

Natural disasters: Earthquakes

Supporting case study
Central Italy earthquake of August 2016



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We would also like to thank the Italian Red Cross for significant support, and for sharing varied and stimulating information relating to the disaster and humanitarian response to this earthquake.

Introduction

Guided by the most up-to-date Geography curricula for England, Scotland, Wales and Northern Ireland, this comprehensive case study has been developed to complement the British Red Cross [British Red Cross Natural disasters: earthquakes](#) teaching toolkit.

This Central Italy earthquake case study includes a wide variety of source materials – including witness accounts, videos, maps and more – to be used alongside the different sessions and activities already within the core resource: [British Red Cross Natural disasters: earthquakes](#)

You can work through the core resource using all its earthquake related activities, then choose between the embedded Nepal case study or this new Central Italy case study. You can undertake some compare and contrast exercises with your pupils as well.

All new case study content is signposted to the relevant activity within the core resource, and resource page numbers are listed for ease of use. You can use the detailed curriculum mapping in the [Intro-curriculum file](#) (pp.7–14) to support with curriculum links for this resource.

Throughout the core resource, Nepal will be mentioned frequently as it is the embedded case study example. Please do bear this in mind so that you can adapt your narrative if you are using this Central Italy case study and its accompanying source materials alongside the core resource activities.

Case study introduction: Central Italy earthquake 2016

In the early hours of **Wednesday 24 August 2016**, the small towns in Central Italy were quiet, with people asleep in their beds. More people were in the area than usual because of the summer holiday season.

At **3.36am** the ground began to shake as a **magnitude 6.2** earthquake struck the area at a shallow depth of 4.4km.

The **epicentre** of the earthquake was close to the town of Norcia, which had experienced many earthquakes in the past. The intensity of the earthquake was similar to the earthquake that struck L'Aquila in 2009 and caused over 300 deaths. Although it was close to the epicentre, there were no fatalities in Norcia.

The **seismic focus** was only at a depth of 4.4km, very close to the surface. Any buildings that were not built to withstand an earthquake collapsed or were extremely damaged, killing and injuring many people.



Session 1: Natural disasters

Session 1: KS3: Natural disasters washing line (p.22)

Use this additional Natural Hazards Card to complement the existing core resource set (pp.37–38) to draw in content from this Central Italy earthquake case study.

August 2016

Central Italy earthquake

A powerful 6.2 magnitude earthquake rocks Central Italy. Buildings collapse and over 300 people are killed and hundreds more are injured.

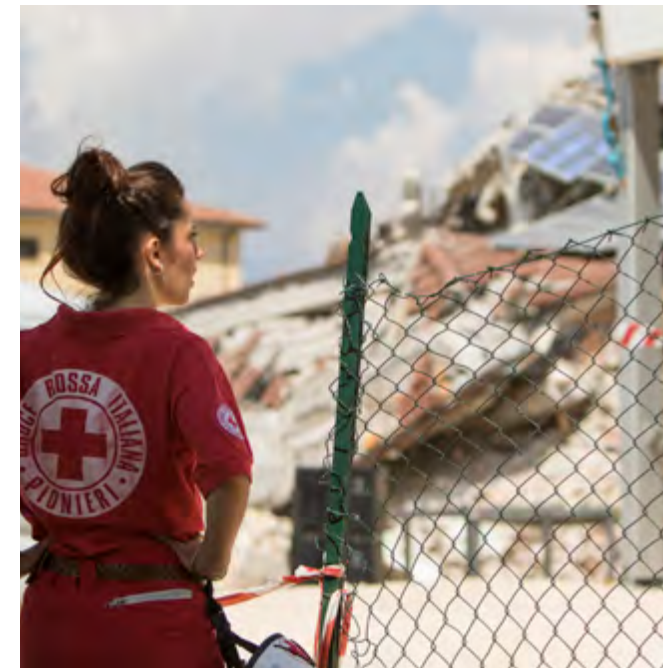
Session 1: KS3: 4. Extension: an account of the Central Italy earthquake 2016 (p.23)

The following volunteer account can be used as an alternative to, or alongside, the Rachel Hay eyewitness account of the Nepal earthquake within the core resource (p.40). Discussion questions can remain the same.

During the response to the Central Italy earthquake many volunteers came from all over Italy to help. [Here](#) is the experience of a Red Cross volunteer from a town called Itri, who came to the aid of the affected populations immediately after the earthquake, when there were further aftershocks shaking the ground and causing further damage.

Session 1: KS5: Defining disaster hotspots (p.25) and Session 1: KS5: 3. Multiple Hazards ID cards (p.26)

Ask students to complete the Multiple Hazards ID cards (p.45) while referring to this case study, using the [Central Italy country profile and earthquake factsheet](#). The same discussion questions can be used.



