

# Worksheet: Earthquakes

## Earthquake vocabulary super quiz

**Purpose:** This participation and discussion exercise enables students to widen their vocabulary relating to earthquakes and related seismic activity.

**Objectives:** Students will be able to:

- > broaden their understanding of seismic activity
- > improve their vocabulary
- > identify key words and phrases relating to earthquakes and seismic activity

**Skills:** Students can demonstrate:

- > Researching
- > Classifying
- > Communicating
- > Observing
- > Posing questions

**Time Required:** 40 minutes.

**Group Size:** In small groups of 4.

**Materials/Preparation:** Includes:

- > Access to the internet for each group
- > The following teacher answer sheet
- > A printed copy of each sheet of blue and green matching cards
- > A pair of scissors for each group
- > A copy of the Earthquake teacher briefing

**Background:** An earthquake is the sudden release of strain energy in the Earth's crust resulting in waves of shaking that radiate outwards from the earthquake source.

When stresses in the crust exceed the strength of the rock, it breaks along lines of weakness. As the Earth's plates move past each other,

friction between them results in the build up of pressure. As the plates continue to move and the pressure builds up, eventually the pressure is great enough to overcome friction and the plate jolts forward releasing the pent up energy in the form of seismic waves. Occurrences of earthquakes are unevenly distributed over the Earth, with the majority occurring at the boundaries of the major crustal plates.

**Activity:** Follow these steps:

**1.** Print off the:

- Teacher Answer Sheet
- A set of 18 blue word cards and a set of 18 green definition cards for each group
- The Earthquake Teacher Briefing

**2.** Spend 20 minutes engaging students in earthquakes and related seismic topics. (prepare by reading the Teacher Briefing).

**3.** Provide each small group with a set of the 18 blue cards and 18 green cards. Once each group has carefully cut out the 36 cards in total, challenge the students to correctly match the blue word cards with their corresponding green meaning cards.

**4.** Review the students matches.

**5.** Use the Correct Answers sheet to compare and add to any extra findings.

**Closure:** Ensure each group has corrected any incorrectly matched cards.

**Extending the Lesson:** Encourage students to do some research on recent earthquakes across the world and their impact on people.

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## Answer Sheet

### Aftershock

a smaller earthquake that occurs after a previous large earthquake, in the same area of the main shock.

### Epicenter

the point on the Earth's surface that is directly above the hypocenter or focus, the point where an earthquake or underground explosion originates.

### Hypocenter

the position where the strain energy stored in the rock is first released, marking the point where the fault begins to rupture. This occurs at the focal depth below the epicenter.

### Landslide

a geological phenomenon which includes a wide range of ground movement, such as rockfalls, deep failure of slopes and shallow debris flows, which can occur in offshore, coastal and onshore environments.

### Richter scale

refers to a number of ways to assign a single number to quantify the energy contained in an earthquake.

### Rupture

a breaking apart or the state of being broken apart.

### Seismic waves

waves of energy that travel through the earth, and are a result of an earthquake,

### Seismograph

an instrument used to detect and record earthquakes.

### Tsunami

a very large ocean wave caused by an underwater earthquake or volcanic eruption.

### Triangulation

the location of an unknown point, as in navigation, by the formation of a triangle having the unknown point and two known points as the vertices.

### Asthenosphere

the ductile part of the earth just below the lithosphere, including the lower mantle. The asthenosphere is about 180 km thick.

### Foreshocks

relatively smaller earthquakes that precede the largest earthquake in a series, which is termed the mainshock. Not all mainshocks have foreshocks.

### Kinematic

refers to the general movement patterns and directions of the earth's rocks that produce rock deformation.

### Liquefaction

a process by which water-saturated sediment temporarily loses strength and acts as a fluid, like when you wiggle your toes in the wet sand near the water at the beach. This effect can be caused by earthquake shaking.

### Lithosphere

the outer solid part of the earth, including the crust and uppermost mantle.

### Magnitude

a number that characterizes the relative size of an earthquake. Magnitude is based on measurement of the maximum motion recorded by a seismograph

### P wave

a seismic body wave that shakes the ground back and forth in the same direction and the opposite direction as the direction the wave is moving.

### Subduction

the process of the oceanic lithosphere colliding with and descending beneath the continental lithosphere.

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Tsunami

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an earthquake's hypocenter is the position where the strain energy stored in the rock is first released, marking the point where the fault begins to rupture.

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