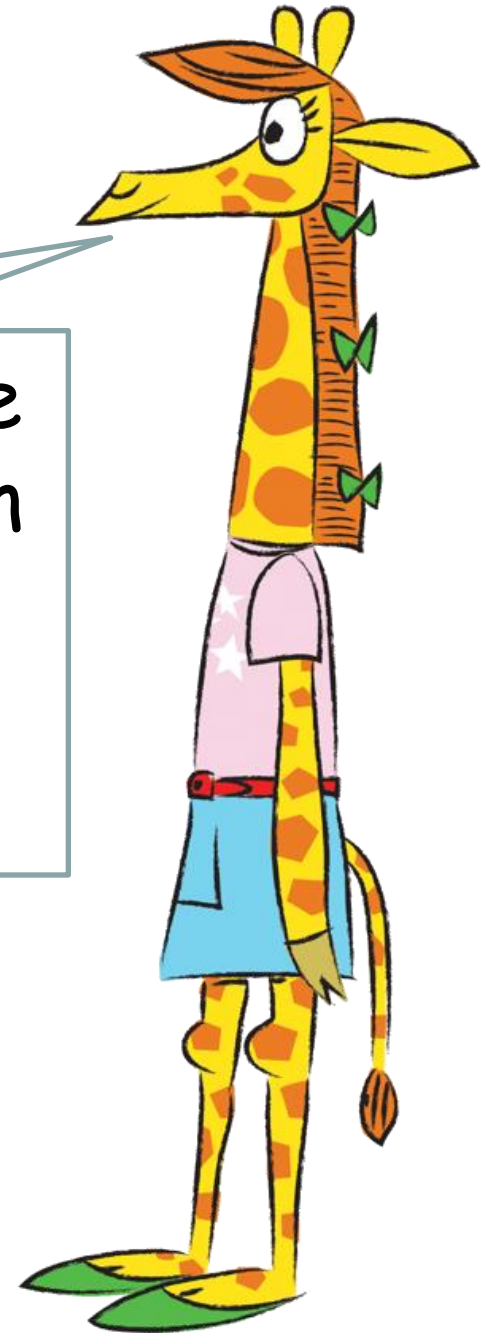




Disasters: Prevention is better than Cure

This lesson explores how some tragedies can be avoided when people in charge choose to spend money on safety measures.





**PREVENTION
IS
BETTER THAN CURE!**





On 29th August 2005 the 3rd strongest hurricane ever to hit the United States made landfall in Louisiana.



It caused 1,836 people to lose their lives, and over \$81 billion in damage.




People who didn't own a car couldn't get out of the city because the public transport system had been shut down.

Fuel and rental cars were in short supply.

Many health facilities shared the same bus and ambulance services.



Work on the levees had been postponed. Some say that the \$250million it would have cost had been diverted to pay for the war in Iraq. 






On 26th December 2004 an earthquake under the Indian Ocean caused a tsunami which killed over 200,000 people in the surrounding countries.



A dramatic photograph of a massive tsunami wave crashing over a rocky coastline. The water is a deep, turbulent blue, and the wave's crest is a bright, white foam. The sun is visible in the upper right corner, creating a bright glare on the water's surface. The overall scene conveys the immense power and scale of the event.

Seismologists know when earthquakes occur.

They knew that this earthquake was likely to trigger a tsunami, but were unable to warn people across the region.

A small, solid green circle located in the bottom right corner of the slide.

