

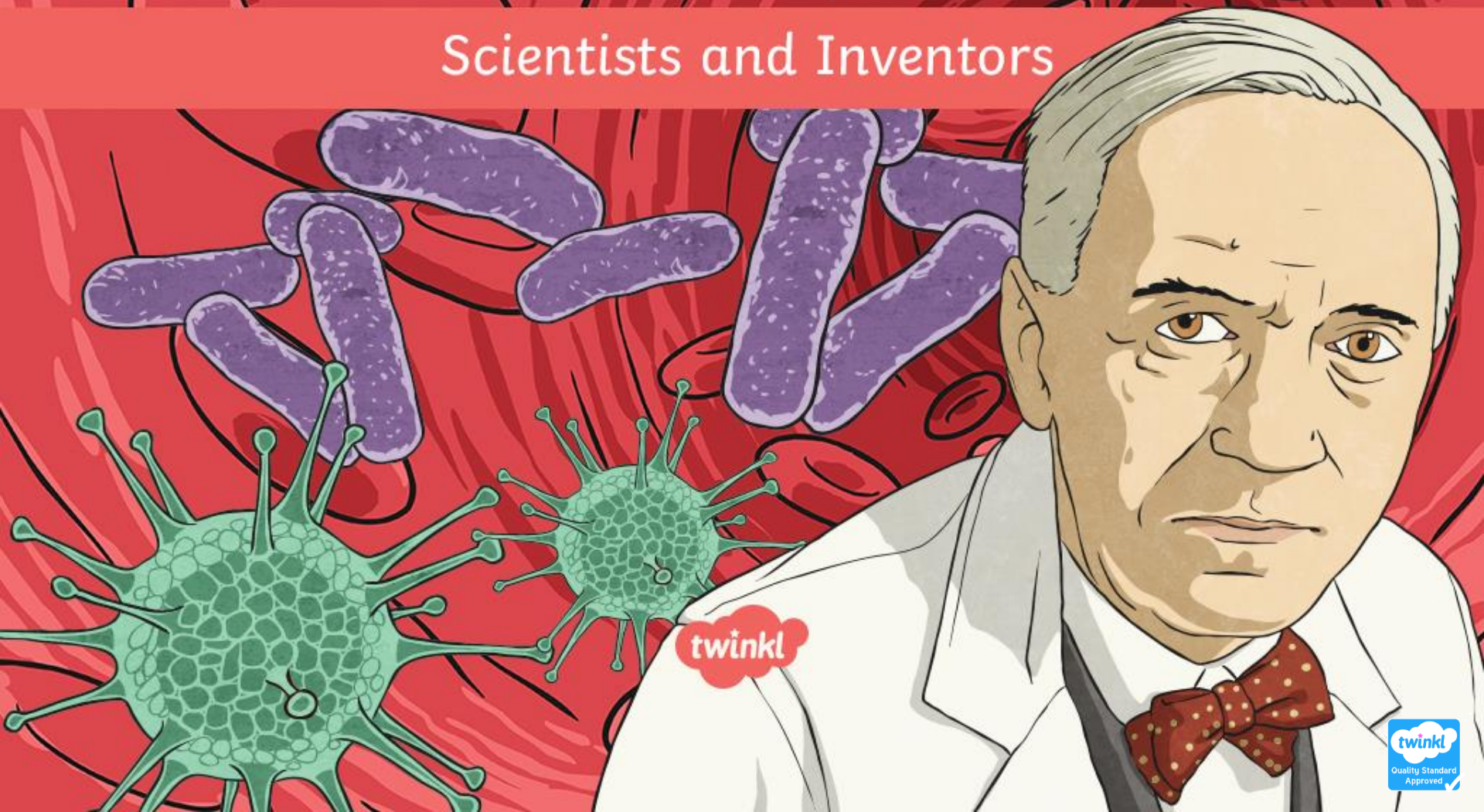


Science

Scientists and Inventors

Alexander Fleming

Scientists and Inventors



twinkl

Aim

- To record and interpret data on the effects of penicillin using a scatter graph.

