

Syllabus content for the unit **KEEPING HEALTHY (KH).**

This unit introduces ideas about ways of protecting ourselves against infectious diseases and about the defence systems of the body. It includes study of the immune system, immunisation and problems of rejection of transplant organs. A section on the function of the kidneys introduces ideas about the control of our internal conditions, preparing the way for the study of homeostasis in later units. An introduction to the importance of enzymes in controlling our body chemistry reinforces ideas about the importance of accurate control of our internal environment.

WHAT IS MEANT BY BEING HEALTHY

WHAT IS MEANT BY BEING ILL

Know the main components of the blood (plasma, red and white cells, platelets) and their functions.
Know that clotting of the blood helps to protect us against infection from cuts.
Know the defences of the body against entry of microbes including the role of the skin and white blood cells.
Know the role of white blood cells in fighting infection

HOW DOES THE BODY RESPOND TO INVASION

Understand that the immune system “recognises” foreign bodies (antigens) and creates antibodies which will destroy them.
Understand why patients who have had an infectious disease often have improved immunity to re-infection.
Understand the role of immunisation in establishing suitable antibodies in advance of infection.

KEEPING THE BLOOD CLEAN

Know the location and main function of the kidneys.
Know that the fluid balance of the body is partly maintained by the kidneys.

- Know that water and small molecules such as urea, salt and sugar are filtered from the blood by the kidneys.
- Know that selective reabsorption of sugar, salt and some water occurs.
- Understand the basic principles of dialysis using artificial kidneys.

Know that surgical replacement of many organs is possible.
Understand the problems of rejection of transplants

CHEMICAL REACTIONS IN THE BODY

Know that drugs and organic solvents may affect behaviour and damage body organs.
Know that chemicals in tobacco smoke may cause heart or respiratory disease

- Know that tobacco smoke inhibits the action of cilia

Know that enzymes are biological catalysts which control the rate of reactions in living tissues.
Know that enzymes are very specific in the reactions they catalyse.
Understand enzyme specificity using a “lock and key” model.

- Be able to use the “lock and key” model to explain pH and temperature sensitivity of enzymes.
- Know that many drugs work by blocking the sites normally used by enzymes.