

FAMILY EMERGENCY BOOKLET



EARTHQUAKES

Foreword, introduction

Dear teachers and parents!

Dear adults!

This booklet wants to offer your community and your children an innovative and interactive educational instrument to deal with disaster risks.

We, the humans, are part of nature, and the quality of our lives depends on all other living things, which belong as well to nature. We should take care of nature because our own wellbeing depends on it.

Earthquakes, floods, storms and other extreme natural events have always been a part of nature and history. Nevertheless, more persons than in the past became vulnerable to disasters in our days. The reasons are the fast-growing population of the world, the destruction of the environment and poverty. Hence every decade millions of people get killed by disasters and many more millions lose their homes and belongings. Economic losses caused by natural disasters have tripled during the last years.

Constant collaboration of community members might contribute to the reduction of the impact of disasters. In this sense, also children play an important role by:

- implementing activities at school on this subject with the participation of the community
- informing families and the community regarding natural hazards and encouraging them to take preventive measures

Children are, as well, the key to promote a culture of prevention in our society, for a safer world. They can learn from early ages to respect the environment and to understand the effects of development by evolving habits which last for a lifetime.

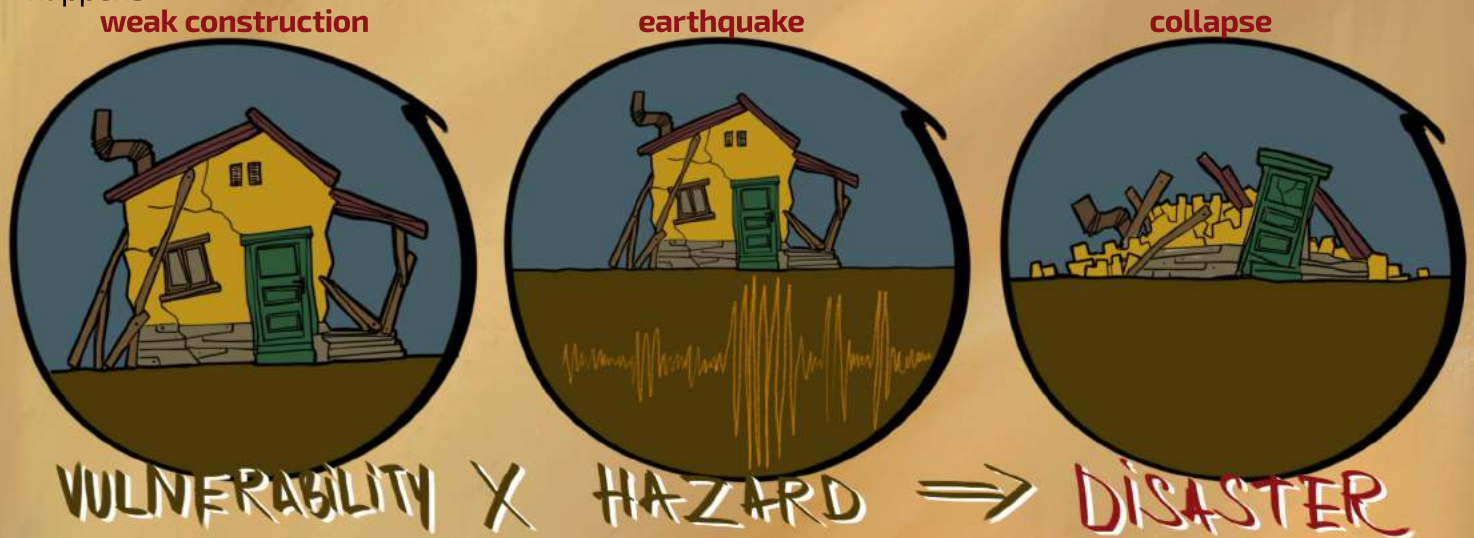
By supporting the creation of a real and long-lasting culture of prevention – both by action and a new attitude – they will have a good understanding of natural phenomena, the effects of human activity and how to strengthen their resilience, even if living in a vulnerable environment.

This booklet includes many practical activities and addresses families and specialists (teachers, fire fighters, civil protection, etc.) and most of its content can be adapted for both, the younger and the older once.



General information about disasters

What is actually a disaster? Of course we have heard about many disasters like floods, earthquakes or nuclear accidents. Maybe we already have been affected by ourselves by a disaster. Disasters cause massive destruction, loss of property and even injure or kill people (in some cases thousands of people). A disaster happens, when an (often natural) event, hits a community. Let's see here more in detail, what happens:



What is a hazard?

