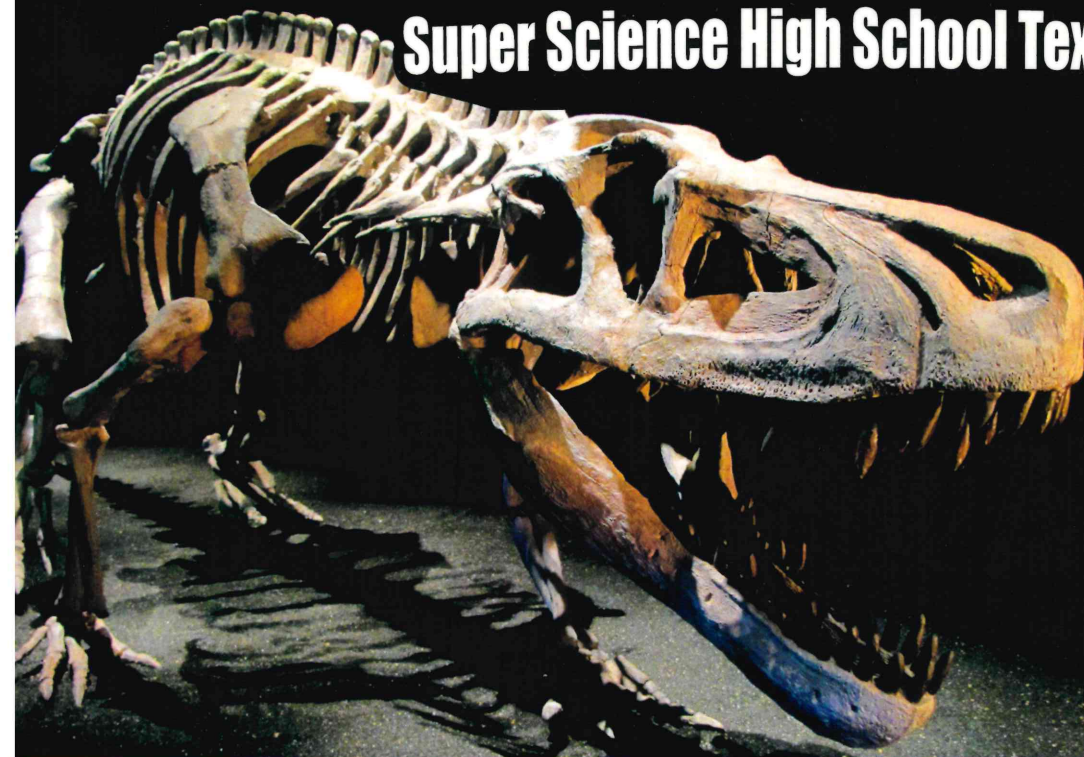




Science Topics ¹

Super Science High School Textbook



Ikeda High School

Science Topics ¹

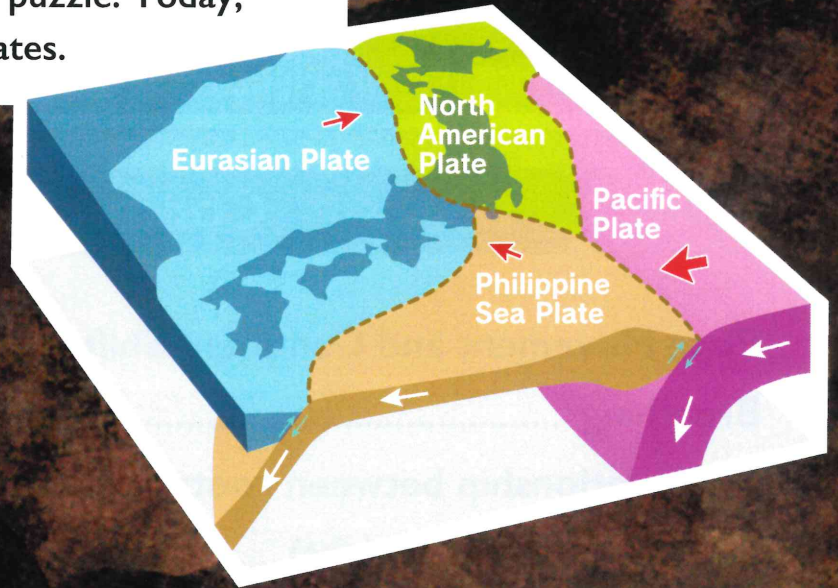
Super Science High School Textbook

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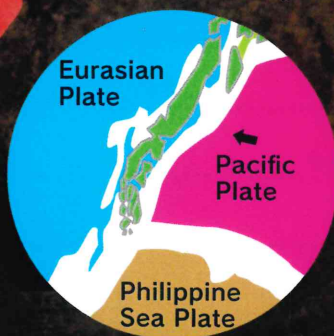
Plate Movement and Continent Shift

The earth's surface is covered with several plates, making it look like a huge jigsaw puzzle. Today, Japan is encompassed by four plates.