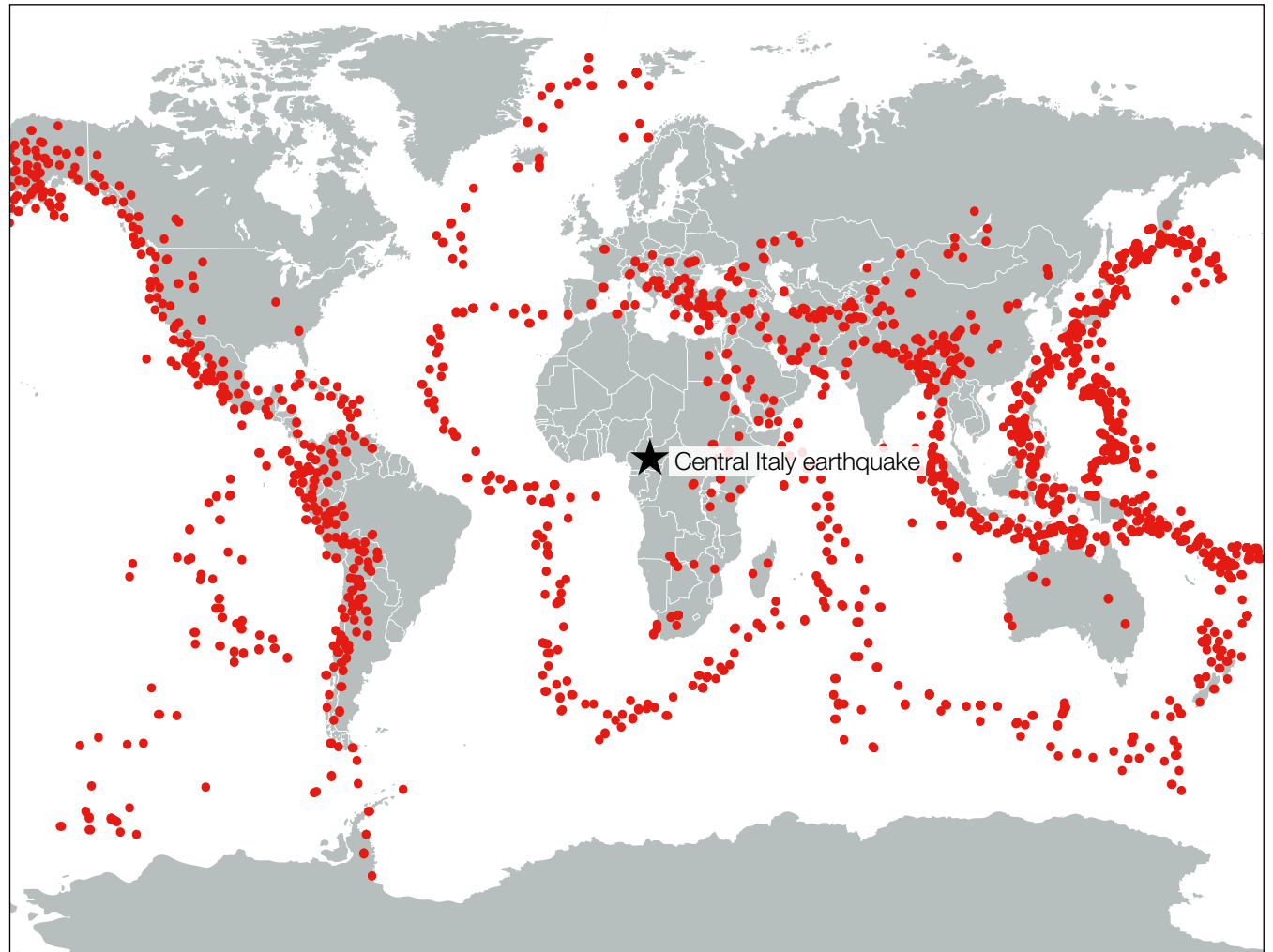
Session 2: Earthquakes

Session 2: Introductory: 2. Earthquake introduction (p.49)

Replace the introduction of the Nepal earthquake with that of the Central Italy earthquake from the [Central Italy country profile and earthquake factsheet](#).

Session 2: KS3: Exploring the tectonic situation in Central Italy (p.51) 1. Background

Look at the map to the right with a star marking the location of the Central Italy earthquake. Or ask students to mark the location on a paper/projected world map.

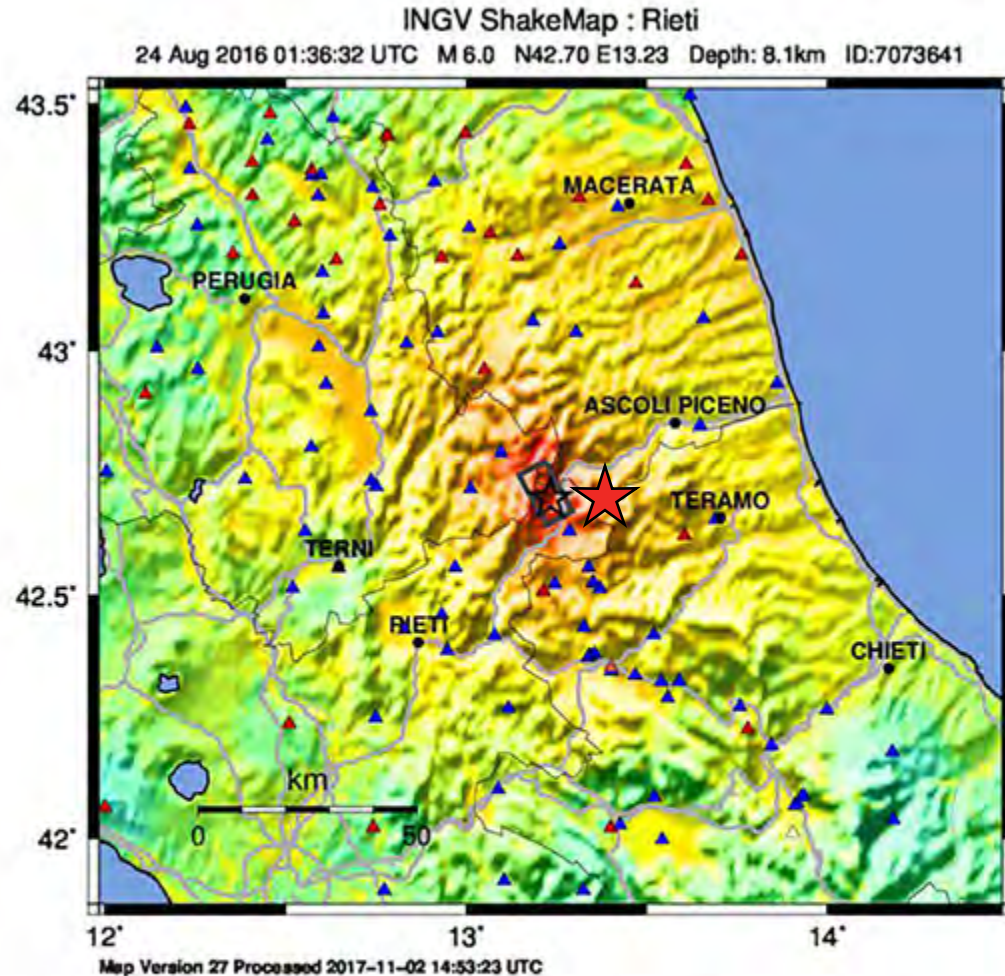


Session 2: KS3:
3. Mapping activity (p.52)

Look at the accompanying Central Italy earthquake shake map as an alternative to, or alongside, the “Nepal population with shake intensity” map within the core resource (p.60).

