

Invasion! Infection and Immunity Curriculum Links for OCR A-Level Biology B (Advancing Biology) (H022, H422) (Teaching from September 2015 onwards)

3.2 Pathogens, immunity and disease control

OCR Biology B Unit Information	Invasion! Infection and Immunity Unit	Core or Additional unit
3.2 Pathogens, immunity and disease control		
3.2.1 Pathogenic microorganisms		
(a) how pathogens (including bacteria, viruses and fungi) cause communicable disease. To include an outline of the general mechanisms of pathogenicity by bacteria (toxin production), viruses (taking over cell metabolism) and fungi (enzyme secretion).	Pathogens and The Immune Response	Core
(b) the causes, means of transmission, symptoms and the principal treatment of tuberculosis (TB) and HIV/AIDS. To include droplet infection, details of primary and secondary TB and also opportunistic infections (HIV/AIDS).	Pathogens and The Immune Response	Core
3.2.2 The immune system		
(a) primary defences and non-specific defences against pathogens. Primary defences to include mucus and cilia in the respiratory tract, lysozyme in tears and stomach acid AND non-specific immune responses to include phagocytosis and inflammation.	Pathogens and The Immune Response	Core
(b) the mode of action of phagocytes. To include the roles of cytokines, opsonins, phagosomes and lysosomes.	Pathogens and The Immune Response	Core
(c) the different roles and modes of action of B and T lymphocytes in the specific immune response. To include clonal selection and clonal expansion, plasma cells, T helper cells, T killer cells and T regulatory cells.	Pathogens and The Immune Response	Core
(d) the secondary immune response and the role of memory cells in long term immunity. To include T memory cells and B memory cells.	Pathogens and The Immune Response	Core
(e) the structure and general function(s) of antibodies To include descriptions of antibody structure from diagrams	Pathogens and The Immune Response	Core
(g) the differences between active and passive immunity, and between natural and artificial immunity	Pathogens and The Immune Response	Core
(h) how allergies can result from hypersensitivity of the immune system. To include an outline of the sequence of events in a typical allergic response to allergens such as pollen (hay fever).	Allergies	Additional
3.2.3 Controlling communicable diseases		
(a) the principles of vaccination To include the different forms of vaccines (live vaccine, dead microorganisms, pathogen fragments) and the importance of booster vaccinations.	Vaccination	Additional
(b) the role of vaccination programmes in the prevention of epidemics. To include reference to the	Vaccination	Additional

establishment of herd immunity.		
(e) the use of antibiotics in the treatment of communicable disease. To include an outline of the modes of action of antibiotics e.g. inhibition of bacterial protein, DNA and cell wall synthesis	Antibiotic Resistance	Additional
(f) how the misuse of antibiotics can lead to the evolution of resistant strains of bacteria To include reference to TB and MRSA.	Antibiotic Resistance	Additional