Success Criteria

- I can describe Fleming's discovery of penicillin.
- I can construct a scatter graph from a table of results.
- I can answer questions about the effects of penicillin using my scatter graph.

Treating Illnesses



Some illnesses are caused by microorganisms. Click on the conditions below which you think are caused by microorganisms such as bacteria, fungi or viruses. If you are right, the box will change colour.

◆ Chicken pox

◆ Nose bleed

◆ Ear infection

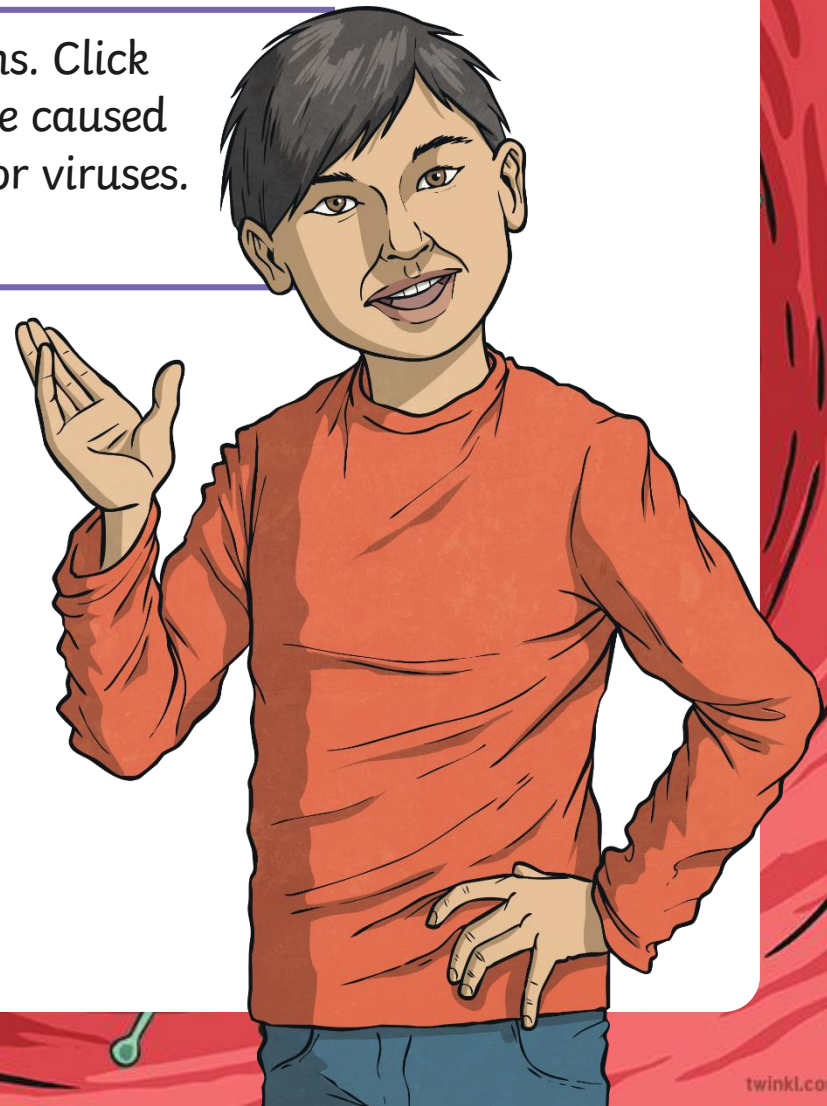
◆ Impetigo

◆ Broken leg

◆ Tonsillitis

◆ Athlete's foot

◆ Salmonella

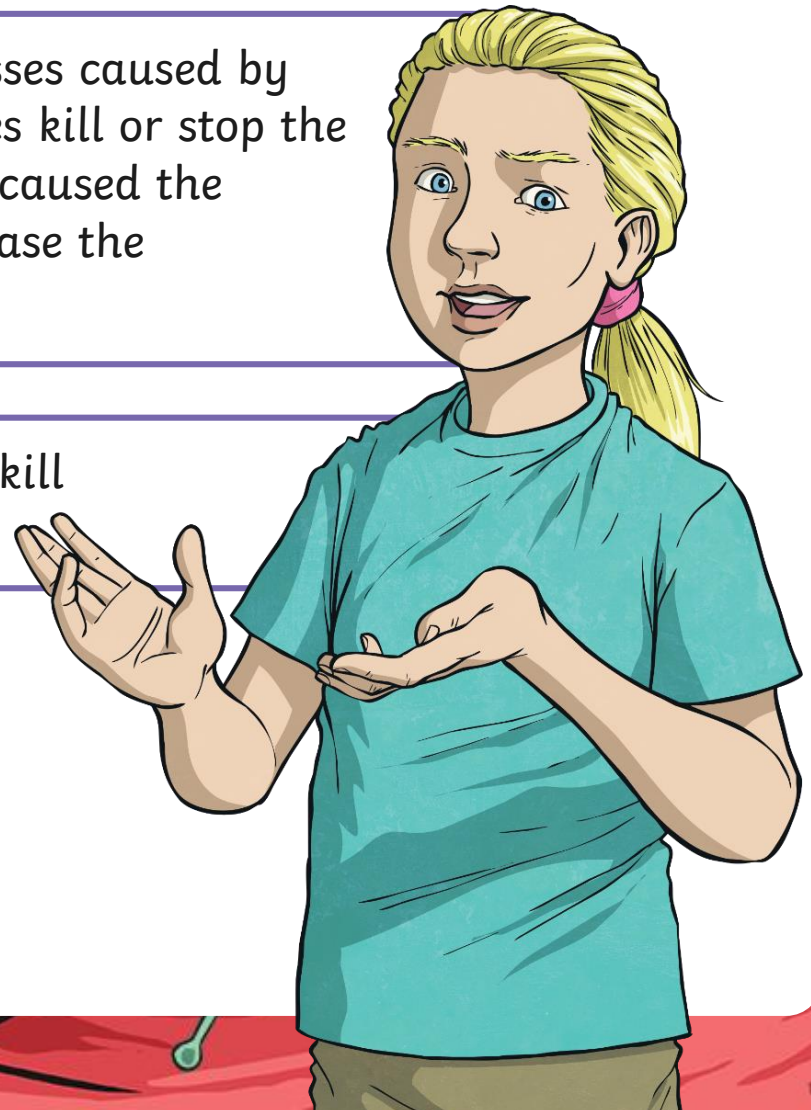


Treating Illnesses



There are different ways to treat illnesses caused by microorganisms. Some of the medicines kill or stop the growth of the bacteria or fungus that caused the illness, whereas other medicines just ease the symptoms of the illness.

Click on the medicines that you think kill or stop the growth of microorganisms.

