

A tsunami



1. What is a tsunami? Please read the following text.

A **tsunami** is a series of ocean waves caused by an underwater earthquake, a volcanic eruption, or a landslide.

More rarely, a **tsunami** can be generated by a giant meteor impact with the ocean.

Tsunami waves can reach heights of over 30 meters.

About 80% of **tsunamis** happen within the Pacific Ocean's "Ring of Fire."

The Pacific Ocean's Ring of fire is a horseshoe shaped area in the Pacific Ocean where many volcanic eruptions and earthquakes occur, hence the risk of tsunamis. It is about 40000 km long and roughly 500 km wide.

The word 'tsunami' derives from the Japanese *tsunami* which means 'harbour wave'.

Due to its long wavelength a tsunami does not resemble normal undersea sea waves. It more resembles a fast-rising tide. Therefore, a tsunami is often referred to as a tidal wave, even though it is not related to tidal activity.

As a tsunami is often generated by seismic activity the term *seismic sea wave* is often used.

Tsunamis can be generated when two sea plates collide. Mainly in areas with tectonic plate boundaries. If these plates move past each other, large earthquakes happen

which can change the ocean's surface for up to 1000 km or more. With such a large area of the ocean's surface displaced, the water is also displaced and results in devastating large tsunami waves.

2. Read through the list of the world's deadliest tsunamis, pick one and create a short presentation about this natural disaster.

Do not forget important information:

Where? When? What triggered the Tsunami? Magnitude of the waves? How long did it last? Extent of the devastation?

The world's deadliest Tsunamis

20.09.1498	Nankaido – Japan	between 5000 – 41000 casualties were reported	
28.10.1707	Hoei – Japan	5000 casualties	
01.11.1755	Lisbon – Portugal	30000-50000 casualties	
1792	South China Sea	over 40000 casualties	
13.08.1868	Arica – Peru	25000 casualties	
1883	Indonesia	36600 casualties	
28.12.1908	Sicily – Italy	75000 – 82000 casualties	(Messina earthquake)
26.12.2004	Indonesia	227898 casualties	(Indian Ocean Earthquake and Tsunami)

3. Now please watch this video and answer following questions:

TedEd Tsunami

<https://youtu.be/Wx9vPv->

- a. Who did the Potidaea's believe saved them from the attackers in 479 BC?
- b. What did really save them?
- c. Tsunamis are commonly known as tidal waves. Are they related to tidal activity? Explain.
- d. Where does the energy come from to create normal ocean waves?
- e. What about the energy creating a tsunami?
- f. How fast can a tsunami move?
- g. What is wave shoaling?
- h. How could you protect yourself against tsunamis?
- i. What happened in 2011 at Fukushima, Japan?