

LESSON 2: EARTHQUAKE - INFORMATION GAP

Age range: 7-11 years Time: 1 hour

Outline <p>Pupils will explore some of the geographical factors which made Haiti so vulnerable to the earthquake and collaborate to find out more about earthquakes and their effects from information texts. The activities are suitable for Guided Reading, supporting pupils to read more challenging descriptive texts and encouraging them to read further and research around the topic. Pupils will have opportunities to work in groups of different sizes and/or as a whole class.</p>		
Learning objectives <ul style="list-style-type: none"> To maintain active participation in collaborative conversations. To summarise the main points from a reading passage. To articulate and justify answers. To provide background information which will support further discussion around why Haiti was particularly vulnerable to the effects of the 2010 earthquake. 	Learning outcomes <ul style="list-style-type: none"> Pupils will to explain to others key information they have gathered from their reading, working collaboratively to fill the gaps in their knowledge. 	
Key questions <ul style="list-style-type: none"> What are the main points of my passage? What are the main points others are making? What geographical factors made Haiti particularly vulnerable to the effects of the 2010 earthquake? 	Resources <ul style="list-style-type: none"> Haiti video 1: up to 2010. Large sheets of paper for each group. Sticky notes. Slideshow 1 – Stories from Haiti: up to 2010. <i>Guided Reading Texts A-E.</i> <i>Haiti Earthquake question sheet.</i> Optional resources <ul style="list-style-type: none"> It would also be useful for pupils to have access to an Atlas or globe, or alternatively teachers could use slides 16 and 17. <i>Information for teachers: Haiti's poverty and geography</i> 	
Curriculum links		
England <ul style="list-style-type: none"> Pupils retrieve, record and present information from a non-fiction text. Pupils participate in discussion, listening to what others say. Pupils apply their skills of information retrieval by answering questions. 	Wales Reading Skills: <ul style="list-style-type: none"> Consider what they read/view, responding orally and in writing to the ideas, vocabulary, style, presentation and organisation of image and language, and be able to select evidence to support their views. Oracy Skills: Pupils should be given opportunities to: <ul style="list-style-type: none"> Listen and view attentively, responding to a wide range of communication. 	Scotland <ul style="list-style-type: none"> When I engage with others, I can respond in ways appropriate to my role, show that I value others' contributions and use these to build on thinking. LIT 2-02a

Activity Outline

Starter (20 mins)

Earthquake video

- Show pupils slide 17 of slideshow 1 and read out the brief information about the 2010 earthquake in Haiti from the slide notes. Do not dwell for too long on the details because pupils will be reading more information about the earthquake for themselves later in the lesson.
- Next show Haiti video 1 and allow pupils a few minutes to respond to the contents. In small groups, ask pupils to write down some questions about earthquakes and record these on a large sheet of paper. This will be a useful way to identify issues that you might want to cover later in the lesson. Collect some feedback from each group, drawing out the common threads.

Activity 2.1 (30 mins)

Information gap

Now that pupils have had the chance to raise some questions, explain that some of these may be answered by reading the texts that they are about to be given. Note that this activity can be completed as a guided reading or whole class activity.

Method One: Guided Reading activity

- Place pupils in a group of eight and give each pair a different text (A-D). Ask them to extract the information from their own text (perhaps by taking it in turns to read alternate sentences aloud first) and find the questions they can answer on their answer sheets. Having completed their own answers, ask pupils to share their information with others in the group until everyone has completed their answer sheets. Note that there is a simplified text (Text E) available for less confident readers, which contains most of the answers to the questions on the sheet.

