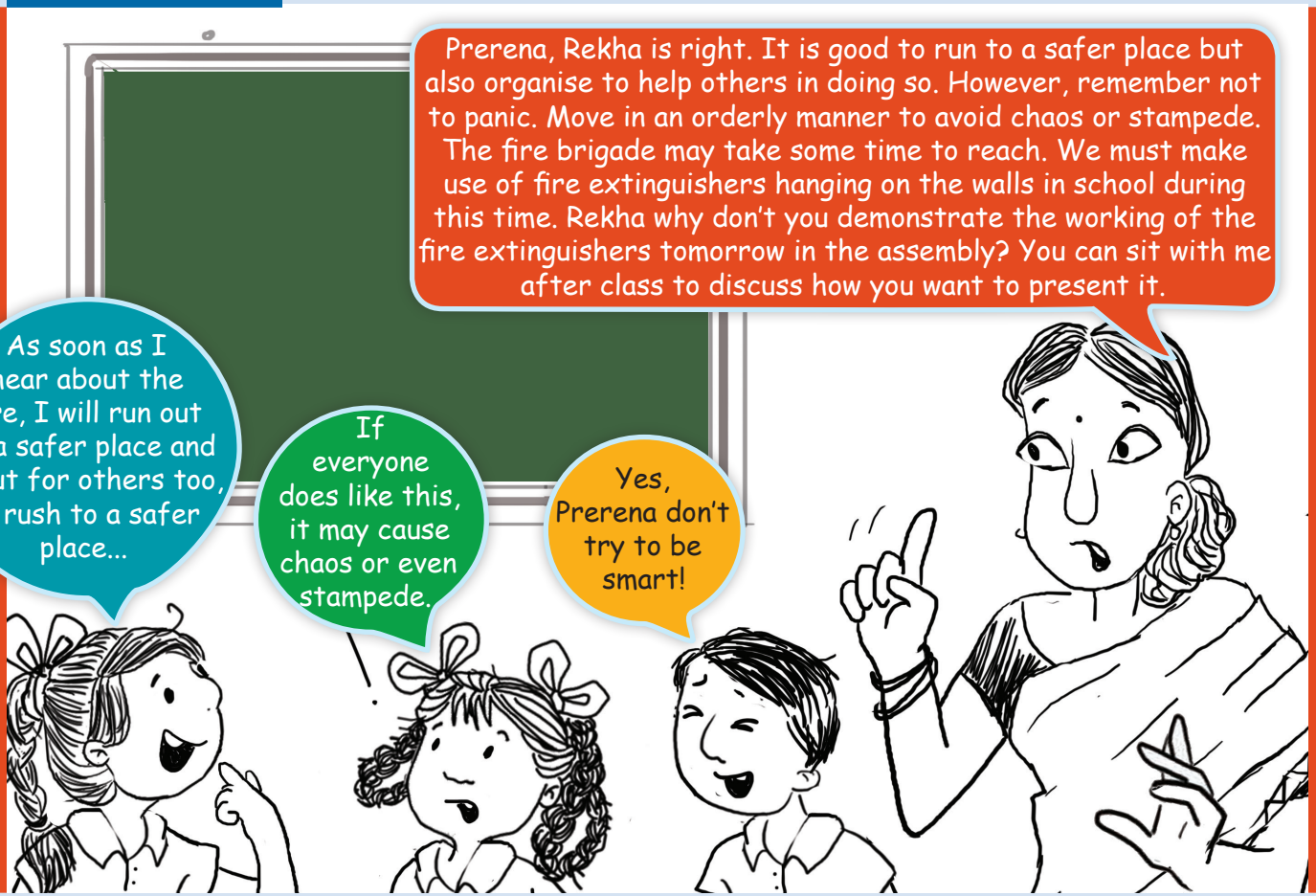





The incidents that Aman and Rohit have shared are real disasters. Fire can be caused by various reasons including short circuiting. Can anyone suggest what should be our immediate response to extinguish fire caused by short circuit?
We can use water to extinguish fire
No! No! Never!
But I have seen fire engines pouring water on the fire.
Not always. The fire which is caused by electric short circuiting should not be extinguished using water because one can get electric shock.