Explain that there is rarely just one earthquake in isolation. Small quakes will often occur either side of the main earthquake, and this is what happened with the Central Italy earthquake. There are similar impacts with other hazards: the main event is often not the only event that affects people. Some additional information is provided here on the [Central Italy country profile and earthquake factsheet](#). You can suggest that young people try to find out more.

Show (or share copies of) the shake map detailing where the earthquake shaking was most intense. The star represents the location of the epicentre. The areas in red are where the shaking was the strongest. This is explored in more detail throughout Session 3, below.



PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Mod./Heavy	Heavy	Very Heavy
PEAK ACC.(%g)	<0.06	0.2	0.8	2.0	4.8	12	29	70	>171
PEAK VEL.(cm/s)	<0.02	0.08	0.3	0.9	2.4	6.4	17	45	>120
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+

Scale based upon Faenza and Michaini, 2010, 2011

Source:
 Italian National Institute of Geophysics and Volcanology

Session 2: KS3:
4. Traffic camera (p.52)

Unfortunately, there is not a like-for-like street camera video for the Central Italy case study. Teachers could still use this core activity, highlighting to students that the context is related to a different case study. Many of the hazards and associated impacts are very similar and transferable.



<https://www.youtube.com/watch?v=6SM9mDK0K4Q>

This video (0:50 mins) shows some of the immediate damage caused by the Central Italy earthquake, which may prove useful to look at here. You can pose some alternative questions such as:

- What are the obvious impacts of the earthquake here?
- Do any of the images in this video surprise you?
- What were people doing to help?
- Are there remaining hazards in this area?
- Does anything stand out about the role of the rescue teams?

Session 2: KS4:
The Central Italy earthquake – why did it happen where it did? (p.54)

Use the adapted activities in this case study for this session, using the Central Italy earthquake source material as described below.

Hand out copies of the [Central Italy country profile and earthquake factsheet](#) to students (replacing resource on pp.63–65).

Session 2: KS4:
1. One day on: the Central Italy earthquake video (p.54)

In this next short video (2:20 mins), David Rothery, the Open University's Professor of Planetary Geosciences, gives an interview explaining why the earthquake in Central Italy happened and why there was so much damage.



<https://www.youtube.com/watch?v=tcAvq-uy1YQ>

After watching the video, ask students to explain:

- why Italy is prone to earthquakes
- the names of the tectonic plates involved
- why the earthquake caused so much damage
- why aftershocks are so dangerous
- how the people in Italy might have felt after the earthquake.

Use the adapted [Explaining the Nepal earthquake – answer sheet](#) (pp.66–69) for this Central Italy case study, if required.



Session 2: KS4:
2. The Italian Red Cross response to the Central Italy earthquake (p.55)

This activity has been re-written to reflect the alternative sources available for this Central Italy earthquake case study.



https://www.youtube.com/watch?v=IOCvBCxzt5M&list=PLOzrAD-VLXu_oFkLqXsZ7NYkoIGB-TYos&index=22

Show this video (3:02 mins) made one month after the earthquake struck Central Italy in August 2016, to see how the Italian Red Cross responded to the disaster.

The video shows some of the devastation caused by the earthquake. It demonstrates how the Italian Red Cross responded to the disaster – setting up rescue centres and warehouses, mobilising volunteers and distributing donations.

Discussion questions:

- How does watching this video make you feel?
- What was the impact of the earthquake on people and the landscape?
- How did the Red Cross act to get help to those who most needed it?
- What types of items were donated for the survivors of the earthquake?
- Does anything stand out to you from this video that you'd like to reflect on?



Session 3: The impact of a natural disaster

Session 3: Introductory: 1. How did Red Cross volunteers support people affected by the Central Italy earthquake? (p.74)

Use the activity below instead of, or alongside, the Nepal (vimeo) question sheet within the core resource (pp.83–85).



<https://www.youtube.com/watch?v=At7gGT78yC0&list=PLOzrAD-VLxuoFkLqXsZ7NYkoIGB-TYos&index=2&t=3s>

Use this short video (3:26 mins) about volunteer support a year on from the Central Italy earthquake.

A year after the earthquake struck Central Italy, a short video was made interviewing multiple Red Cross volunteers who responded to the earthquake, illustrating some of the key activities that were

carried out in that year to support the affected population.

Before watching the video, have a copy of the [transcript](#) available. You could ask for some students to narrate the video before, during or afterwards.

Further questions:

The same core discussion questions can be used with this case study (p.74) and adapted as required.

Hand out the [Central Italy earthquake infographic](#) (replacing resource on p.87) to help students understand the scale of the event and the humanitarian response that took place. Encourage students to discuss the “disaster” and “emergency response” sections.

Session 3: Introductory: 2. Build a picture of a volunteer (p.75)

Follow the instructions for this activity within the core resource, or use volunteer accounts from new content within this Central Italy earthquake case study [here](#) and [here](#).



A volunteer from the Italian Red Cross.

Session 3: KS3: Reporting the impacts of the Central Italy earthquake (p.77)

This session can be adapted for the Central Italy earthquake using the additional resources available in this document. A collection of photographs are [here](#).

Central Italy earthquake context for the activity:

You are a news journalist. You are on the scene in the town of Amatrice near to the epicentre of the 2016 Central Italy earthquake.

You have been covering the festival of the famous Italian pasta dish that is native to the town, “pasta all’amaticiana”, but have now been caught up in the events and decide to tell the story of those people affected by the natural disaster.

You have your portable recording equipment with you, which allows you to make videos. You also have editing equipment and software with you, which means that you can work on some visuals to match the sound recording.

You also have your trusty notebook to write down notes, or scribble thoughts, and a plastic folder in which you can place relevant documents.

