Surviving an earthquake

Learn the earthquake drill and increase your chances of survival

Ask the class to tell you about any earthquake experiences they have had. For some this will be all too real and teachers will need to be sensitive to those who have suffered loss. Others may recount what they have seen on TV or heard on the radio. It may be possible to show video clips of recent earthquakes. This is a valuable exercise even for pupils beyond earthquake zones, to help them to picture the causes and effects of earthquake devastation.

Ask what pupils think kills people in an earthquake. They will usually mention falling into cracks in the ground, but this is rarely the case. The main causes are falling roofs and other masonry, especially in countries where heavy clay bricks and tiles form the main building materials: fire resulting from ruptured gas pipes; lack of water to put out fires because of broken mains; spread of diseases like cholera and typhoid through contaminated water supplies. Coastal areas can be devastated by tsunamis, generated by earthquakes, e.g. the Indian Ocean quake on Boxing Day 2004. These probably account for a bigger death toll than any other single cause. Ask pupils to look around the classroom, or if possible, walk around the school building, looking out for hazards in the event of an earthquake.

Cars crushed by falling masonry, which killed 5 people leaving work. Lomo Prieta earthquake, 17th Oct. 1989.
*(From the US Geological Survey Photographic Library at: **http://libraryphoto.cr.usgs.gov** Slide 1-1 USGS Open File Report 90-547)*

Unfastened bookcases in the headquarters of the US Geological Survey at Menlo Park, California, which fell during the Loma Prieta earthquake, 17th October 1989 Slide VI-1.
*(From the US Geological Survey Photographic Library at: **http://libraryphoto.cr.usgs.gov** Slide VI-1 USGS Open File Report 90-547)*

Teach pupils the earthquake drill. The drill below comes from The California Office of Emergency Services but pupils should be taught the local drill, if there is one.

- If indoors, bend down or lie on the floor, taking cover under a sturdy desk, table or other furniture. Hold on and be prepared to move with it, remaining in position until the ground stops shaking and it is safe to move. Avoid windows, fireplaces, wood stoves, heavy furniture or appliances. In a crowded area, take cover and stay put.
- Do not rush outside – you may be killed or injured by bricks or glass falling from your building as you leave.
- If outside, get into the open, away from buildings, trees, lamp posts, power lines or signs.
- If driving, remain in your car. Stay away from bridges, tunnels, overpasses. Move your car out of traffic, but avoid stopping under trees, lamp posts, power lines or signs.
- In a mountainous area, or near unstable land, be alert to falling rock and debris that could be loosened by the earthquake.
- If you are at the beach, move to higher ground.

Following these rules could help you, your friends and family, to survive a major earthquake.

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The back up

Title: Surviving an earthquake

Subtitle: Learn the earthquake drill and increase your chances of survival

Topic: Prepare your pupils by assessing local hazards and teaching them an earthquake drill, to minimise the risks of getting hurt if an earthquake should strike their school or home.

Age range of pupils: 7 – 18 years

Time needed to complete activity: 30 minutes

Pupil learning outcomes: Pupils can:
- respond rapidly if an earthquake strikes their area;
- avoid the main immediate hazards, such as falling masonry;
- take precautions to avoid fire after an earthquake;
- help others to protect themselves.

Context: The activity could form part of a lesson about earthquakes and their effects. It could also form part of the preparation for the best way for people to respond to an earthquake in earthquake-prone areas. Where a local code for earthquake survival exists, then this should form the basis of the lesson.

Following up the activity: Try a websearch for real data. Then try the 'Earthquake through the window' Earthlearningidea. Collect any reports of earthquakes and compile a newspaper or scrapbook. Talk to adults who have experienced an earthquake and ask them what they did to survive.
The following graphic description was taken from the Times of 18th August 2007, following the devastating earthquake (magnitude 8.0) in Pisco, Peru:
'Father Liam Carey, an Irish Catholic missionary, who was in the fishing port at the time, described the earthquake yesterday." We were just driving into Pisco, right in the centre, looking for where we were going to stay for the night. We had just driven into the car park. The lights just banged out. The car started jumping about all over the place. Walls started falling all around us. People just beside us were hanging on to an electricity pole", he told The Times. "It lasted for two and a half minutes, but it seemed like an eternity". Ask pupils to assess any further hazards which might follow the event described here (*a clue in the text is that Pisco is a seaport, so it could expect a tsunami later*).

Older pupils could investigate their own country's location in relation to an active tectonic plate margin, which is where most potentially damaging earthquakes strike.

Underlying principles:
- Most people are hurt or killed by the collapsing buildings, falling broken glass or subsequent fires.
- The safest place during an earthquake is usually out in the open, away from buildings that might collapse.

Thinking skill development: Pupils can use their observations of their surroundings to construct a pattern of likely events in an earthquake. They should be able to apply what they have learned to new situations (bridging).

Resource list:
- no resources required, other than an observant eye!

Useful links: Try the Earthlearningidea activity 'Earthquake through the window – what would you see, what would you feel?' Look up the website of the International Strategy for Disaster Reduction (UNIS), http://www.unisdr.org or http://www.doityourself.com/stry/duringearthquake

Source: 'The Earth and plate tectonics' workshop booklet published by the Earth Science Education Unit, http://www.earthscienceeducation.com