

## Invasion! Infection and Immunity Curriculum Links for AQA A-Level Biology (2410)

**3.1.1 Disease may be caused by infectious pathogens or may reflect the effects of lifestyle (AS-Level module)**

**3.1.3 Substances are exchanged between organisms and their environment by passive or active transport across exchange surfaces. The structure of plasma membranes enables control of the passage of substances across exchange surfaces. (AS-Level module)**

**3.1.4 The lungs of a mammal act as an interface with the environment. Lung function may be affected by pathogens and by factors relating to lifestyle. (AS-Level module)**

**3.1.6 Mammalian blood possesses a number of defence functions (AS-Level module)**

AQA Biology Unit Information	Invasion! Infection and Immunity Unit	Core or Additional unit
<b>3.1.1 Disease may be caused by infectious pathogens or may reflect the effects of lifestyle</b>		
<b>Pathogens</b>		
Pathogens include bacteria, viruses and fungi.	Pathogens and the Immune Response	Core
Disease can result from pathogenic microorganisms penetrating any of an organism's interfaces with the environment. These interfaces include the digestive and gas-exchange systems.	Pathogens and the Immune Response	Core
Pathogens cause disease by damaging the cells of the host and by producing toxins	Pathogens and the Immune Response	Core
<b>3.1.3 Substances are exchanged between organisms and their environment by passive or active transport across exchange surfaces. The structure of plasma membranes enables control of the passage of substances across exchange surfaces.</b>		
<b>Cholera</b>		
The cholera bacterium as an example of a prokaryotic organism.	Pathogens and the Immune Response	Core
Cholera bacteria produce toxins which increase secretion of chloride ions into the lumen of the intestine. This results in severe diarrhoea.	Pathogens and the Immune Response	Core
The use of oral rehydration solutions (ORS) in the treatment of diarrhoeal diseases.	Pathogens and the Immune Response	Core
<b>3.1.4 The lungs of a mammal act as an interface with the environment. Lung function may be affected by pathogens and by factors relating to lifestyle.</b>		
<b>The biological basis of lung disease</b>		
The course of infection, symptoms and transmission of pulmonary tuberculosis	Pathogens and the Immune Response	Core
<b>3.1.6 Mammalian blood possesses a number of defence functions</b>		
<b>Principles of Immunology</b>		
Phagocytosis and the role of lysosomes and	Pathogens and the	Core

lysosomal enzymes in the subsequent destruction of ingested pathogens.	Immune Response	
Definition of antigen and antibody.	Pathogens and the Immune Response	Core
Antibody structure and the formation of an antigen-antibody complex.	Pathogens and the Immune Response	Core
The essential difference between humoral and cellular responses as shown by B cells and T cells.	Pathogens and the Immune Response	Core
The role of plasma cells and memory cells in producing a secondary response.	Pathogens and the Immune Response	Core
The effects of antigenic variability in the influenza virus and other pathogens on immunity.	Pathogens and the Immune Response	Core
The use of vaccines to provide protection for individuals and populations against disease.	Vaccination	Additional
<b>3.2.10 Adaptation and selection are major components of evolution and make a significant contribution to the diversity of living organisms.</b>		
<b>Antibiotics</b>		
Antibiotics may be used to treat bacterial disease. One way in which antibiotics function is by preventing the formation of bacterial cell walls, resulting in osmotic lysis.	Antibiotic Resistance	Additional
<b>Genetic variation in bacteria</b>		
DNA is the genetic material in bacteria as well as in most other organisms.	Antibiotic Resistance	Additional
Mutations are changes in DNA and result in different characteristics.	Antibiotic Resistance	Additional
Mutations in bacteria may result in resistance to antibiotics.	Antibiotic Resistance	Additional
Resistance to antibiotics may be passed to subsequent generations by vertical gene transmission.	Antibiotic Resistance	Additional
Resistance may also be passed from one species to another when DNA is transferred during conjugation. This is horizontal gene transmission.	Antibiotic Resistance	Additional
Antibiotic resistance in terms of the difficulty of treating tuberculosis and MRSA.	Antibiotic Resistance, Pathogens and The Immune Response	Additional, Core