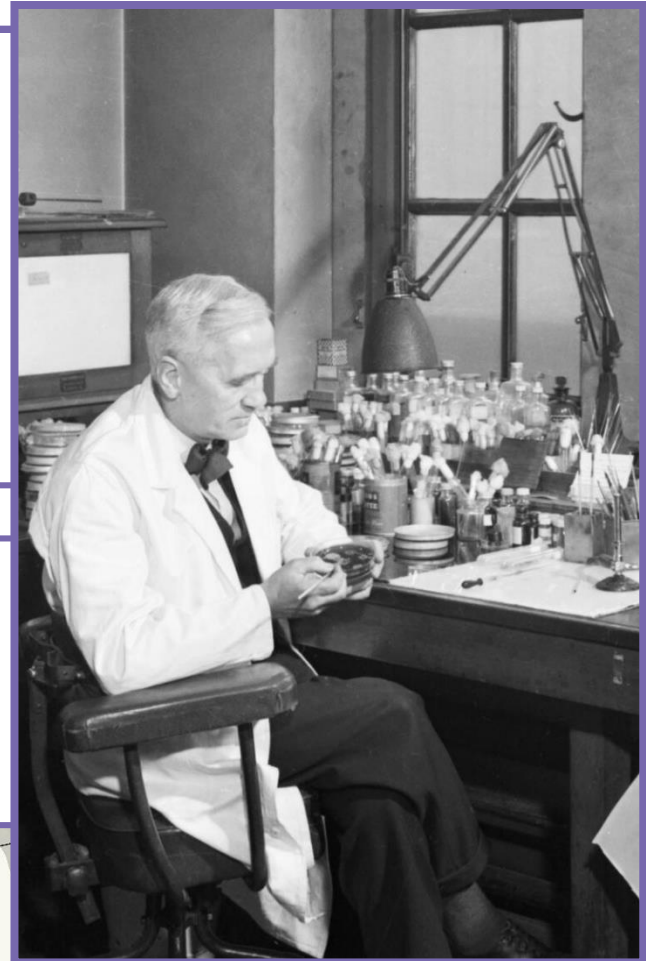


Alexander Fleming

During the First World War, Fleming served as a captain in the Royal Army Medical Corps. He worked in battlefield hospitals on the Western Front in France throughout the war. Fleming witnessed the deaths of many soldiers from infected wounds.

At the age of 20 Fleming began a medical

After the war, his experiences led him to begin investigations to find an antibacterial medicine that could treat infections.



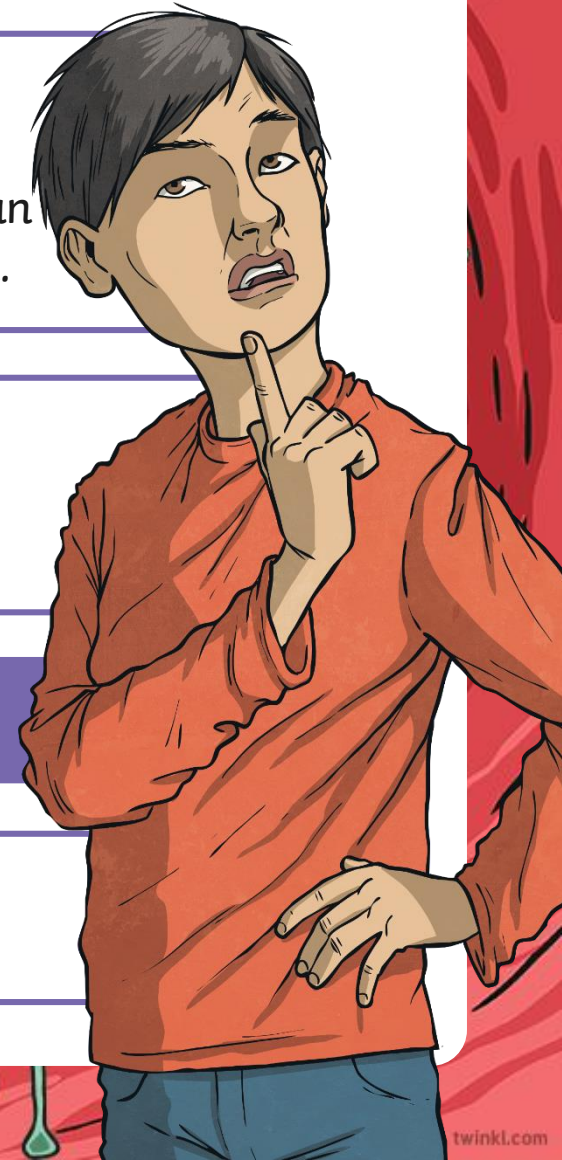
Fleming's Discovery

By 1928, Fleming had been investigating bacteria and antibacterials for several years. He had made some important discoveries, such as the discovery of lysozyme, an enzyme (chemical) in the human body that fights bacteria.

Unfortunately, though his name had become well known, he had not found anything that could be used to fight bacteria on a large scale.

This all changed in September 1928.

Listen carefully to the story of his discovery and think about what you feel is the most important moment.



