

Contains dead/attenuated version of pathogen

protects those unable to receive vaccinations

Transmission is prevented by: improving hygiene, using contraception, vaccination, destruction of infected plants/animals

Spread via direct contact, airborne microorganisms, indirect contact (e.g. through infected surfaces) and contaminated food and drink

Pathogens are microorganisms that cause disease

Viruses enter and reproduce inside cells, causing cell death

Pathogens reproduce rapidly, and cause symptoms by damaging cells or secreting toxins

Triggers an immune response

**Herd immunity**

Memory cells remain – if pathogen re-enters body, it is recognised and destroyed quickly

**Vaccination**

**Communicable diseases**

Vaccination programmes reduce the spread of disease

**Defences against disease**

Non specific defences: skin, nose, trachea/bronchi, stomach

Immune response: white blood cells produce antibodies, antitoxins, and engulf pathogens in phagocytosis

**3.1 COMMUNICABLE DISEASES**

**Antibiotics and painkillers**

**Fungal diseases**

Rose black spot

Drugs originally made from plants and microorganisms are now synthesised

**Drug development**

Gonorrhoea

Salmonella

**Bacterial diseases**

New drugs must undergo extensive testing

Painkillers only treat symptoms

**Types**

**Protist diseases**

Malaria

Tobacco mosaic virus

HIV

Measles

**Viral diseases**

Preclinical testing and clinical trials test for toxicity, efficacy and dose

**Antibiotics kill bacteria only**

Resistance due to overuse

Difficult to kill viruses without damaging host cells

**AQA**

