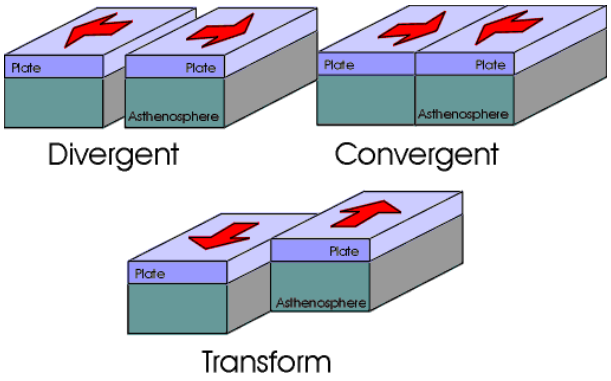
Plate Interactions

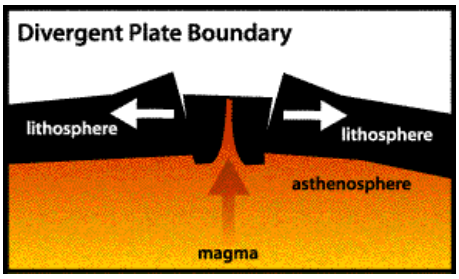
1. **Divergent**
(moves apart/spreads/extensional)

2. **Convergent**
(moves together/collides/compressional)

3. **Transform**
(moves in opposite directions, horizontal/sliding)



1. Divergent plate boundaries are areas where tectonic plates are spreading apart.
- Ocean ridges such as the Mid-Atlantic Ridge are examples of divergent plate boundaries.
- Diverging plates at the East African Rift are slowly breaking Africa into pieces.



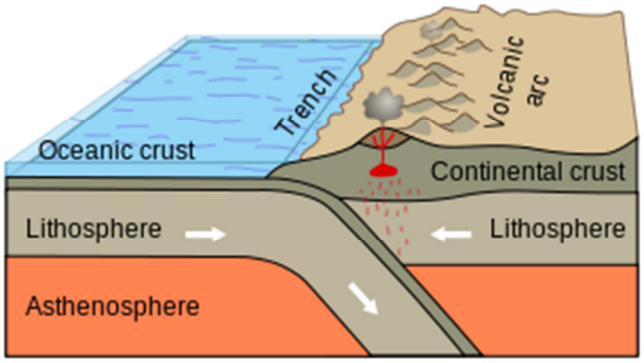
2. Convergent plate boundaries are areas where tectonic plates collide.
- A **subduction zone** is a zone representing a convergent plate boundary, where one tectonic plate subducts beneath and is destroyed by the other overriding tectonic plate.
  – Large earthquakes and volcanoes are found in subduction zones.
- A **trench** is a long narrow depression in the ocean floor that marks a convergent plate boundary and is part of a subduction zone.

There are 3 types of Convergent Plate boundaries found in the world:

A. Oceanic-Continental Plate Convergence
- Oceanic plate subducts under the continental plate, forming a trench.
- Cone-shaped volcanoes can form from magma seeping to the surface.
  A **volcano** is an opening in Earth's surface that, when active, spews out gases, chunks of rock, and melted rock.

Local Significance

The volcanic belt of the Pacific Northwest has formed as a result of the oceanic-continental convergence between Juan de Fuca Plate (oceanic) and the North American Plate (continental).



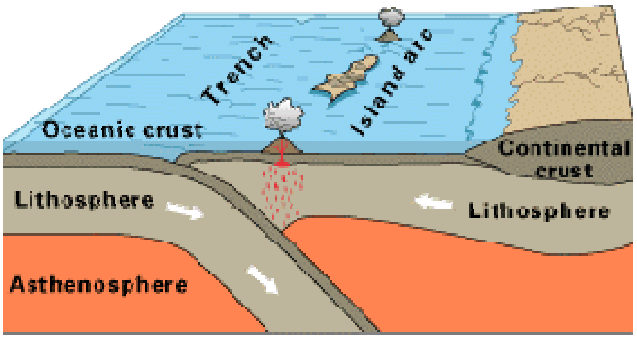
Oceanic-Continental convergence

B. Oceanic-Oceanic Plate Convergence

- The cooler, denser plate subducts under the warmer, less dense plate

Real World

- This may produce a **volcanic island arc**, which is a long chain of volcanic islands, such as those found in Japan, Indonesia, and Alaska's Aleutian islands.



