

Unit 9: Biotechnology Introduction, Lab Safety and Practice

Big Idea:

- Biotechnology is technology based on biology that touches many aspects of life.
- Proper lab safety and lab skills drive the understanding and advancement of biotechnology.

Essential Questions:

1. What is biotechnology and who uses it?
2. What is the importance of biotechnological advances and who is responsible for regulating the industry?
3. What are the careers in biotechnology?
4. What are the necessary safety precautions in a biotech lab?
5. How do we use lab equipment safely and properly?
6. Which science process skills are required in the biotech lab?

Vocabulary: biotechnology, bioethics, in vitro, genetic engineering, genomics, proteomics, array, nanoparticle, GLP(good lab practices), SOP (standard operating procedure), BSL (biosafety levels) aseptic technique autoclave unit analysis

NGSS Priority Standards

HS-ETS1-2 Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.

Common Core Math and LA

Common Core State Standards Connections:

ELA/Literacy -

RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.

RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Mathematics -

MP.2 Reason abstractly and quantitatively.

MP.4 Model with mathematics.