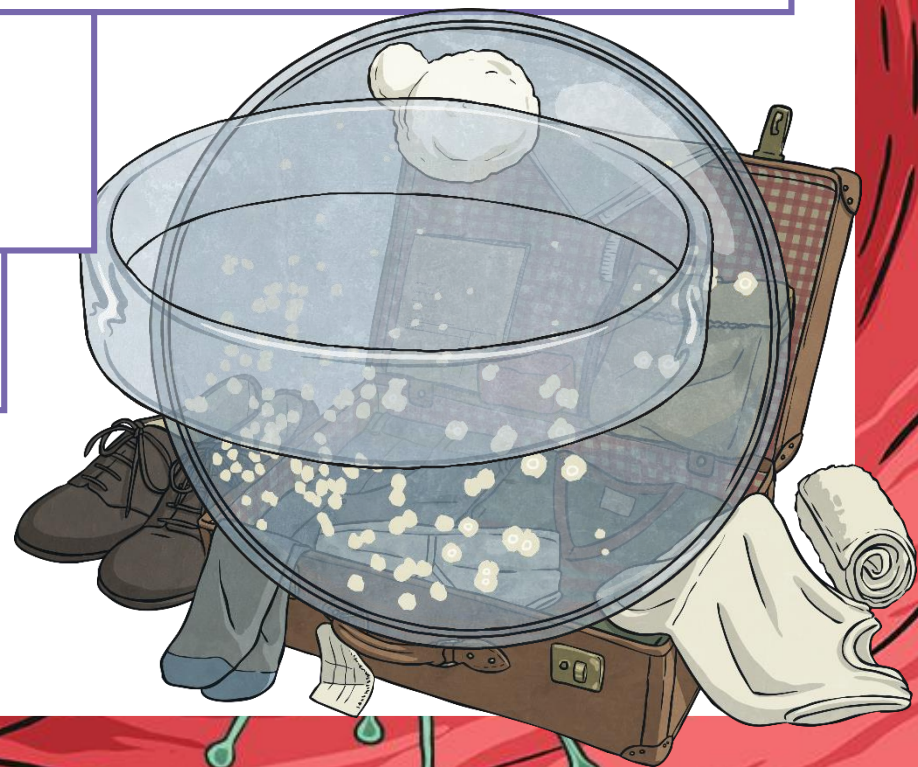
Fleming's Discovery

He noticed that mould had grown in one of the Petri dishes. The colonies of bacteria around the mould had been destroyed, whereas the bacteria in other Petri dishes were still alive.

his holiday.

Fleming showed his discovery to his assistant, who agreed that it was unusual.

some Petri dishes in which he had been growing bacteria.

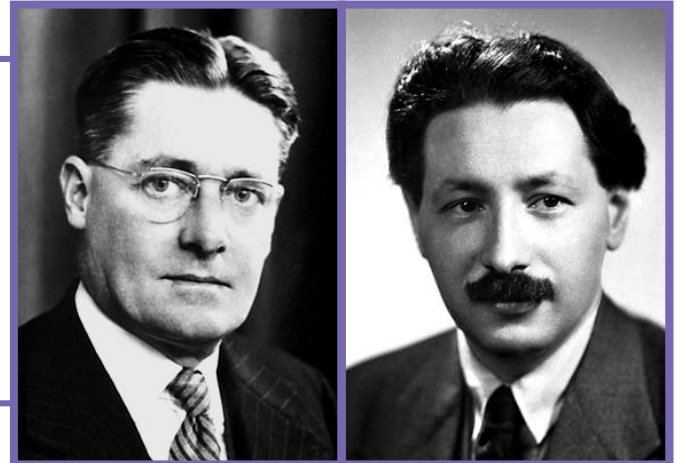


Fleming's Discovery

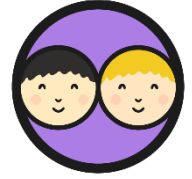
Two other scientists called Howard Florey and Ernst Boris Chain then built on Fleming's discovery to mass-produce penicillin in order to treat the wounded soldiers of the Second World War.

He originally called his discovery 'mould juice', but in March 1929 he officially named the substance 'penicillin'.

