**Topic 10. Diseases and Immunity**

**Define pathogen** - a disease-causing organism

**Define transmissible disease** - a disease in which the pathogen can be passed from one host to another

**State that the pathogen for a transmissible disease may be transmitted either through direct contact, e.g. through blood or other body fluids, or indirectly, e.g. from contaminated surfaces or food, from animals, or from the air**

**State that the body has defences:**

**– mechanical barriers (skin and hairs in the nose)**

**– chemical barriers (mucus and stomach acid)**

**– cells (phagocytosis and antibody production by white blood cells)**

**– which can be enhanced by vaccination**

**Explain the importance of good personal hygiene, hygienic food preparation, waste disposal and sewage treatment in controlling the spread of disease**

**State that antibodies lock on to antigens leading to direct destruction of pathogens, or marking of pathogens for destruction by phagocytes**

**Explain how each pathogen has its own antigens, which have specific shapes, so specific antibodies which fit the specific shapes of the antigens are needed**

**Define active immunity** - defence against a pathogen by antibody production in the body

**Explain that active immunity is gained after an infection by a pathogen, or by vaccination**

**Explain the process of vaccination:**

**– harmless pathogen given which has antigens**

**– antigens trigger an immune response by lymphocytes which produce antibodies**

**– memory cells are produced that give long-term immunity**

**Explain the role of vaccination in controlling the spread of diseases**

**Explain that passive immunity is short-term defence against a pathogen by antibodies acquired from another individual, e.g. mother to infant**

**State that memory cells are not produced in passive immunity**

**Explain the importance of passive immunity for breast-fed infants**

**State that some diseases are caused by the immune system targeting and destroying body cells, limited to Type 1 diabetes**