

**Jefferson County Educational Service Center  
Virtual Learning Academy  
SCI 180**

## **Answers to Scientific Method Activity**

How does the development of plate tectonics follow the scientific method?

1. Wegener gathered sets of observations on the distribution of rock types, fossils, glaciation, and climate zones. He searched for a common explanation to relate these diverse features and phenomena.
2. Wegener hypothesized that the present-day continents were in different positions in the geologic past. By reassembling the continents into a single supercontinent, he explained the distribution of rock types, glaciation, and fossils. The drift of the continents over the surface of the Earth with time explained the distribution of climate zones.
3. Wegener also proposed that continents plowed through oceanic crust. However, other geologists knew this to be impossible because of the strength of rock. Wegener's hypotheses, although satisfactory in many respects, could not explain all the observations. It was not until new methods of testing continental drift (and sea floor spreading) were introduced that plate tectonics gained acceptance. For example, it was predicted that the age of rocks increased away from mid-ocean ridges. Dating methods for rocks proved this prediction true.
4. Plate tectonics has been rigorously tested from numerous sub disciplines in geology. Most geologists accept these tests as verification of plate tectonics. Successful testing and widespread acceptance elevates plate tectonics from a hypothesis to a theory.