FIRE
But Ma'am, then what is the way out?
Have you ever observed the buckets filled with sand at public places such as markets, cinema halls, etc.
Oh! Now I get it. The sand is used to extinguish such fires.


Suppose, unfortunately our school building catches fire. What will you do?
Emergency Numbers
Fire Brigade: 101
Ambulance: 102/108
Police 100
Disaster helpline: 1077
Child helpline: 1098
EMERGENCY EXIT
I will call the fire brigade. I know the telephone number of the fire brigade. It is written on the bulletin board of the school. It is 101.
101
Good observation. Yes, it is mandatory for schools to keep all emergency numbers to be displayed at a prominent place.


Prerena, Rekha is right. It is good to run to a safer place but also organise to help others in doing so. However, remember not to panic. Move in an orderly manner to avoid chaos or stampede. The fire brigade may take some time to reach. We must make use of fire extinguishers hanging on the walls in school during this time. Rekha why don't you demonstrate the working of the fire extinguishers tomorrow in the assembly? You can sit with me after class to discuss how you want to present it.
As soon as I hear about the fire, I will run out to a safer place and shout for others too, to rush to a safer place...
If everyone does like this, it may cause chaos or even stampede.
Yes, Prerena don't try to be smart!

Rekha demonstrates the PASS principle in assembly the next day:

PULL the PIN, hold until uptight.



AIM at base of Fire. Stand back 6 feet (2 metres)



P: Pull
A: Aim
S: Sqeeze
S: Swap

SQUEEZE the handle.



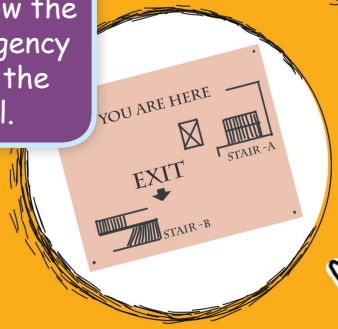


SWEEP nozzle side to side to cover maximum area.

Since we have discussed about fire accidents. Now the main question is "How to save lives"? Let us prepare a chart on fire safety tips and try to follow these.

FIRE SAFETY TIPS

1. Everyone should know the fire emergency plan for the school.



2. Practice Manual Alarming System. Set out fire alarms in emergencies.



3. Practice moving through your escape routes with eyes closed during normal times.



4. Keep fire extinguishers in working conditions and learn how to operate them.



5. Always maintain First Aid Kit and keep it ready for emergency.



IN CASE OF A FIRE: REMEMBER — DO NOT PANIC



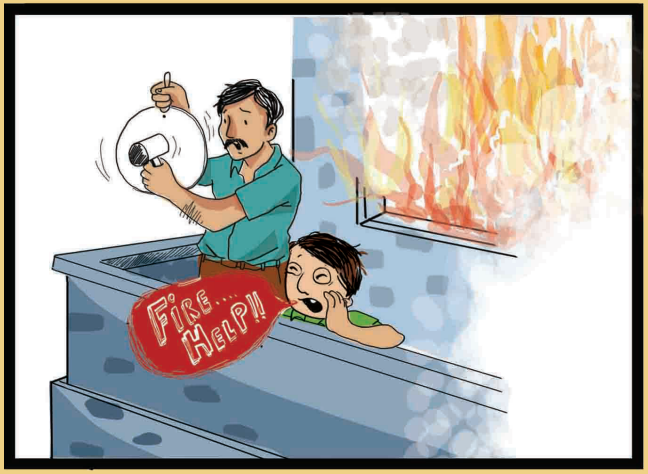
In case anyone's clothes catch fire: always STOP, DROP and ROLL.
This is the safest way to put off the fire.



Next day, the teacher took the students for a mock drill on fire accidents.



ALARM BELL



EVACUATION OF SITE UNDER SUPERVISION



Assembling at a designated place



Head count



Reporting by team members to fire services and rescue, relief carried out

STAMPEDE

Is there anything common in the scenes on the right? What is it? Think about it.

