



# uLearn Activity Guides and Resources - **Tectonics**

## Tectonic Activity Resources in uLearn

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### Other uLearn Topics include:

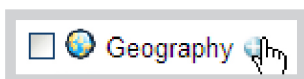
Rivers, Population, People & Places, Environment, Rocks & Rock Types, Tectonic Activity, Weather & Climate.

## ONE: **Understanding how uLearn works**

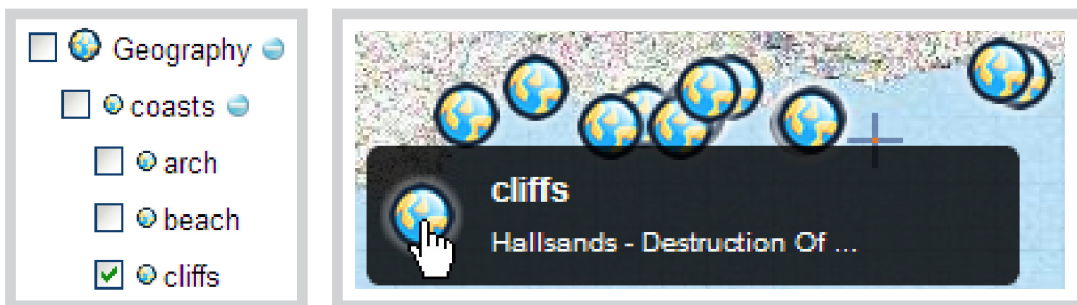
First of all, a couple of notes that will help you understand how uLearn works.

To make life as easy as possible we have created some 'uLearn Topics'. We have started with Geography and will be adding other subjects.

Clicking on the blue  button opens the list of Geography Topics.

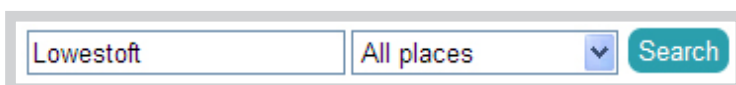
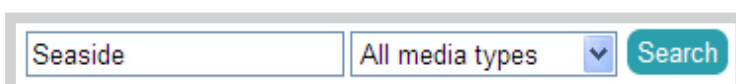


Many Topics have Sub Topics that can also be opened. Just tick on the one/s that interest you and they will be displayed on the map.



Alternatively, you can type a subject or a place name into the search box.

(Don't forget to select the *type* of resource you want to see e.g. 'Places' or 'All media types').





## uLearn Activity Guides and Resources - **Tectonics**

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### TWO: **The Mountain Environment (KS1 & 2)**

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## Tectonics

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The uLearn library contains a great many informative resources to help introduce tectonics, how they work, how they affect the landscape and what impact they have on people. This is just a small selection of the resources available on this subject. There are too many to easily list in one place, but if you go to uLearn and search for 'volcanoes' or 'tectonics', you'll be spoiled for choice! Some of our best resources on this subject, along with some ideas on how to use them in your lessons are listed below.

This unit links with IT, speaking and listening, literacy, mathematics, and environmental education.

## Mountains

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uLearn's rich resource library contains lots of information on mountain environments, and is ideal for studying Tectonics at KS1 & 2. Here are some ideas for activities and resources that might be useful to you.

Split your class into groups and ask the pupils to investigate a well-known mountain environment, for example the Himalayas, the Alps, or Snowdonia.

Change Map A to the 'World Atlas 1:5M' map, and ask the pupils to type 'Mount Everest' into uLearn's place search box at the top of the screen.

mount everest All places Search

Pupils can then access additional information about Mount Everest from the links to Geograph, National Geographic, etc.

Now change 'All Places' to 'All Media Types' and see how much information there is in uLearn on Mount Everest. Give other groups places such as 'Snowdon', 'Mont Blanc' or 'Scafell Pike'.

Ask pupils to use uLearn to find out more about the environment, the landscape and the people who live in each place and to make a presentation to the class to compare their findings.