Session 3: KS4: Actions and emotions (p.78) 1. Sequencing task

Use this alternative description of the Central Italy earthquake instead of, or alongside, the Nepal example and activity from within the core resource.

Livia Sigismondi was both a survivor of the Central Italy Earthquake and a Red Cross volunteer who helped in the immediate response to the earthquake in the town of Amatrice. After the earthquake she wrote down her memories of the days before, during and afterwards. A translation of her description is [here](#).

Session 3: KS4: 2. Identifying actions and emotions (p.78) and Session 3: KS4: 3. Plotting emotions over time (p.79)

These activities and accompanying resources (pp.95–98) can be adapted to the Central Italy earthquake using the description from Livia Sigismondi, [here](#).

Session 3: KS4: 3. Extension: communicating the impacts (p.79)

Complete this extension activity without the specific Tweet activity from the core resource. Alternatively, you can ask young people to find an alternative Tweet, such as <https://twitter.com/tvkatesnow/status/768531854064492544> to use with your own adaptation of the Tweet activity questions.



Session 3: KS5: The role of mapping (p.80)

Use the following maps to raise questions around the Central Italy earthquake and response work:

- **map within the [Central Italy country profile and earthquake factsheet](#)**
- **shake map from the [Session 2 mapping activity](#) and**
- **aerial photographs of Italy* (follow the link and instructions below).**

*The aerial photographs are of affected towns in Italy before and after the many earthquakes that occurred in a six-month period from August 2016. The damage caused by the earthquakes is illustrated in these images.

1. Open webpage: <http://opendatadpc.maps.arcgis.com/apps/MapSeries/index/html?appid=d2c4cd9a006142a1b552deefc355c124>
2. Translation of homepage: “The following images show some of the towns in Central Italy taken from above, before and after the earthquake on 24 August 2016, the earthquake swarm of 26–30 October 2016, and the earthquake on 18 January 2017. The aerial photographs highlight the extent of the damage caused in the various locations in the provinces of Rieti, Ascoli, Piceno, Macerata, Perugia and Pescara.”

If using a Google search engine, you may be able to translate the webpage into English. Otherwise:

3. Click on the “2” in the top left of the page. This will take you to the photos from 24 August earthquake.
4. On the right of the page you should see the names of some of the affected towns. Select one of them to view the town after the earthquake.
5. Close the navigation panel and then select the green icon that looks like sliding doors in the top right of the webpage.
6. Then select the same town on the drop-down menu. This will add the aerial photo of the town before the earthquake.
7. Where the two images meet there is a side scroll that will allow you to see the changes before and after the earthquake more easily.
8. To return to the “After” box of locations, select the green icon that looks like a bookmarked book in the top right of the page.

Source: *Italian Civil Protection Department*

Use the discussion questions under **3. Why is mapping important? (p.80)** or adapt some questions of your own choice, depending on how you intend to use these new sources.



Session 4: Recovery and resilience

Session 4: Introductory: 2. The role of the Red Cross in recovery (p.108)

It is recommended that you continue to use the Nepal-based short videos within the core resource to further thinking around resilience, as these are the strongest sources available for this learning.

You could supplement class discussion by using the [Central Italy earthquake infographic](#).

Furthermore, you could use the following videos (with subtitles, or by narrating the English transcripts below) to discuss resilience around the Central Italy earthquake.



<https://www.youtube.com/watch?v=Vyhh0zkZNvM&list=PL0zrAD-VLxuoFkLqXsZ7NYkolGBTYos&index=9>

“How to reconstruct together” video (3:04 mins):

This video, released four months after the Central Italy earthquake, illustrates some of the projects and activities undertaken to support the affected areas in the recovery and reconstruction of the area.

Questions:

1. Why did the Italian Red Cross talk to the local governments, residents and local Italian Red Cross centres?
2. What are some of the activities that the Italian Red Cross are undertaking to support the reconstruction and recovery of the area affected by the earthquake?

3. How might people who have been affected by the earthquake feel? Why is it important to be truthful about events?

Transcript for “How to reconstruct together” video:

The activities carried out during these days are really important. We are talking with the local governments, the residents and our own Red Cross local centres to understand what the needs of the affected populations are at the moment. They are the people who have to respond to the needs. Our conversations with the local governments have been indispensable to identify the most needed activities and projects, so we can direct the money raised by the Italian Red Cross to these reconstruction projects.

In theory, my job used to be fixing antique furniture. My workplace is still standing. My house has crumbled. I also have two warehouses full of furniture to restore. For who though? All the owners no longer have a house for the furniture. Let's not think about it. Let's help those who need it, and then we will think about it.

We are planning the reconstruction of the education services, the services for the residents, and some “multi-functioning centres”. We are also reconstructing some of the Italian Red Cross centres that were heavily damaged

by the earthquake. We also realised how indispensable some of these local centres are and have recognised it is important to build their capacity to respond to an emergency in the area.

These donations will become many different things: multi-functioning centres, small commercial enterprises, structures dedicated to children and young people, and sport centres.

Some earthquakes have happened while we were doing some activities with the children while in the tent. We did not know whether to tell the children “No, don’t worry, it was not an earthquake” or “Yes, there was an earthquake”. I looked at my colleagues and we had the same thought, that we should tell the truth, also because children are very sensitive. They probably felt it. So we told them the truth and added that nothing had happened, so let’s keep playing.



<https://www.youtube.com/watch?v=oziv uKA7CBc&index=5&list=PLOzrAD-VLxu oFkLqXsZ7NYkolGB-TYos>

“A mobile laundry for emergencies” (1:31 mins):

The video shows a mobile laundry that was created through the collaboration between the Italian Red Cross and Whirlpool. The service is for the populations who have been affected by the earthquake. It has the ability to get to the most isolated towns to allow people to have access to a launderette.

Questions:

1. Why would this service be needed in the affected area?
2. In what other way will this service be used in the future besides emergencies?
3. How might being able to wash one’s own clothes help resilience and dignity?
4. How important are acts of kindness such as this? Can students think of other acts of kindness that might help in emergencies?