Wegener found that continents were like a jigsaw puzzle. The continents have taken a long time to move into their present shapes. The continents are moving due to the activity of the mountains on the seabed. Underground magma cools and solidifies to form hard rocks called plates. The plate spreads to the left and right a few centimeters a year centered on the mountain range. The continent moves on the plate.

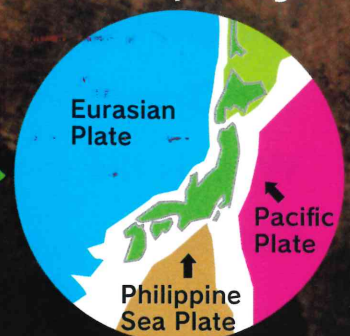
25 million years ago



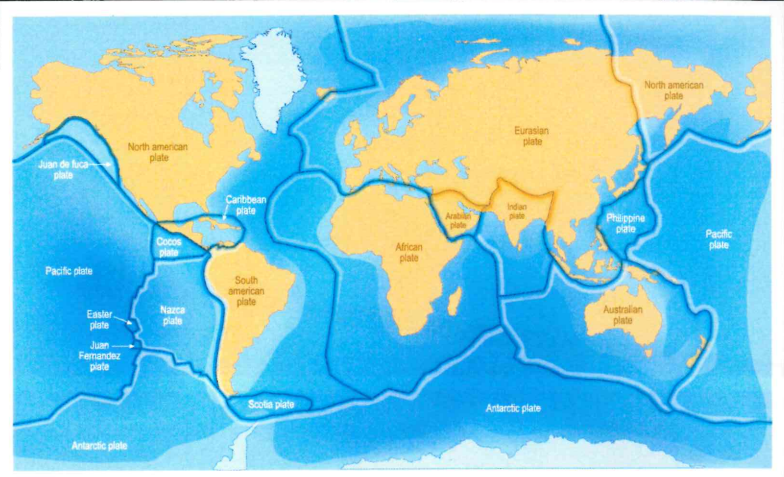
Eight million years ago



18,000 years ago

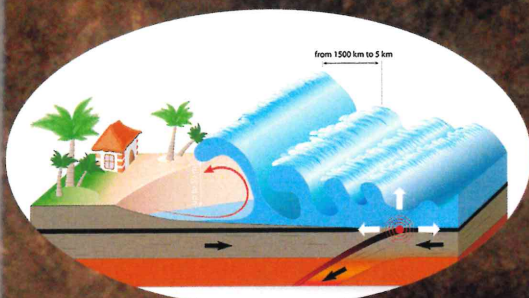


Due to friction between the plates, earthquakes and volcanic activity occur at their boundaries. “Plate tectonics” was established in the 1960s as a model that comprehensively explains various geological phenomena on the surface of the earth.

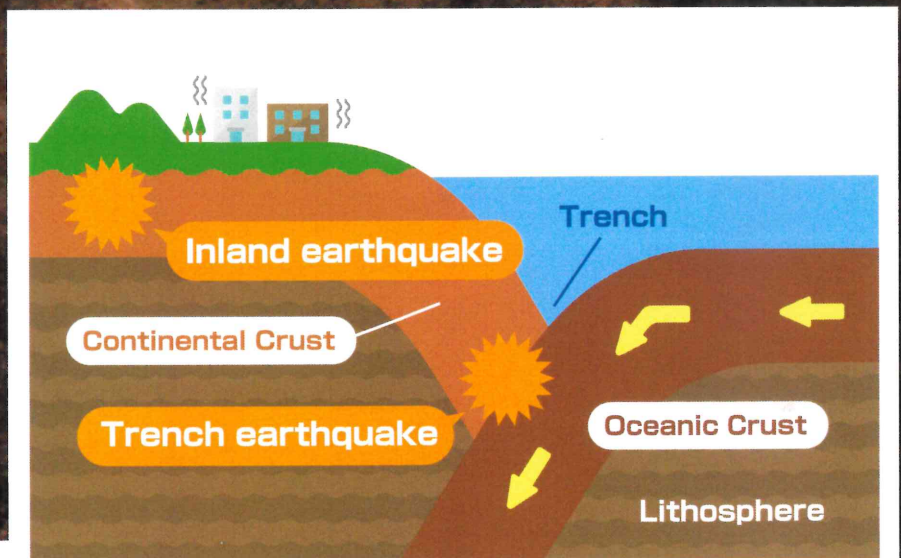


▲ Plate tectonics

When the plates collide with each other, energy is stored, and when the pressure is released an earthquake occurs. Earthquakes caused by plate collisions are called “plate boundary earthquakes” (trench earthquakes). Famous plate-type earthquakes include the 1923 Great Kanto Earthquake and the 2011 Great East Japan Earthquake. Another characteristic of this plate-type earthquake is that a tsunami can be triggered by this release of pressure.



▲ Tsunami



There are also “inland type earthquakes” that are triggered by the displacement of “active faults” inland. An active fault is a fault that tends to repeatedly shift after a certain period of time, but the active fault is affected by the pressure within the continent. In the case of inland earthquakes, underground forces, pushing or pulling in opposite directions cause displacement of active faults, which triggers earthquakes.