Method Two: A whole class activity

- Divide the class into four large groups, giving each group a different text to read (A-D). Ask pupils to read their text and fill in as much of the Haiti earthquake question sheet as they can. Each pupil should fill in their own question sheet but they may help each other. Encourage pupils to write notes rather than whole sentences.
- Number pupils within each of the four large groups as 1, 2, 3 and 4 and then ask pupils to form new groups: all the ones, all the twos, all the threes and all the fours. In this way they will be able to discuss what they have found out and exchange information from the different texts so that they can complete their question sheets.
- As a class, ask pupils if they were able to answer all the questions from their own text. You might like to select pupils to share answers to each question in turn. Are there any outstanding questions which pupils were not able to answer, even after collaborating



OXFAM



NATE
NATIONAL ASSOCIATION FOR
THE TEACHING OF ENGLISH

Oxfam Education

www.oxfam.org.uk/education

with others? Discuss the process of finding the answers. Did pupils enjoy collaborating? Why did this work well/not so well?

Plenary (10 mins)

- Return to the questions pupils asked about earthquakes at the start of the lesson. Do any of these remain unanswered? Do pupils have any further questions they'd like to add about the earthquake in Haiti now? If so, give pupils the opportunity to add these to their large sheets of paper. Tell pupils they may discover answers to these in future lessons.

Further ideas

- Ask pupils to carry out their own research about earthquakes during ICT or as home learning and present their findings to the class.



Background notes for teachers

Stories from Haiti video 1: up to 2010

This video begins by giving examples of the many different stories from Haiti: history, geography, music, art, carnival, sport, writers' stories, media stories and personal stories. It then shows footage of Port-au-Prince in the first few weeks and months following the earthquake in January 2010. Note that there is further information in lesson 4 about the historical stories which contributed to the vulnerability of the Haitian people when the earthquake struck.

Transcript:

Like any country in the world, Haiti is a country with many stories. Stories of music and art, stories about history, geography, carnival and sport, writers' stories, media stories and personal stories.

However, the story that many people around the world know about Haiti is just one single story: a story of disaster when a massive earthquake struck in January 2010. This first film introduces this story as a starting point for learning more about Haiti and its many other stories. These help us understand better the impact of the earthquake and why it still affects the lives of so many people in Haiti today.

Devastation

The Caribbean country of Haiti is the poorest country in the Western hemisphere. There are many reasons for this, including the legacy of its history and where it is in the world: Haiti lies in a place where earthquakes, as well as hurricanes and floods, are likely to happen. The repetition of these kinds of events can make it difficult for people to get on with ordinary life and make it harder for the country to develop. Haiti is also one of the most unequal countries in the Western Hemisphere, with a wide gap between the way in which the richest and poorest people live. Extreme inequality keeps some people poor while others do well.

On January 12th 2010 a massive earthquake struck Haiti. It killed more than 200,000 people, injured over 300,000 more and caused widespread destruction.

The earthquake was powerful - measuring 7 on the Richter Scale - and close to the surface. It was followed by a number of aftershocks, each causing more destruction. Even worse, its centre was just 10 miles from Haiti's capital city, Port-au-Prince, where millions of Haitians live.

An earthquake of this power would cause huge damage wherever it hit, but Haiti was especially vulnerable. Many buildings in Port-au-Prince were badly built, so they fell over easily in the quake. This killed and injured many and raised the number of homeless people to over 1.5 million. Hospital and emergency services were quickly overwhelmed by the scale of the crisis, having lost staff, buildings and equipment. The Haitian government was also badly affected in this way.

Relief



Having worked in Haiti for more than 35 years, Oxfam was in a good position to provide help immediately after the quake. This reached about half a million people, mainly focusing on providing clean water, toilets and washing facilities which help to prevent diseases spreading.

Oxfam also paid earthquake survivors to provide plastic sheeting for temporary shelters. These workers could then use the money they earned to buy items they needed after losing so many of their belongings.

Oxfam set up 80 canteens, employing people with experience in running shops and restaurants to provide hot meals for survivors in the first few months after the quake.

The earthquake crisis created a long-lasting challenge to rebuild the lives of survivors who continue to face the effects of tropical storms and outbreaks of deadly diseases like cholera. Despite working hard to help themselves, the United Nations estimated that more than 800,000 Haitian people were still in need of extra help four years later.