Transcript for “A mobile laundry for emergencies” video:

It is a great project. Through it we will be closer to the affected population, go to the different towns and meet the affected people to offer them this Italian Red Cross and Whirlpool service. This mobile laundry service was created to provide more support to the populations affected by the earthquake.

Our mobile service is completely autonomous and has three washing machines and dryers. It goes to the towns affected by the earthquake. After it is no longer needed in this area, it will be used in major cities for the homeless.

We have a very vast area where lots of towns are not easily accessible. It is a logistical service that highlights the great attention to detail the Italian Red Cross gives the area affected by the earthquake.



Session 4: Introductory: Central Italy infographic (p.109)

The same core questions can be used for this case study. Hand out the [Central Italy earthquake infographic](#) to use alongside, or as an alternative to, the Nepal infographic.

Session 4: KS4: 2. Living graph activity (p.116)

Continue to use the “Tweets from Steve in Nepal” within the core resource to complete this activity. Although it is a different context, the learning is very appropriate and applicable across different hazard situations.

After completing this activity, ask students to search for Tweets from, or social media accounts of, the Central Italy earthquake. You could ask students to write their own fictional Tweets, similar to those of @SteveinNepal, for the Central Italy earthquake.



Supporting resources

Italian Red Cross volunteer account	16
Central Italy country profile and earthquake factsheet	17-18
Photos of the aftermath	19-20
Earthquake location within Italy	21
Explaining the Central Italy earthquake – answer sheet	22-23
Transcript: translation of “Terremoto Centro Italia, il racconto un anno dopo”	24
Central Italy earthquake infographic	25
Description of the earthquake	26-27

Italian Red Cross volunteer account

“Good evening everyone. Unfortunately, there has been an earthquake in the Lazio, Marche and Umbria regions that has caused some serious damage in the towns of Amatrice and Accumoli. From the initial information we have received we know there are lots of people under the rubble. Whoever is available to leave now to work for at least 72 hours can communicate this to me or the Operations Emergency Centre and come immediately to the office with your uniforms.”

It was 6.04am and we were woken by this WhatsApp message from the president Marco De Luca. **My volunteer colleagues, both young and retired, fathers and grandfathers, students and professionals, all instinctively did not hesitate to leave their family, job or free time to head to the affected areas.**

I did not even have time to let my family know where I was going; I did this while travelling as doing it earlier would have meant wasting time. The journey there was not easy; the telephones were continuously ringing. We travelled in a deafening silence deep in thought. We had no idea what we were going to find when we arrived.

When we arrived in Amatrice, the scene was unfortunately worse than what we expected. Homes had become piles of rubble and the streets unrecognisable. It was very difficult to move around because of the blocked roads, so much so that it took us three hours to travel the 60km between the base camp in Cittaducale and the affected area. The only colours that you could see in the midst of the grey dust and the rubble were the uniforms of the various search and rescue teams. Everyone was united with the objectives of helping and rescuing!

Some of us were busy treating and transferring the injured, while others had to gather together the many fatalities. Those who took care of the food stores and the supplies had to catalogue and store the large number of donations that had arrived. Other units were in charge of volunteers' rotations, so that the volunteers in the field could have some rest. We went on for hours without stopping, following the directions of the coordinators. We continued doing all these tasks while aftershocks continued to shake the ground causing more damage and panic. The more time that passed, the more the air we breathed became heavier. We started to feel the tiredness set in, but the adrenaline coursing through our bodies and our willpower kept us going.

I stayed awake for 32 consecutive hours before managing to get some rest. I got back to work after only six hours of rest. This was the same for my colleagues. No one wanted to stop working. We all gave it everything we had, always being ready when needed, alert and – on the surface – in good spirits.

Following the response, I returned home and listened to their names on the news. This brought back the memories of the response in Amatrice, including those of the people who did not survive. The only consolation that I will take away from this experience is that I returned them to their relatives as if they had been my own, with the same kindness they would have received from their loved ones during their lives.

Source: <http://www.cri-itri.it/area3/racconto-dei-volontari-del-comitato-c-r-itri-impiegati-ad-amatrice/>

Introduction to Central Italy earthquake

In the early hours of **Wednesday 24 August 2016**, the small towns in Central Italy were quiet, with people asleep in their beds. More people were in the area than usual because of the summer holiday season.

At **3.36am** the ground began to shake as a **magnitude 6.2** earthquake struck the area at a shallow depth of 4.4km.

The **epicentre** of the earthquake was close to the town of Norcia, which had experienced many earthquakes in the past. The intensity of the earthquake was similar to the earthquake that struck L'Aquila in 2009 and caused over 300 deaths. Although it was close to the epicentre, there were no fatalities in Norcia.

The **seismic focus** was only at a depth of 4.4km, very close to the surface. Any buildings that were not built to withstand an earthquake collapsed or were extremely damaged, killing and injuring many people.

Country profile: Italy

Name: Italy

Population: 60,483,973 (2017 est.)

Birth rate: 8.6 births / 1,000 population (2017 est.)

Death rate: 10.4 deaths / 1,000 population (2017 est.)

Area: 301,340 sq km (116,350 sq mi)

Bordering countries: Austria, France, San Marino, Slovenia, Switzerland, Vatican City

Capital city: Rome

Geography: Mostly rugged and mountainous with some plains and coastal lowlands. Its highest point is Mont Blanc (Monte Bianco) de Courmayeur at 4,748 m.

Time difference: One hour ahead of GMT.

Economy: Italy is the third largest economy in the eurozone. However, it has a diversified economy, with a developed industrial north and a less developed agricultural south where unemployment is higher.

Climate: Predominantly Mediterranean; alpine in far north; hot and dry in south.

Industries: Tourism, agriculture, machinery, iron and steel, chemicals, food processing, textiles, motor vehicles, clothing, footwear and ceramics.

Main land uses: Agricultural land (47.1%), forest (31.4%), other (21.5%).

Natural hazards: Landslides, mudflows, avalanches, earthquakes, volcanic eruptions, flooding, land subsidence (Venice).