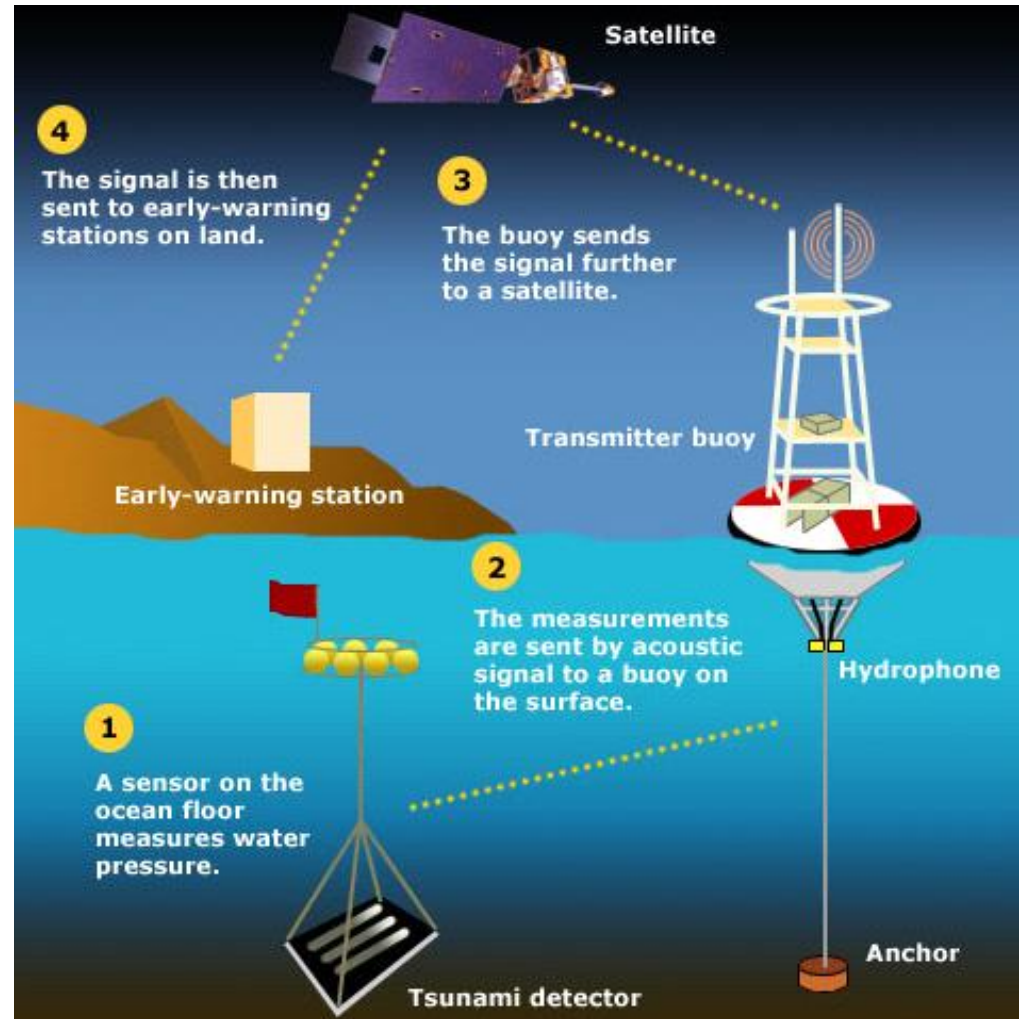
An early warning system costing \$30 million could have saved those lives.

It's peanuts compared to what happened
– we learned this in a very costly way.

Koichura Matsuura, head of UNESCO

Deep water measuring devices are now being put on the ocean floor.

In the event of an earthquake they will send messages to buoys on the sea surface which, in turn, will relay them to a satellite.



Within 15 minutes:

Emergency services will be alerted.

SMS text messages will automatically warn people carrying mobile phones.