Video ends

Inequality in Haiti

One legacy of Haiti's colonial history is that French is one of two official languages, used in most written texts and for administrative purposes. Yet only around 10% of Haitians have sufficient secondary-school education to read and speak this. The second official language is Haitian Creole, spoken by the vast majority of Haitians. Its vocabulary is derived principally from French, but has influences from West Africa, Taino, Spanish and Portuguese. That so much of the population cannot access one of the official languages, French, contributes to Haiti's high levels of inequality because those who speak, read and write French fluently usually have access to better-paid work.

There are many examples of extreme inequality in Haiti. Inequality - or a wide gap between people in terms of their resources or opportunities - is known to keep many of the poorest members of a community in poverty. For example, unequal access to land in Haiti limits farmers to how much food they can grow. Furthermore, rebuilding after the quake was slowed down because of disputes between land owners and those who had been made homeless.

For further information on inequality, see the *Teachers' Overview*. You might also like to refer to *Information for teachers: Haiti's poverty and geography*.

Texts A-D

Note that no text supplies complete information pupils to answer all the questions on the sheet: they will have to talk to each other in order to gather all the answers needed.

Text E: The 2010 Earthquake in Haiti

This text covers most of the answers on the quiz sheet and is intended for use with less confident readers.



Text A: Earthquakes and their effects

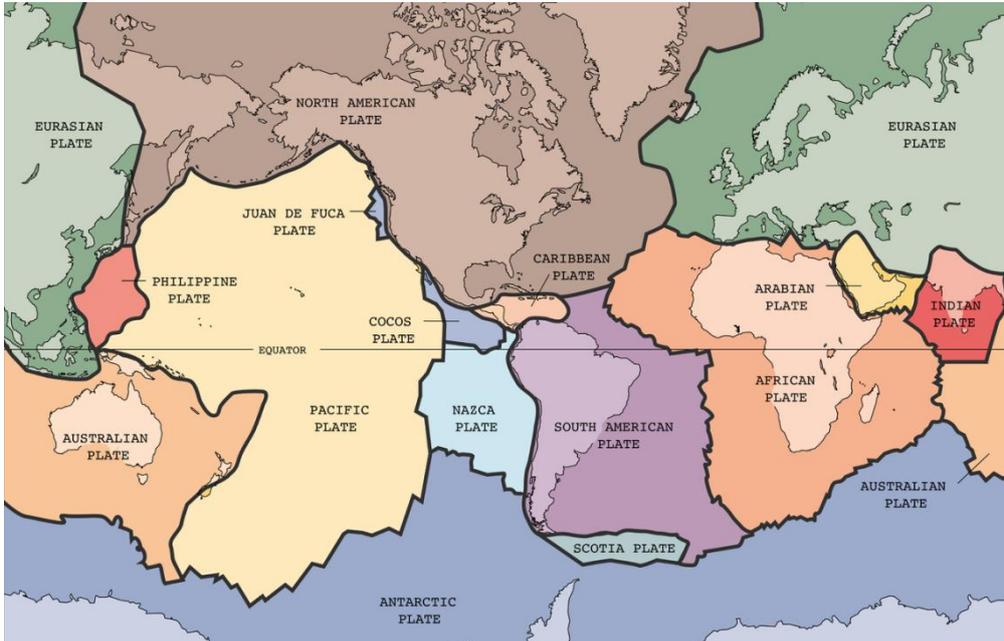


Photo credit: Tectonic plates, Wikimedia Commons, uploaded by Dbenbenn.

It feels as if the ground that you are standing on is fixed and still but this is not the case. The earth's crust is moving very, very slowly under your feet. The bits of crust that are moving are called tectonic plates. This movement has been going on for millions of years.

The UK sits on the Eurasian plate and is moving very slowly eastwards at about 25mm every year. Haiti sits between two tectonic plates called the North American and Caribbean plates, which are moving at a speed of about 7mm per year. A fault line is where two plates meet. Where plates push into each other their surfaces fold up and mountains are made.