Majority religion: Christian (80%) (the overwhelming majority being Roman Catholic).

Languages: Italian (official language), German (parts of Trentino-Alto Adige region are predominantly German-speaking), French (small French-speaking minority in Valle d'Aosta region), Slovene (Slovene-speaking minority in the Trieste-Gorizia area).

Internet users: 37.7 million, around 62% of population (2018 est.).



Central Italy earthquake factsheet

Date: Wednesday 24 August 2016

Time: 3.36 a.m. local time

Magnitude: 6.2 on the Richter scale

Location of epicentre:

- 10km SE of Norcia: the epicentre Apennine region is mountainous and is made up of many small villages connected by small roads.
- 42.723°N – 13.188°E

Depth of seismic focus: 4.4km

People affected:

- Fatalities: 299 people
- Injured: 400 people
- Affected: 3,000 displaced people

Damage to buildings and infrastructure:

Most damaged by the earthquake were towns and villages in the Umbria, Lazio and Marche regions, including Amatrice, Accumoli, Posta and Pescara del Tronto.

- Amatrice: over half of the buildings were destroyed including most of the historic centre, even though many buildings had been reinforced since being built in the 16th, 17th and 18th centuries.
- Pescara del Tronto: levelled to the ground.
- Tunnel collapse in Tre Valli area resulted in roads being closed.
- Landslide triggered by earthquake caused blockages on many highways near Amatrice.

Economic loss: USD 6 billion. Insurance coverage paid out USD 200 million.

Italy earthquake facts:

- Just over 1% of residential buildings are insured against earthquakes.
- Since 1970, Italy has suffered eight major earthquakes.

Subsequent earthquakes:

A magnitude 6.1 intraplate earthquake struck Italy 3km west of Visso on 26 October 2016 at 9.18 p.m. local time. The earthquake, initially considered an aftershock of the earthquake in August, struck about 30km to the northwest of the August earthquake. On 30 October 2016, an earthquake larger than the 24 August shock struck Norcia with a USGS moment magnitude of 6.6.

A magnitude 5.3 earthquake struck 25km northwest of L'Aquila on 18 January 2017 at 10.25 a.m. local time at a depth of 9km. A stronger, 5.7 tremor hit the same epicentral area at 11.14 a.m. local time. A third earthquake of preliminary magnitude of 5.6 struck 11 minutes later. At 2.33 p.m. local time, the fourth tremor of a magnitude 5.2 was registered. These earthquakes were followed by multiple aftershocks.

Information sourced from: <http://www.swissre.com/> and https://en.wikipedia.org/wiki/August_2016_Central_Italy_earthquake (last updated July 2018)



Photo © Gianluca Fortunato/Italian Red Cross



Photo © Gianluca Fortunato/Italian Red Cross



Photo © Gianluca Fortunato/Italian Red Cross



Photo © Simone Manfredi/Italian Red Cross



Photo © Gianluca Fortunato/Italian Red Cross



Photo © Gianluca Fortunato/Italian Red Cross




Photo © Ibrahim Malla / Italian Red Cross



Photo © Gianluca Fortunato/Italian Red Cross

Map of Italy showing earthquake location within Italy



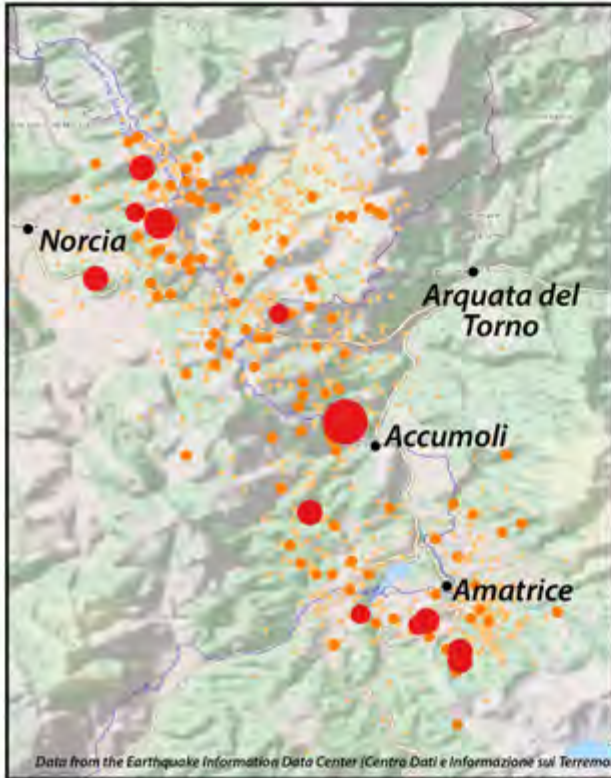
 International Federation of Red Cross and Red Crescent Societies

