

EARTH'S CRUST



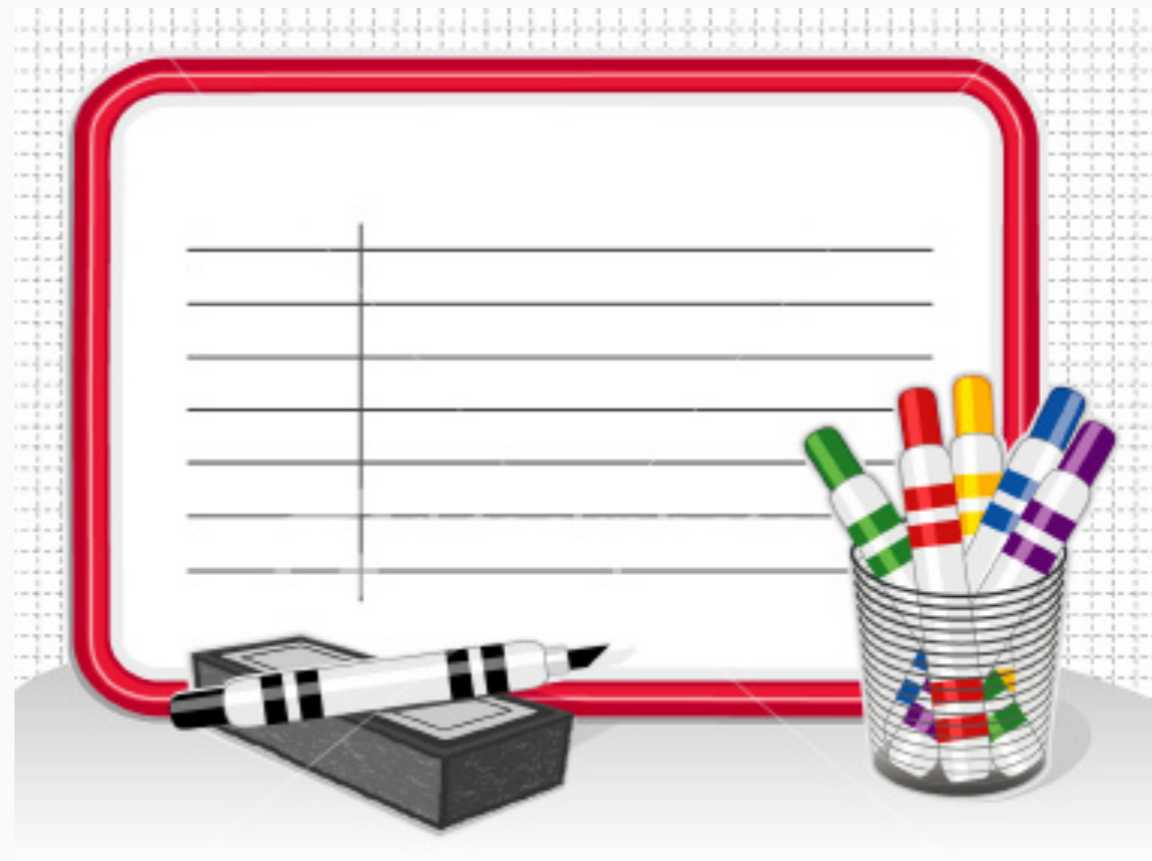
WHAT IS AN EARTHQUAKE?

Whiteboard Activity:

- As a group, write or draw your answer

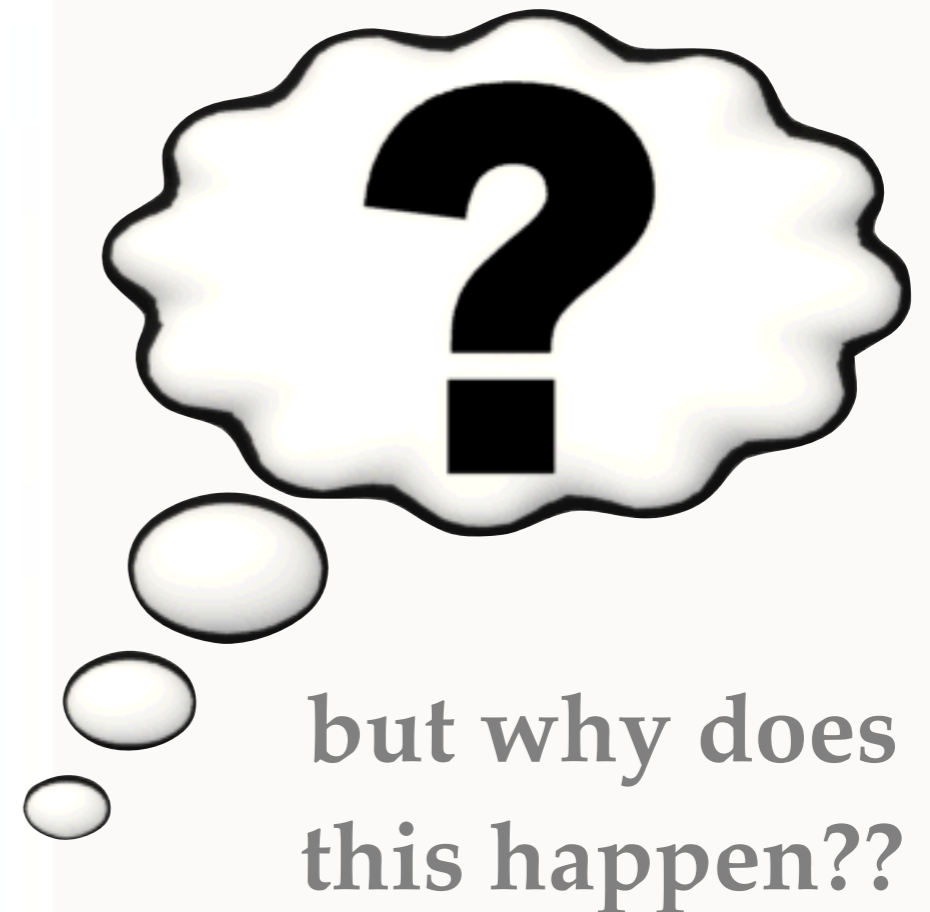


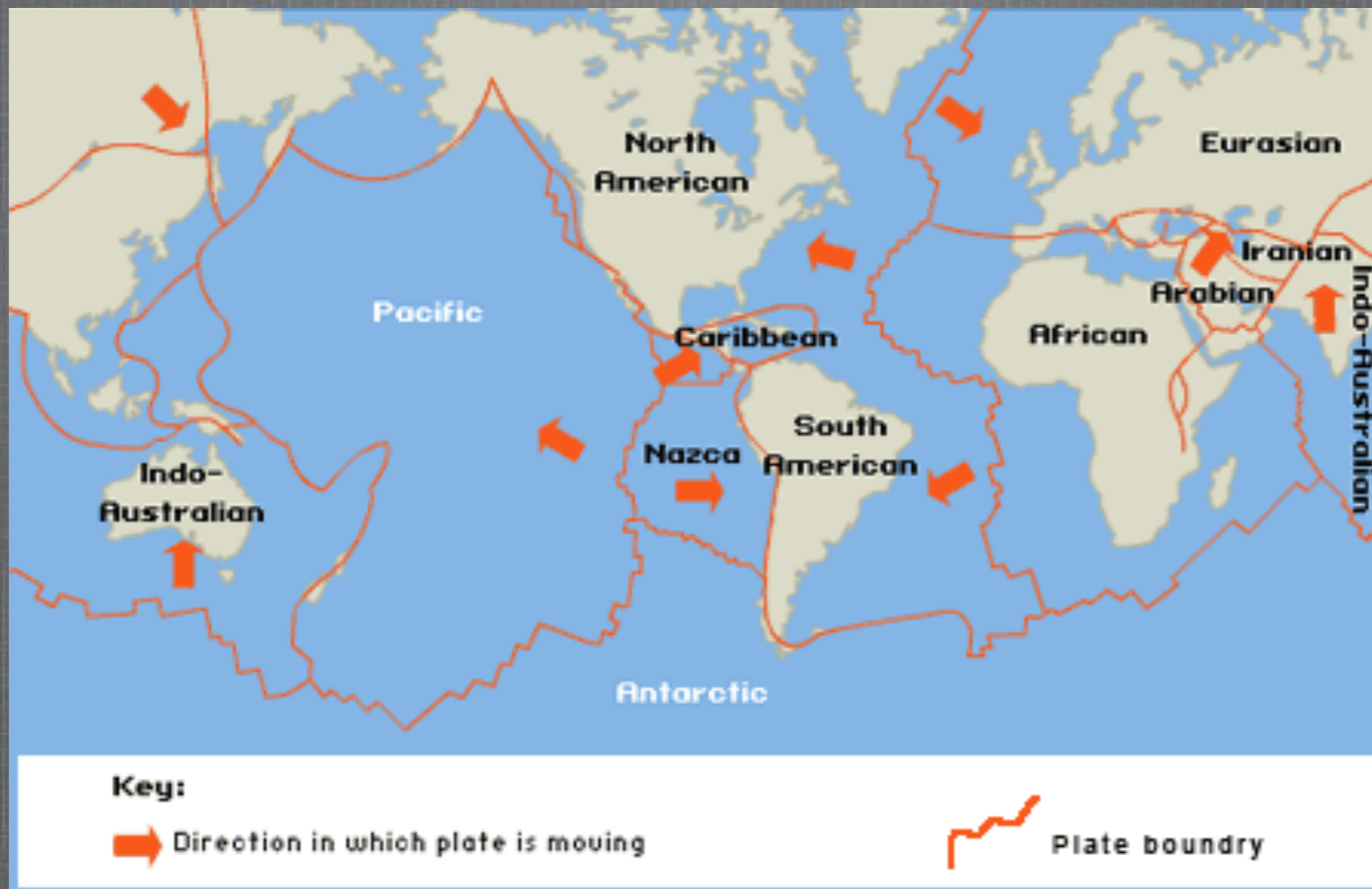
5 min



WHAT IS AN EARTHQUAKE?

A disturbance and movement of Earth's crust due to a build-up of stress or pressure.