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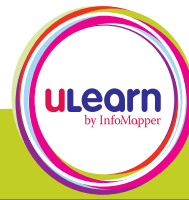


### About Mountain Environments

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Here are some resources in uLearn links that will help in this task:

- What is a mountain environment?
- Lesson Plan – Life in the Mountains
- Mountains – term planning
- Primary Lesson Plan – Mountains
- Mountain Environments (KS2)
- Life in the Pyrenees
- Mountains Powerpoint Presentation
- The Making of Mount Everest
- The Alps Lesson Plans - Environmental Issues Affecting the Alps



## TWO: **The Mountain Environment (KS1 & 2)**

### **Weather Conditions in Mountain Environments**

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Here are some resources in uLearn links that will help in this task:

- Weather Conditions In The Alps
- River Valleys – The Rakaia, New Zealand
- Travelling in the Mountains
- How Does the Temperature Change As You Climb a Mountain
- Weather Conditions In The Alps
- Relief Rainfall – New Zealand
- The Darhad Valley of Mongolia
- The Mountain Environment and Weather
- Mount Everest – The Death Zone
- How does the Weather Change the Shape and Appearance of Mountains?
- Lake District – Atmospheric Video Clip
- Various Images of a Mountain Biome

### **Effects of the Weather in Mountain Environments on Tourism**

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Here are some resources in uLearn links that will help in this task:

- The Tourist Industry In The Mountains
  - Lake District – Atmospheric Video Clip
  - Lesson Plan – environmental issues affecting the Alps
  - Lesson Plan – You can climb any mountain!
  - The Geography of Ascent
  - How do Animals and People Affect the Mountain Landscape
  - Promoting Snowdonia
  - RAF Mountain Rescue Lesson Plan
-



### About Earthquakes and Volcanoes

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uLearn contains hundreds of resources on volcanoes and earthquakes, already geo-referenced on the map for teachers and pupils to access easily. You can easily see our volcanoes resources in the context of the map by doing the following:

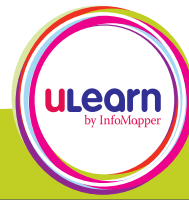
- Change the map to the world map
- Click on the Zoom to extents button so you can see the whole of the world
- In the Topic tab of the Resource Explorer:
  - Click on the plus sign next to the geography topic
  - Click on the plus sign next to Tectonic Activity
  - Tick the box that says 'Volcanoes'
  - Watch the volcanoes resources light up across the world!

Ask your pupils to compare the distribution of the icons on the map with a map of the earth's tectonic plates. Ask them to find out what the link is between **tectonic plates**, volcanoes and earthquakes. Here are some resources that might help:

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### Causes of Earthquakes and Volcanoes

- What is a volcano? (KS3 / KS4)
  - The Causes And Effects Of The 2004 Asian Tsunami
  - Internet Volcano (KS3 / KS4)
  - Patterns of Earthquakes / Volcanoes
  - Volcanic Eruptions – Disaster Footage
  - Mount Vesuvius
  - Stromboli
  - Mount Etna
-



### About Earthquakes and Volcanoes

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#### About Earthquakes

- Earth: All Stressed Out
- Mass Movements Animation
- Earthquake Animation
- Wealth Beneath Britain
- The Great Glen Fault
- Geological Faulting Animation
- Geological Faulting Animation 2
- Seismographs Animation
- P And S Earthquake Waves Animation
- The Kobe Earthquake

#### The Rock Cycle

- Medicine Lake Glass Flow
- Tree Molds on Medicine lake Volcano
- Howth Stratigraphical Column
- Howth Geology Worksheet
- Howth Geology Maps GSS