ITALY EARTHQUAKE

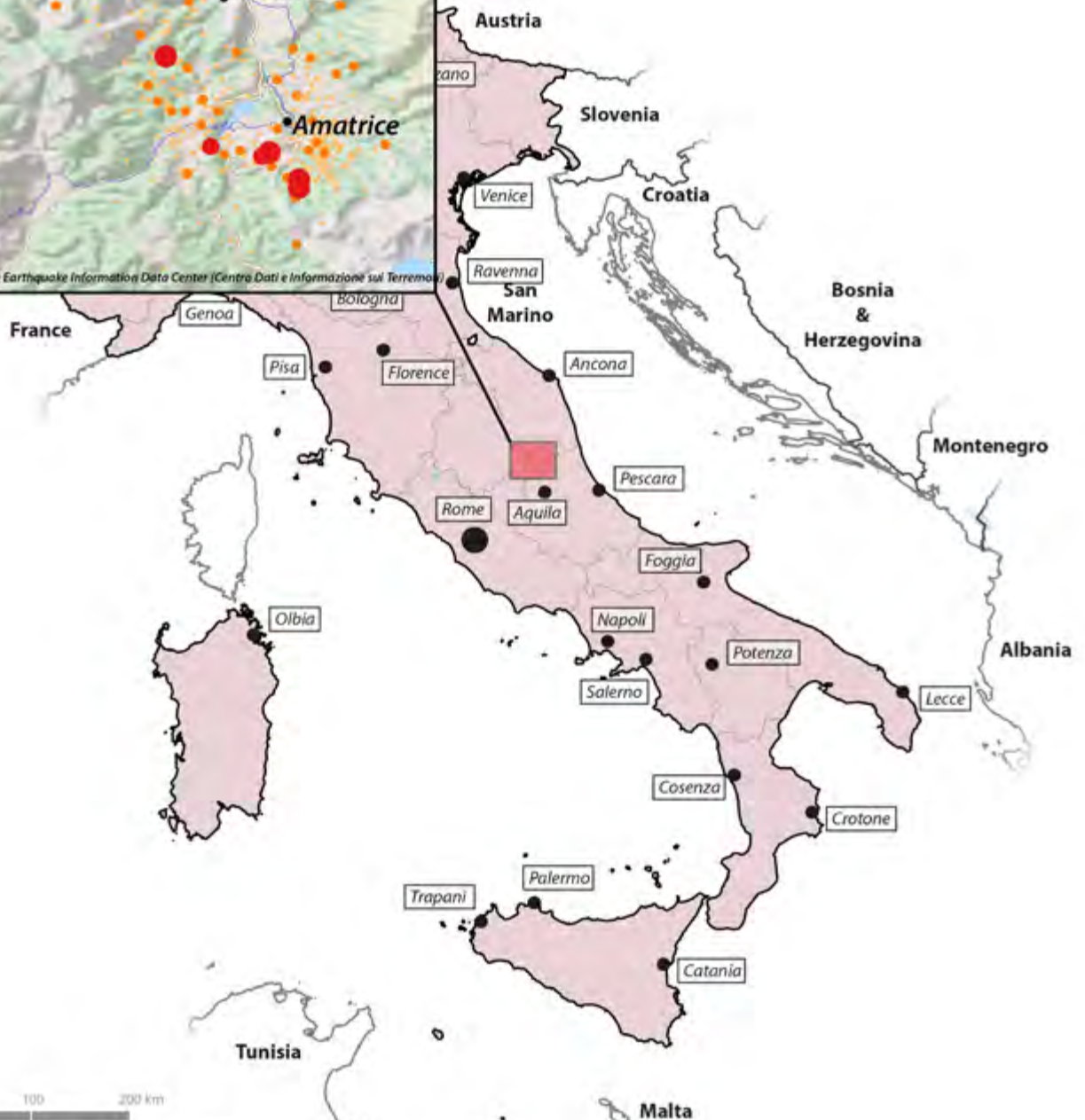
Seismological Activity
24 Aug. 3:30 AM - 26 Aug. 11:00 AM

Magnitude

- > 4.0 ●
- > 3.0 ●
- < 3.0 ●



Data from the Earthquake Information Data Center (Centro Dati e Informazioni sul Terremoto)



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Explaining the Central Italy earthquake – answer sheet

In the following short video (2:20 mins), David Rothery, the Open University's Professor of Planetary Geosciences, gives an interview explaining why the 2016 earthquake in Central Italy happened and why there was so much damage.

Watch the video here: <https://www.youtube.com/watch?v=tcAvq-uyIYQ>

Pause and replay as required for your class – the complete video is 2:20 minutes.

1. Why is Italy prone to earthquakes?

Describe, and then briefly explain the tectonic situation in the region.

2. Name the tectonic plates involved.

3. Why did the earthquake cause so much damage?

4. Why are aftershocks so dangerous?

5. How might the people in Italy have felt, both at the time and afterwards?

Transcript: translation of “Terremoto Centro Italia, il racconto un anno dopo”

Subtitles

From the very beginning, over 5,000 Italian Red Cross volunteers came to help the areas affected by the earthquake and have not left the area since.

Interviews

Hello, I am Paola Checconi from the Italian Red Cross committee of Brugherio.

Luca Teseo from the Italian Red Cross committee of Spoltore in the province of Pescara.

Alice Bresighelli, volunteer from Ancona.

Hello, my name is Salvatore Viglianti from the Italian Red Cross committee of Aprilia.

Subtitles

They dedicated their time and their abilities to help in this difficult time. These are some of their stories.

Interviews

I remember the morning of the 24 August. I was woken up by the WhatsApp messages on our group. At 7 a.m. we were already in our car driving in the direction of Amatrice.

Naturally, we responded straight away to rescue the people under the rubble.

I interrupted everything I was doing at the time. I left everything: my home, my mother who I live with. We helped where and however we could.

There were people who needed medicines. There were people who needed milk for their children. We therefore responded to provide the necessary support for these families.

I found myself doing something I never imagined I would need to do in my life.

We have been in Grisciano, at the Grisciano camp, where we have carried out various activities with the children, so much so that we set up a children’s play centre called Henry’s Corner.

Speaking about this is not easy for me. I am standing in the place where all hell broke loose when the earthquake struck Central Italy. What you see here is the rubble of a house belonging to my family.

I have chosen to talk here, where children have drawn pictures of the earthquake, and I can tell you that yes, things are definitely improving.

We are still here. We are still here because our help is still needed. The affected population are still asking for our help, and we are trying to foster hope for the future.

Subtitles




Tania, Marco, Luca, Antonella ... will remain here to continue the reconstruction together. There is still a lot of work to do. The Italian Red Cross has contributed to the restoration of the health services in the affected areas. And will construct more than 10 structures, including schools, multi-functional social and cultural centres, and health centres to help revive Central Italy.

Interview

Thank you to all my colleagues who everyday are here to help the weak and most vulnerable. Really, thank you from the bottom of my heart for all the work that you all do.

Central Italy earthquake, 24 August 2016 3.36 a.m.

