

Read the article and choose from the list A-M the best phrase to fill each of the spaces 1-13.

CHLORINE

Adapted from <http://en.wikipedia.org/wiki/Chlorine>

The most common compound of chlorine, sodium chloride, has been known since ancient times; archaeologists have found **1.** and brine as early as 6000 BC.

Elemental chlorine was first prepared and studied in 1774 by Swedish chemist Carl Wilhelm Scheele, and, therefore, he is **2.** He called it "*dephlogisticated muriatic acid air*" since it is a gas (then called "airs") and it came from hydrochloric acid (then known as "muriatic acid"). However, he failed to establish chlorine as an element, mistakenly thinking **3.** He named the new element within this oxide as *muriaticum*. Regardless of what he thought, Scheele did isolate chlorine by reacting MnO₂ (as the mineral pyrolusite) with HCl:



Scheele observed several of the properties of chlorine: **4.** the deadly effect on insects, the yellow green color, and the smell similar to *aqua regia*.

At the time, common chemical theory was: any acid is a compound that contains oxygen (still sounding in the German and Dutch names of oxygen: *sauerstoff* or *zuurstof*, both translating into English as *acid stuff*), so a number of chemists, including Claude Berthollet, suggested that Scheele's *dephlogisticated muriatic acid air* must be **5.**

In 1809, Joseph Louis Gay-Lussac and Louis-Jacques Thénard tried to decompose *dephlogisticated muriatic acid air* by reacting it **6.** They did not succeed and published a report in which they considered the possibility that *dephlogisticated muriatic acid air* is an element, but they were not convinced.

In 1810, Sir Humphry Davy tried the same experiment again, and concluded that **7.** and not a compound. He named this new element as chlorine, from the Greek word χλωρος (*chlōros*), meaning green-yellow. The name *halogen*, meaning salt producer, was originally defined for chlorine in 1811 by Johann Salomo Christoph Schweigger, and it was later applied **8.** In 1823, Michael Faraday liquefied chlorine for the first time.

Chlorine was first used to bleach textiles in 1785. In 1826, silver chloride was used **9.** Chloroform was first used as an anesthetic in 1847. An elemental chlorine solution in water (which was expensive), then the less expensive chlorine gas dissolved in lime-water (calcium hypochlorite) was first used as **10.** of Vienna General Hospital in Austria in 1847. In 1850, chlorine in lime-water was used by John Snow to purify the water supply in London after an outbreak of cholera. (Both uses preceded **11.** , and were based on destruction of odors and "putrid matter").

The US Department of Treasury called for all water to be disinfected with chlorine by 1918. Polyvinylchloride (PVC) was invented in 1912, initially **12.** Chlorine gas was first introduced as a weapon on April 22, 1915 at Ypres by the German Army, and the results of this weapon were **13.**

- A. to the rest of the elements in this family
- B. credited for its discovery
- C. without a purpose
- D. it is an element
- E. the germ theory of disease
- F. that it was the oxide obtained from the hydrochloric acid
- G. the bleaching effect on litmus
- H. with charcoal to release the free element *muriaticum* (and carbon dioxide)
- I. evidence that rock salt was used as early as 3000 BC
- J. disastrous because gas masks had not yet been invented
- K. to produce photographic images for the first time
- L. an antiseptic to prevent the spread of puerperal fever in the maternity wards
- M. a combination of oxygen and the yet undiscovered element, *muriaticum*