**Biology Revision: Developing New**

Mastery Matrix Points

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| Describe how bacteria have developed resistance to antibiotics – in particular MRSA (and use this as an example of evolution) |
| Describe how many new drugs are still developed from plants and microorganisms (including digitalis and aspirin) |
| Explain how preclinical and clinical trials are used to test new drugs (including tests for safety, effectiveness, toxicity and dosage) |
| Explain the production and use of monoclonal antibodies (triple only) |
| Evaluate the advantages and disadvantages of using monoclonal antibodies (triple only) |

Key Knowledge

Traditional medicinal drugs were made from\_\_\_\_\_\_\_\_\_\_. Now most are chemically \_\_\_\_\_\_\_\_\_\_\_, but might still start from a \_\_\_\_\_\_\_ extract.

During preclinical testing…

During clinical testing…

Drugs are trialled to check the:

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|  |  |  |
| --- | --- | --- |
| *Drug* | *Made from* | *Used to treat* |
| Digitalis |  |  |
| Aspirin |  |  |
| Penicillin |  |  |

Definitions:

Placebo

Double blind trial

Toxicity

Efficacy

Dose

Monoclonal antibodies

**Medicines**

Understanding and Explaining

1. Explain how new antibiotic resistant strains of bacteria have developed.
2. Describe how a new drug would be tested to ensure it is safe.
3. Describe how monoclonal antibodies are produced using the words specific, protein antigen, hybridoma, lymphocytes.
4. Describe how monoclonal antibodies can be used in detail.
5. Why haven’t monoclonal antibodies been used as widely as first expected?