The Italian Red Cross response

The disaster	 229 People killed	 400 People injured	 3,000 People displaced
	Resources deployed		
Emergency response	4,200 Volunteers who helped	800 Volunteers delivered medical and social care	1,500 Ground vehicles: ambulances, vans, off-road vehicles and trucks
	Rescue teams	Dog units	Emergency assistance with special vehicles and techniques
	Immediate priorities in affected areas		
	Search and rescue	Medical services and supplies	Food
	Emergency shelter	Logistics	Telecommunications
Early recovery	Restoring Family Links station set up to help families reunite	Psychosocial support to thousands of people in affected areas	Recreational activities and games for children to help them cope
Recovery	Over 20 million Euros raised		
	Rebuild places affected Projects that involve local people and rebuild affected areas	Restore healthcare 41 healthcare centres set up to provide basic healthcare or temporarily replace damaged hospitals	Local Italian Red Cross Committees Increasing resources available and training to increase skills and resilience
	Reconstruct schools and other facilities Work to rebuild community fabric* and emergency centres (all sustainable and built anti-seismically) <small>*all elements of community: education, health, civil etc.</small>	Italian Red Cross summer camps Over 100 children and young people living in the 131 areas affected spent a week filled with entertainment and learning for free. Each camp had a different theme, from emergency preparedness to good nutrition	Support local farmers Delivery of bales of hay to farmers affected by the earthquake who needed support to start again; for example, to feed their animals

Sequencing activity

Livia Sigismondi was both a survivor of the Central Italy Earthquake and a Red Cross volunteer who helped in the immediate response to the earthquake in the town of Amatrice. After the earthquake she wrote down her memories of the days before, during and afterwards.

Print off and cut each paragraph into strips. As an initial activity, students can then be asked to sort events into their correct sequence.

It is late and I need to rush. It is cold this morning.

I leave home and go to Castel Trione, my town. Everyone is still sleeping. It is the same in the town of Preta. I take the mountain path towards Sacro Cuore. I have a drink at the fountain, but the water tastes terrible this morning.

Our valley is so beautiful from up here, Amatrice with its 69 fractions hidden between the trees. However, this morning the birds are not singing. There is too much silence.

The trip around my mountains lasts 40 minutes. I then head home and feed the cat, who is acting strangely, as if he is scared of something even though there is nothing threatening him.

Aldo, my husband, says, "Come on, it is late, we need to get going!"

It only takes us six minutes to get to the town of Amatrice. When we arrive there is a big crowd of people because of the "pasta all'amaticiana" festival that is taking place in the town.

Tonight there is a party to celebrate our town winning the title of the most beautiful place in Italy. People have come from all over the country; lots of them are from Rome and surrounding regions.

Someone says to me, "You should not be eating! Otherwise what happens if I feel ill – who will help me?"

"Do not worry," I reply, "we are ready for any emergency!"

We finish our shift and we go and park the ambulance in the square outside the warehouse next to the Istituto Don Minozzi. I say, "Aldo, please park the ambulance in the middle of the square, not straight under that run-down building! You never know!" We always argue over the parking.

We finally get home, tired but happy. The cat is still acting strangely and is not hungry.

The moon is illuminating the mountains and the sky is full of stars. The dogs are constantly barking.

Good night, my dear town.

Oh no! My house is jumping, shaking and contorting – the earthquake is not stopping.

I shout to my husband and daughter, "Arianna, Aldo, let's stay close to one another!"

"There is fog outside," says Aldo. It is not fog, but the dust from the buildings that are collapsing around us.

'We are going to die soon,' I think while holding on to my daughter tightly. I would like to put her back in my belly to protect her.

While furniture is falling around us, I can only think about the roof beams that could break and kill us at any moment, but this does not happen. The earthquake stops for a few seconds; we are still alive.

We walk out of our home barefoot over the rubble and glass. I go and get my mother from her house, which is next to ours.

"Run, Mum, run!" I tell her. She is 90 years old. That night, my brother and his wife were sleeping in the house with her.

The ground starts to shake beneath our feet again. My town is collapsing around me, like the nearby town of Capricchia.

We ask ourselves where the epicentre must have been and think about those poor people. We later find out it was our town.

We are barefoot and not wearing much. We calculate the length of the pause between the aftershocks. We then run into the house to get some shoes, clothes and a blanket for my mother.

From one of the radios we hear that the town of Amatrice is completely destroyed. It is then that we realise that this time the disaster has hit us. The radio says that help is needed as well as ambulances and stretchers. We do not even have to think about it for a second; we head to the town straight away hoping that the bridges are still intact.

What the radio said is true – Amatrice is no longer there.

We put the injured into the ambulances and take them to the sport centre. Aldo is driving and I am in the back on my own with a survivor who has been rescued from the rubble. They are trembling, crying. I hold them to me because they are frightened. If they speak it is only to say that their family is still under the rubble.

The sport centre is filled with injured people, both friends and relatives. I only have time for a quick word and hug goodbye before getting back into the ambulance to continue transporting the injured.

It has become daytime. It is more difficult to drive now as more ambulances have arrived. You can hear the helicopters and the aftershocks continue to shake the ground. Debris keeps falling around us but we do not care.

We are not us anymore; the Red Cross uniform is guiding and protecting us.

Hours go by – someone says it is afternoon. It has been some time since injured people have been rescued from the rubble. Now we are transporting the dead from the rubble.

We cannot continue any longer. Even my mother cannot carry on anymore; she stayed in the car all day in her nightie and slippers, with a bottle of water and two biscuits, in the midst of the deafening sound of the helicopters that transported the gravely injured, and the ambulance sirens.

We leave the area, driving via Rieti, where another team is ready to leave and the sniffer dog smells death on our shoes.

We arrive in Rome. I look at the clock.

We come and go from the affected area every so often as a housing unit has been donated to the Red Cross, which means we can continue helping those in need. The survivors are in tents, caravans and cars. Lots of things are needed, especially as it is cold and there is lots of snow.

At the Italian Red Cross warehouse, people come to ask for food or clothes, or simply to talk and tell the story of their experience of the earthquake.

The rest of the world has shown their solidarity, especially the rest of Italy, which has a huge heart. However, no one can help us with the pain of losing a loved one. I do not know what to tell people who come to talk to me about their pain; I just hug them and cry with them.