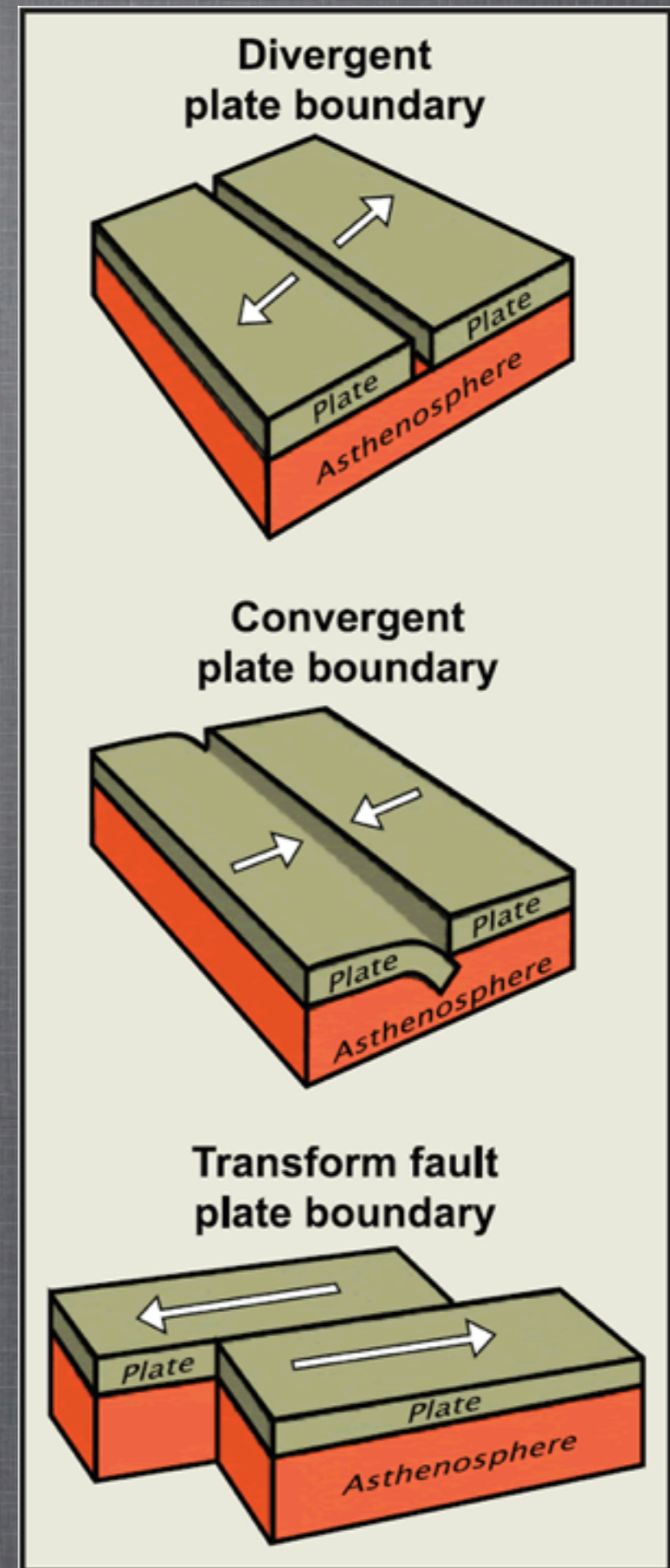
The Earth's plates move along plate boundaries. Plates do not always move smoothly and sometimes they get stuck. This causes pressure to build up.

