**Plate tectonics 1 : birth of a theory**

**Levels:** 5-6  
**NoS achievement aims:** Understanding about science   
**Contextual strands:** Planet Earth and beyond   
**Topic:** Earth science

**Rationale**

The surface of the earth is made up of gigantic plates.

In this activity students look at how plate tectonic theory developed and why it was not accepted when it was first introduced.

**What you need**

* Historical over view of Wegener in text and in cartoons – attached in the folder

**Focus**

* Has the surface of the Earth always looked as it does today? What evidence is there to support the idea that the appearance of the Earth has changed over time?
* What other views are there for how the surface of the Earth has changed?
* What evidence is there against plate tectonics?
* We take plate tectonics for granted today. Why was it so controversial when it was introduced?

**Exploration**

1. Give students a copy of the information about Wegener (and/or encourage them to undertake their own research).
2. In groups, give each group a copy of the cartoon pictures.
3. Get them to use the information provided, and their own investigations, to create appropriate speech bubbles for what the cartoon people might be saying, which reflect their attitudes to the scientific approach and/or methodology of their time.
4. Additionally, they could develop, and present to the class:
   * a role-play or drama depicting Wegener’s role in the development of plate tectonic theory; or
   * an investigation into another scientific theory that has developed over time through diverse methods and approaches.

**Reflection**

* Why was the shape of the coastlines of Africa and South America not enough to show the continents had been joined?
* What is the significance of the rock and fossil evidence?
* Why would only one investigation have been insufficient to support plate tectonics?
* Why is the theory of plate tectonics so acceptable today?
* Which evidence supporting plate tectonics that has been around for a long time, is now looked at in a different light based on new discoveries? (For example, the shape of the continents is old evidence; discoveries about Earth’s magnetic field are new.)
* How have advances in technology clinched Wegener’s theory?
* What effect do plate movements have on the environment? Is this a rapid change or a slow change?