



AFNR Biotechnology Teacher Information

Laboratory Equipment Lesson & Lab (not included in this unit)

1. Show students various pieces of laboratory equipment and explain what each piece is used for. Explain the use of safety equipment (goggles, gloves, hood)
2. Conduct the practice micropipetting lab. Each student should complete a lab report to hand in.
3. Quiz over lab equipment and micropipetting

Outcome 3.1. Handling, Preparation, Transportation, Storage and Disposal: Handle, prepare, transport, store and dispose of specimens using procedures that minimize disturbance to the test specimen. Monitor, record and maintain the integrity of equipment and instrumentation, environmental conditions of the facility and the inventory.

- 3.1.7. Select personal protective attire for various laboratory protocols.

How is a cell like a ...? Cell analogy

Outcome 3.6. Culturing: Perform experimental techniques used in microbial biology to study cell growth, manipulation and evaluation. (not included in this unit)

- 3.6.1. Identify the structure of cells and the functions of their components.

What is the outcome? Genetic crosses

Is there DNA in there? DNA extraction

Outcome 3.4. Molecular-Genetics Technology: Apply knowledge of nucleic acid structure and function, deoxyribonucleic acid (DNA) replication, transcription, translation, chromosome structure and remodeling and regulation of gene expression in prokaryotes and eukaryotes.

- 3.4.1. Use a Punnet square to predict and explain Mendel's Laws, genotype and phenotype.

GMO's: Where we started and where we are now

Historical Developments in Biotechnology

Objective: Students outline the various advances in biotechnology to understand the implications and results of GMO use.

GMO Marketing Campaign

Objective: define a genetically modified organism and explain the role of GMOs in society today.

What can I be in biotech? Careers in Biotech

Outcome 1.1. Employability Skills: Develop career awareness and employability skills (e.g., face-to-face, online) needed for gaining and maintaining employment in diverse business settings.

- 1.1.3. Develop a career plan that reflects career interests, pathways and secondary and postsecondary options.
- 1.1.4. Describe the role and function of professional organizations, industry associations and organized labor and use networking techniques to develop and maintain professional relationships.