**Allen, the Pangaea Skeptic – Essay Preparation**

- Alfred Wegener, a climatologist who was interested in continents. He dreamed up the word, “Pangaea,” and coined the phrase, ‘Continental Drift.’

**EVIDENCE:**
- coal beds in NA and Europe
- mtns in NA, Africa, & SA
- Cynognathus in SA & Africa
- Glossopteris in SA, Africa, India, Australia, & Antarctica
- Lystrosaurus in Africa, India, & Antarctica
- Mesosaurus in SA & Africa
- the outline of SA fits nicely into the outline of Africa

- Harry Hess, a geophysicist who mapped the ocean floor for the Navy. He discovered mid-ocean ridges & coined the idea of sea floor spreading

**EVIDENCE:**
- magnetic banding
- Earth’s magnetic field does not remain constant, but fluctuates over time & this is captured in the magnetic orientation of lava flows at the mid-ocean ridges
- younger rock near mid-Atlantic ridge, older rock further away
- continental & oceanic plates move like rafts (lithospheric plates) over aesthenosphere

- movement of India from Antarctica up into Asia to make Himalayan Mountains, a convergent boundary
- earthquakes and volcanoes are clues that tectonic plates are moving
- In another 150 million years, scientists think the continents might move back together again.
- Mediterranean Sea will close up and a mountain range appear
- Pacific “Ring of Fire” contains many volcanoes that lie along subducting plate boundaries
- rift valleys in Africa example of divergent boundaries
- continents move at the speed your fingernails grow.

- Chile has LOTS of earthquakes and volcanoes because the Nazca plate is subducting underneath the South American plate.
- subduction is a convergent boundary
- mountain building as clue of a convergent boundary
- divergent boundaries found at mid-ocean ridges
- San Andreas Fault as example of a transform boundary
- ocean trenches as clue of subduction (a convergent boundary)
- metamorphic rocks created by heat and pressure when plates come together (convergent plates) – example: limestone turns into marble

### Allen’s Statements | Response | LIST .... of ideas to use
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Look, I’ve never seen a continent move. You’ve got to be kidding me. | Alfred Wegener’s story | #1
This whole idea that continents move over time is pure rubbish! What proof do you have? | Harry Hess’s story | (Tell the 2 stories about how the discoveries occurred and what scientists figured out.)
And you want me to believe that Australia and all the other continents were once part of a giant land mass called Pangaea, 245 million years ago. I don’t think so! | Look up dates on plant & animal fossils listed above to prove Earth is older than 12K | #2
After all, the earth is only twelve thousand years old. | | |
You scientists ... always coming up with crazy theories just to confuse and scare people. | You do not need to respond to this one! | |
I just don’t believe it. | You do not need to respond to this one! | |