



## THE HISTORY OF SCIENCE



### Prescribed Focus Area: 5.1

explains how social factors influence the development and acceptance of scientific ideas

## Fighting Disease- Some Important Scientists

Edward Jenner	Jenner, Edward (1749-1823), a British doctor, discovered vaccination as a means of preventing smallpox. This disease was an ever-present horror through the centuries. Cowpox is a minor disease that causes a few sores on the hands but carries little danger of disfigurement or death. In 1796, Jenner took matter from the hand of Sarah Nelmes, a local dairymaid. She had become infected with cowpox while milking the cows. Jenner then made two cuts on the arm of James Phipps, a healthy eight-year-old boy, and inserted the matter from one of Sarah's cowpox sores. The boy then caught cowpox. Forty-eight days later, Jenner introduced smallpox matter into the boy's arm. Ordinarily fatal, the smallpox matter had no effect, because the boy had been vaccinated with cowpox matter. Jenner's experiment proved to be successful. This was the first vaccination ever given.
Louis Pasteur	Pasteur, Louis (1822-1895), a French scientist, made major contributions to chemistry, medicine, and industry that have greatly benefited humanity. His discovery that diseases are spread by bacteria saved countless lives. Pasteur was a great theoretical scientist who applied his basic discoveries to important practical problems in both industry and medicine.
Joseph Lister	Lister, Sir Joseph (1827-1912), founded antiseptic surgery. Before his time, the most trivial operation was likely to be followed by infection, and death occurred in up to 50 per cent of all surgical cases.
Alexander Fleming	Fleming, Sir Alexander (1881-1955), was a British bacteriologist at St. Mary's Hospital, part of the University of London. In 1928, he discovered the germ-killing power of the green mould, <i>Penicillium notatum</i> , from which the life-saving antibiotic, penicillin, was first purified. For his discovery, Fleming shared the 1945 Nobel Prize for medicine with British scientists Sir Howard Florey and Ernst B. Chain.
<p>An antibiotic is a substance produced by certain bacteria or fungi that kills other cells or interferes with their growth. In nature, these substances help microbes survive by limiting multiplication of other microbes that share the same environment. Antibiotics that attack pathogenic (disease-causing) microbes or cancer cells without excessive harm to normal body cells are useful as drugs. Antibiotics are especially useful for treating infections caused by bacteria.</p>	
Rene Dubos	Dubos, Rene Jules (1901-1982), a French-American microbiologist, pioneered in the development of antibiotics. In 1939, Dubos developed tyrothricin, the first commercially produced antibiotic, from a substance made by soil bacteria. His work led other researchers to develop the antibiotics penicillin and streptomycin.
Howard Florey	Florey, Lord (1898-1968), a British bacteriologist, helped develop with Ernst Chain the antibiotic penicillin. Sir Alexander Fleming discovered penicillin in 1928. Florey shared the 1945 Nobel Prize for medicine with Fleming and Chain. In 1940 and 1941, Florey's research team at Oxford isolated penicillin in relatively pure form, and tested it.

