

## Structure of the Earth &amp; Plate Tectonics

Q1.

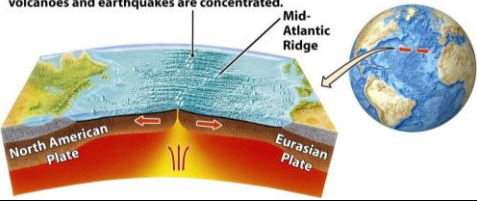
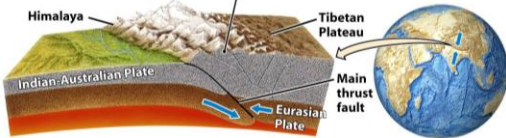
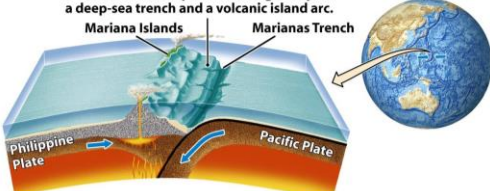
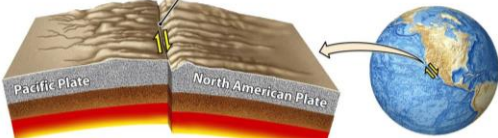
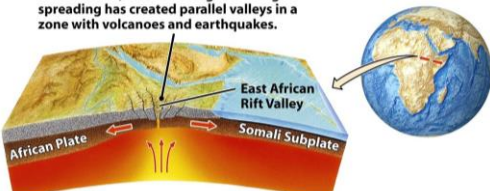
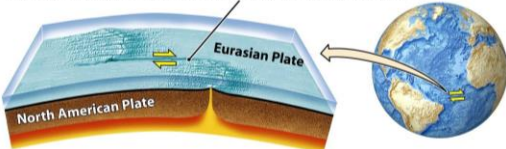

