

## Earthquakes

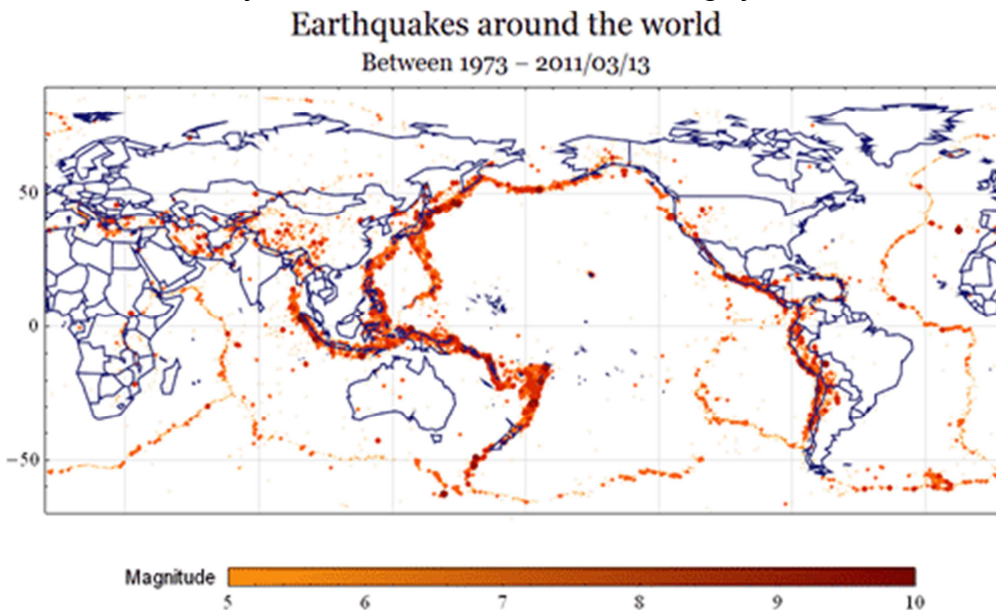
### Worksheet 1 Teacher's notes

1. What kind of natural disasters can you think of ? Are there any natural disasters in your country? Have there been any natural disasters in the news recently?

*earthquake, hurricane, tornado, landslide, mudslide, flood, environmental disaster, avalanche plus students' own answers*

2. Have you heard the name the Ring of Fire ? What is it ? If not sure, go online, search it and mark on the contour map of the world.

*an area in the Pacific Ocean this area is called the 'Ring of Fire'*



<http://blog.wolfram.com/category/geosciences/>

How many percent of world's largest earthquakes occur in the Ring of Fire? 80 %

3. Now let's investigate the earthquakes a little bit more.

- What is an earthquake?

*An earthquake is what happens when two blocks of the earth suddenly slip past one another. Earthquakes are the shaking, rolling or sudden shock of the earth's surface. They are the Earth's natural means of releasing stress.*

- What causes earthquakes ?

*There are about 20 plates along the surface of the earth that move continuously and slowly past each other. When the plates squeeze or stretch, huge rocks form at their edges and the rocks shift with great force, causing an earthquake.*

- What is the definition of *hypocenter*, *epicenter*, *seismic waves* and *Richter scale*?

**EPICENTER** - The point on the earth's surface directly above the source of the earthquake.

**SEISMIC WAVES** - The energy created by the quake travels in waves from the epicenter, where they are the strongest. The waves shake buildings, structures and the earth vertically, causing them to move horizontally!

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**RICHTER SCALE** - A measurement of an earthquake's intensity. Each one-point increase on the scale indicates ten times the amount of shaking and 33 times the amount of energy. The energy released by a large earthquake may be equal to 10,000 times the energy of the first atomic bomb.

- What is a fault?

A fault is an area of stress in the earth where broken rocks slide past each other, causing a crack in the Earth's surface. There are the major types of faults: dip-slip normal, dip-slip reverse, strike-slip, and oblique-slip.

- What are plate tectonics?