TYPES OF MOVEMENT

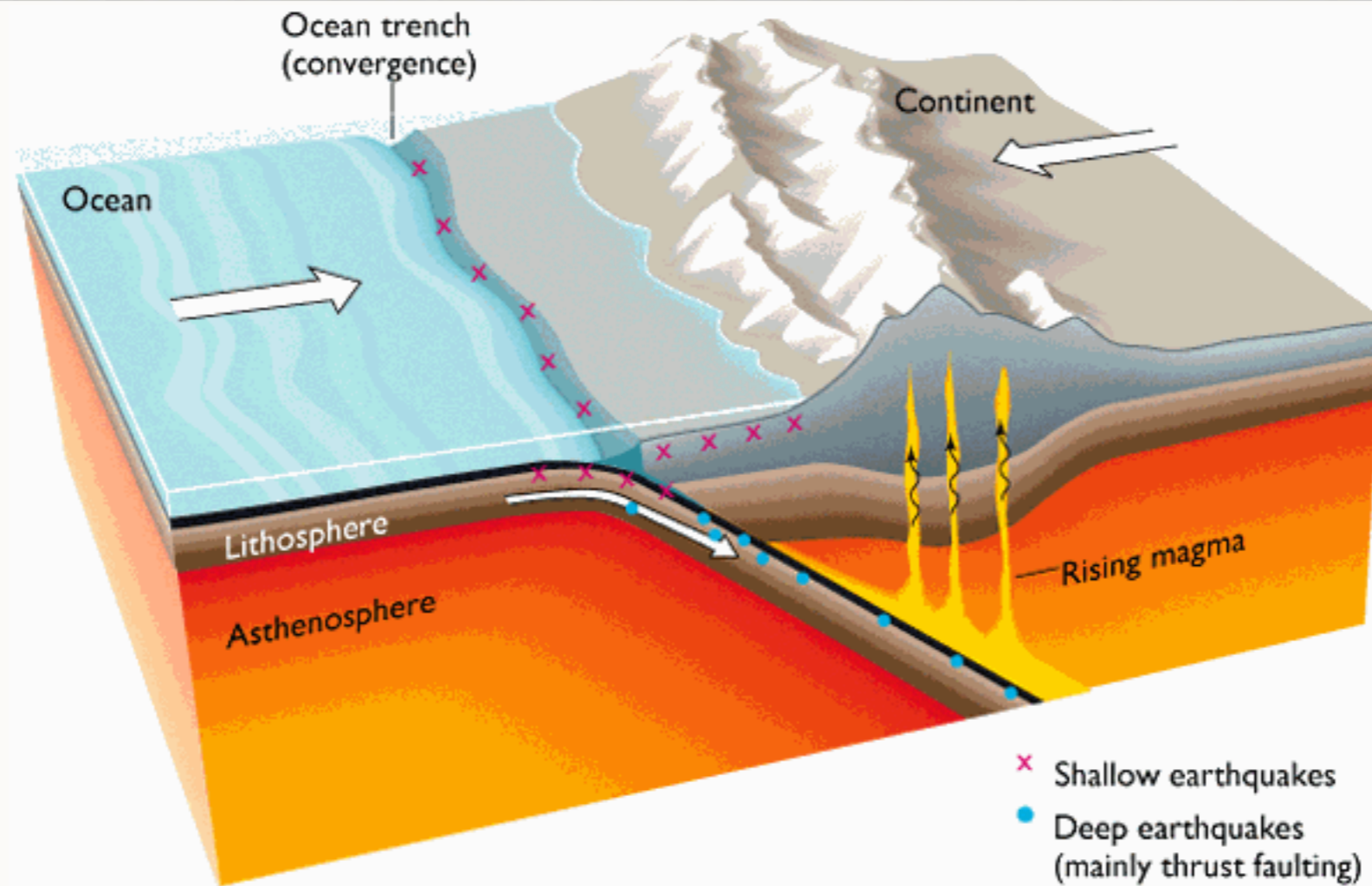
Type 1: Divergent (pulling apart)

Type 2: Convergent (pushing together)

Type 3: Transform Fault (sliding past each other)



MOVEMENT TERMINOLOGY



Subduction: one piece of rock gets pushed under the other and dips deep into the Earth.