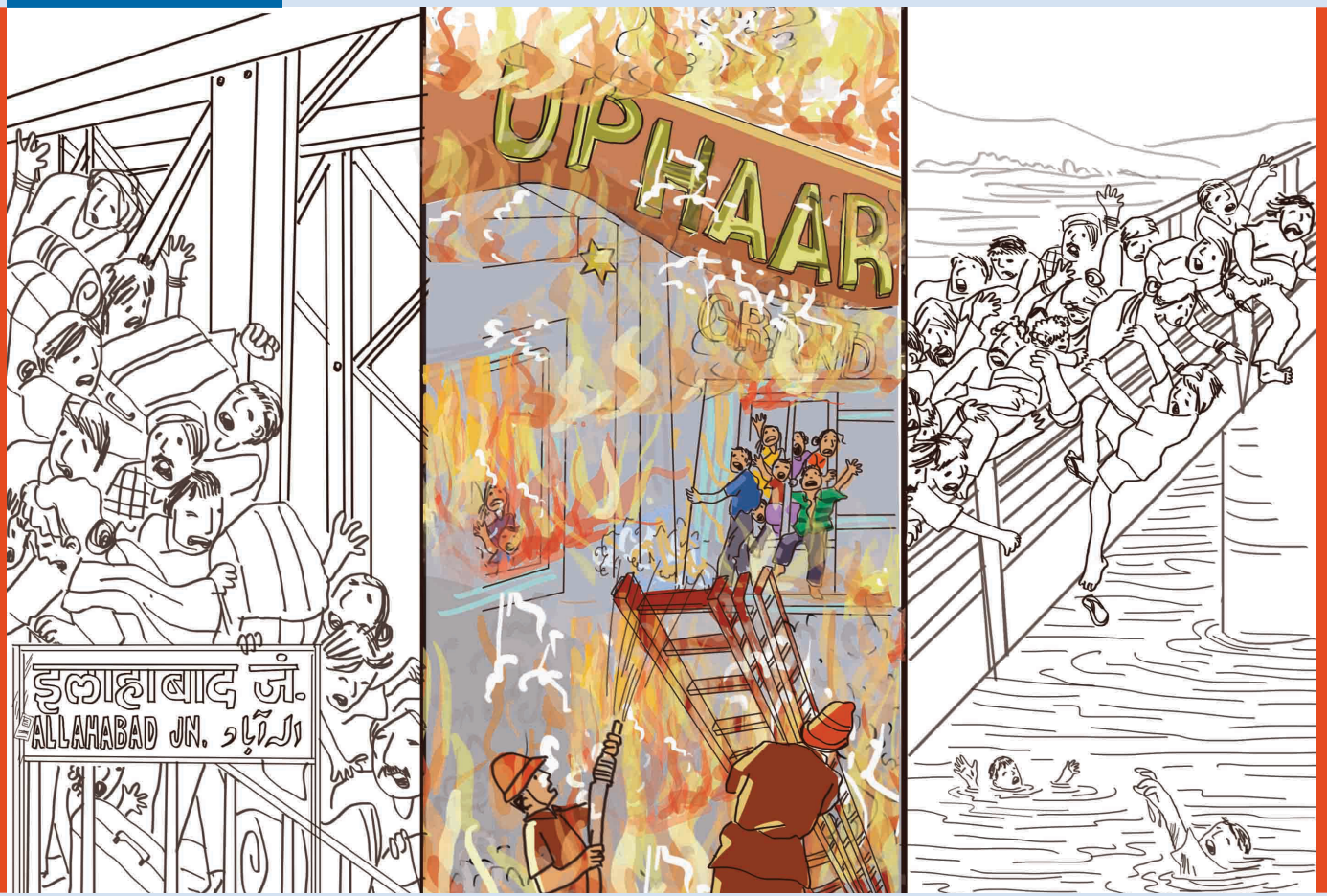
In the leftmost panel, a large crowd of passangers at a platform respond to an announcement through the Public Address (P.A.) system that the train will now leave from platform 11 instead of 7. All passangers with their luggage rush to the staircase to go to platform 11. A stampede like situation occurs on the staircase.

The second panel shows people trying to get out of a cinema hall in a rush in response to a fire.

In the third panel, a large number of people are walking over the bridge to cross the river to visit a religious place. Panic spreads in response to someone noticing a break in the bridge. People start pushing each other and try to run to the nearest end of the bridge. In confusion, some people fall off, into the river. Many are run over by the panic-struck crowd.

THESE ARE ALL SCENES DEPICTING A 'STAMPEDE'.

