

★ **HIGHER TIER ONLY** content is highlighted in blue. Foundation students — focus on the un-highlighted sections.

Pathogen Types — Comparison Table

Pathogen	Size	Diseases caused	Treatment
Bacteria	~1 μm	Salmonella, gonorrhoea, TB	Antibiotics
Virus	~100 nm (smaller)	Measles, HIV, influenza, COVID	No antibiotics — vaccines
Fungi	Varies	Rose black spot, athlete's foot	Antifungals
Protist	~10 μm	Malaria (Plasmodium)	Antimalarial drugs

Immune Response



Drug Development Timeline

Discovery Isolated from plants, microbes or synthesised	Preclinical testing Tested on cells and animals for safety	Clinical trials Phase 1 Small number of healthy volunteers	Clinical trials Phase 2 Larger group with the disease	Phase 3 & Approval Large-scale vs placebo (double-blind)
---	--	--	---	--

■ **Exam Tip:** Antibiotics kill BACTERIA — they have NO effect on viruses. Do not confuse the two!

Antigen	Protein on pathogen surface that triggers immune response
Antibody	Specific protein made by lymphocytes that binds to one antigen
Vaccination	Introduces harmless pathogen to create immunity WITHOUT causing disease