

Biomedical Science

Level 3

Biomedical Science Summer Project Tasks

Chemistry, Physics and Biology

Chemistry Task

Topic: Biomolecules and Drug Interactions

Task: Create an infographic detailing the interactions between a specific biomolecule (e.g. protein, DNA) and a common drug.

Research the chemical structures and properties of both the biomolecule and the drug. Illustrate the binding sites and the types of chemical bonds involved (e.g. hydrogen bonds, hydrophobic interactions). Explain how this interaction affects the biomolecule's function and the drug's efficacy. Include relevant diagrams and chemical formulas.

Physics Task

Topic: Medical Imaging Physics

Task: Prepare a concise summary explaining the physics behind a medical imaging technique.

Choose one medical imaging technique (e.g. MRI, CT Scan, Ultrasound). Explain the underlying physics principles, including the types of radiation or waves used, how the images are formed and the advantages and limitations of the technique. Use diagrams to illustrate the process and explain the role of different components (e.g. magnets, detectors).

Biology Task

Topic: Cellular Signalling Pathways

Task: Develop a poster illustrating a specific cellular signalling pathway.

Explore the world of **genetics and personalised medicine**. Develop a poster presentation on how genetic information can be used to tailor medical treatments to individual patients. Include examples of genetic testing and pharmacogenomics.

Blood Groups and Blood-Borne Diseases Task

Delve into the complexities of **blood groups and blood-borne diseases**. Create a detailed summary explaining the different blood groups (ABO and Rh), their genetic basis and the importance of compatibility in blood transfusions. Additionally, research common blood-borne diseases, their transmission routes and prevention strategies. Structure your information in a coherent and easy-to-understand format, such as a well-organised document.

Good luck with all tasks – no matter the right or wrong we want to see you try and enjoy learning.