A hazard is a phenomenon or a process (mostly in nature) beyond our community's influence, which jeopardizes a group of people, their belongings and their lives, if they don't take safeguard measures. There are different types of hazards. Most are natural, while others are caused by humans, i.e. so-called industrial disasters or technological hazards (explosions, fires, toxic chemical substances, discharges) or wars and terrorism.

Amongst various natural hazards we can identify:

Earthquakes (quake, tremor or temblor): An earthquake is a sudden and short-time shaking of a part of the crust of the earth. In most cases, seismic waves are released from the earth's interior, where tectonic plates move against each other and suddenly slip past one another. The location, where the energy is released, is called focus or hypocenter while the area above on the surface is called epicenter. The waves reach the surface as vibration or oscillation of the land and can be recorded using a seismometer.

There are two ways to classify earthquakes: **Magnitude** measures the size or the energy of the earthquake in the area, where it is produced (in the hypocenter), that's why a given earthquake has a single magnitude value. The more energy is released, the higher is the magnitude on the Richter scale.

Seismic intensity measures the effects of an earthquake, wherever the seismic waves reach the surface. Stronger oscillations in a specific place mean a higher intensity. Intensity is measured in the Mercalli scale (or similar like EMS or MSK).

Landslides: soil, rocks or other materials moving suddenly or slowly down a slope. Landslides usually happen during the rainy season or during seismic activities.

Drought: A period of time (months or years) during which a region suffers from the lack of rain, causing serious damage of soil, agricultural cultures, sometimes even provoking the death of animals and human beings.

Fires: damaging fires in forests and other areas covered by vegetation. These fires may get out of control and spread easily to large areas.

Floods: Appearance of large quantities of water, in most cases caused by ample rainfalls, which the soil is not able to absorb. Depending on the type, floods can develop very slowly after strong rainfalls, or in just some minutes, very fast, even without any sign of rain. Floods can be a local event, effecting only a small piece of land or a large disaster having a negative impact on the whole community. This hazard can be transformed into a disasters, especially if you are living in a vulnerable situation.

What does vulnerability mean?

Vulnerability is the lack of capacity to stand a danger or to respond to a disaster. Almost everybody feels to be helpless and even frightened in the case of an earthquake, when buildings start to balance strongly and even may get damaged. When the shaking in the building gets stronger, it's getting difficult to stand upright and to walk. Therefore, it is not recommended to try to leave the house or classroom. Often during the hours and days after an earthquake, other, usually weaker quakes occure. They are called aftershocks, but in most cases they are less dangerous.

Actually, vulnerability depends on several factors like people's age and health situation, local conditions, quality and condition of local buildings and their location regarding to different hazards. Families with smaller incomes usually live in areas with higher risk, since they cannot afford to live in safer (and more expensive) places.

EXERCISE

Put these letters in the right order and you will identify a factor which increases the vulnerability of many communities

LKCA FO PCATIYCA

Arrange the letters you find in the drawing, according to their size starting from the largest to the smallest. You will find the name of a danger that has destroyed entire communities which have been located in dangerous places

RUQATSAHKE

A disaster happens when the following three conditions are met at the same time:

- When people live in dangerous places, like unsafe buildings, on instabile slopes where landslides are to be expected, or close to rivers where floods might occur.
- When a dangerous phenomenon, either natural or human, appears.
- When the phenomenon causes numerous damages, especially in the case where no preventiv measures have been taken.

EXERCISE

You have learnt already about the difference of hazards and vulnerabilities. Hazards are caused by nature and can hardly be influenced. Vulnerabilities are our own weak points. They are the reason why a hazard affects us.

Somehow hazards and vulnerabilities got mixed-up here. Can you write them on the right place?

HAZARD



VULNERABILITY

• Intensity of the earthquake, poor construction technology, landslides and avalanches, people do not know evacuation plans, falling-down of building parts (bricks, plaster, ornaments, chimney, balustrade, etc.), broken windows, falling-down of objects from buildings (TV and radio antenna, satellite dish, advertisement panels, flower pots etc.), tobbling furniture, falling lamps, city built on faultline



Lack of information: people do not know basic rules in the case of an earthquake

Vulnerable people: elderly, sick, disabled persons; single mothers



Electricity lines may fall down and injure people. Even broken cables might be powered on



Landslides and avalanches caused by an earthquake



Road bridges: bridges might collapse or construction parts fall down



Broken gas pipes: risk of explosions

How do earthquake affected our community?