A stampede is a sudden rush or flight of a crowd of panic-stricken people. This kind of impulsive behaviour or action may lead to a disaster. Why do stampedes occur? India has a long history of tragic stampedes.


इलाहाबाद जं.
ALLAHABAD JN.
UPHAAR

Kumbh *Mela*, Allahabad

Kumbh *Mela* is a major religious festival in India. On 10th February, 2013, a stampede broke out after the hand railing on a foot bridge collapsed at the Allahabad Railway Station. This resulted in sending many people slipping down the stairs, the begining of a stampede. About 32 people died, majority being women and elderly.

Kumbh *Mela*, Nasik

On August 27, 2007, at least 29 died in a Pilgrim stampede. Tragedy occured when thousands of pilgrims pushed and shoved along a narrow lane to the bathing area on the banks of Godawari river at Nasik, India.



1954 Kumbh *Mela* stampede

1954 Kumbh *Mela* stampede occurred on 3 February 1954 in Allahabad in Uttar Pradesh state in India. It was the main bathing day of *Mauni Amavasya* (New Moon), when the incident took place. Almost 4-5 million pilgrims had taken part that year in the festival, which was also the first Kumbh Mela after the Independence. The figures for the tragedy varied according to different sources. While *The Guardian* reported more than 800 people dead and over 100 injured, whereas, the *TIME* reported "no fewer than 350 people were trampled to death and drowned, 200 were counted missing, and over 2,000 were injured". According to the book *Law and Order in India* over 500 were dead.

31 yrs after tragedy, Qutub Minar's doors remain shut

Nivedita Khandekar, Hindustan Times
New Delhi, December 04, 2012



Ever wanted to climb up the Qutub Minar as a child, only to be told by your parents that it was forbidden? The 72.5-metre-tall Qutub Minar has seen several tragedies. But the one that took place 31 years ago still haunts the residents of the area.

On December 4, 1981, 45 lives were snuffed out in a stampede in the 12th century tower. Since then, the tower has been closed for all visitors, even for the Hindi film industry.

Attempts have been made to get it reopened but to no avail. "How Qutub Minar looks from inside will always remain a mystery for my generation. Why can't they open it again?" said a 20-year-old Ritwika Chatterjee.

But the Archeological Survey of India (ASI), it seems, is in no mood to open it for tourists as yet. "There are a lot of issues involved. The Qutub Minar was closed for the public after a government order. And there has been no further order to reopen it. Safety issues too abound as many people committed suicide by jumping off the high tower," said BR Mani, ASI's Joint Director General and the national spokesperson.

Virender Singh, a resident of Mukherjee Nagar, said "If someone is hell bent on dying, no one can stop him. They have started putting iron grills in the Metro now. But if someone wants to commit suicide, he has several other options apart from jumping off high-rises."

But there have been instances when the huge doors of the stone column were opened. "Researchers can get special permission from the government of India to enter the minar, but not the ordinary tourists," Mani said.

Source: http://www.hindustantimes.com/news-feed/chunk-ht-ui-homepage-citynews-delhi/31-yrs-after-tragedy-qutub-minar-s-doors-remain-shut/article1-968002.aspx

Causes of a Stampede



Do You Know?

Disasters like stampedes can be prevented by adopting effective crowd management strategies.

During a disastrous stampede, people can die even while standing, as they may experience pressure from all directions, which may cause them to suffocate.

As you have seen in above cases, the stampedes happen usually due to two reasons.

- One, when there is a large unorganised crowd which suddenly rushes in one direction.
- Another cause of stampede is when people are trying to escape from a real or imagined threatening situation.

How to Prevent Stampedes?

Stampedes can be avoided with planning and good crowd management strategies.



1. PLANNING OF CROWD MANAGEMENT

Estimate

(i) the expected size of the crowd.

(ii) the capacity of the area where the event is being organised.

(iii) the required human resources to manage the crowd.

