Date: _____ 1.①

EARTHQUAKES

What is an earthquake?

Plates and Faults

- The earth's surface is made up of tectonic plates that keep moving continuously, colliding or sliding past one another.
- This activity creates faults or fractures on the rocky outer surface of the Earth.
- Sometimes, the blocks of rock strain or bend along these fault lines.
- If the rocks bend too much, the fault lines break and snap into new positions, causing the ground to shake.

The Focus and Epicentre of the Quake

- The hypocentre or the focus is the point of sudden movement inside the Earth. This is the point where the rocks break first, causing an earthquake.
- Shock waves then travel towards the surface.
- The point on the surface that is directly above the focus, is the epicentre.

Measuring Earthquakes

- Seismologists are scientists who study earthquakes.
- Charles F. Richter, a seismologist from the USA developed the Richter Scale in 1935.
- Scientists use a seismograph to measure the intensity of an earthquake and to pinpoint the quakes epicentre and hypocentre.
- Seismographs detect the vibrations that travel through the ground after a quake.
- The vibrations are called seismic waves.
- The time, location and magnitude (size) of an earthquake are then determined from the date recorded by the seismograph stations.
- The intensity of an earthquake is measured on the Richter scale.
- The Richter scale plots the earthquake on a scale of 1 – 10.
- An increase by one number on the scale, means the energy release of the earthquake is 32 times greater.

Earthquakes and Humans

- Earthquakes are natural events that become natural disasters when they occur in areas of high density living and there is then great loss of life and property.
- The earth may experience up to 800 000 earthquakes a year but only about 40 are significant enough to cause damage.
- An earthquake lasts only a minute or less. Yet its sudden, violent shaking of the ground can cause more damage than any other natural disaster.
- Earthquakes can strike without any warning...

- The first, main earthquake shock is usually the worst. But many smaller shocks can follow.
- After-shocks might last a day or two or even go on for years.

The Effects of an Earthquake

- In cities – the shaking of the earth can cause buildings to collapse and bridges, roads and railways can be severely damaged.
- Tens of thousands of lives have been lost in large earthquakes.
- Electricity cables, telephone wires, gas pipes, water pipes and sewage pipes can be severely damaged which can result in fires, flooding, and lack of communication and contamination of drinking water.
- The contamination of drinking water by sewage can cause a cholera outbreak.
- Earthquakes that happen under the sea can cause tidal waves and tsunamis which can wash away farms and villages, destroying properties and killing people and animals.
- Earthquakes may also cause landslides made up of soil, mud or snow which can engulf villages or cities burying people alive.

Bibliography

1. Kaul, Kirti — Natural Disasters. India: Brijbasi Art Press Limited, 2006.
2. Lambert,David — Earthquakes and Volcanoes Hove: Wayland, 1985.
3. Potenza, Emilia et al — On Track with Social Sciences Cape Town: Phumelela, 2005

Date: _____

Learning Station Social Sciences Grade 7

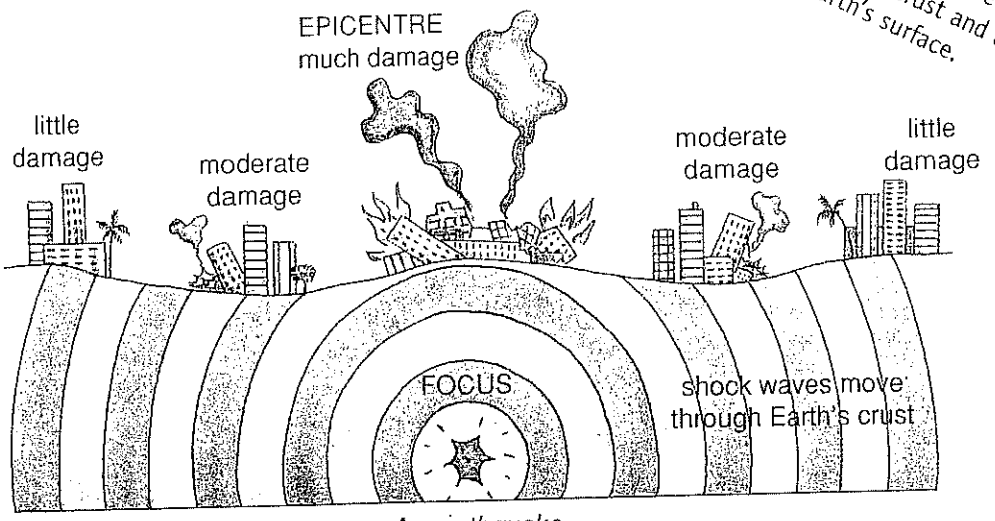
1.3.

When the Earth trembles

- Seismic waves travel at speeds of up to 8 km per second.
- Seismic waves move through the Earth's crust and along the Earth's surface.

What is an earthquake?

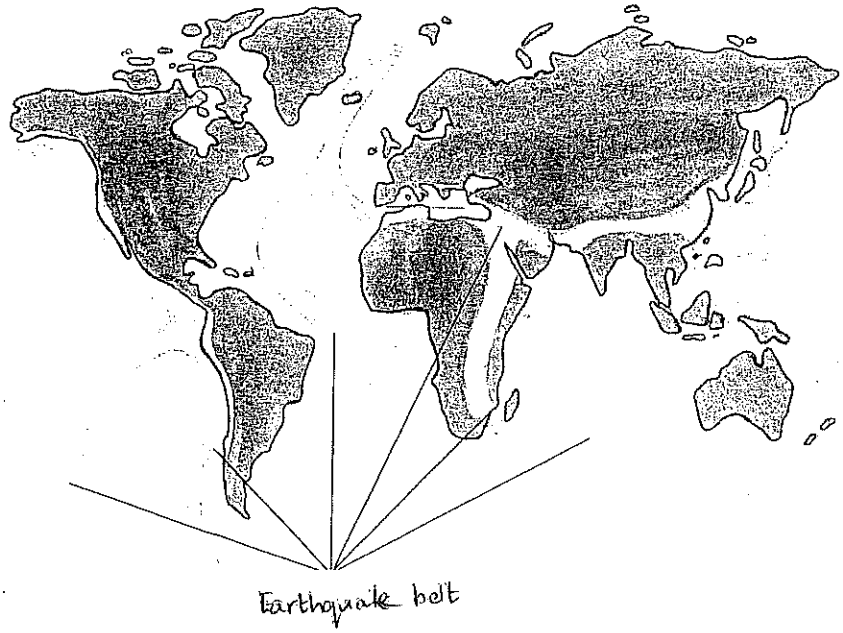
An earthquake is a sudden, violent vibration we feel on the Earth's surface.



An earthquake

Where do earthquakes occur?

Earthquakes occur in narrow belts along plate margins. They occur on land and at sea. Do you notice they occur in the same areas as volcanoes?



What causes an earthquake?

Pressure builds up on rocks found along the plate margins and along fault lines. The Earth's crust moves suddenly when the pressure is suddenly released. This causes shockwaves. Shockwaves move, like ripples, towards the Earth's surface. The point in the Earth's crust where the shockwaves for is called the focus. The point on the Earth's surface immediately above the focus is called the epicentre.