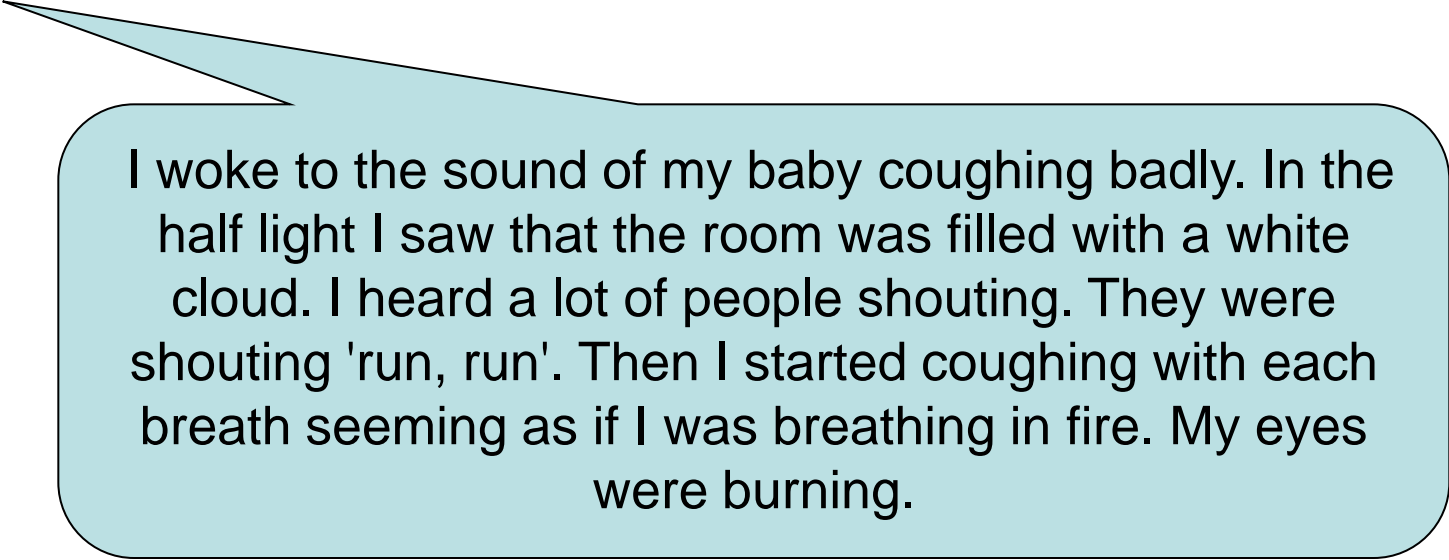
Emails will be sent to computers.





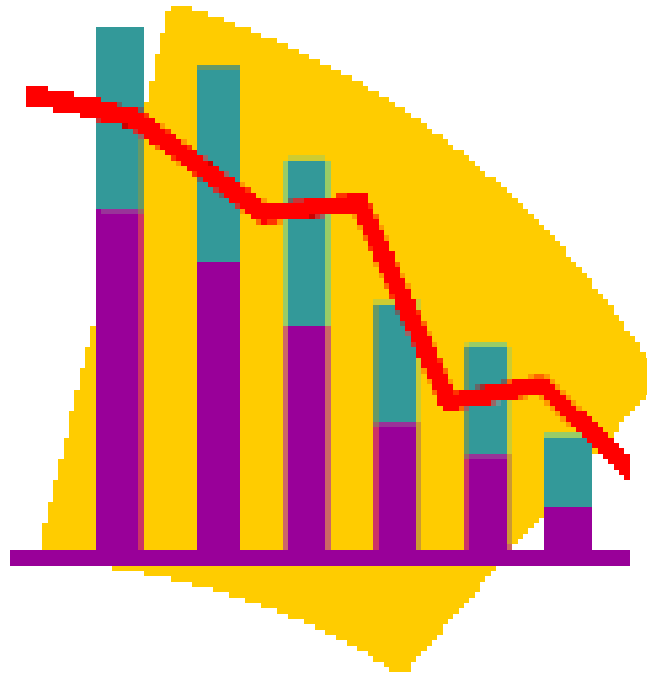
On December 3rd 1984 chemicals in the Union Carbide factory in Bhopal, India overheated. They released a heavy gas which rolled through the streets killing 8,000 people outright.

Aziza Sultan, a survivor remembers:



I woke to the sound of my baby coughing badly. In the half light I saw that the room was filled with a white cloud. I heard a lot of people shouting. They were shouting 'run, run'. Then I started coughing with each breath seeming as if I was breathing in fire. My eyes were burning.

The American owned factory had failed to make the large profits expected from sales of pesticides to Indian farmers.



Staff had been laid off, so few safety checks were taking place.

The cooling tank had been disconnected to save money.



The site has never been properly cleaned up. Rainfall has carried the chemicals into the borehole water, which is polluted with mercury up to a level which is 500 times the legal maximum.

Years later there are high incidences of blindness, cancer, brain-damage and birth defects.

