



## **Chapter Nineteen: Changing Earth**

- **19.1 Inside Earth**
- **19.2 Plate Tectonics**
- **19.3 Plate Boundaries**
- **19.4 Metamorphic Rocks**



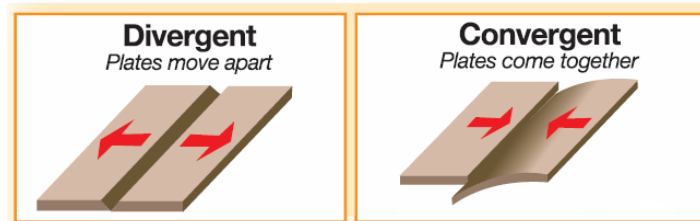
## 19.3 Learning Goals

- **Characterize plate boundaries.**
- **Relate geologic processes and features to specific plate boundaries.**
- **Locate areas where certain boundaries are likely to form.**



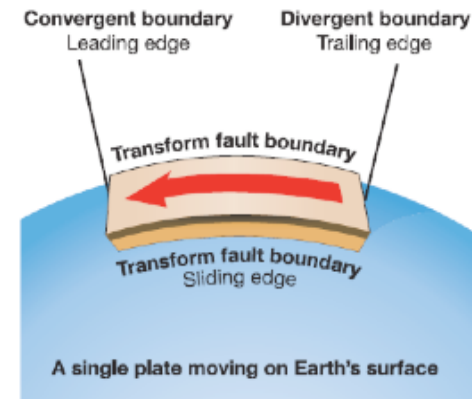
## 19.3 Plate boundaries

- Imagine a single plate, moving in one direction on Earth's surface.
- One edge of the plate— the **divergent boundary** —moves away from things.
- The **opposite edge** —the **convergent boundary** bumps into anything in the way.



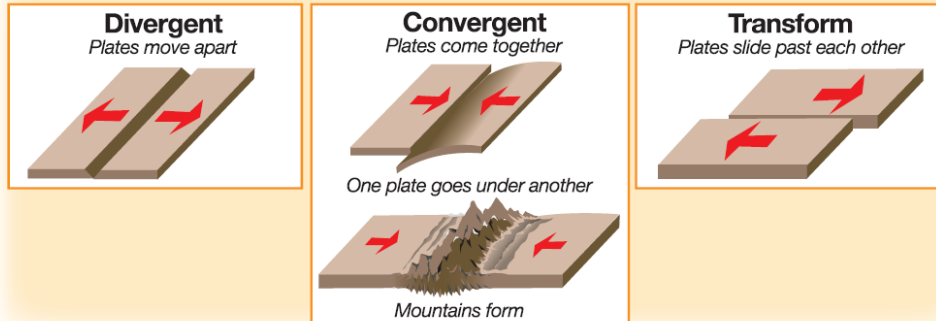
## 19.3 Plate boundaries

- An edge of a lithospheric plate that slides by another plate is called a transform fault boundary.





## Plate Boundaries

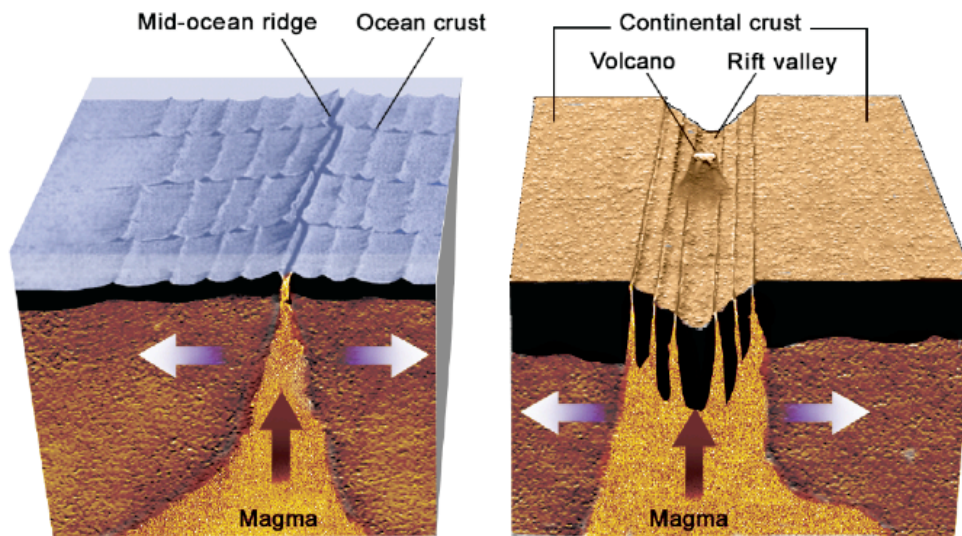




## 19.3 Divergent boundaries

- **Divergent boundaries are found in the ocean as mid-ocean ridges.**
- **A divergent boundary is the line between two plates where they are moving apart.**
- **This type of boundary is found over the rising plume of a mantle convection cell.**