Earthquakes are not the most frequent natural disasters, but their effects may be devastating. Like many others, also your community might be at risk.
If an earthquake happens in your community, what will be affected? And why? Discuss with your family and fill in your answers in the table:

	What will be affected?	Why will it be affected by eartquake?
Nature	<ul style="list-style-type: none">• Example: forest destroyed	Avalanche and landslides
Constructed things	<ul style="list-style-type: none">• Example: bridge	Weak construction
Economic resources	<ul style="list-style-type: none">• Example: workshop	Building collapses
Your individual belongings and values (including life, etc.)	<ul style="list-style-type: none">• Example: health	Falling objects hit people

Earthquake danger hunt

Organize an earthquake danger hunt together with all family members. Use your imagination and common sense, go from room to room and think about what will happen when the earth starts shaking. Check for objects that may slide, fall and fly where people spend most of their time (sleeping, eating, watching TV, working, etc.). Use the following checklist:

Type of dangers	Objects	Where	Solution	Date corrected
Heavy objects				
High furniture				
Pictures and mirrors				
Electric appliances				
Gas bottle				
Hot water boiler				
Windows				

How do we ourselves increase the capacity of our community?

To reduce the effects of a disaster in your community, it is crucial to be aware of the risks, to share your knowledge also to others and to be prepared.

be aware ✓

Know the history of your community. Discuss with older family members and friends about disasters that affected your community in the past.

share ✓

Use risk maps or activities at school to tell other community members about what you have learnt.

be prepared ✓

Get to know the meaning of warnings. Identify safe places where to go in case of an evacuation of the area where you stay. Prepare an emergency kit.