MOVEMENT TERMINOLOGY

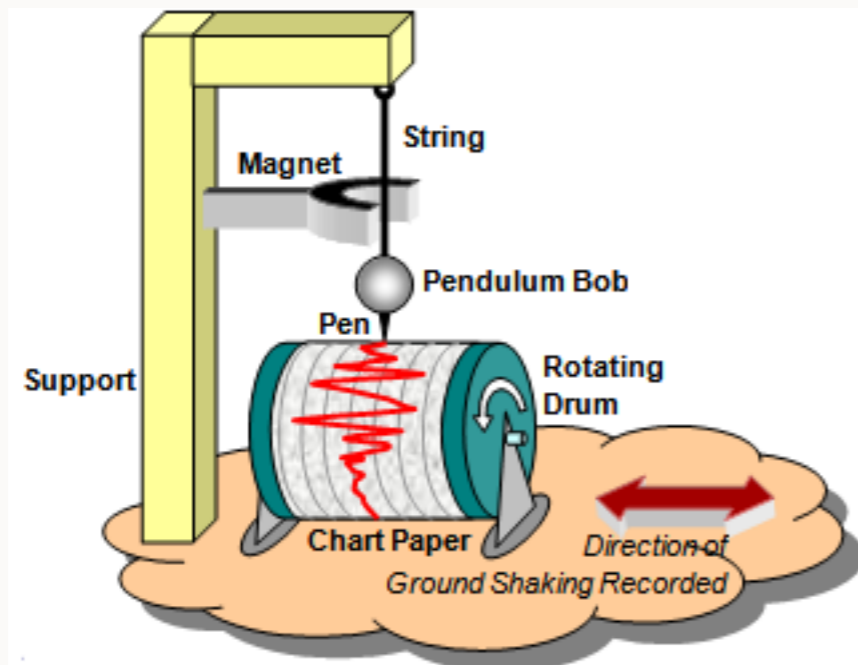


Fault Lines:
the area
where the
rocks break
and move

Ex: San
Andreas Fault

MEASURING EARTHQUAKES

Scientists called **seismologists** measure earthquakes using a device called a seismograph.



Seismographs must be attached to **bedrock** (the solid rock beneath the soil) in order to feel the vibrations from an earthquake.

MEASURING EARTHQUAKES

The Richter Scale is used to describe the magnitude (strength) of the earthquake.