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#### About Volcanoes

- Structure of a volcano (KS3 / KS4)
  - Out of the Inferno - Volcanoes
  - 10 Largest Volcanoes
  - Coasts - The Kaitorete Spit, New Zealand
  - Volcanoes Webquest Instructions (KS3 / KS4)
  - Mount St Helens Webquest (KS3 / KS4)
  - Mount Kilauea webquest (KS3 / KS4)
  - Mt Etna webquest (KS3 / KS4)
  - Mt St Helen's Web Research (KS3 / KS4)
  - Volcanoes and Global Climate
  - Natural History Museum - Volcanoes
  - Volcanoes of the Cape Verde Islands
  - Facts about Volcanoes for Kids
  - Volcanoes Online
  - Pictorial Tour of Pompeii
  - Volcanic Eruption Animation
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### Earthquake and Volcanic Distribution

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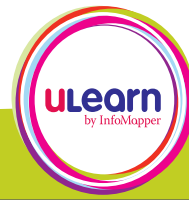
#### Where Earthquakes and Volcanoes Occur

Ask your pupils to locate areas with major earthquake and volcano activity using uLearn. They should plot the locations on a world outline map and create a key to distinguish between earthquakes and volcanoes. Ask them to add to the map the number of lives lost in disasters in those areas.

Show your pupils an image of the world's major plates. Provide them with world outline maps, and ask them to work in groups to create a map showing the distribution of the 'active zones' and named tectonic plates. Here are some resources that might help:

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- Plate Boundaries
  - Subduction Animation
  - Constructive Plate Margins Animation
  - Island Arcs at Destructive Plate Margins Animation
  - The break-up of Pangaea Animation
  - Collision Zones Animation
  - Geysers Animation
  - The Origin Of Magma In A Subduction Zone Animation
  - Convection in a Mantle Animation
  - Formation of Crater Lake Caldera Animation
  - Hot Spot Volcanoes Animation
  - The Paricutin Volcano
  - Igneous Landscapes - Edinburgh
  - Foliation of Metamorphic Rocks at a Collision Zone Animation
  - Creating A Lava At Mid-Ocean Ridge Animation
  - Magnetic Reversal Animation
  - The Rock Cycle Animation
  - Convection in the Mantle Animation
  - Rift Valleys to Oceans Animation
  - Plate Tectonics Animations
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### Earthquake and Volcanic Distribution

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#### Virtual Volcano

Split the class into groups or pairs and assign a volcano to each group.

Ask them to find out the following information, collate it into a presentation or word document, then present it to the class. Ask them to upload their work onto uLearn and link it to the map in the appropriate location. They can then present it via the whiteboard.

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They could find out:

- Why did it form, and why did it erupt?
- What type of volcano is it?
- Height / elevation in metres
- Features of the volcano
- Part of a range? Which one?
- When it last erupted
- Where is it (Continent / Country)
- Latitude / Longitude (you can find this in uLearn by hovering over the place you want to locate on the map, then looking at the red readout at the bottom of the map pane)



- Proximity to inhabited areas
  - Is it in an LEDC or MEDC?
  - Likely effects on local inhabitants when it erupted
  - Any additional tectonic effects (mudslides, earthquakes etc)
  - A photo of it
-



## THREE: **The Restless Earth - Earthquakes and Volcanoes**

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### Earthquake and Volcanic Distribution

#### Virtual Volcano

Here are some suggestions for the volcanoes that people could research. uLearn has a number of resources on each of these, and many more.