The theory of plate tectonics is a interesting story of continents drifting from place to place breaking apart, colliding, and grinding against each other. The plate tectonic theory is supported by a wide range of evidence that considers the earth's crust and upper mantle to be composed of several large, thin, relatively rigid plates that move relative to one another. (See plate tectonic graphic above.) The plates are all moving in different directions and at different speeds. Sometimes the plates crash together, pull apart or sideswipe each other. When this happens, it commonly results in earthquakes.

- Can the earthquake be predicted?

No, and it is unlikely they will ever be able to predict them. Scientists have tried many different ways of predicting earthquakes, but none have been successful. On any particular fault, scientists know there will be another earthquake sometime in the future, but they have no way of telling when it will happen.

- How are the earthquakes measured?

A seismograph is an instrument used for recording the intensity and duration of an earthquake.

- What should we do in case of an earthquake?

Stay calm! If you're indoors, stay inside. If you're outside, stay outside.

If you're indoors, stand against a wall near the center of the building, stand in a doorway, or crawl under heavy furniture (a desk or table). Stay away from windows and outside doors.

If you're outdoors, stay in the open away from power lines or anything that might fall. Stay away from buildings (stuff might fall off the building or the building could fall on you).

Don't use matches, candles, or any flame. Broken gas lines and fire don't mix.

If you're in a car, stop the car and stay inside the car until the earthquake stops.

Don't use elevators (they'll probably get stuck anyway).

4. Watch a film about earthquakes and why they are so scary:

<http://www.youtube.com/watch?v=CtBXTvtFaCU>.

5. In 2010 there was an earthquake in Haiti and over 200,000 people lost their lives. Jay-Z, Rihanna and Bono from U2 recorded a song to raise awareness and collect funds to help to rebuild the country.

Go to <http://www.youtube.com/watch?v=4MkvIQCLEPo> , listen to the song and look at the lyrics.

#### Stranded

When the sky falls and the Earth quakes  
We gon put this back together  
We won't break

Sa Pa Sé, my Port-Au-Princes  
my Haitian Gods and all of my Princesses  
Our condolences as you fightin' against this  
we're right by your side as we tryin' to make sense of this  
heavenly father help us see through these problems  
and for those that left, accept them into your garden  
so here's my theory, the country's already starvin'  
so we sacrificed many to shed light on all of them  
God please pardon, I speak from the heart  
it's the only way I see this tragedy befall on them  
so let's get involved with them, hand to hand with them  
arm to arm with them til they get strong again,  
When the sky falls...

Can't wait until tomorrow  
Haiti, Mon Amour  
Haiti, Mon Amour  
Not gonna leave you stranded, alone, alone  
oh no

Learn from the past, New Orleans was flooded  
So we know we just can't rely on the government  
We under the rubble again, here we go rumbling when  
When we gon catch a break, my friend lost his mother and then  
And then, Carline lost her uncles and them  
Buried with no caskets, they just put covers on them  
lyrics courtesy of killerhiphop.com  
And the tears fall, and we fight back  
Story ain't done, it can't end like that  
Nah not like this, tomorrow's survivors gonna carry on your name

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You live on inside us, your memory's alive with us  
You inspired us, to rebuild this country, you just guide us

It's not the angels that are on their way  
its not the bells of Santa Trinite  
the people waiting, position vacant  
for hands to help, not just to pray

Haïti va s'élever  
Tu vas te relever  
Nous nous élèverons  
Ensemble ensemble ensemble

(not gonna leave you stranded...)

we gon put this back together we won't break x4

Link: <http://www.vagalume.com.br/jay-z/stranded-haiti-mon-amour-feat-rihanna-e-u2.html#ixzz37q6tvktf>

6. Look at the lyrics and underline all the words connected with the earthquake.

*go through the lyrics with the class and explain any vocabulary, but also ask the students to re-tell the story, check their understanding of the situation*

suggested sources:

<http://www.weatherwizkids.com/weather-earthquake.htm>

<http://www.sciencekids.co.nz/sciencefacts/earth/earthquakes.html>

<http://earthquake.usgs.gov/learn/kids/eqscience.php>

<http://projects.eri.ucsb.edu/understanding/quiz/>

<http://www.geo.mtu.edu/UPSeis/bda.html>

<http://www.oxfam.org/en/emergencies/haiti-earthquake>