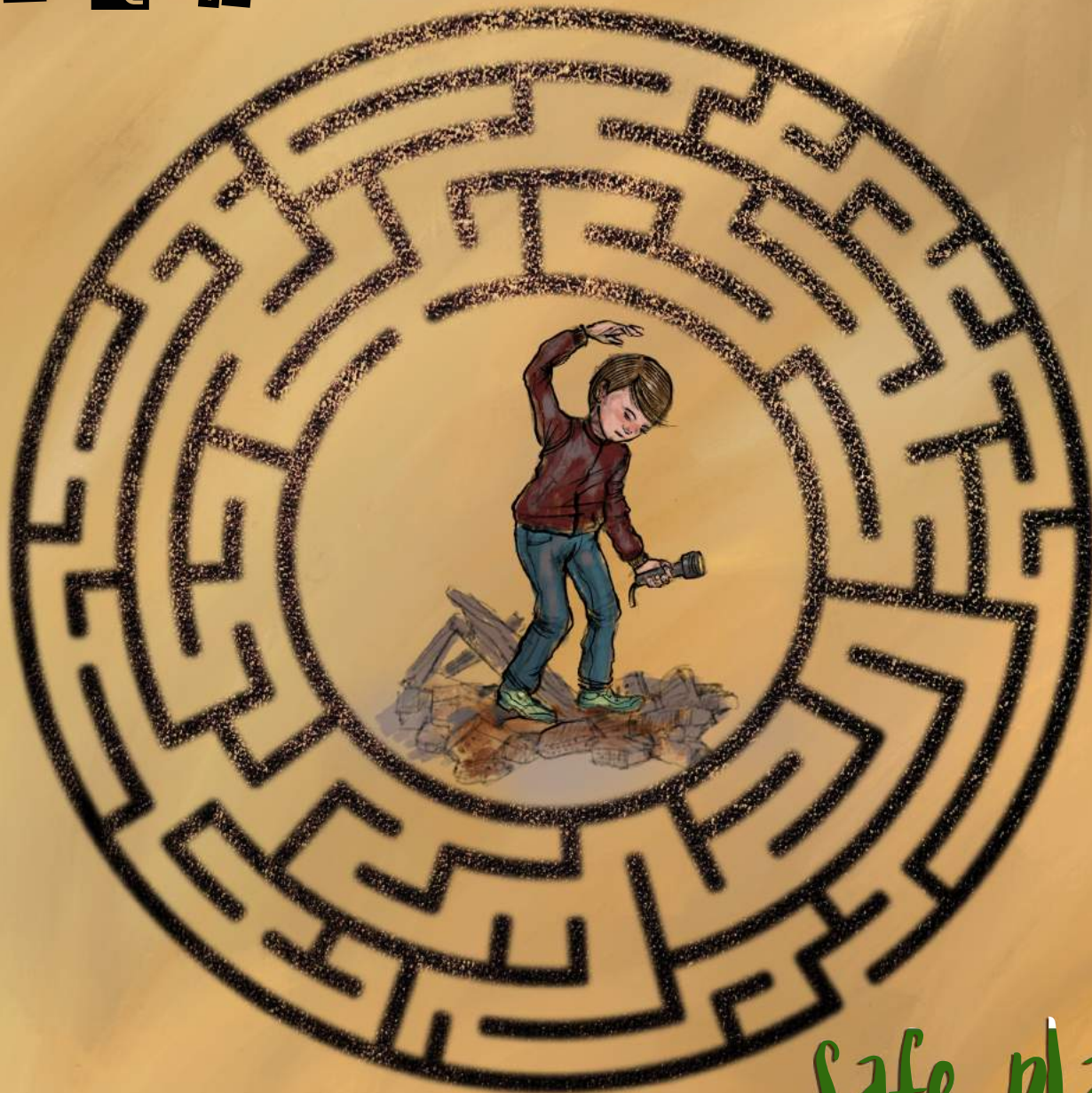
Methods of prevention

Even if earthquakes hit without any warning, there are many possibilities to reduce their impact. It is important to take preparedness measures before an earthquake happens.

During earthquakes, especially during moderate earthquakes, most people are not injured by collapsing buildings, but by falling objects and non-structural damages. Also, many valuable things are destroyed during earthquakes because they fall down or are hit by other falling objects. In almost all buildings, where we spend our time (our home, schools, workplaces), dangerous objects and places can be found. With some simple measures, this risk can be reduced:

Dangerous object	Measures to reduce the risk
Heavy objects (like ornaments, vases, heavy books) places on shelves	<ul style="list-style-type: none">• Moving heavy objects to lower shelves• Attaching them with double-faced adhesive tape• Bookshelf wires tightened in front of the books
High furniture (bookshelves, cupboards, etc.)	<ul style="list-style-type: none">• Attaching them to the wall using L brackets
Hot water boiler	<ul style="list-style-type: none">• Strengthening fixing to the wall, eventually using straps
Pictures (especially with glass) and mirrors	<ul style="list-style-type: none">• Using strong hooks instead of nails or simple screws
Electric appliances	<ul style="list-style-type: none">• Placing them on non-slippery rubber mats• Attaching them to furniture or walls (with straps or L brackets – there are special brackets to attach TV-sets)
Gas bottles	<ul style="list-style-type: none">• Attaching them to the wall or furniture by a strap
Windows (especially big windows)	<ul style="list-style-type: none">• Remove beds and seats located directly under a big window

EXERCISE



safe place

Our disaster preparedness plan

What to do in the case of an earthquake? Where can we find a safe place? How can we get in contact with each other? When a disaster happens, it will be already too late to think about these questions. Let's do it now and collect the most important information you will need in case of a disaster.

How do we learn that a disaster is going to happen?

Signs in nature

Warnings

Some information about the members of our family:

Name:
Date of birth:
Blood group:
Special needs:

Name:
Date of birth:
Blood group:
Special needs:

Name:
Date of birth:
Blood group:
Special needs:

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Name:
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Blood group:
Special needs:

Places, where we spent most of our time

Home:
Adress:
Phone:

Workplace:
Adress:
Phone:

School:
Adress:
Phone:

Workplace:
Adress:
Phone:

School:
Adress:
Phone:

Other places:
Adress:
Phone:

Meeting place in case of an emergency

This place should be in a safe area and easy to be reached for all family members. If a meeting place is defined by local authorities, use this place. Every family member should know this place and how to get there.

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In case we have to evacuate from our house

What to do before leaving the house?
What to take with us?
Where do we go?

Out-of town contact person

In case we don't find each other anymore after a disaster, this person will help us to get in contact with each other

Name:
Adress:
Phone:
Mobil phone:

What to do before earthquake? (inclusive family check list)