# Divergent Plate Boundaries





## 19.3 Divergent boundaries



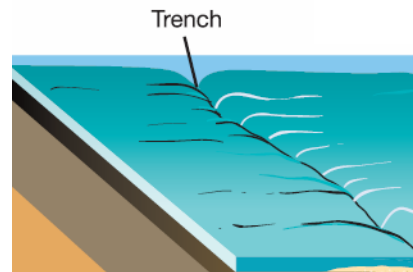
- Divergent boundaries can also be found on continents as rift valleys.
- When a rift valley forms on land, it may eventually split the landmass.





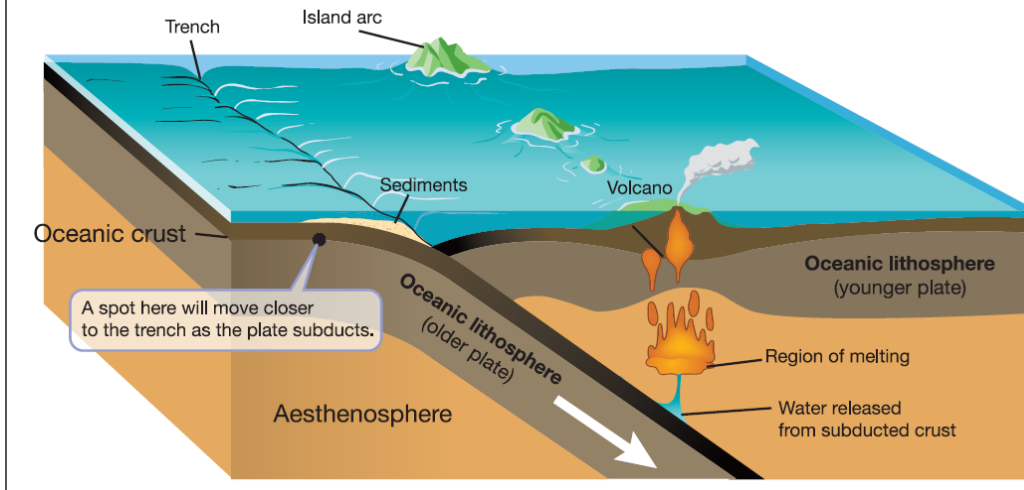
## 19.3 Convergent boundaries

- When oceanic plates collide, one subducts under the other.
- This forms a valley in the ocean floor called a **trench**.





## Convergent Plate Boundary





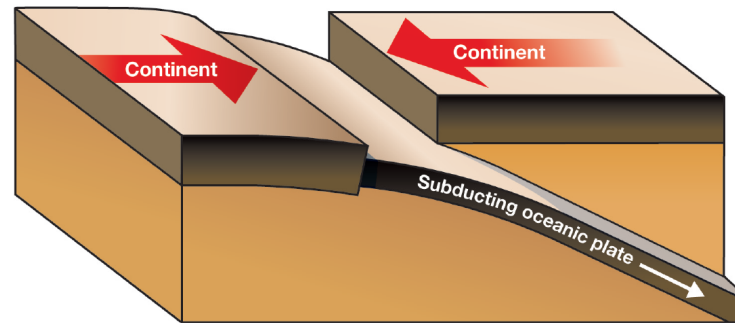
## **19.3 Convergent boundaries**

- **What happens if an oceanic plate and a continental plate collide?**
- **Which plate would subduct?**
- **The oceanic plate must subduct under the continental plate.**
- **A continental plate is simply too buoyant to subduct under an oceanic plate.**



## 19.3 Mountains and convergent boundaries

What happens when two continents collide?



- **Mountain ranges are formed when continents collide.**



## **19.3 Mountains and convergent boundaries**

- **What happens if an oceanic plate with a continent on it subducts under a continental plate?**
- **The continents cannot be sucked into the trench because their granite rocks.**
- **The two continents collide!**

# Formation of the Himalayan Mountains





## 19.3 Transform fault boundaries

- A good clue for locating transform faults is offsetting.
- When seen from above, the feature will appear to make a zig-zag.





## 19.3 Transform fault boundaries



▪ The San Andreas Fault is the transform fault boundary between two lithospheric plates—the Pacific Plate and the North American Plate.



## Earth's Largest Lithospheric Plates