When tectonic plates clash and grind together the earth's surface can move suddenly. Pressure builds up and an earthquake occurs. There are over a million earthquakes every year. These can be slight tremors or they can be strong enough to form huge cracks that make buildings fall and roads break up. Earthquakes under the sea often cause a huge wave called a tsunami.

Most people in an earthquake are killed by falling buildings. Architects can design buildings that do not collapse - after the last major earthquake in California in 1933 new buildings were made to be earthquake resistant. Since then, these buildings have moved and dropped seven metres in earthquakes and have not collapsed. However, only richer countries can usually afford buildings that will resist an earthquake. In countries like Haiti, where there is not enough money to build resistant buildings, earthquakes still kill many people. Buildings are close together because there is very little land available. They are often built on steep slopes and are built of the cheapest materials available. There are no government safety checks.

Text B: Reducing the impact of earthquakes

Earthquakes can happen everywhere, but they are more common near the edges of tectonic plates. Haiti is situated on a fault line, where two tectonic plates meet. This means that earthquakes are more likely. There have been frequent small earthquakes in Haiti and the surrounding islands. Port-au-Prince, the capital of Haiti had to be rebuilt in 1770 after a large earthquake.

Scientists in many countries are trying to improve ways of predicting earthquakes. Sensitive instruments called seismometers to pick up movements in the earth's crust. These are used with lasers and satellite systems to see how the earth's fault lines are moving. However, although scientists often have a good idea of where an earthquake is likely to happen, they still can't tell exactly when it will happen.

The Modified Mercalli scale

I. Instrumental	Generally not felt by people.
II. Weak	Felt only by sensitive people. Objects such as chandeliers swing slightly.
III. Slight	Felt by people indoors, especially on the upper floors of buildings. Vibration like a passing truck.
IV. Moderate	Felt indoors by many people, and outdoors by few people. Dishes, windows, and doors disturbed. Indoor objects shake. The sensation like a heavy truck striking a building. Dishes and windows rattle.
V. Rather Strong	Felt inside and outside. Dishes and windows break. Vibrations are more like a large train passing close to a house. Possible damage to buildings.
VI. Strong	Felt by everyone. Books fall off shelves. Some heavy furniture moved. Damage to poorly designed buildings.
VII. Very Strong	Difficult to stand. Furniture broken. Considerable damage to poorly built or badly designed buildings.
VIII. Destructive	Damage to normal buildings. Damage great in poorly built structures. Possible fall of chimneys or columns. Heavy furniture moved.
IX. Violent	General panic. Damage to well-designed buildings. Walls can fall down or collapse.
X. Intense	Well-built buildings destroyed or collapsed. Large landslides.
XI. Extreme	Few buildings remain standing. Landslides and cracks in the ground.
XII. Catastrophic	Everything is destroyed. Large amounts of rock move position. Landscape altered - even the routes of rivers can be changed.

Adapted from Wikipedia: http://en.wikipedia.org/wiki/Mercalli_intensity_scale 27 June 2014

Earthquake strength is measured in two ways. The Richter scale (1-9) measures the amount of energy that an earthquake releases. The Modified Mercalli scale (shown above) measures the amount of damage an earthquake causes. In April 2013 there was an earthquake in Iran that released a lot of energy. Luckily it happened very deep down in the earth's crust so its effects were not as damaging. Even so, this earthquake shook buildings as far away as India. The 2010 Haiti earthquake not only measured 7.0 on the Richter scale but also happened near the surface and close to the city of Port au Prince. It caused a lot of damage to buildings.