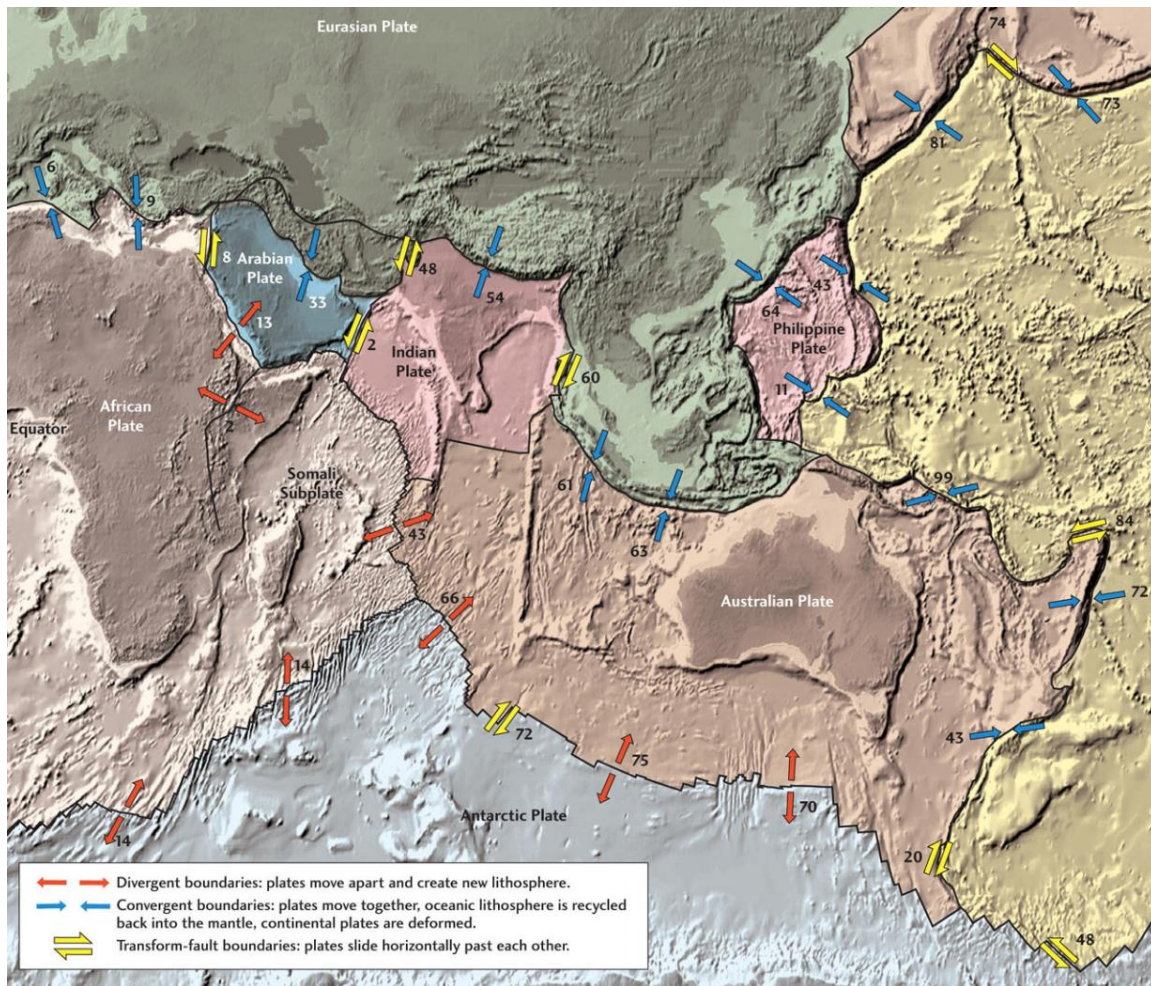
	Has the plate area increased, decreased, OR neither?	What type of stress? (Shear, Compressional, OR Tensional)	What type of plate boundary? (Transform, Convergent, OR Divergent)
<p>Rifting and spreading along a narrow zone have created the Mid-Atlantic Ridge, a mid-ocean mountain chain where volcanoes and earthquakes are concentrated.</p> 			
<p>When two continental plates collide, the crust crumples and thickens, creating high mountains and a wide plateau.</p> 			
<p>When two oceanic plates converge, they form a deep-sea trench and a volcanic island arc.</p> 			
<p>The San Andreas fault in California, where the Pacific Plate slides past the North American Plate, is an example of a transform fault that offsets continental crust.</p> 			
<p>In East Africa, an earlier stage of rifting and spreading has created parallel valleys in a zone with volcanoes and earthquakes.</p> 			
<p>Spreading centers are offset by mid-ocean ridge transform faults, where the two oceanic plates slide horizontally past each other.</p> 			
<p>When an oceanic plate meets a continental plate, the oceanic plate subducts and a volcanic belt of mountains is formed at the continental plate margin.</p> 			

 Figure 1: Tectonic scenarios on Earth, Grotzinger/Jordan, 8<sup>th</sup> edition, pages 30f



**Figure 2:** Part of Earth's tectonic plates mosaic. The arrows show the relative movement (in mm/a) of two plates at the respective point along their boundary. Grotzinger/Jordan, 8<sup>th</sup> edition, page 28

**Q2. Refer to Figures 1 and 2 above.** (Answers should short)

- On the map above, what is the fastest rate of relative movement for any of the plate boundary locations? Include units.
- What are the names of the **two tectonic plates** bounded at this fastest location? What type of plate boundary is it?

- c) In your own words, explain the **five geologic processes** that occur along convergent plate boundaries. Choose from these: type of plate movement, type of stress, mountain building, volcanism, earthquakes. You may need a chromebook.
- d) In your own words, explain the **three geologic processes** that occur along transform plate boundaries. Choose from these: type of plate movement, type of stress, mountain building, volcanism, earthquakes. You may need a chromebook.
- e) Name **one geologic process** that is missing at transform-fault boundaries. Hint: It is either plate movement, stress, mountain building, volcanism, or earthquakes. You may need a chromebook.