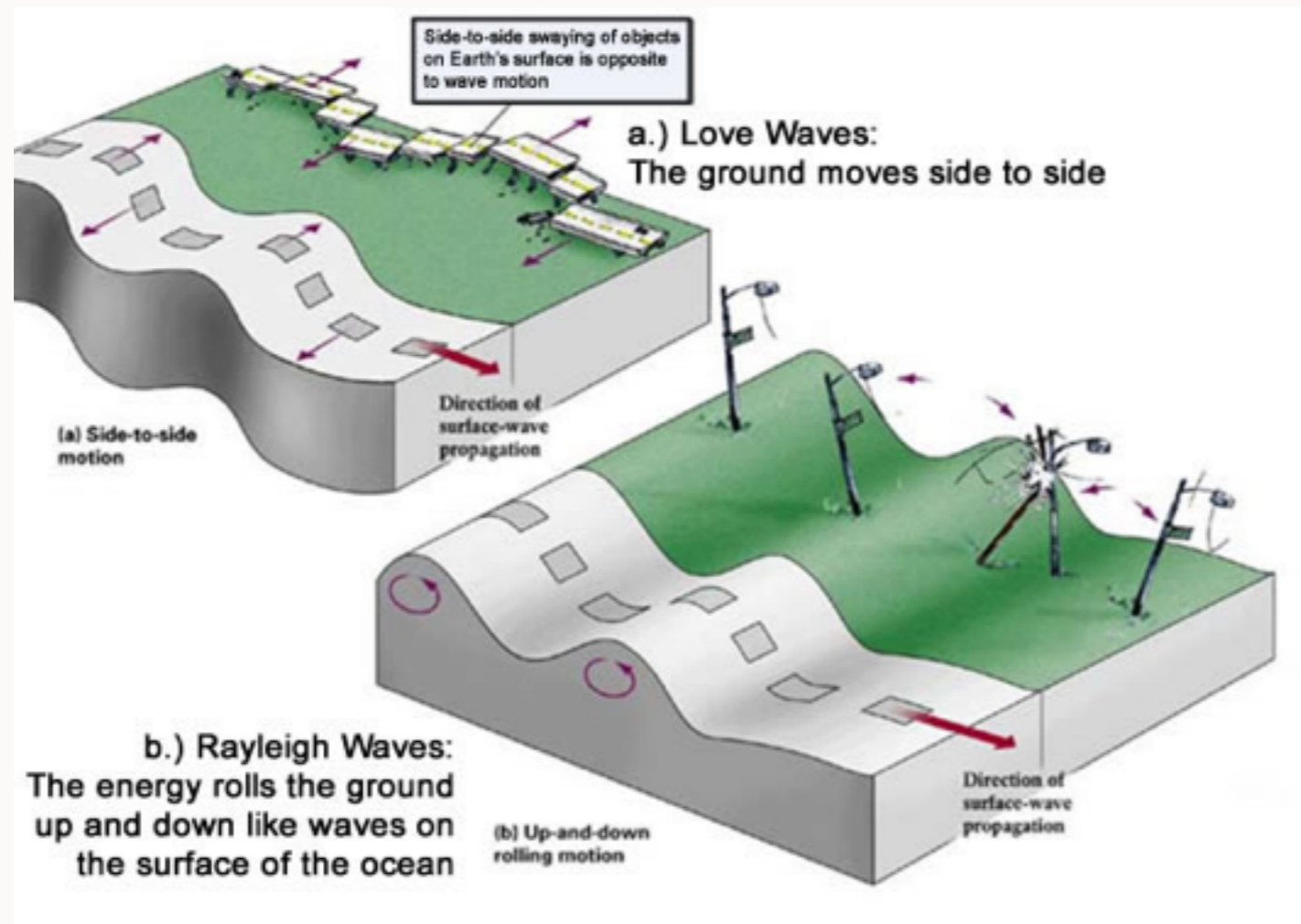
The Richter scale

Measures energy waves emitted by earthquake

- 0 - 1.9** Can be detected only by seismograph
- 2 - 2.9** Hanging objects may swing
- 3 - 3.9** Comparable to the vibrations of a passing truck
- 4 - 4.9** May break windows, cause small or unstable objects to fall
- 5 - 5.9** Furniture moves, chunks of plaster may fall from walls
- 6 - 6.9** Damage to well-built structures, severe damage to poorly built ones
- 7 - 7.9** Buildings displaced from foundations; cracks in the earth; underground pipes broken
- 8 - 8.9** Bridges destroyed, Few structures left standing
- 9 and over** Near-total destruction, waves moving through the earth visible with naked eye

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AFP

EARTHQUAKE WAVES



Seismic Waves: energy waves that travel outward from the source.

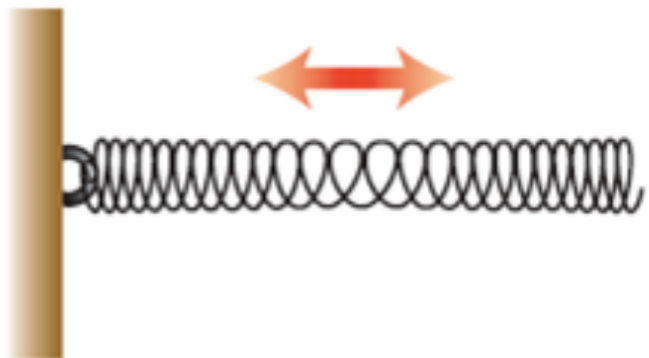
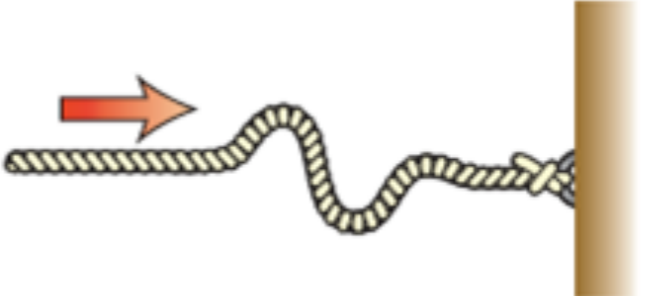

Aftershocks: smaller earthquakes that produce even more ground movement.