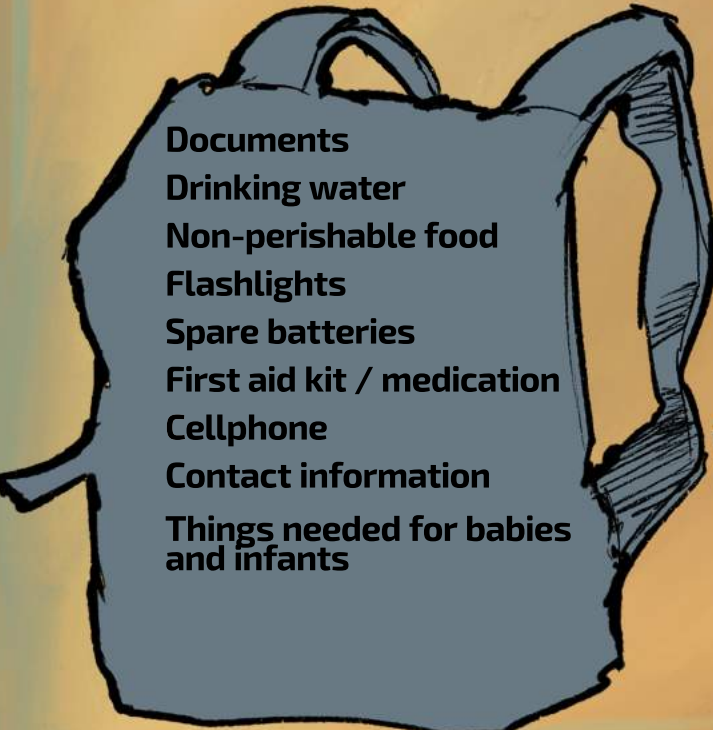
Check the dangers in your house:

- Attach high furniture (bookshelves, wardrobes) to the wall to prevent them from toppling
- Move heavy objects to lower shelves
- Store big objects that may break (for example jars) in closed cupboards
- Place heavy objects like paintings, mirrors far from beds, couches and other places where people stay
- Secure hanging lamps with safety cables
- Repair damaged electric wires and gas pipes since they might cause fires
- Keep chemical and inflammable substances in safe and closed cupboards

Identify safe places inside and outside the house

- Under a robust bureau or table
- Under a door frame
- Far from places where glass may break (close to windows, mirrors) or where heavy furniture might topple
- Far from staircases, which are places of high risk during an earthquake
- Outside: far from buildings, trees, electric and phone wires, road bridges and elevated crossings

What should our emergency kit contain?

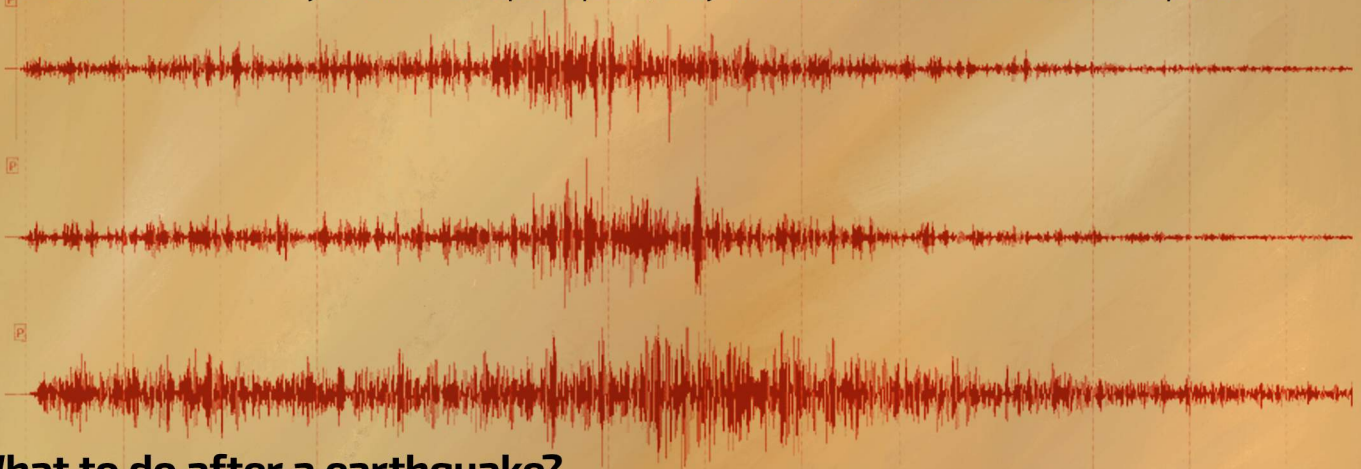


Documents
Drinking water
Non-perishable food
Flashlights
Spare batteries
First aid kit / medication
Cellphone
Contact information
Things needed for babies and infants



What to do during an earthquake?

- Stay calm and think about the consequences of what you are going to do
- If you are indoors – stay indoors. Seek protection below a heavy bureau, table, bench or door frame
- If you are in a high building, evacuate from the building using staircases only after the earthquake has finished
- Do not use elevators during an earthquake
- If you are outside, stay outside. During earthquakes many people get injured trying to enter or to leave a building
- Depart from buildings and suspended wires
- Don't walk on roads. If you are in an open space, stay there until the end of the earthquake



What to do after a earthquake?