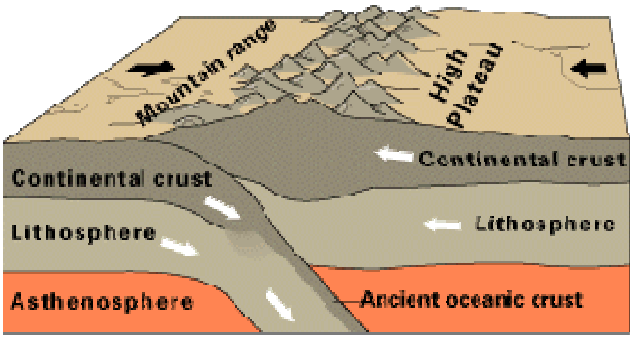
Oceanic-oceanic convergence

C. Continental-Continental Plate Convergence

• Since both plates are continental plates, their densities are similar.
• As they collide, their edges fold and crumple, forming Mountains.

Real World

• The Himalayas are the world's youngest (and tallest) mountain range and are still growing taller today.



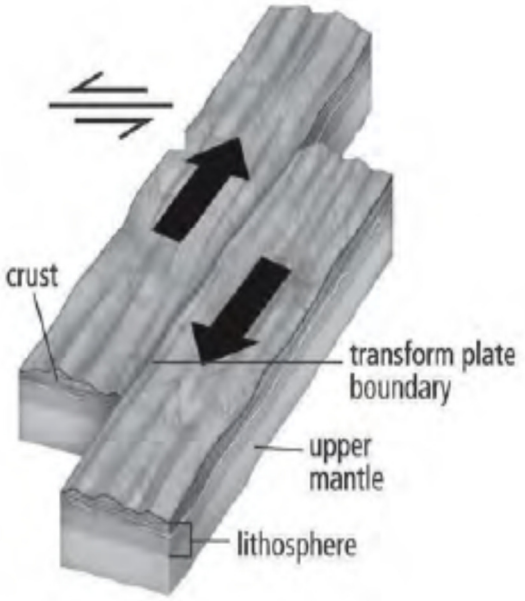
Continental-continental convergence

3. Transform plate boundaries are areas where tectonic plates slide horizontally past each other

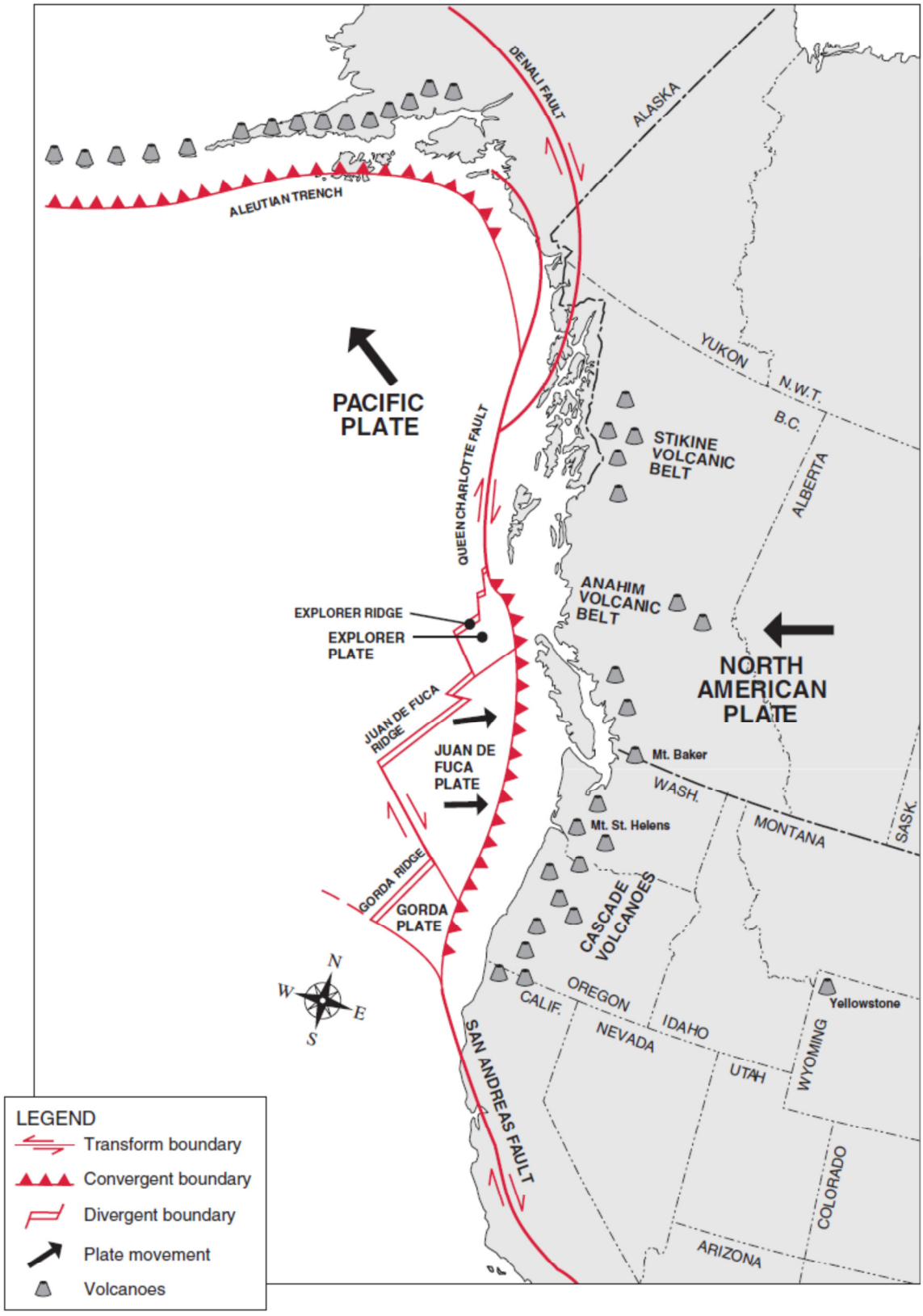
- No mountains or volcanoes form, but earthquakes and faults may result.
  A **fault** is a break or fracture in rock layers due to movement on either side.

