Historical development of the theory of plate tectonics

❖ Puzzling fit of continents on either side of the Atlantic was recognized	Leonardo da Vinci 16th century Sir Francis Bacon, 1620
❖ Similarity of fossils on South America and South Africa	Edward Suess, 1885
❖ Coal was found on Antarctica, indicating a former tropical environment	Ernest Shackelton, 1908
❖ **Theory of 'Continental drift' proposed for the first time** term PANGAEA and PANTHALASSA was coined Proposed that Pangaea split up 200 mio yr ago, as a driving force suggested centrifugal powers and tidal drag	Alfred Wegener, 1912
❖ Mid-Atlantic ridge charted for the first time	Research Vessel Meteor, 1925
❖ Distribution of earthquakes show that they form a ring around the Pacific, the 'Ring of Fire'	Wadati, Berriott, 1930s
❖ Rock dating improved, shows that age of ocean floor is <200 Mio yr compared to continents which are ca 3.9 Gy (billion years) old	After WWII
❖ Echo sounder studies with research vessels improve charts of mid-ocean ridges	Scientists at Lahmont-Doherty, 1950s
❖ Seismic studies show a decrease of seismic waves in the upper mantle indicating the existence of a soft, deformable layer, the asthenosphere	1950s
❖ **New theory of 'Seafloor spreading' was developed, mid-ocean ridges as spreading centers**	**Harry Hess, Robert Dietz, 1960**
❖ Identification of magnetic patterns on ocean floor as indicators of magnetic reversals recorded in spreading sea-floor	F. Vine, D. Mathews, 1963
❖ Better charts of edges of contents, best possible fit of continents achieved by computer processing of these data	Sir Edward Bullard, 1965
❖ **Concept of 'Plate tectonics' was formulated** **Earth's layer consists of a dozen separate plates, 70-100km thick, including continental and oceanic crust, floating on the asthenosphere**	**Tuzo Wilson, 1965**
❖ **First rock samples from vicinity of mid-ocean ridge floor recovered with the drill ship 'Glomar Challenger', providing confirmation of the theory of plate tectonics**	**1968**