TYPES OF WAVES

- Slinky Activity: How Do Earthquake Waves Travel?
- Pg. 317

TYPES OF WAVES

Table 12.3 Types of Seismic Waves

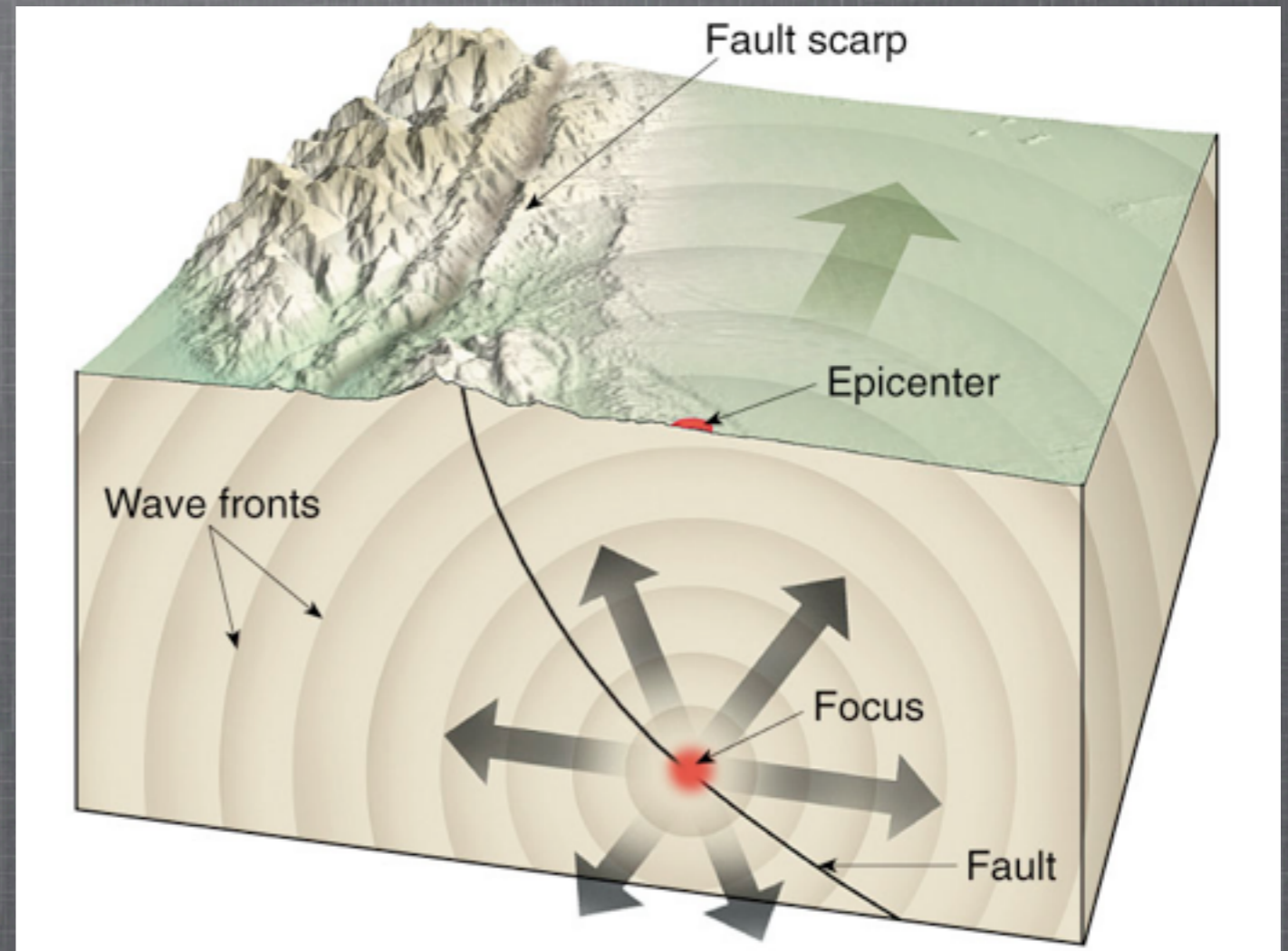
Seismic Wave	Abbreviation	Description	Ground Motion
Primary wave	P	<ul style="list-style-type: none"> • Type of body wave • First to arrive (fastest) • Ground squeezes and stretches in direction of wave travel. • Travels through solids, liquids, and gases 	
Secondary wave	S	<ul style="list-style-type: none"> • Type of body wave • Second to arrive (slower) • Ground motion is perpendicular to direction of wave travel. • Travels through solids but not liquids 	
Surface wave	L	<ul style="list-style-type: none"> • Travels along Earth's surface • Last to arrive (slowest) • Ground motion is a rolling action, like ripples on a pond. 	

LOCATING AN EARTHQUAKE

Waves are used to locate the source of an earthquake.

Focus: the source of an earthquake.