So far, a further 12,000 people have died as a result of exposure to the chemicals.





On June 14th, 2017 fire broke out in a block of flats called Grenfell Tower in North Kensington, London.



The fire started in a fridge-freezer, but spread quickly because of the material used to cover the outside of the building.

Panels had been put round the building to insulate it and make it look smarter, but they were cheaper and not as fire resistant as other panels that could have been used.



Fire experts say that gaps between the panels and the wall acted like a chimney, causing the fire to spread rapidly.

More than 200 firefighters and 40 fire engines were involved in battling the blaze.



65 people were rescued, but low water pressure, radio problems and the late arrival of equipment meant that firefighters were unable to control the fire and save more people.



The residents had previously made complaints to the council about the risk of fire in the building. For example that there was only one flight of stairs, and not enough fire doors to hold fire back.



The blaze was finally brought under control 24 hours after it started.

By this time 70 people had been injured and over 80 people had lost their lives.



Since then urgent tests have been carried out on materials used in other buildings across the country to make sure they are safe for people to live in.





To avoid tragedies like these governments and agencies know that they must:

- **PREDICT** what could happen
- **ELIMINATE VULNERABILITY** - protect people from harm
- **PREVENT** unnecessary tragedies from happening

So, for example, agencies are working to ensure that:

Factories producing dangerous chemicals are built away from residential areas.

Buildings in earthquake zones are being constructed with special, strong materials.



Irrigation systems are being established in areas likely to suffer from drought.



..... but it takes money and commitment





meanwhile.....the clock is ticking!



Levé means 'raised' in French.

A levee is an artificial embankment or dike.

Levees are built to prevent flooding. They are usually built of piled earth. They are broad at the base and taper towards the top.

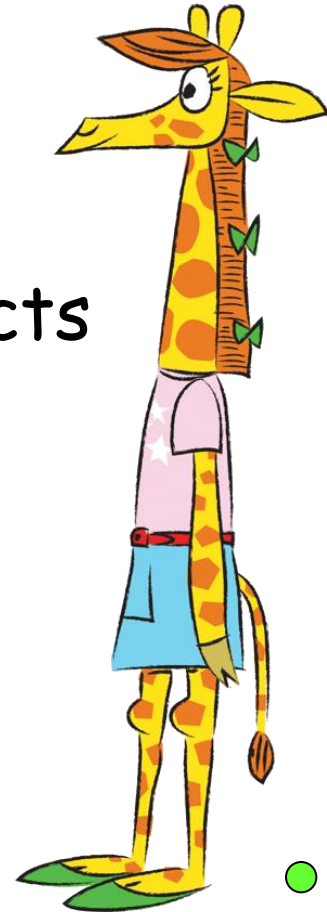


- Tsunamis are ocean waves produced by earthquakes or underwater landslides. The word is Japanese and means "harbour wave".
- A tsunami is actually a series of waves that can travel at speeds of up to 600 miles per hour in the open ocean. As the waves approach the coast, their speed decreases and their height increases. Wave heights over one hundred feet high have been known.
- A noticeable rapid rise or fall in coastal waters is a sign that a tsunami is approaching.
- Tsunamis most frequently come onshore as a rapidly rising turbulent surge of water choked with debris. They are not V-shaped or rolling waves.



Glossary

- **Postpone** - delay, put on hold
- **Divert** - redirect, switch
- **Device** - gadget, piece of equipment
- **Hazard** - danger, risk
- **Pesticides** - chemicals used to kill insects
- **Exposure** - uncovering, contact
- **Eliminate** - to get rid of, remove
- **Vulnerable** - weak, exposed



Useful Web Links

- http://news.bbc.co.uk/cbbcnews/hi/newsid_4220000/newsid_4227300/4227388.stm
- http://news.bbc.co.uk/cbbcnews/hi/newsid_4220000/newsid_4226800/4226812.stm - work sheets, lesson plans and links to related lessons on Hurricane Katrina
- http://news.bbc.co.uk/cbbcnews/hi/newsid_4990000/newsid_4990800/4990886.stm - testing the Tsunami prevention system