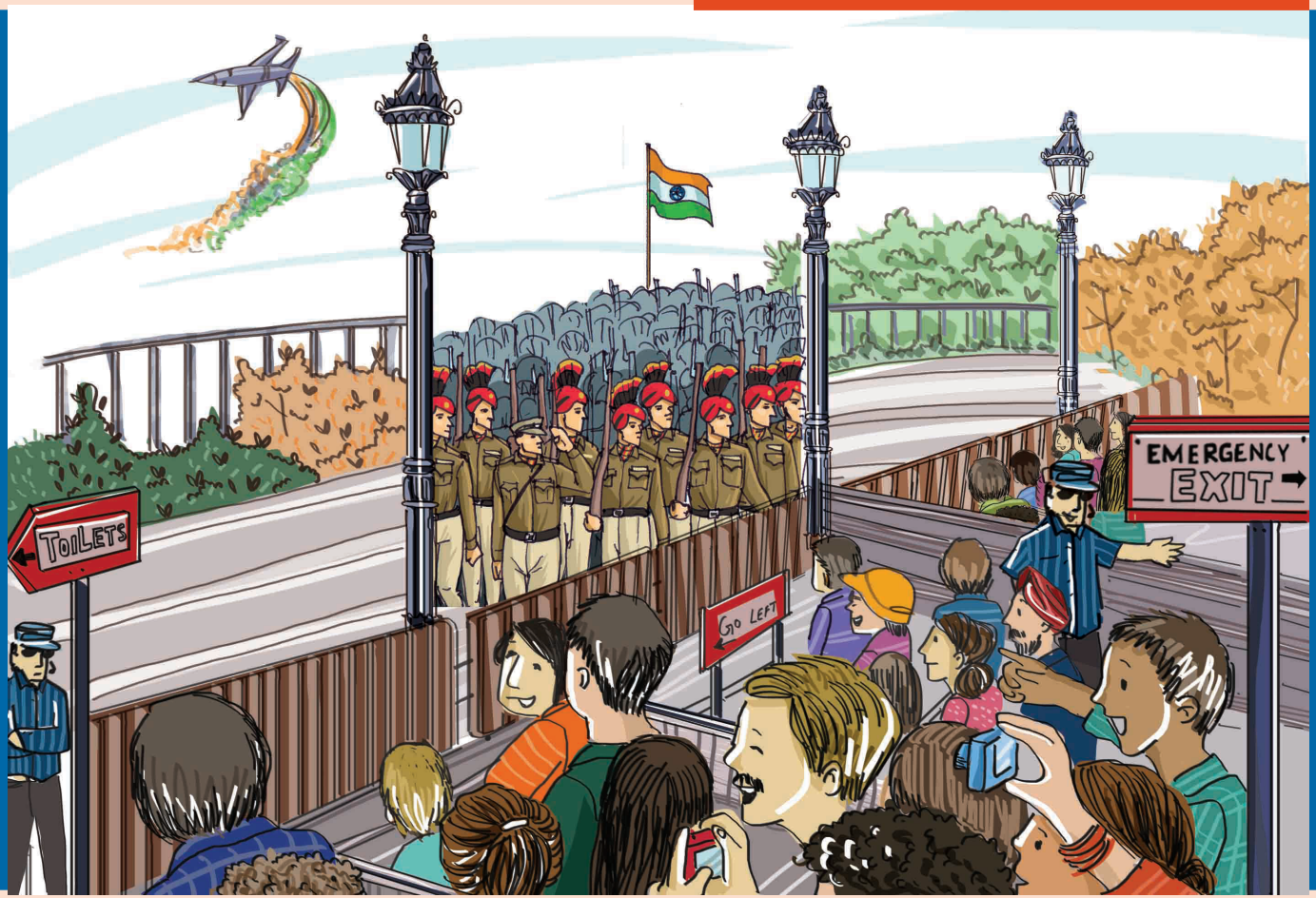
(iv) All personnel to be engaged in crowd management must be properly trained and be made aware of their duties and responsibilities.

(v) Site assessment should be done to review structural aspects: accessibility of roads, emergency vehicle availablility at the site etc.

(vi) Identify the entry and exit points. Clearly mark entry and exit points for emergency evacuation. The route should be free from obstacles. The entire route should be clearly visible.

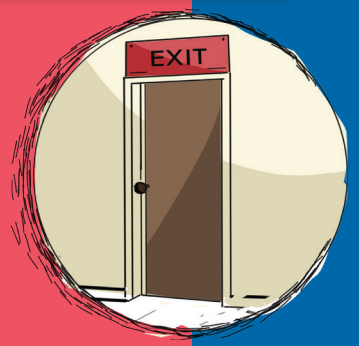
(vii) Monitoring and control mechanism for regulating movement of people.

