Priority Standards

Advanced Biotech – Grade 11

Medical Professions Academy

Below is a table of the priority standards.

Priority Standards	Description
1.1	Develop an AP Biology level of understanding of DNA and proteins, including their structure and function.
1.2	Develop basic biotechnology lab techniques including preparing sterile agar plates, sterile broth, electrophoresis gels, solution dilutions, and other basic biotechnology lab skills.
1.3	Continue to develop micropipetting skills and measurement skills, as well as understand the means by which to check for accuracy (spectrophotometers, etc.).
1.4	Learn about transformation and understand how DNA from one organism can be expressed in another.
1.5	Understand the process of RNA interference and where in the cellular mechanism gene expression is altered.
1.6	Understand how PCR works and what can be identified using this technique.
1.7	Understand the human immune system and the tools we can use in order to create assays to diagnose and find potential drug targets for diseased cells.
1.8	Understand the potential and limitations of Bioinformatics in our society.
1.9	Learn how to maintain a sterile environment for cell culture and bacterial growth.
1.10	Learn how to use the different properties of proteins in order to identify and purify a single protein out of a sample of cells.
2.1	Be able to research a specific protein through public scientific databases and apply it to creating a scientific poster.
2.2	Engage in an engineering project by developing a means of treating water from scratch with their own design. (Clean water is the number one reason for increase in human life expectancy in our history).
2.3	Engage in a competition to create a prosthetic hand, designing and using partial 3-D printed pieces.

Priority Standards	Description
2.4	• Choose a research topic related to some concept they have learned about in the Biotechnology course and come up with a scientific question and design a way to test it using the resources available.