Real World

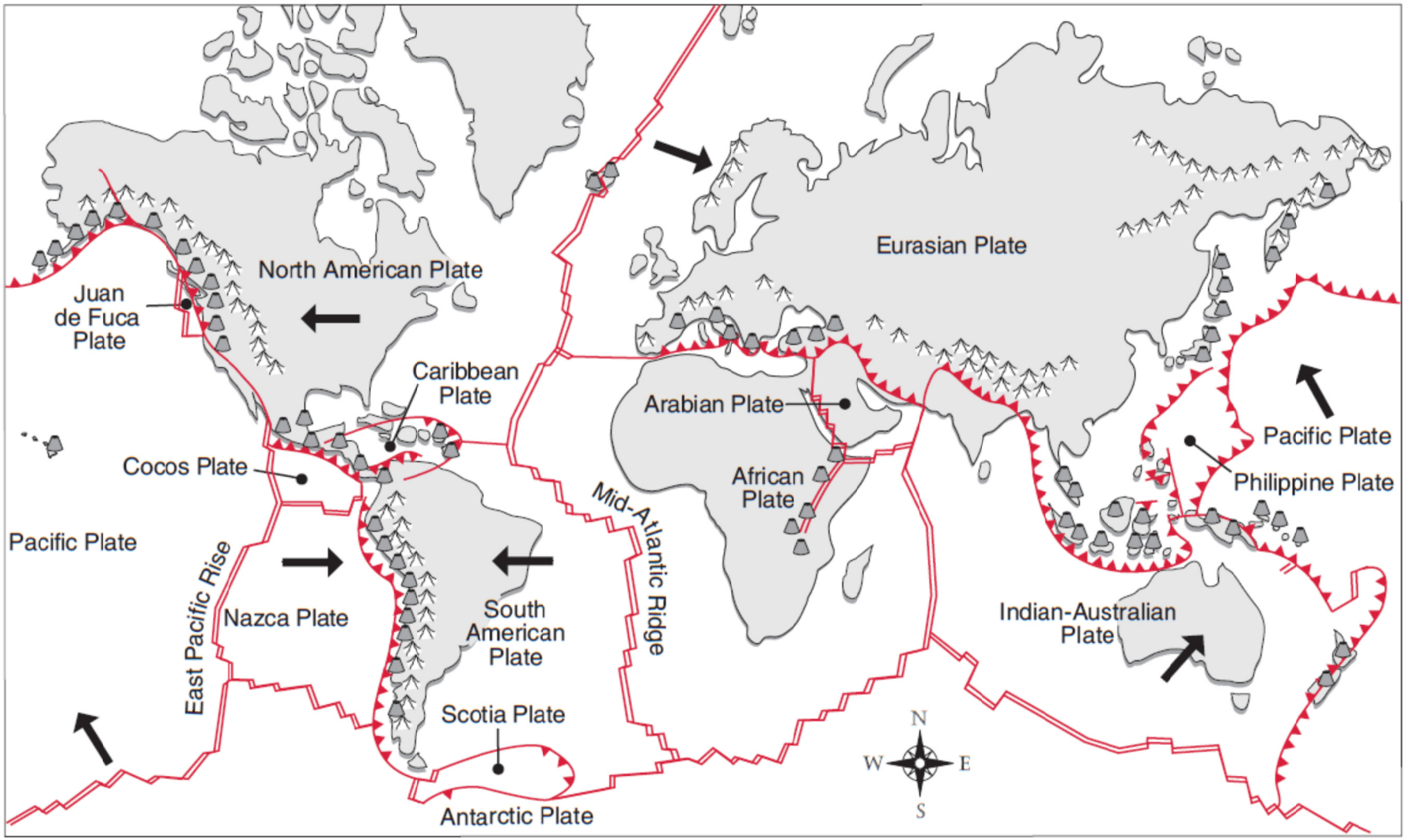
- Transform plate boundaries are usually are found near ocean ridges but may also be found on land, such as the San Andreas Fault in California.



MAP OF THE PACIFIC COAST OF NORTH AMERICA



WORLD TECTONIC PLATE BOUNDARIES MAP



Name:_____
Pd:___**Date:**_____

Quick Check# 4

1. List three kinds of plate interactions.

_____
_____
_____

2. Identify the geographical features that are typical of

(a) two oceanic plates converging

_____
_____

(b) an oceanic plate and a continental plate converging

_____
_____

(c) two continental plates converging

_____
_____

(d) two continental plates diverging

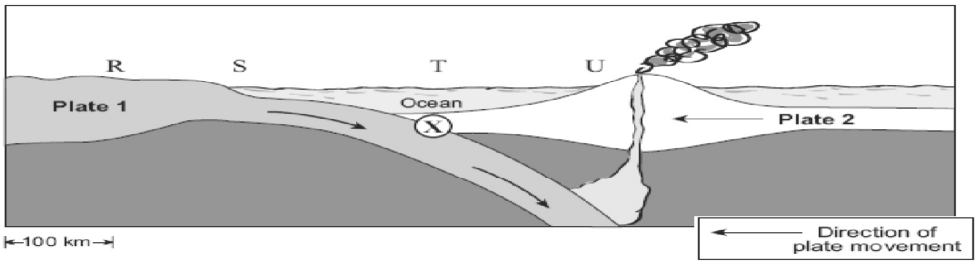
_____
_____

(e) two oceanic plates diverging

_____
_____

3. What is the relative motion that occurs between two plates that meet at a transform boundary?

_____
_____



Use the above diagram to answer question 4.

(a) What type of plate boundary is shown at X in the diagram? _____

(b) What type of tectonic plate is Plate 1? _____ Plate 2? _____

(c) Under which location (R, S, T, or U) would you find the deepest focus earthquakes? Explain.

_____
_____

(d) What type of volcano would you expect near location U? _____