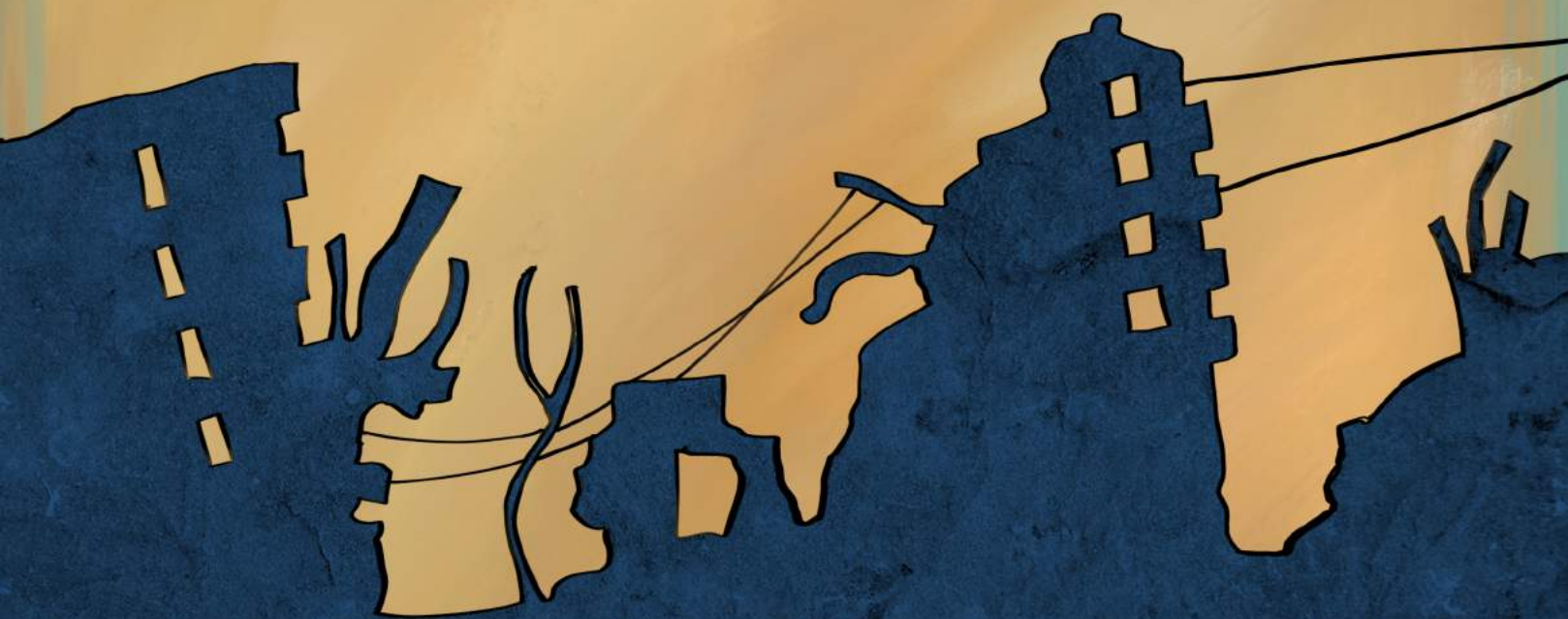
- Evacuate the building in an organized manner and only after earthquake stops
- Inform the authorities about missing persons
- Never enter a building after an earthquake until you are informed that it is safe
- Check if there is a fire or the danger of a fire to break out
- Do not use matches, lighters or open fire until you are not sure that there are leakages of gas
- Do not use your phone except for real emergency calls. If you want to inform relatives or friends that you are all right, use SMS
- Be prepared for aftershocks. Even if these earthquakes usually are less strong as the principal quake, they still might cause additional harm and already damaged buildings may collapse.
- Keep roads free so that emergency and rescue vehicles can pass

Keep in mind!

DROP! COVER! HOLD!

Let's have a final test

1. What causes an earthquake?
2. What's the most important thing to do during an earthquake?
3. Write down five vulnerabilities of your community.
4. Name three methods to prevent reduce earthquake risk in your house.
5. A disaster happens when a hazard meets
6. Name the three most important things you need to have in your emergency kit.
7. Write the name of and telephone number of your out-of-town contact person.
8. Where is your family meeting place?



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