

Antibiotics Drug Development

GCSE Biology · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Give the original sources of digitalis, aspirin and penicillin. (3 marks)

Step 1 · Digitalis

From foxgloves; used to treat heart conditions.

Step 2 · Aspirin

Developed from a chemical found in willow bark; a painkiller.

Step 3 · Penicillin

Discovered by Alexander Fleming from the Penicillium mould; an antibiotic.

Answer: Foxgloves; willow; Penicillium mould

Check: Most new drugs are now made by chemists in the pharmaceutical industry.

2. Now try one with the steps

Explain why a doctor will not prescribe antibiotics for a cold. (2 marks)

Step 1 · Cause

Step 2 · Antibiotics

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What do antibiotics do? [1]

2. Who discovered penicillin? [1]

3. Explain the difference between an antibiotic and a painkiller. [2]

4. Which plant is digitalis obtained from? [1]

5. State the two main things drugs are tested for before approval. [2]

6. Explain why specific bacteria should be treated with specific antibiotics. [2]

7. Explain why it is hard to develop drugs that kill viruses. [2]

8. Why are very low doses given in the first human trials? [1]

9. What is a placebo? [1]

10. In a trial, 84 out of 120 patients improved. Calculate the percentage. [1]

11. Explain why results of drug trials are peer reviewed. [2]

12. A drug group had 18% side effects and a placebo group 6%. How many times more common were side effects with the drug? [1]

13. Explain why the death rate from bacterial infections fell greatly after antibiotics were introduced, and why this may change. [3]

14. Evaluate the use of animals in preclinical drug testing.

[4]

4. Before you hand it in

"Antibiotics kill viruses."

Antibiotics work on bacteria. Viral infections such as flu are not treated with antibiotics.

"Painkillers cure infections."

Painkillers relieve pain or fever; the immune system (or an antibiotic for bacteria) deals with the pathogen.

"Double-blind means two groups of patients."

Double-blind: neither the patients nor the doctors know who receives the drug and who receives the placebo.