

What is Biomedical Science?

Fill in the text with the missing words

Part 1

Biomedical Science covers a range of biological and molecular sciences that underpin modern medicine. A _____ approach allows you to investigate life processes and to study the changes in organs and tissues that take place in human disease. Principles of key biology-based disciplines are applied to the context of _____. The biomedical scientist needs an understanding of many of these disciplines. Firstly, _____ looks at micro-organisms and their effect on living organisms. Secondly, biochemistry deals with the chemistry of living _____. Pharmacology deals with _____ - their effects and their uses in medicine. Cell biology and molecular biology provide information about genetic function and dysfunction at the _____ level. Physiology is also an important aspect. It focuses on the functions and pathways of human _____. Finally, pathology deals with the actual structure of the living matter. There are of course other disciplines, with new fields emerging and new applications of the natural sciences to medical research, health monitoring or treatment.

Part 2

Let me give you an example of how different biomedical scientists work together towards common medical goals. Imagine there is a _____ with a chest infection. A blood test shows you a very high blood _____ count. A biomedical scientist called a "_____" in the hospital analyses tissue and blood to try to identify the cause of the infection. He or she then advises on drug _____. Another biomedical scientist called a "_____" then examines blood under the microscope to work out why there is a high level of cells and if the cells are normal. If he finds abnormal cells, the doctors will take a tissue _____ from another biomedical scientist known as a "cytologist" to analyse. This might lead to a diagnosis of a lymphoma, a type of _____. One treatment can harm the patient's liver and kidney, so the clinical chemist might examine a blood _____ to monitor liver and kidney function. At some point the patient may need a blood _____ as part of their treatment. A transfusion scientist will find a blood group match and screen the blood for _____. As you can see, there is a whole team of biomedical professionals, focussed on shared medical objectives.

Part 3

To sum up, biomedical science has three main functions. Firstly, it is the branch of biology concerned with understanding how the body functions. Secondly, it investigates what goes wrong when illness strikes. Thirdly, it tries to understand how to prevent and treat illness.