Fleming, Florey and Chain were awarded the Nobel Prize for their work in 1945.



Fleming Freeze Frame



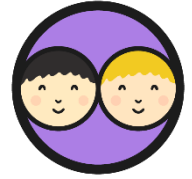
Which moment in the description of Fleming's discovery of penicillin did you think was most significant? Was it when he discovered the mould? Or when he realised that he had discovered an antibacterial fungus? Perhaps you think it was when he named his discovery penicillin, or when Florey and Chain produced penicillin for the soldiers of the Second World War.

Decide which moment you and your partner think was most significant and why.

Work together to create a tableau, or freeze frame, of your chosen moment.

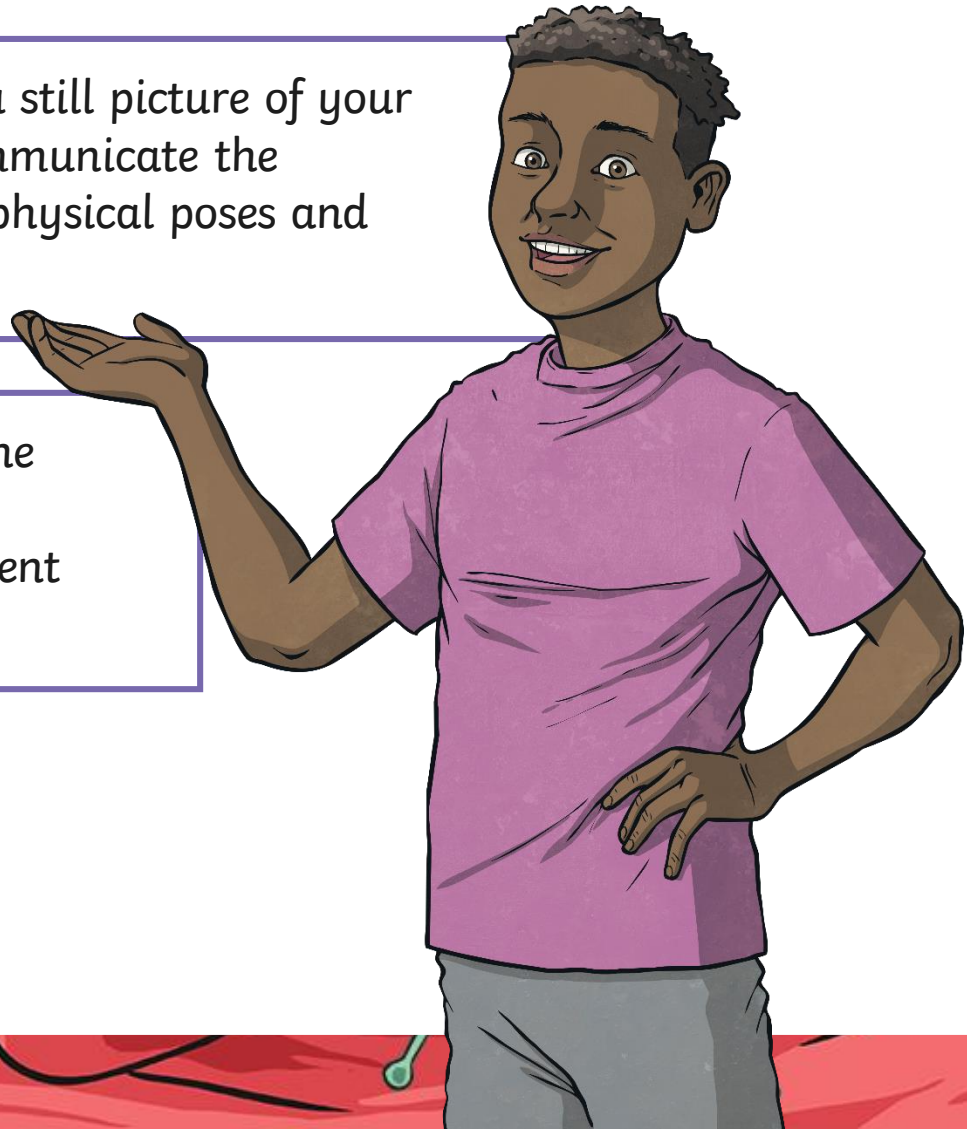


Fleming Freeze Frame

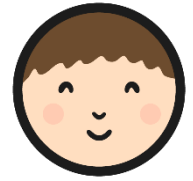


Your freeze frame should be a still picture of your chosen moment. You will communicate the significant moment through physical poses and your facial expressions.