(viii) Organising a mock drill.

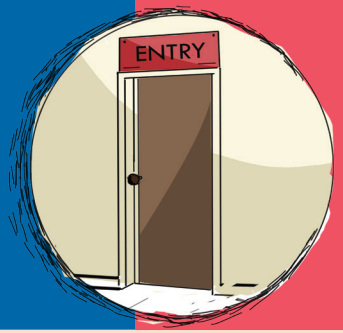

TOILETS
GO LEFT
EMERGENCY
EXIT

2. Taking care of structural changes and modifications at the site where the event is being organised. Place fences or barricades for smooth movement of people.
3. Understand the socio-cultural background of the people likely to attend the event.
4. Use technology for crowd management like CCTV (close circuit TV)
5. Plan for contingencies arising due to unexpected weather changes like heavy rains, thunderstorms etc.
6. Progressive crowd control methods.
   - Assess how many persons can be accommodated in the area selected.
   - Proper arrangement like evicting barricades to regulate crowd flow and to separate people into blocks to prevent collision between them.
   - Use of advance warning signals to sense any abnormal crowd behaviour that may lead to a stampede.
   - Deployment of key personnel well in advance.
   - Display emergency contact numbers at prominent places.
   - Staff deployed for crowd control should be easily identifiable by dress and their IDs.
   - Crowd control staff should be able to communicate with each other and with the crowd.
   - Place signboards for directions and information at places from where these are easily visible.

NATIONAL DISASTER MANAGEMENT AUTHORITY (NDMA) has suggested generic safety and security guidelines for managing mass gatherings such as —

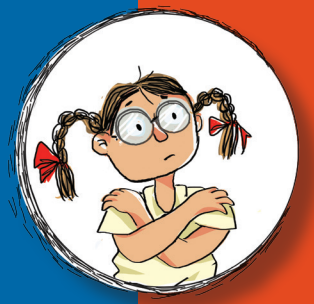


1. Deployment of snake line approach.
2. Discourage general admission.
3. Having alternate routes for releasing excessive crowd pressure.
4. Plan to take care of VIP visitors.
5. Arrange discussions and interaction between organisers and responsible persons such as volunteers, security personnel, transport etc. before finalising plans.
6. As far as possible, road blocks and fencing may be used in target areas to control the flow of local population; hostile groups, and vehicles.
7. Monitor crowd for hazard points.
8. Ask foreigners to register and report.
9. Have communication channels, like, Public Address (PA) system to communicate messages to the crowd.
10. Ensure that emergency exits are not barricaded, blocked or otherwise inaccessible.



What to do during a stampede?

1. If you are caught in a crowd, it is very important to be aware of your surroundings.
2. Look out for exit routes and alternative exits.
3. Be aware of the type of ground, it may be slippery or uneven or you may be on the stairs.
4. Pay attention to entry and exit points while moving.
5. If you are in the middle of a crowd which is moving, do not stand still or sit down. This way you will be trampled easily. Instead, keep moving in the same direction as the crowd.
6. In case you fall, get up quickly. Take the help of someone if you are injured and move in the direction of the crowd.
7. In crowded situations, while moving, keep your hands close to your chest.
8. Usually when large crowds are moving, there are chances of fences or barricades being thrown away and blocking pathways. Hence, be careful of tripping.
9. In case you are being pushed in the crowd in a wave, then find ways to move with the wave.



Notes

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Acknowledgements

The National Council of Educational Research and Training (NCERT) acknowledge the valuable contribution of the individuals and organisations involved in the development of "Resource Material on Management of Disasters". The council acknowledges the valuable contribution of the following academics:

Ajinder Walia, *Assistant Professor,* National Institute of Disaster Management, New Delhi; Chandrani B. Neogi, *Assistant Professor,* National Institute of disaster Management, New Delhi.

Special thanks are due to Professor Jai Shree Sharma, Former Head, DESM and Professor A.K. Wazalwar, Head, DESM, National Council of Educational Research and Training for providing guidance. The contribution of APC-office, administration of DESM, Publication Department and Secretariat of NCERT is also acknowledged.



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NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

ISBN 978-93-5007-336-0