Text C: The 2010 Earthquake in Haiti



Photo credit: Map of epicenter of 2010 Haiti Earthquake, Wikimedia Commons, CIA

In the afternoon of 12th January 2010, the earth in the south of Haiti shook for 35 seconds. Blocks of flats collapsed completely. Concrete houses turned into piles of rubble. Houses fell down steep slopes onto those below. Water pipes were broken and telephones and electricity were cut off. Roads were blocked. The airport control tower was badly damaged and the cranes in the port collapsed.

The earthquake struck the capital city where about a third of all Haitians live. Many people were killed instantly. Others were trapped and injured. Those who had not been hurt immediately began to dig and search for those who were trapped. They used their bare hands or whatever tools they could find.

When it began to get dark a rumour spread that a tidal wave was coming. People panicked and began to run to high ground. People slept out in the street because they feared more earthquake shocks might make those homes still standing fall down. During the first night people sang and worked together to support each other.

Many countries began to send emergency rescue teams and emergency equipment such as bottled water, canned food, bandages, tents and blankets. This all took longer to arrive because the airport was damaged and roads were blocked.

Haiti is the poorest country in the Western hemisphere and it is often forced to cope with natural disaster. It is frequently struck by tropical hurricanes which cause flooding and widespread damage. Poverty makes it much harder to cope with the effects of disasters.



Text D: The effects of the 2010 Earthquake in Haiti



Photo credit: Wikimedia Commons, Marco Dormino/ The United Nations

Even before the earthquake, Haiti was a very poor country. Poor people are usually the worst affected when a disaster strikes. They have little choice over where to build their homes. They are often built on the cheapest land on the slopes of hillsides and use cheap materials. When the earthquake struck, these buildings collapsed. Only one building out of every 10 was left standing. This is what killed so many people.

Scientists can often tell where an earthquake is going to happen. But it is much more difficult to predict when it will strike. This makes it difficult to prepare. The earthquake in Haiti struck a very crowded part of the country. Its epicentre, which is where the earthquake is most powerful, was only 10 miles south west of the capital city and very close to the earth's surface. This meant the damage was severe and widespread.

It was very difficult to bring help into Haiti in the days after the earthquake. The airport was damaged and so no aeroplanes could take off or land. The port was destroyed so no ships could bring in food or emergency supplies. The roads were destroyed.

After the earthquake, survivors needed clean water, food, and blankets. With very little, they worked hard to help each other. People cleared rubble with their bare hands. It was some time before any outside help arrived.



Text E: The 2010 Earthquake in Haiti



Human chains of young people, patiently pass rocks hand to hand, in an effort to clear some of the rubble in port-au-prince. Photo credit: Alex Renton/Oxfam.

Earthquakes can happen everywhere, but they are more common in some places than others. Haiti lies on a fault line, which is where two tectonic plates meet. Tectonic plates float on liquid rock and are moving slowly. When two plates crash together, this can cause an earthquake - so earthquakes are more likely along fault lines.

Even before the earthquake, Haiti was a very poor country. Poor people usually suffer most when a disaster strikes. Their houses are often built in unsafe areas. They have no money to buy good building materials. Most people in Haiti died when their houses collapsed on them.

It was very difficult to bring help into Haiti in the days after the earthquake. The airport was damaged. No aeroplanes could take off or land. The port was destroyed so no ships could bring in food or supplies. Roads were blocked.

After the earthquake, survivors needed clean water, food, and blankets. They worked hard to help each other. They cleared rubble with their bare hands. After a few days, many countries began to send rescue teams. They brought emergency equipment such as bottled water, canned food, bandages, tents and blankets. Slowly the Haitian people began to rebuild their lives.



The Haiti earthquake question sheet

What are tectonic plates?	Why are earthquakes more common in some places than others?
What causes an earthquake?	What causes most deaths in earthquakes?
Why did so many buildings in Haiti fall down when the earthquake struck?	What were the first things survivors did after the earthquake?
Why was it difficult to get help to the Haiti earthquake victims?	What were the first things survivors needed after the earthquake?
Why is it difficult to prepare for earthquakes?	Who is worst affected by natural disasters such as earthquakes?