Much of the evidence you used in the previous activity was compiled by a meteorologist named Alfred Wegener. Wegener believed the continents were once joined together in a giant landmass he named Pangaea. Listen carefully and follow along as your teacher shares a story about Alfred Wegener and his search for answers to his questions about Earth.

Alfred Wegener was born in Germany on November 1, 1880. During his childhood years, he became interested in the island of Greenland, where exciting new studies in geophysics were being made. He was determined to visit Greenland someday. He even built and tested his physical endurance so that he would be able to endure the harsh climate of the desolate island.

Wegener was an educated man and received his doctoral degree in 1904. He specialized in astronomy and the new science of meteorology, the study of weather. In 1906, his dream came true when a Danish expedition to Greenland invited him to join it as the chief meteorologist. While on the expedition, Wegener discovered a piece of data that bothered him for years to come. The data he collected about the island’s longitudinal location did not match data that had been collected by others in the past.

In 1912, Wegener proposed a theory that at one time all Earth’s landmasses were joined together, forming one giant supercontinent. He named the giant supercontinent Pangaea (pan-jē-ə), which means “all lands” in Greek. Wegener’s theory, called continental drift, was not well received by other scientists.
Lesson 5: Evidence of the Plate Tectonics Theory

In 1914, while serving in the military during World War I, Wegener was wounded in battle. While recuperating, he wrote a book describing his theory of continental drift. The book *Origin of Continents and Oceans* was published the following year. It was not well received.

In 1928, the exclusive American Association of Petroleum Geologists invited Wegener to New York to present his theory. Wegener based his theory on five major pieces of evidence as described below.

1. The shapes of the continents of South America and Africa seem to fit together like the pieces of a jigsaw puzzle. This is especially true when you consider the actual edges of the continents, which extend beneath sea level. (The continental shelves are indicated on the landmass drawings by dotted lines.)

2. Matching fossils of both plants and animals occur along the east coast of South America and the west coast of Africa.

3. Matching folded mountain belts appear along the east coast of South America and the west coast of Africa.

4. Evidence of ancient climates show that landmasses were once located on different parts of Earth from where they are located today. For example, glacial deposits are found in the hot, tropical areas of Africa, and coal deposits, which come from lush, tropical swamps, are found under the ice of Antarctica.

5. The data that Wegener collected about the longitudinal location of Greenland did not match the data collected by earlier expeditions. Therefore, Wegener believed Greenland was moving away from the continent of Europe.

The one piece of evidence that Wegener did not have was a valid explanation about how the continents moved across the ocean floor.

After Wegener presented his theory and supporting evidence to the American Association of Petroleum Geologists, he faced strong opposition and ridicule. Members commented that he was eccentric and preposterous and lacked common sense. One member ridiculed Wegener by dismissing him as "just a meteorologist."
After the debate in New York, most of the scientific community dropped Wegener's theory. However, Wegener became more determined than ever to find answers to his questions. Why did the shapes of South America and Africa fit so well together?

How did coal form at the South Pole? How did glaciers exist in a tropical climate in Africa? Wegener continued leading expeditions around the world looking for further evidence to support his theory. In 1930, Wegener returned to Greenland for his fourth visit. Ironically, the meteorologist became stranded in a blizzard and died. After his death, the continental drift theory was dismissed as being unbelievable.

During World War II, oceans were explored more extensively. After the war, new and modern technologies provided easier ocean exploration. New discoveries brought Alfred Wegener's theory of continental drift back to the forefront, leading to the development of a new, more encompassing theory called plate tectonics.

Today, Wegener's research is accepted in a different light. Even though he did not have all the answers necessary to fully understand the movement of the continents, he did lay the foundation for today's understanding of our planet's geophysics. He is now referred to as a scientific hero who was ahead of his time and is called the "Father of Continental Drift."

Historical Timeline Activity

1. Read the sentence strips provided.

2. Use context clues as you sequence the strips to create a timeline representing the historical development of the plate tectonic theory.