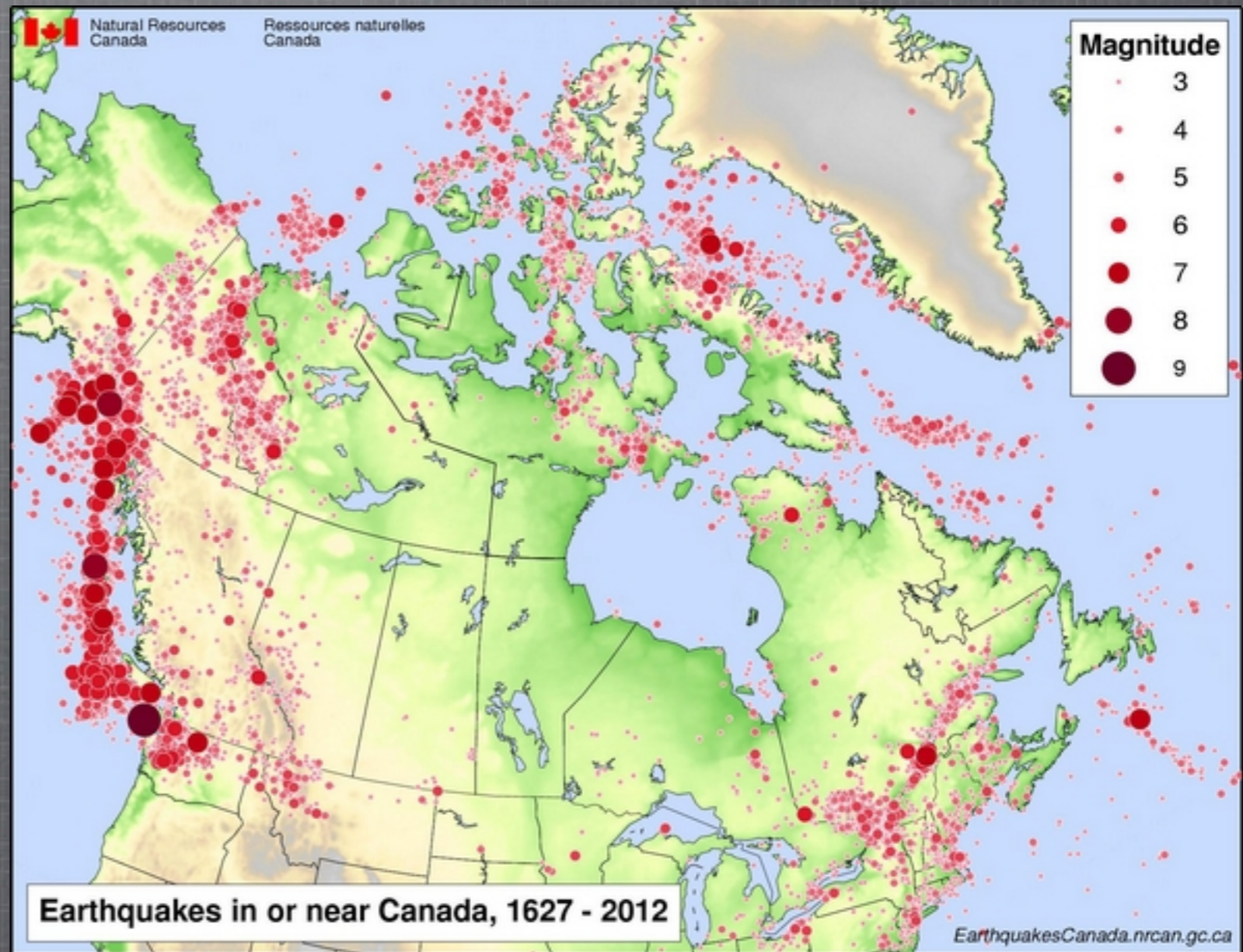
Epicentre: the surface directly above the focus.



EARTHQUAKES IN CANADA

Natural Resources of Canada:

- Historic Events
- Be Prepared
- Seismogram Viewer



EFFECTS OF EARTHQUAKES

Haiti, 2010

7.0 Magnitude, 52 aftershocks (4.5 and greater)



TERMS:

EARTHQUAKE
CONVERGENT
DIVERGENT
TRANSFORM
SUBDUCTION
FAULT LINE
SEISMOLOGIST
SEISMOGRAPH
RICHTER SCALE
MAGNITUDE
SEISMIC WAVE

AFTERSHOCK
FOCUS
EPICENTRE