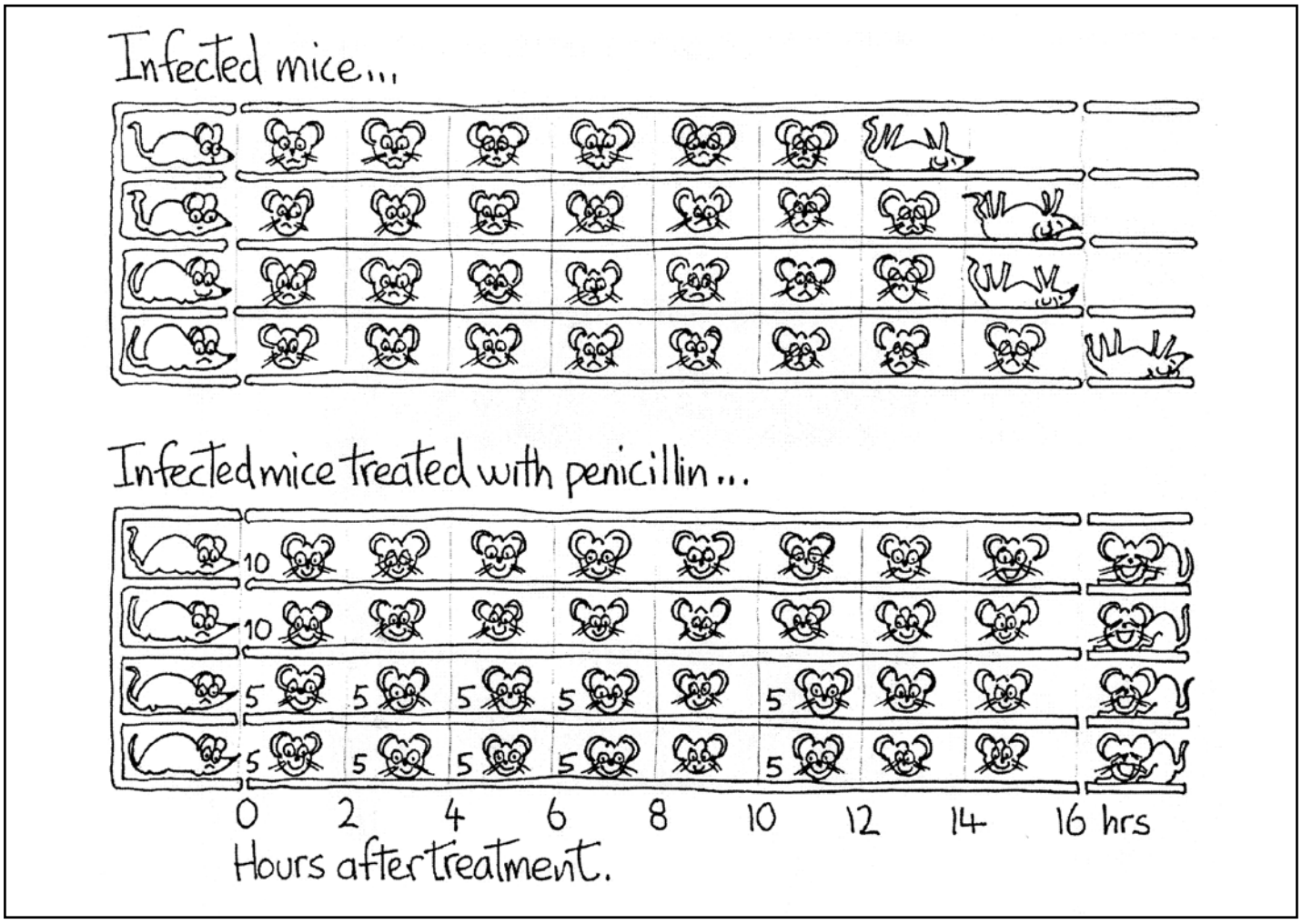
Penicillin—the miracle mould

Name: _____ **Date:** _____

Substances that prevent the growth of germs (bacteria) are called antibiotics. Today, many antibiotics from different micro-organisms are used to treat a variety of infections. The first antibiotic used for medical purposes was penicillin, which is made from a fluffy, blue-green coloured mould called 'Penicillium'.

In 1928 British scientist Dr Alexander Fleming was working at St Mary's Hospital Medical School in London, England. He noticed that a mould had contaminated a dish containing a sample of bacteria he was studying. Dr Fleming observed that the bacteria could not grow in the area around the mould, and published a journal article on his observations in 1929. However, he was unable to isolate the substance that prevented bacteria from growing, and he moved on to other research.

Ten years later, Australian researcher Dr Howard Florey, biochemist Dr Ernst Chain and their team began to look for the substance that Dr Fleming had observed. In 1940 Dr Florey and his team at Oxford University in England infected eight mice with Streptococcus bacteria. Four of the mice were treated with injections of penicillin, while the other four were untreated. The next day, the treated mice had recovered while the untreated mice were dead. This experiment demonstrated the potential of penicillin as a treatment for bacterial illnesses.



(Image courtesy of CSIRO, www.csiro.au)

The results were so exciting that Dr Florey knew it was time to test penicillin on humans. In 1941 Florey's team gave penicillin to a policeman, Reserve Constable Albert Alexander, who was dying from an infection caused by a scratch. He began to recover after being given penicillin, but there was not enough penicillin to see him through to recovery. Unfortunately, the policeman died. Because of this experience, Florey's team worked with sick children who did not need such large amounts of penicillin.

Florey's team became determined to find a way to mass produce the penicillin. Due to World War II, companies in Britain were unable to help with the project, so Florey took his discovery to the United States to develop it. By late 1943 Florey and his team had discovered better methods of producing penicillin and mass production of the drug had begun. The availability of penicillin saved the lives of many Allied servicemen who might otherwise have died of infections from wounds and surgery. However, penicillin does not work against all types of bacteria. After World War II, penicillin became available for civilians (non-service people).

In 1945 Howard Florey, Alexander Fleming and Ernst Chain were awarded the Nobel Prize in Medicine in recognition of their discovery.

Dr Howard Florey