Show your freeze frames to the rest of the class. Can your classmates guess which moment you have chosen?



Effects of Penicillin



Once you have constructed your graph, answer the questions about the effects of penicillin on bacteria.



Answer these questions about your graph.

1. Which of these conclusions is supported by the graph?

- Penicillin kills all bacteria in the colony.
- The longer bacteria is exposed to penicillin, the more of it dies off.
- Penicillin kills most bacteria in the first 12 hours.
- It takes 36 hours for penicillin to kill all bacteria in the colony.

2. How long do you predict it would take for the penicillin to kill all the bacteria in the colony? colony measured 100 mm.



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Penicillin Effects

To record and interpret data on the effects of penicillin using a scatter graph.

Answer these questions about your graph.

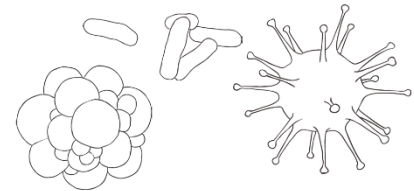
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- It takes 36 hours for penicillin to kill all bacteria.

2. How long do you predict it would take for the penicillin to kill all the bacteria in the colony?



3. Describe the effect of penicillin on bacteria using the results shown in your graph.



Antibiotic Resistance

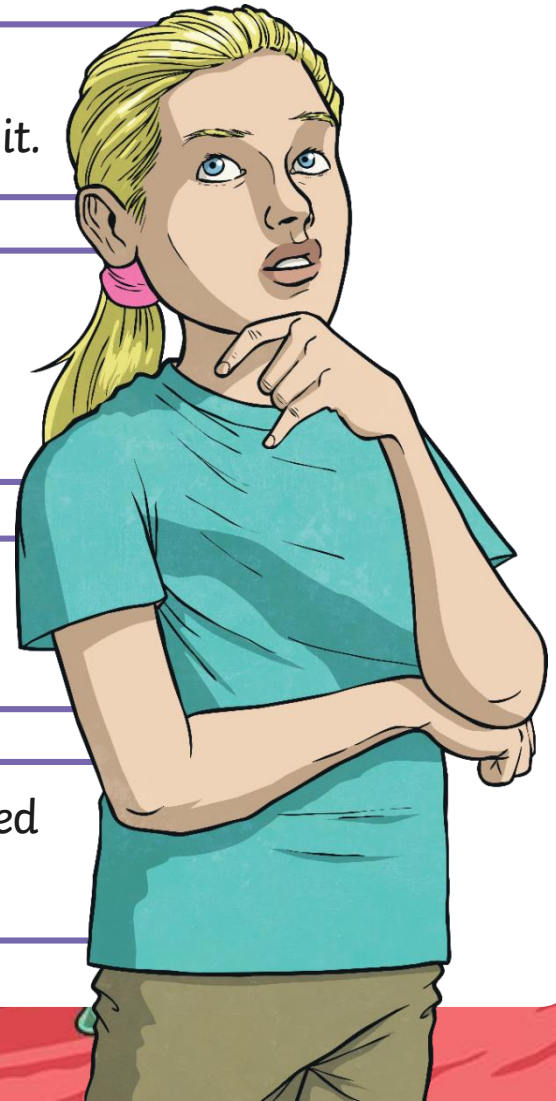


◆ Penicillin has been used to treat illnesses caused by bacteria ever since Alexander Fleming first discovered it.

◆ However, some types of bacteria can become resistant to antibiotics like penicillin. This means the antibiotics no longer affect them.

◆ What are the potential implications of antibiotic resistance?

