

Discovery of Penicillin

In 1928, Sir Alexander Fleming was studying *Staphylococcus* bacteria growing in culture dishes. He noticed that a mold called *Penicillium* was also growing in some of the dishes. A clear area existed around the mold because all the bacteria that had grown in this area had died. In the culture dishes without the mold, no clear areas were present.

1. [SP 3] State the problem Fleming noticed.
2. [SP 3] State a hypothesis Fleming might have made based on this observation.

To test his hypothesis, Fleming transferred the mold to a nutrient broth solution. This solution contained all the materials the mold needed to grow. After the mold grew, he removed it from the nutrient broth. He also grew two identical groups of bacteria. He then took the mold-infused broth and added it to one of the groups of bacteria. He added a liquid broth that did not contain mold to the second group of bacteria.

3. [SP 4] Identify the independent and dependent variables and the control group.
4. [SP 4] Propose a reason Fleming added nutrient broth that did not contain mold to the second group of bacteria.
5. [SP 5, SP 6] Describe the results that would support the hypothesis and the results that would refute it.
6. [SP 7] Identify a major medical advancement which resulted from this work.