Mount Etna	Stromboli Volcano	Mount Hood
Mount St Helen's	Mount Cayley	Mount Jefferson
Mt Nyiragongo	Mount Garibaldi	Three Sisters Volcanoes
Mount Pinatubo	Mount Baker	Newberry Volcano
Mount Kilauea	Glacier Peak	Crater Lake Volcano
Mount Vesuvius	Mount Rainier	Medicine Lake Volcano
The Paricutin Volcano	Mount Adams	Mount Shasta
Silverthrone Volcano	Mount Erebus	La Cumbre Volcano
Mount Meager	Mauna Loa	Chiliques Volcano
Franklin Glacier Volcano	Shiveluch Volcano	Mount Oyama
Lipari Volcano	San Cristobal Volcano	Santa Maria Volcano
Chikurachki Volcano	El Reventador	Colima Volcano
Shishaldin Volcano	Ruang Volcano	Grmmsvtn Volcano
Soufriere Hills, Montserrat	Mount Pago	Piton De La Fournaise
Tungarahua Volcano	Mount Meru	El Misti Volcano
Okmok Volcano	Nyamuragira Volcano	Afar Depression
Anatahan volcano	Santorini Volcano	Maui Volcano
Sredinnyy Khrebet Volcano	Cleveland Volcano	Ruiz Volcano
Pic Tousside / Tibesti Plateau	Mount Fuji	Reunion Island, Madagascar
Miyake-Jima Volcano	White Island, New Zealand	Teide Volcano
Cotopaxi	Unzen Volcano	Taal Volcano
Las Bayas	Galeras Volcano	Rabaul Volcano
Mayon Volcano	Virunga Volcano	Kliuchevskoi Volcano
Bezymianny Volcano	Isla Isabela	Mount Usu
Jalisco Volcano	Maly Semlyachik Volcano	



## THREE: **The Restless Earth - Earthquakes and Volcanoes**

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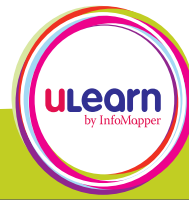
### **Volcano and Mountain Webcams and Images**

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Bring the lesson to life by showing a live view of the volcanoes or mountains your pupils are studying. uLearn contains a large number of links to volcano and mountain webcams, including those listed below– just search for ‘volcano webcam’ or ‘mountain webcam’.

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- Mount Etna Webcams
  - Mount Garibaldi Webcam
  - Snowdon Webcam
  - Winter Park WebCam, Colorado
  - Whistler Peak Webcam
  - Colorado Cams
  - Crater Cam - Crater Lake
  - Crater Lake Webcam
  - Keswick Webcam, Cumbria
  - Glacier Peak Webcam
  - Lugano, Switzerland
  - Medicine Lake Volcano Webcam
  - Mount Shasta Webcam
  - Newberry Volcano
  - Mount Hood Webcam
  - Mount Adams Webcam
  - Mount Rainier Webcam
  - Pico Del Teide Volcano Webcam
  - Santorini Volcano Webcam
-



### Volcano and Mountain Webcams and Images

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#### Tectonics Images

In addition to the information resources, uLearn also contains many photographs uploaded by teachers to illustrate the locations, formations and characteristics of earthquakes and volcanoes. These include:

- Devil's Punchbowl
- Eyjafjallajokull
- Myrdalsjokull
- Myrdalsjokull – 2
- Nephin
- Mweelrea, Co Mayo
- Lulworth Crumple
- Mournes
- Mount Errigal

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uLearn also has hundreds of image links from the NASA Visible Earth site showing volcanic landform features, infrared images, ash clouds, eruptions and more. Here are a few suggestions, but uLearn contains many other links. Just search for 'volcanoes', and change the type to 'web links' to see more.

- Volcano - Popocatepetl, Mexico
  - Volcano - Soufriere Hills, Montserrat
  - Volcano - Tungurahua, Ecuador
  - Volcano - Klyuchevskaya Sopka, Kamchatka
  - Volcano - Mt St Helens, Washington State
  - Volcano - Iceland
  - Volcano - Mt Etna, Italy
  - Volcano - Santorini, Greece
  - Volcano – Stromboli, Italy
  - Volcano - Madagascar
  - Volcano – Mt Kilauea, Hawaii
  - Visible Earth: Ash plume rising from Chikurachki Volcano, Kuril Islands, Russia
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## THREE: **The Restless Earth - Earthquakes and Volcanoes**

### Lesson Resources and Activities

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uLearn has collected together a number of good teaching resources to help with Tectonics Lesson planning. Here is a selection:

- Plate Tectonics
- Tectonic Processes
- Tsunamis
- Plate Boundaries and Landforms
- Mount St Helens Webquest (KS3 / KS4)
- The 7-11 Tectonics, Volcanoes and Earthquakes Web Guide
- Plate Tectonics (KS4)
- New Zealand – Plate tectonics Theory
- Thinking about Volcanoes (KS3 / KS4)
- Mt Pinatubo Volcano Story (KS3 / KS4)
- Plate Boundaries
- A Question of Volcanoes (KS3 / KS4)
- Plate Margins Worksheet
- Volcano Photo Enquiry – Vesuvius and Pompeii

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uLearn also has a great number of links to activities relating to tectonics. Here is a selection:

- Tectonics Crossword
  - Plate tectonics 'find someone' cards
  - Plate Tectonics Quiz (KS3/4)
  - Tectonics gap fill (KS3)
  - Tectonics Pictionary
  - Tectonics Spider Diagram
  - Tectonics Wordsearch
  - Volcano World
  - Cascade Volcanoes Wordsearch
  - Why do volcanoes occur – Mystery cards
  - How is a volcano formed (KS3 / KS4)
  - Mt Pinatubo volcano storyboard
  - Mt St Helens Case Study
  - Plate tectonics jigsaw
  - Volcanoes Keywords
  - Volcanoes Wordsearch (KS3 / KS4)
-



### FOUR: **Living with Volcanoes and Earthquakes**

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#### **Earthquakes and Volcanoes in LEDCs and MEDCs**

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Split the class into two groups and ask each group to investigate a volcanic eruption in either an LEDC or an MEDC.

**LEDC examples:** Mt Pinatubo, Mt Nyiragongo

**MEDC examples:** Mount St Helen's, Mount Etna / Chuetsu

They should produce a guide that would inform visitors to the area about the latest eruption. This could include:

- A map showing the location of the volcano
- Information on the consequences of the earthquake, e.g.:
- Number of lives lost
- Number of homes destroyed
- After-effects, e.g. disease, further tectonic activity (aftershocks, mudslides, earthquakes, tsunamis etc.)
- A photograph taken after the eruption

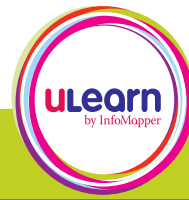
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Pupils should then consider whether there is a link between number of deaths and whether the disaster took place in an LEDC or an MEDC. They should consider the similarities and differences between the handling of the disasters in the MEDC and the LEDC, describe and explain what they are, and why they exist.

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Here are some relevant resources within uLearn that you may find useful.

- Video of Mt St Helen's Erupting
  - Volcano Hazards (KS3 / KS4)
  - Volcano Hell
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## FOUR: **Living with Volcanoes and Earthquakes**

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### Why do people choose to live in Active Zones?

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There are positive and negative aspects to living in active zones. Here are some resources to help your students consider this idea further:

- Humanitarian Early Warning System (HEWS)
- Mount St Helens Animation
- Mt St Helen's Eruption
- Mt St Helen's Erupts
- Mount St Helen's Erupts
- The Problems of Living in Los Angeles
- Mt. Pinatubo, the Philippines
- Recent Earthquakes In California And Nevada
- The Many Faces of Mount St Helen's



## FOUR: **Living with Volcanoes and Earthquakes**

### How people respond to Natural Hazards (KS3)

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uLearn contains many resources providing information on natural hazards such as earthquakes, volcanoes and tsunamis, and how people respond to them. These include:

- Dealing with Disasters
- Natural disasters for kids
- Natural Hazards (KS3)
- Lahars in Indonesia
- The Kobe Earthquake
- The Kobe Earthquake, 1995
- Mt Nyiragongo (KS3 / KS4)
- Volcanic Hazards (KS3)
- Disease In The Aftermath Of The 2004 Asian Tsunami
- Eyewitness Accounts Of The Immediate Effects Of The 2004 Asian Tsunami In Sri Lanka
- Predicts The Impact Of A Possible Future Tsunami In Padang, Sumatra
- The After Effect Of The 2004 Tsunami On Tourism In Thailand