◆ What do scientists need to do to prepare for increased antibiotic resistance?



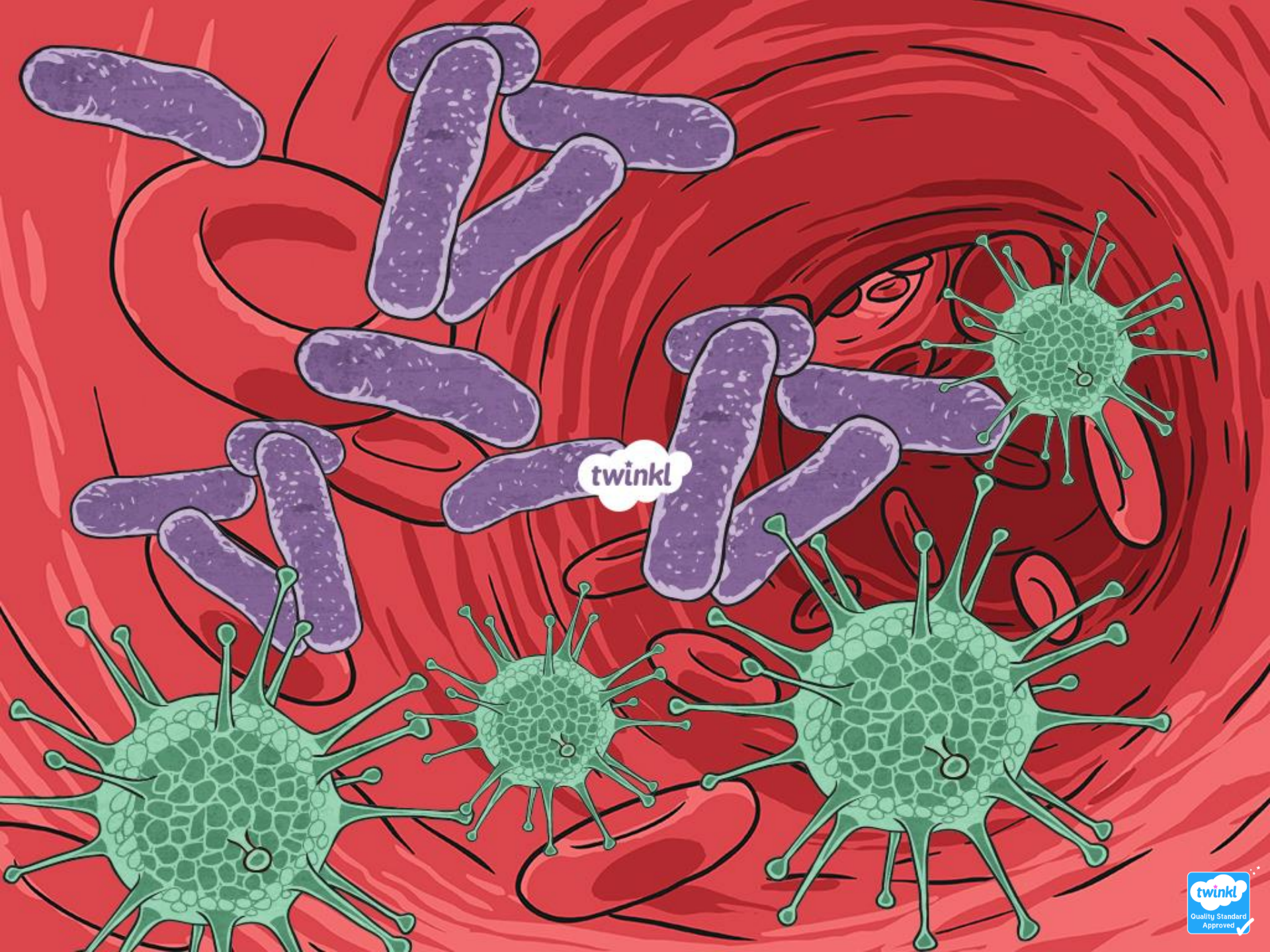
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