If appropriate, prepare students to take notes during the video by modeling the use of Student Sheet 50.1, "Notes on Penicillin," and filling in a few points. A completed Student Sheet is shown below.

Show the video again. You may wish to stop the video where Fleming shows his famous plate. Ask students, ***How does this plate compare to your results with antimicrobial solutions on bacteria colonies in Activity 47, "Reducing Risk"?*** The clearing around the fungal colony is analogous to that around the antimicrobial disks in Activity 47.

It may help students if you stop the video at the point where the narrator comments that Fleming lost interest in his discovery (about 8 minutes into the segment) and allow students to catch up on their notes. After this point, the focus is on the researchers at Oxford University who revived Fleming's discovery ten years later and conducted animal and clinical trials. This part may be a little more difficult for students to take notes on, as the "discovery" is less obvious. Chain and Florey found a way to make more penicillin and conducted trials to test its effectiveness and safety. Allow students time to finish their notes before discussing the Analysis Questions.

■ FOLLOW-UP

3. Use the Analysis Questions to summarize ideas presented in the video.

Begin by reviewing the notes taken during the video. You may want to emphasize the timeline of events as presented in the video. These events can

Student Sheet 50.1: Notes on Penicillin

	Alexander Fleming	**Oxford University team**
What scientific discovery was made?	Penicillin destroys the cell wall of bacteria, but does not affect human blood cells in test tubes.	Penicillin can be injected into living organisms to fight bacterial infections.
How was this discovery made?	*Penicillium* fungi spores float in from another lab and begin to grow on discarded bacterial cultures. Fleming observes that this mold appears to prevent the growth of bacteria. He begins to experiment with this mold, and finds that (in the lab) it works against many different disease-causing bacteria.	Ernst Chain and Howard Florey design an experiment in which mice are injected with the fatal *Streptococcus* bacteria. Half of the mice are then given injections of penicillin. Within 16 ½ hours, all of the control mice are dead while the mice given penicillin appear normal. Later, they begin to treat human patients, demonstrating success at using penicillin against human bacterial infections.
What was done as a result of this discovery?	Fleming's experiments focus on using penicillin topically. He cannot make enough for it to be effective and gives up trying to use it to treat infections in humans. However, he writes an article on the antibacterial properties of penicillin that is published on May 10, 1929. In addition, he preserves a small amount of the *Penicillium* mold.	The team obtains help from U.S. drug companies to increase production of penicillin and effectively treat people.